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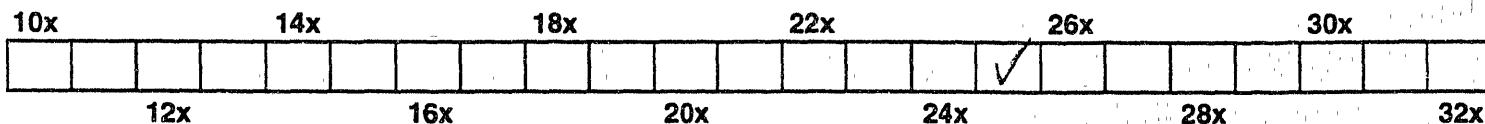
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APPENDIX, No. 8,

TO THE

THIRTEENTH VOLUME.

APPENDIX TO THE THIRTEENTH VOLUME

OF THE

JOURNALS

OF THE

LEGISLATIVE ASSEMBLY

OF THE

PROVINCE OF CANADA.

From the 5th SEPTEMBER, 1854, to 30th MAY, 1855, both days inclusive,

IN THE EIGHTEENTH YEAR OF THE REIGN OF OUR SOVEREIGN LADY

QUEEN VICTORIA.

Being the 1st Session of the 5th Provincial Parliament of Canada.

SESSION, 1854-5.

PRINTED BY ORDER OF THE LEGISLATIVE ASSEMBLY.

Vol. 13.

PROVINCE OF CANADA.

A DETAILED STATEMENT of BONDS and SECURITIES which have been Registered between the 19th day of August, 1852, and the 13th day of June, 1854; prepared in compliance with the 15th section, 4th & 5th Vic. cap. 91.

Name of Principal.	Office or Appointment.	Names of Sureties.	Penalty.		Date of Bond.	Date of Record.	No. of Bond.
			£	s. d.			
Austin, Thomas	Registrar for the County of Chambly, in Lower Canada	Robert MacKay Edmund Longmore	2000	0 0	December 3, 1852	December 31, 1852	1580
Armstrong, William	Preventive Officer in Her Majesty's Customs	John Holden Chauncey, H. Peck	100	0 0	April 9, 1853	April 19, 1853	1618
Ambridge, Theodore A.	Crown Land Agent, County of Wentworth.	John W. Ball Abram T. H. Ball	2000	0 0	June 18, do	August 25, do	1665
Arcand, Louis	Surveyor of Land in and for Lower Canada	Louis Lavoie F. Legendre	250	0 0	October 5, do	October 11, do	1680
Audy, George Roy	Collector in Her Majesty's Customs	Jacques Roy Audy Charles E. Anderson	500	0 0	do 17, do	do 31, do	1687
Armour, John	Clerk, 3rd Division Court of Haldimand	James McIndoe John Salmon Minor	400	0 0	February 15, 1854	March 21, 1854	1822
Arkland, John	Bailiff, 6th Division Court, United Counties of Northumberland and Durham	George Wilson Alexander Clark	300	0 0	do 6, do	May 5, do	1871
Brunskill, Thomas	Bond for the payment to Her Majesty of the sum of £550 18s. 11d., with interest from 18th February, 1851	John Brunskill Terence O'Neill	1000	0 0	April 7, 1852	August 25, 1852	1599

A DETAILED STATEMENT OF BONDS AND SECURITIES, &c.—(Continued.)

Name of Principal.	Office or Appointment.	Names of Sureties.	Penalty.			Date of Bond.	Date of Record.	No. of Bond.
			£	s.	d.			
Brantford and Buffalo Joint Stock Railroad Company.....	For the payment of Rent and performance of the conditions contained in a certain Lease of the Ferry at Fort Erie Rapids for seven years, from 15th July, 1852, the date of the Lease	John Oldfield..... Ignatius Cockshutt.....	2000	0	0	August 10, 1852...	September 1, 1852..	1550
			1000	0	0			
Bell, Wm. & Jno. Short.....	Recognize, Joint Clerk of the Circuit Court for the Sherbrooke Circuit.....	William Bell..... John Short.....	250	0	0	do	do	1555
& do	Recognize, Joint Prothonotary of the Superior Court for Lower Canada, District of St. Francis.....	Reverend Robert Short..... George Fredk. Bowen.....	250	0	0			
Baines, Thomas.....	Receiver of Rents arising from Clergy Reserve Lands, for the Corporation for managing Clergy Reserves in Upper Canada.....	William Bell..... John Short.....	1000	0	0	do	do	1556
Bourret, Henry.....	Clerk, Circuit Court, Berthier.....	Reverend Robert Short..... George F. Bowen.....	1000	0	0			
Bowen, George Fredk.	Sheriff for the District of St. Francis.....	William B. Robinson..... John Powell.....	1000	0	0	February 16, 1835...	October 19, do ..	1560
Bouchard, Ephrem.....	Registrar, 2nd Registration District, County of Huntingdon.....	Toussaint Peltier.....	250	0	0	October 17, 1849..	December 9, do ..	1573
		Joseph Bourret.....	1000	0	0			
Rowen, George Fredk.	Sheriff for the District of St. Francis.....	Edward Hale..... Samuel Brooks.....	1000	0	0	April 4, 1846..	do 27, do ..	1576
Beaty, James, President Toronto Road Company.....	Conditioned for the payment of the purchase money of the Yonge Street and other Toll Roads in the Vicinity of Toronto, purchased from the Government, under certain Acts of the Legislature, for £75,100, 14 & 15 Vic. cap. 14, and 12 Vic. cap. 5.....	Joseph Derome.....	1000	0	0	December 14, 1852..	do do do ..	1577

Burford, Benjamin.....	Surveyor and Landing Waiter in Her Majesty's Customs.....	Honorable Edward Bowen, in the room and place of Samuel Brooks, deceased.....	1000	0	0	January 3, 1853..	January 13, 1853..	1581
Barrett, Theobald Butler.....	Landing Waiter and Clerk in Her Majesty's Customs.....	Honorable Robert Jones William McGinnis.....	500	0	0	March 27, 1851..	do	31, 1853..
Bradley, Telesphore Augustus.....	Recognize, Surveyor of Lands in Lower Canada.....	James Riddell..... Jacob Langa.....	250	0	0				April 13, 1853..	May 2, do ..	1620
Bennett, Philo.....	Surveyor and Landing Waiter in Her Majesty's Customs.....	Thomas Anderson..... Jean Theophile Couillard.....	200	0	0	June 30, do ..	July 18, do ..	1647
Brooke, John E.....	Agent for the disposal of Public Lands in the Counties of Kent and Lambton ..	Alexander Hodge..... Dudley Marrils.....	100	0	0				July 6, 1853..	August 3, 1853..	1658
Baines, Thomas.....	Agent for the disposal of Public Lands in the United Counties of York, Ontario, and Peel.....	A. R. Robertson.....	800	0	0	October 15, do ..	November 9, do ..	1690
		T. A. Ireland..... Charles P. Laird.....	150	0	0			
Baby, William Duperon (Covenant) Sheriff for the County of Essex.		F. W. Barron..... John Harper..... Isaac Thompson..... G. S. Boulton.....	2000	0	0	do	do	1693
		Charles Baby..... Luc Ouellette.....	666	13	4			
			500	0	0	do 24, do ..	do 15, do ..	1698
			500	0	0	do 29, do ..	do 24, do ..	1698
			500	0	0	January 14, 1854..	February 2, 1854..	1717

A DETAILED STATEMENT OF BONDS AND SECURITIES, &c.—(Continued.)

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A. 1854.

Name of Principal.	Office or Appointment.	Names of Sureties.	Penalty.			Date of Bond.	Date of Record.	No. of Bond.
			£	s.	d.			
Bockus, John.....	Clerk, 4th Division Court, United Counties of Dundas, Stormont, and Glengarry..	George N. Archibald Adam Hanes	62 0 0	0 0 0	0 0 0	December 26, 1853..	February 20, 1854..	1739
Bowen, William.....	Bailiff, 6th Division Court, United Counties of Stormont, Dundas, and Glengarry..	Zophar Skinner..... George W. Brouse.....	50 25 25	0 0 0	0 0 0	do 28, do ..	do 23, do ..	1750
Brouse, Edward.....	Clerk, 7th Division Court, United Counties Stormont, Dundas, and Glengarry.....	Henry Boulton	50	0	0	do 29, do ..	do 24, do ..	1751
Barber, Aaron S.....	Bailiff, 1st Division Court, County of Norfolk	Charles Dezell.....	25	0	0			
Black, James.....	Bailiff, 2nd Division Court, County of Perth	Oliver Blake	200	0	0	January 5, 1854..	March 3, do ..	1768
Blake, Oliver.....	Clerk, 2nd Division Court, County of Norfolk	James A. Lyons	100	0	0	do 7, do ..	do do do ..	1770
Beener, Philip.....	Bailiff, 2nd Division Court, County of Norfolk	James Hill	200	0	0	do 16, do ..	do 10, do ..	1783
Bullard Ephraim.....	Bailiff, 4th Division Court, County of Middlesex	Jason Kellum.....	100	0	0	do do do ..	March 10, 1854..	1784
Bullen, Wm. Fitzherbert.....	Clerk, 6th Division Court, County of Middlesex	Hiram Scorel	200	0	0	do 17, do ..	do 15, do ..	1808
		Elias Beemer	100	0	0	February 6, do ..	do 18, do ..	1815
		Samuel L. Sumner..... John Hart	200 100 100	0 0 0	0 0 0			
		Calvin J. Ladd..... George Stephen Rogers.....	200 100 100	0 0 0	0 0 0			

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Balfour, George.....	Bailiff, No. 3 Division Court, United Counties of York and Peel	Arthur Shaw	250	0	0	January 11, do ..	April 8, do ..	1833
Baker, Alfred Alexander.....	Clerk, 1st Division Court, County of Wellington	Christopher Burrell.....	125	0	0	March 20, do ..	do 27, do ..	1838
Boswell, Augustus Geo.....	Clerk, 5th Division Court, United Counties Northumberland and Durham	William Clarke	200	0	0	do 10, do ..	do 28, do ..	1839
Burrell, Geo. Simmons.....	Clerk, 7th Division Court, United Counties Northumberland and Durham	Arthur Hogg	100	0	0	February 9, do ..	do do do ..	1845
Bonacina, John M.....	Surveyor in Her Majesty's Customs	George Vance Boswell..... William Graveley	300 150 150	0 0 0	0 0 0	March 22, do ..	do 29, do ..	1853
Brennan, William.....	Bailiff, 7th Division Court, United Counties Leeds and Grenville	Donald Campbell	300	0	0	January 10, do ..	May 1, do ..	1865
Black, James.....	Bailiff, 2nd Division Court, County of Perth	Robert M. Boucher	150	0	0	March 4, do ..	do 9, do ..	1876
Braun, Frederic.....	Landing Waiter and Searcher in Her Majesty's Customs	Fulgence Pellant..... Charles E. Anderson	200 200 200	0 0 0	0 0 0	May 4, do ..	do 8, do ..	1880
Beaudet, Noël Arthanase.....	Agent for the disposal of Public Lands in the Townships of Chester, Horton, Tingwick, and Warwick, in Lower Canada	D. S. Stewart..... Thomas Baker	105 105	0 0	0 0	April 15, do ..	May 10, do ..	1886
Cusson, François.....	A Licensed Culler of Staves	James Hill..... Thomas Babb	200 200	0 0	0 0	August 26, 1852..	August 30, 1852..	1546
		Charles Panet..... Edward Burroughs.....	200 100 100	0 0 0	0 0 0			
		Uldoric Belliveau	300	0	0			
		François Beauchaine	150	0	0			
		François Dusault..... Godfrey Gingras.....	100 100	0 0	0 0			

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A. 1854.

Name of Principal.	Office or Appointment.	Names of Sureties.	Penalty.		Date of Bond.	Date of Record.	No. of Bond.
			£	s. d.			
Colley, George	Deputy Supervisor of Cullers, for certain Counties in Lower Canada	Paul Lepper J. Greaves Clapham	200	0 0	June 25, 1852..	September 21, 1852..	1552
Carberry, Patrick	Surveyor in Her Majesty's Customs	Samuel Crane William H. Brouse	300 150 150	0 0 0 0 0 0	April 9, 1853..	May 2, 1853..	1622
Curtis, David junr.	Collector in Her Majesty's Customs	David Curtis David Brink	1000 500 500	0 0 0 0 0 0	September 14, do	October 14, do	1682
Clench, Frs. A. B.	Lessee of the Ferry from Niagara to Youngstown. Bond for the payment of the Rent, and due performance of the conditions	Jos. Augustus Woodruff John M. Lawder	100 70 70	0 0 0 0 0 0	October 17, do	November 15, do	1694
Cameron, Hugh	Preventive Officer in Her Majesty's Customs	Henry McKenny Peter Menzies	100 50 50	0 0 0 0 0 0	December 5, do	January 11, 1854..	1709
Clarke, Samuel	Crown Land Agent for the County of Halton	James White Alexander McNaughton	2000 1000 1000	0 0 0 0 0 0	January 31, 1854..	February 14, do	1721
Chisholm, Alexander	Clerk, 2nd Division Court, United Counties Stormont, Dundas, and Glengarry	Alexander McDonell	57	0 0	December 23, 1853..	do 17, do	1731
Cockburn, Adam	Clerk, 8th Division Court, United Counties Stormont, Dundas, and Glengarry	Peter Cockburn James Cockburn	50 25 25	0 0 0 0 0 0	do 31, do	do 27, do	1759
Cameron, Donald	Bailiff, 2nd Division Court, County of Peel	Charles Cameron Emerson Taylor	250 125 125	0 0 0 0 0 0	January 2, 1854..	March 2, do	1766

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Name of Principal.	Office or Appointment.	Names of Sureties.	Penalty.		Date of Bond.	Date of Record.	No. of Bond.
			£	s. d.			
Coleman, James	Clerk, 3rd Division Court, County of Perth.	Philip P. Harding George Tracey, senr	1500 1500	0 0 0 0	January 6, do	do 3, do	1769
Cossey, William	Clerk, 4th Division Court, County of Perth.	Andrew Riddle David Mathews	1000 1000	0 0 0 0	do 10, do	do 9, do	1776
Coulter, John	Bailiff, 5th Division Court, County of Perth.	William Cossey James Trow	200 100 100	0 0 0 0 0 0	do do do	do do do	1779
Cook, Luke	Bailiff, 4th Division Court, County of Norfolk	William McClelland Mulford M. Putnam	100 50 50	0 0 0 0 0 0	do 20, do	do 11, do	1788
Chamberlin, Thomas	Clerk, 7th Division Court, County of Norfolk	Horatio Misner Jonathan Bridgeman	200 100 100	0 0 0 0 0 0	do 25, do	do 13, do	1793
Creason, John	Bailiff, 1st Division Court, County of Simcoe	Sidney M. Sandford John Atkinson	120 60 60	0 0 0 0 0 0	do 20, do	do 14, do	1795
Craig, John	Clerk, 5th Division Court, County of Simcoe	Daniel Whitley Edward Archer	60 30 30	0 0 0 0 0 0	do 5, do	do do do	1796
Carmichael, Duncan	Bailiff, 2nd Division Court, County of Middlesex	Hugh Carmichael Donald Carmichael	200 100 100	0 0 0 0 0 0	do 20, do	do 16, do	1807
Campbell, Duncan	Clerk, 2nd Division Court, County of Haldimand	Joseph Hursell Henry Lawrence	400 200 200	0 0 0 0 0 0	February 7, do	do 20, do	1817
Campbell, Peter	Bailiff, 2nd Division Court, County of Haldimand	Edward Stratford Martin Henry H. Docksstader	400 200 200	0 0 0 0 0 0	do do do	do do do	1818
Charles, Jordan	A Surveyor in Her Majesty's Customs	Hugh Richardson Robert Hughes Cummings	500 250	0 0 0 0	March 24, do	April 29, do	1854
Coleman, James	Clerk, 3rd Division Court, County of Perth.	Philip Paterson George Tracey	250 1500 1500	0 0 0 0 0 0	do 6, do	do do do	1856

A DETAILED STATEMENT OF BONDS AND SECURITIES, &c.—(Continued.)

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Name of Principal.	Office or Appointment.	Names of Sureties.	Penalty.		Date of Bond.	Date of Record.	No. of Bond.
			£	s. d.			
Cossey, William.....	Clerk, 4th Division Court, County of Perth.	Alexander Mitchell..... Andrew Riddle, junr..	1000 0 0	0 0 0	March 14, 1854..	April 29, 1854..	1860
Duggan, R. O., President of the Port Dover Harbour Company..	Bond for the Payment of £7,600, being the purchase money of "The Port Dover Harbour" from the Government, under 14 & 15 Vic. cap. 14, and 12 Vic. cap. 5.	George Herrick..... John Stoughton Dennis.	15000 0 0	0 0 0	December 12, 1850..	February 4, 1853 ..	1858
Davis, Charles Lennox.	Surveyor of Lands in Upper Canada	Edward Slevin..... Flavien Bergeron	250 0 0	0 0 0	April 10, 1852..	March 2, 1853 ..	1601
DuBerger, Charles.....	Clerk, Circuit Court, Saguenay Circuit, Lower Canada	Michael McCarthy..... Jeremiah McCarthy	100 50 0	0 0 0	March 23, do ..	April 7, do ..	1615
Dennison, John.....	Landing Waiter and Searcher in Her Majesty's Customs	William H. Wilson..... John S. Gilman.....	100 50 0	0 0 0	April 9, do ..	do 19, do ..	1617
Denant, Erastus Gates.	Preventive Officer in Her Majesty's Customs	George Elmslie..... William Davidson	1000 500 0	0 0 0	do 2, do ..	June 17, do ..	1637
Davidson, George.....	(Covenant) Sheriff of the County of Waterloo	George Elmslie..... William Davidson	1000 500 0	0 0 0	do do, do ..	do do, do ..	1638
do, do	Bond, do do	Pierre Benj. Dumoulin..... Geo. Stanislas Badeaux.	500 0 0	0 0 0	(not dated.)	September 20, 1853..	1674
Dumoulin, Jean Gaspard	Clerk, Circuit Court, Arthabaska Circuit..						

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DeGuise, Florence.....	Revenue Inspector for the District of Kamouraska	Augustin Marineau..... Ovide Marineau.....	500 250 0	0 0 0	October 4, 1853..	October 14, do ..	1688
Dickerson, Silas Horton	Collector in Her Majesty's Customs	Harris Wade..... Archibald Morrill	500 250 0	0 0 0	do 15, do ..	do 31, do ..	1688
Doren, Solomon.....	Bailiff 6th Division Court, United Counties Stormont, Dundas, and Glengarry	Samuel Coons..... Henry Stacey.....	50 25 0	0 0 0	December 28, do ..	February 23, 1854..	1749
Dodge, David H.....	Clerk, 3rd Division Court, County of Norfolk	John W. Groover..... James Robertson.....	200 100 0	0 0 0	do 31, do ..	do 27, do ..	1787
Donaldson, James.....	Bailiff, 6th Division Court, County of Simcoe	James Sanson..... Andrew Moffatt.....	50 25 0	0 0 0	January 19, 1854..	March 16, do ..	1805
De St. Croix, John.....	Clerk, Circuit Court, Fox River Circuit, District of Gaspé	John Eden..... James Perchard.....	150 0 0	0 0 0	February 8, do ..	do 22, do ..	1827
D'Eschambault, Henry	Collector of Tolls on the Chambly Canal	Melchior A. DeSalaberry..... Joseph Guy.....	500 250 0	0 0 0	do 28, do ..	do 22, do ..	1880
Douglass, John.....	Clerk, 8th Division Court, United Counties Northumberland and Durham	Benjamin Franklin..... Comfort Curtis.....	300 150 0	0 0 0	do 6, do ..	April 28, do ..	1841
Dowdall, Patrick.....	Bailiff, 5th Division Court, United Counties Leeds and Grenville	John Freal..... William MacIntyre.....	200 100 0	0 0 0	January 13, do ..	do 29, do ..	1862
Dean, Owyn.....	Bailiff, 2nd Division Court, United Counties of Northumberland and Durham	Norman Thompson..... Samuel Corbin Dean	300 150 0	0 0 0	March 2, do ..	May 9, do ..	1888
Egan, Thomas.....	A Culler of Square Timber.....	James Finigan..... Charles Timony.....	100 0 0	0 0 0	May 28, 1852..	August 27, 1852..	1564

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A. 1854.

Name of Principal.	Office or Appointment.	Names of Sureties.	Penalty.			Date of Bond.	Date of Record.	No. of Bond.	
			£	s.	d.				
Eby, Peter	Agent for the disposal of Public Lands in the County of Waterloo	Jacob B. Eby David Weber	2000	0	0	November 21, 1853	December 15, 1853	1699	
Ellis, George	Collector of Tolls on the Beauharnois Canal	Thomas Booth Henry Bogue	500	0	0	December 30, do	January 25, 1854	1714	
Fleming, William	Agent for the Sale of Public Lands in the Township of Sherrington, in Lower Canada	James Hughes Stephen Keough	250	0	0	July 28, 1852	August 25, 1852	1536	
Fulford, Hiram	Lessee of "Coles' Ferry," in the Township of Elizabethtown. Bond for the payment of Rent, and performance of the conditions of Lease.	Stephen B. Phillips Miles Fulford	75	0	0	do	8, 1850	October 19, do	1559
Fitzgerald, John	Revenue Inspector for the County of Perth.	James Carpenter John Phelan	500	0	0	January 27, 1853	February 7, 1853	1596	
Fletcher, Henry	Tide Surveyor in Her Majesty's Customs.	Donald Lorn McDougall Theodore Hart	200	0	0	March 7, do	March 11, do	1607	
Fisher, David	Collector in Her Majesty's Customs	John Simpson William Brogdon	500	0	0	do	28, do	April 11, 1853	1616
Filteau, Ferdinand	Registrar for the County of Champlain	Numidique Mailhot Edouard Chaillez Narcisse Filteau	250	0	0	do	26, 1844	May 18, do	1623
Forest, Alfred Guy	Surveyor of Lands in Lower Canada	Joseph A. Maçon John Eignell	250	0	0	May 12, 1853	do	do do	1629

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Fox, John James	Collector in Her Majesty's Customs	John Battiste Felix Fainchaud John Fontana	500	0	0	November 20, 1852	June 2, do	1635		
Floyd, Edward	Searcher and Packer in Her Majesty's Customs	Edward Browne James Adam	100	0	0	June 28, 1853	July 5, do	1643		
Fulford, Hiram	Lessee of "Coles' Ferry"	Miles Fulford Issac Beecher	100	0	0	July 25, do	do	29, do	1656	
Fournier, Léon	Clerk and Landing-Waiter and Searcher in Her Majesty's Customs	François Xavier Lange-lier Jos. Theophilus Hazen	100	0	0	January 12, 1854	January 25, 1854	1713		
Fergusson, James	Bailiff, 1st Division Court, United Counties of Stormont, Dundas, and Glengarry	William McDonell Duncan McDonell	50	0	0	December 22, 1853	February 17, do	1730		
Fiel, Frederick B.	Bailiff, 7th Division Court, County of Northfolk	Philip Louks James Warwick	200	0	0	February 25, 1854	March 14, do	1794		
Fletcher, Joseph	Bailiff, 7th Division Court, County of Simcoe	Archibald Noble John Noble	100	0	0	January 11, do	do	do do	1797	
French, Thomas B.	Clerk, 4th Division Court, County of Middlesex	John Wilson Elijah Leonard	200	0	0	do	25, do	do	17, do	1809
Fortin, Pierre	Preventive Officer in Her Majesty's Customs	Ovide Martineau Sabin Tétu	100	0	0	April 26, do	April 29, do	do	do	1859
Farnal, Felix	Surveyor of Lands in Lower Canada	Seneca Paige John Farnan	50	0	0	do	5, do	May 10, do	do	1885
Fergusson, Duncan	Clerk, 7th Division Court, United Counties of Lanark and Renfrew	Elias Moore Robert Smith	250	0	0	February 22, do	do	do	do	1897

A DETAILED STATEMENT OF BONDS AND SECURITIES, &c.—(Continued.)

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A. 1854.

Name of Principal.	Office or Appointment.	Names of Sureties.	Penalty.		Date of Bond.	Date of Record.	No. of Bond.
			£	s. d.			
Graham, Duncan	Paymaster of the Ottawa Works, under the "Board of Works"	Hon. Thomas MacKay. Augustus Keefer	500 250 250	0 0 0	October 31, 1845	October 19, 1852	1558
Gough, Alfred	Collector of Canal Tolls, on the Lachine Canal	John Yule David Torrance	1000 500 500	0 0 0	September 15, 1852	do 30, do	1507
Gwyn, William Beechey	Collector in Her Majesty's Customs	Sutherland Colquhoun. Henry Corby	500 250 250	0 0 0	February 11, 1853	March 23, 1853	1611
Grondin, L. S. Etienne	Surveyor of Lands in Lower Canada	Edd. Onellet Thos Gagné	250 200	0 0	July 6, do	August 3, do	1657
Geralds, William	Preventive Officer in Her Majesty's Customs	Alfred Hooker Walter D. Dickenson	100 100	0 0	September 5, do	September 17, do	1668
Gray, John	Landing Waiter and Searcher in Her Majesty's Customs	Donald Murray David Smith	200 100 100	0 0 0	do 13, do	do do do	1671
Garon, Louis François	Registrar for the second Registration District, County of Rimouski	Majorique Coté Gernain Langis Louis Garon	1000 1000 500 500	0 0 0 0	May 23, do	do 8, do	1667
Gwyn, William Beechey	Collector in Her Majesty's Customs	Sutherland Colquhoun. Henry Corby	500 500	0 0	October 20, do	November 19, do	1697
Glass, Henry	Registrar for the County of Lambton	James Flintoff James Porter	1000	0	January 3, 1854	March 22, 1854	1628

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Gaul, Patrick	Landing Waiter and Searcher in Her Majesty's Customs	David Ryan George Boxall	200 100 100	0 0 0	March 11, do	do do do	1881
Gauvreau, Pierre	A Collector in Her Majesty's Customs	Pierre Louis Gauvreau. Majoric Coté	500 250	0 0	April 7, do	April 29, do	1857
Grant, Duncan	Bailiff, 9th Division Court, United Counties Stormont, Dundas, and Glengarry	Donald McDonald Alexander McDougall	50 25	0 0	March 13, do	May 6, do	1873
Godly, Charles Henry	A Collector in Her Majesty's Customs	Dame Julie Widow De-fosses Valere Guillet	500 250 250	0 0 0	April 10, do	do 8, do	1878
Gemmill, Andrew	Bailiff, 2nd Division Court, United Counties Lanark and Renfrew	John Caldwell Holmes Marr	250 125 125	0 0 0	do 3, do	do 15, do	1899
Geddes, Andrew	Agent for the disposal of Public Lands in the County of Wellington	Charles Allan Charles Clarke John L. Kirk Jasper F. Gilkison	2000 500 500 500	0 0 0 0	do 15, do	do 17, do	1903
Hanvey, Daniel	Revenue Inspector, for 2nd Division of the London District	George Southwick James Thomas Curtis	500 250 250	0 0 0	May 8, 1850	August 30, 1852	1547
Hamilton, James	Surveyor and Landing Waiter in Her Majesty's Customs	Peter Taylor Thomas F. Parke	300 100 100	0 0 0	August 30, 1845	October 19, do	1562
do (Sureties)	do	Joseph Charles Taché Louis Bertrand	500 250 250	0 0 0	do 30, do	do do do	1563
Heath, John	Collector in Her Majesty's Customs	Joseph Sheard George H. White	250 250	0 0	January 13, 1853	January 27, 1853	1585
Horsely, Henry Hodge	Surveyor of Lands in Upper Canada	William Wilson	250	0	do 8, do	March 2, do	1608
Hall, Valentine	Collector in Her Majesty's Customs	William Wilson	500 250 250	0 0 0	March 1, do	do 18, do	1608

A DETAILED STATEMENT OF BONDS AND SECURITIES, &c.—(Continued.)

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A. 1854.

Name of Principal	Office or Appointment	Names of Sureties	Penalty.		Date of Bond	Date of Record	No. of Bond.
			£	s. d.			
Hagan, James.....	Lessee of the Ferry across the River Ottawa at Gatineau Point	Archibald Foster..... Alexander Scott.....	100 0 0 70 0 0	0 0 0 0	May 18, 1853..	May 20, 1853..	1684
Heath, Thomas B.....	Preventive Officer in Her Majesty's Customs	Joseph Weston..... James Hibbard.....	100 0 0 50 0 0	0 0 0 0	July 11, do ..	July 19, do ..	1652
Hammond, Thos. Levell.....	Surveyor and Clerk in Her Majesty's Customs	James McIndoe..... James Salmon Miner.....	200 0 0 100 0 0	0 0 0 0	do 25, do ..	August 3, do ..	1660
Holden, Andrew.....	A Preventive Officer in Her Majesty's Customs	Philip Young..... William G. Clarke.....	50 0 0 25 0 0	0 0 0 0	October 19, do ..	November 15, do ..	1695
Hewitt, William.....	Clerk, 5th Division Court, County of Norfolk	Henry Anderson..... Obed Morris Smith	200 0 0 100 0 0	0 0 0 0	December 28, do ..	February 28, 1854..	1748
Hurd, Henry.....	Bailiff, 4th Division Court, United Counties Leeds and Grenville	Joseph Bower..... Alfred Holmes.....	362 0 0 181 0 0	0 0 0 0	do 30, do ..	do 25, do ..	1756
Helmer, John.....	Bailiff, 4th Division Court, County of Perth	Andrew Riddle..... Major Brown.....	200 0 0 100 0 0	0 0 0 0	January 10, 1854..	March 9, do ..	1778
Hogboom, Jno. Clinton.....	Clerk, 6th Division Court, United Counties of York and Peel.....	William Roe..... James Forsyth.....	250 0 0 125 0 0	0 0 0 0	do 16, do ..	do 10, do ..	1782
Hatchie, Adam.....	Clerk, 5th Division Court, County of Middlesex	John Archer..... John Hatchie.....	200 0 0 100 0 0	0 0 0 0	February 2, do ..	do 18, do ..	1818

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Harris, Charles Stewart.....	Bailiff, 6th Division Court, County of Middlesex	Gilbert Harris..... William F. Bullen.....	200 0 0 100 0 0	0 0 0 0	do 6, do ..	do 18, do ..	1816
Hodges, Ira.....	Bailiff, 7th Division Court, United Counties of Northumberland and Durham	Harrison Cordella Bettes..... Ira Russell Proctor.....	300 0 0 150 0 0	0 0 0 0	do 8, do ..	May 5, do ..	1869
Hull, Edward Chapman.....	Bailiff, 7th Division Court, United Counties of Northumberland and Durham	George Birney..... Thomas Dumble.....	300 0 0 150 0 0	0 0 0 0	do 22, do ..	do do do ..	1872
Helmer, John.....	Bailiff, 4th Division Court, County of Perth	Alexander Mitchell..... Andrew Riddle, junr.....	500 0 0 500 0 0	0 0 0 0	March 14, do ..	do 6, do ..	1875
Hamilton, James.....	Landing Waiter in Her Majesty's Customs	Henry Wright..... William McGee.....	200 0 0 100 0 0	0 0 0 0	April 18, do ..	do 8, do ..	1879
Harper, Robinson.....	Clerk, 4th Division Court, United Counties of Lanark and Renfrew	Alexander Clark..... Patrick Tirney.....	200 0 0 100 0 0	0 0 0 0	February 27, do ..	do 12, do ..	1893
Johnstone, Quintin.....	Provincial Land Surveyor in Lower Canada	John Young, junr..... Joseph Curran Morrison.....	250 0 0	0 0	October 6, 1852..	October 19, 1852..	1557
Jessup, Henry J.....	Preventive Officer in Her Majesty's Customs	Hamilton, D. Jessup..... William Levis.....	100 0 0 50 0 0	0 0 0 0	January 13, 1854..	January 25, 1854..	1712
Jenkins, Thomas.....	Clerk, 4th Division Court, County of Norfolk	Luke Cook..... Henry W. Eagles.....	100 0 0 50 0 0	0 0 0 0	do 20, do ..	March 11, do ..	1787
Jardin, Andrew.....	Clerk, 4th Division Court, County of Simcoe	James Dawson Stevens..... Neil MacQueen.....	80 0 0 40 0 0	0 0 0 0	do 2, do ..	do 15, do ..	1800
Irvine, John.....	Clerk, 2nd Division Court, County of Middlesex	Richard Irvine..... John Stilson.....	200 0 0 100 0 0	0 0 0 0	do 19, do ..	do 16, do ..	1806

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A. 1854.

Name of Principal.	Office or Appointment.	Names of Sureties.	Penalty.		Date of Bond.	Date of Record.	No. of Bond.
			£	s. d.			
Jones, John Boyce	Clerk, 1st Division Court, United Counties of Leeds and Grenville.	Thomas Webster Archibald McDougall	620	0 0	February 7, 1854.	April 27, 1854.	1835
Irving, Andrew	Clerk, 8th Division Court, United Counties of Lanark and Renfrew	Peter White David Bell	200	0 0	February 28, do	May 12, do	1892
Jackson, George	Agent for the disposal of Public Lands in the County of Grey	James Beatty Robert Beatty	2000	0 0	April 17, do	do 17, do	1902
Kinnear, James	Revenue Inspector for the County of Haliburton	Donald Campbell Matthew Gill	500	0 0	January 27, 1853.	February 7, 1853.	1505
Kerrin John	A Culler of Square Timber.	Edward Quinn John O'Sullivan	250	0 0	March 24, do	March 31, do	1613
Kintrea, James	Clerk, County Court, County of Oxford	William Wilson Fras. R. Ball	400	0 0	September 2, 1853.	September 17, do	1672
Kelly, Michael	Clerk, 5th Division Court, United Counties of Leeds and Grenville.	Stephen Edger Merrick Charles Holden	200	0 0	December 26, do	February 20, 1854.	1798
King, William Wallace.	Clerk, 9th Division Court, United Counties of Leeds and Grenville.	Philip Wing Thomas Hayes	150	0 0	January 2, 1854.	March 1, do	1762
Keller, Joseph	Bailliff 5th Division Court, United Counties of York and Peel	George Barnard William McPherson	100	0 0	do 10, do	do 9, do	1774

Keller, Charles Miller	Clerk, 5th Division Court, United Counties of York and Peel	Benjamin Bowman Anthony Size	500	0 0	do 10, do	do 9, do	1775
Keefe, James	Clerk, 7th Division Court, County of Middlesex	Charles Still Alfred Groom Street	250	0 0	February 8, do	do 20, do	1819
Keith, William	Landing Waiter and Searcher in Her Majesty's Customs	Ira Lewis Horace Horton	200	0 0	March 21, do	April 29, do	1849
Kirker, James	Bailliff, 8rd Division Court, United Counties of Leeds and Grenville.	Nicholas Willoughby John Wilson	100	0 0	January do do	do do do	1861
LaFontaine, Aimé	Prothonotary and Clerk of the Superior Court, sitting in the District of Ottawa.	Antoine Polette Jos. Edouard Turcotte	100	0 0	August 28, 1852.	September 2, 1852.	1551
Lafrancois, Pierre	Culler of Square Timber	Jacques Jobin William Russell	100	0 0	September 2, do	do 21, do	1553
Lepage, Barnabé Leandre	Clerk of the Circuit Court in and for the Circuit of Terrebonne, District of Montreal	Edward Ranson Charles Cyrille Archambault	250	0 0	October 11, 1848.	October 19, do	1561
Larue, Swibert Vallier.	Crown Land Agent for the Sale of Lands in certain Townships of Lower Canada	Pierre Villeneuve, Pre. Antoine Fournier	300	0 0	do 18, 1852.	November 6, do	1568
LeBel, Jos. Guillaume.	Registrar for the County of Bonaventure	Jean Louis Akain, Pre. William Carter Jno. Robinson Hamilton William Macdonald	2000	0 0	December 23, 1852.	January 13, 1853.	1582
LeMeire, Felix Hyacinthe	Clerk of the Circuit Court, for the Circuit of Two Mountains	Leandre Dumouchel James Watts	250	0 0	January 15, 1853.	do 27, do	1884

A DETAILED STATEMENT OF BONDS AND SECURITIES, &c.—(Continued.)

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Name of Principal.	Office or Appointment.	Names of Sureties.	Penalty.		Date of Bond.	Date of Record.	No. of Bond.
			£	s. d.			
Loyeoy, John, President of the Brantford Road Company	For the payment of £27,100, purchase money of the Macadamized, Plank, and Gravel Road, &c., from the City of Hamilton, bought of the Government, 13 & 14 Vic. cap. 14, and 12 Vic. cap. 5	Surveyor of Lands in Upper Canada.	40000	0 0	November 18, 1850.	February 1, 1853.	1589
Lillie, Henry	Tide Surveyor in Her Majesty's Customs	John Booth. Turner Lillie	250	0 0	January 5, 1853.	March 2, do	1602
Lambert, Thomas	Surveyor of Lands in Lower Canada.	H. J. Noad H. Pemberton.	200 100 100	0 0 0 0 0 0	March 14, do	do 18, do	1609
LeGendre, Felix	Treasurer of the Trinity House, at Quebec	Jean Evariste St. Pierre T. A. Bradley	250	0 0	May 12, do	do do	1626
LeMoine, Alexander	Surveyor of Lands in Lower Canada.	Louis Jean Baptiste Le-Moine, substituted in the room of Louis LeMoine, deceased, one of the Sureties in the former Bond, dated 8th Sept., 1849.	1000	0 0	June 28, do	July 1, do	1640
Lacroix, Henry	Landing Waiter and Searcher in Her Majesty's Customs	Joseph Bourret Pierre Benjn. Badeaux.	200 100 100	0 0 0 0 0 0	do 27, do	do 5, do	1645
LeBel, Horace	Surveyor of Lands in Lower Canada.	Frédéric Bélanger Thomas Gagné	250	0 0	October 5, do	October 11, do	1679
Laake, William T.	Lessee of Ferry across the Bay of Quinté.	Abm. Vanvleck Pruyné. David Barker	100 50 50	0 0 0 0 0 0	do 17, do	do 31, do	1689

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Leggett, William	Surveyor and Landing Waiter in Her Majesty's Customs	Rd. Brodhead McGinnis Chs. Stewart Pierce.	300 150 150	0 0 0 0 0 0	November 11, do	November 19, do	1696
Lennon, Herbert	Collector in Her Majesty's Customs	James Sutton Elliott. Owen Hartwell Strong.	500 250 250	0 0 0 0 0 0	do 28, 1853.	December 15, 1853.	1702
Laighton, John B.	Lessee of Ferry from Sandwich to Detroit.	George Bullock Henry Casimir Guillot.	100 50 50	0 0 0 0 0 0	December 10, do	do 31, do	1706
LeBoutillier, George	Provincial Land Surveyor in Lower Canada.	Robert Christie Charles Baillarge.	250	0 0	January 11, 1854.	February 14, 1854.	1733
Lyman, Warren	Clerk, 11th Division Court, United Counties Leeds and Grenville	Saml. Josephus Bellaney Aaron Bellaney Pardee.	240 120 120	0 0 0 0 0 0	December 23, 1853.	do 18, do	1734
Louck, John W.	Clerk, 5th Division Court, United Counties Stormont, Dundas, and Glengary	James Holden. John T. Casselman.	64 32 32	0 0 0 0 0 0	do 7, do	do 21, do	1743
Leslie, Robert	Clerk, 4th Division Court, United Counties Leeds and Grenville	Robert Kernahan Ambrose Clothier	362 181 181	0 0 0 0 0 0	do 30, do	do 24, do	1758
Little, John	Clerk, 7th Division Court, County of Simcoe	Robert Murphy Hugh Morrison	80 40 40	0 0 0 0 0 0	January 12, 1854.	March 15, do	1801
Lloyd, Thomas	Clerk, 1st Division Court, County of Simcoe	George Lount. John Alexander	120 60 60	0 0 0 0 0 0	do 20, do	do 16, do	1808
Lauler, John D.	Bailiff, 3rd Division Court, County of Middlesex	David Marr Rymul. M. S. Ayeis.	200 100 100	0 0 0 0 0 0	do — do	do 17, do	1812
Lee, Hiram Chisholm	A Surveyor in Her Majesty's Customs	Lawrence Lawrason. Lionel Ridout.	500 250 250	0 0 0 0 0 0	March 20, do	April 28, do	1847
Lockuell, Benjamin	A Culler of Deals, Boards, Planks, and Lathwood	Michael Hamel. Joseph Lockuell.	100	0 0	November 29, 1853.	May 5, do	1868

A DETAILED STATEMENT OF BONDS AND SECURITIES, &c.—(Continued.)

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Name of Principal.	Office or Appointment.	Names of Sureties.	Penalty.		Date of Bond.	Date of Record.	No. of Bond.
			£	s. d.			
LeBoutillier, George	Landing Waiter and Searcher in Her Majesty's Customs	Donald Fraser François Buteau	200 100 100	0 0 0	May 5, 1854	8, 1854	1681
LeBel, Jean Theophile.	Agent for the Sale of Public Lands in the Townships of Grathby, Stratford, Whitton, Winslow, South Ham, and Wotton, in Lower Canada	Eucher Arcand François D'Assise Richard	500 250 250	0 0 0	April 4, do	do 11, do	1687
Murdy, Robert	Lessee of the Tolls of the Dunville Bridge for twelve months, from 1st June, 1852	Henry Marshall John Aiken	220	0 0	August 6, 1852	August 25, 1852	1597
McKutcheon, William	A Culler of Deals, Boards, Planks, and Lathwood	Joseph Archer Archibald Campbell	100	0 0	May 15, do	do 27, do	1543
Mylar, James	A Culler of Deals, Boards, Planks, and Lathwood	Henry Pemberton Denis Bogue	100	0 0	August 25, do	do 30, do	1545
March, Edward	Landing Waiter and Searcher in Her Majesty's Customs, at the Port of Lacolle.	Taver VanVitet Oliver Odell	100	0 0	November 8, 1845	October 29, do	1504
Martin, Richard	(Bond) Sheriff, of the County of Haldimand	Charles Bain Thomas Lester	1000 500 500	0 0 0	do 17, 1852	November 30, do	1569
do do	(Covenant)	Jacob Young James Young	1000 500	0 0	do do do	do do do	1570
Marquis, David Solymc.	Joint Coroner for the District of Kamouraska	Augustin Martineau David Marquis	50	0 0	March 26, do	December 31, do	1579
Miller, William, President of the Dundas and Waterloo Road Company	Bond for the payment of £26,000, being the purchase money for the "Dundas" and Waterloo Macadamized Road, from the Government, under 14 & 15 Vic. cap. 14, and 12 Vic. cap. 5.	Thomas C. Macklem Joseph C. Woodruff	52000 500 250 250	0 0 0 0	November 20, 1850 January 22, 1853	February 1, 1853 do 24, do	1630 1598
McCarroll, James	Collector of Her Majesty's Customs	Matthew Peebles James Hetherington	250	0 0	do 14, do	March 2, do	1604
Mackintosh, James	Surveyor of Lands in Upper Canada.	Jean Bruneau Jas. McGill DesRivières	300 150 150	0 0 0	March 2, do	do 10, do	1605
Macon, Charles William	Landing Waiter in Her Majesty's Customs	John Comerford Ph. Cady VanBroeklin	500 250	0 0	do 3, do	do 11, do	1606
Murphy, William	Revenue Inspector for the County of Brant	Ph. Cady VanBroeklin John Comerford	500 250	0 0	do 16, do	do 26, do	1612
Morin, P. Hector	Landing Waiter and Searcher in Her Majesty's Customs	J. A. Wilkinson Albert Prince	100 50	0 0	do 22, 1852	April 7, do	1614
McMicken, Gilbert	Collector in Her Majesty's Customs	James Cummings Oliver Tiffany Macklem	500 250	0 0	April 14, 1853	May 2, do	1621
Morin, Pierre Hector	Landing Waiter and Searcher in Her Majesty's Customs	Jno. Alexander Wilkinson Albert Prince	100 50 50	0 0 0	do 22, do	do 18, do	1631

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Name of Principal	Office or Appointment	Names of Sureties	Penalty.		Date of Bond	Date of Record	No. of Bond
			£	s. d.			
McMicken, Gilbert	Bond for the due payment of Rent and performance of the conditions, &c., of a Lease of the Ferry across the Niagara Falls for five years, from 6th April, 1853	Samuel Zimmerman James Oswald	1000 800 300	0 0 0 0 0 0	May 23, 1853	June 8, 1853	1636
Murdy, Robert	Lessee of the Dunville Bridge for one year, from 1st June, 1853, to 1st June, 1854	Henry Marshal John Atkins	300	0 0	June 8, do	do 22, do	1639
McDonald, James	(Bond) Sheriff, of the County of Prince Edward	Henry McDonald Absalom Greeley	1000 500 500	0 0 0 0 0 0	April 5, do	July 5, do	1641
do	(Covenant) do	Henry McDonald Absalom Greeley	1000 500 500	0 0 0 0 0 0	do do	do do	1642
Meyer, Edward	Landing Waiter and Searcher in Her Majesty's Customs	Henry Meyer Thomas Walter Jones	200 100 100	0 0 0 0 0 0	June 27, do	do do	1644
McColl, Evan	Landing Waiter and Searcher in Her Majesty's Customs	John D. McColl James Martin	200 100 100	0 0 0 0 0 0	July 4, do	do 18, do	1648
McNaughton, Hugh	Preventive Officer in Her Majesty's Customs	James Flintop Robert Steed	100 50 50	0 0 0 0 0 0	July 9, do	do 18, do	1650
Modewell, Robert	(Covenant) Sheriff, County of Perth	Robert Gibbons Ira Lewis William Wallace Horace Horton	1000 250 250 250	0 0 0 0 0 0 0 0	May 26, do	do 25, do	1654
Murray, William	Landing Waiter in Her Majesty's Customs	B. C. A. Gugy Edward P. Wilgress	100 100	0 0 0 0	July 22, do	do 28, do	1655
Moynahan, Denis	Agent for the Sale of Crown Lands in the County of Essex	Arthur Rankin Jno. Alex. Wilkinson	2000 1000 1000	0 0 0 0 0 0	June 17, do	August 25, do	1664
McNabb, Alexander	Collector in Her Majesty's Customs	John McLean Charles Allan	500 250	0 0 0 0	August 15, do	September 3, do	1666
Macaulay, Alexander	Collector in Her Majesty's Customs	Robert Francis Joseph S. Peterson	250 250	0 0 0 0	September 8, do	do 17, do	1670
Modewell, Robert	(Bond,) Sheriff, for the County of Perth	Ira Lewis William Wallace	1000 500	0 0 0 0	August 18, do	do 28, do	1676
Montzambert, Charles Nathaniel	Registrar for the County of Quebec	Hon. William Walker Sir H. J. Caldwell, Bart. Henry Lemesurier, Esq. Alex. Davison M. Bell	4000	0 0	September 29 & 30, 1853	October 6, do	1677
McDonald, Robert	Landing Waiter and Searcher in Her Majesty's Customs	Thomas White John White	200 100 100	0 0 0 0 0 0	June 25, 1853	do 14, do	1681
McCrae, William Alexr.	Landing Waiter and Searcher in Her Majesty's Customs	William C. Griffin Hy. Van Allan McCrae	200 100 100	0 0 0 0 0 0	July 5, do	do 31, do	1684
McMillan, Donald	Preventive Officer in Her Majesty's Customs	Buchanan McMillan John Grant	100 50	0 0 0 0	December do	December 15, do	1703
McKirdy, James	Bursar of the Provincial Lunatic Asylum at Toronto	William McMaster David Patterson	1000 500 500	0 0 0 0 0 0	do 1, do	do 16, do	1705

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Name of Principal	Office or Appointment	Name of Sureties	Penalty.		Date of Bond.	Date of Record.	No. of Bond.
			£	s. d.			
Morin, Pierre Hector.	Landing Waiter and Searcher in Her Majesty's Customs	Samuel S. Macdonell George Bullock	100 50 50	0 0 0	December 6, 1853	January 11, 1854	1710
Moynahan, Denis	Agent for the disposal of Public Lands in the County of Essex	Denis Ouellet	1000	0	January 5, 1854	do 25, do	1715
Mercer, John	(Bond,) Sheriff, for the County of Kent	John Prince George Duck, junr	500 500	0 0	do 13, do	February 14, do	1722
do	(Covenant) do	John Prince John Waddle George Duck, junr William L. Baby	1000 250 250 250	0 0 0 0	do do do	do 16, do	1726
McRae, John	Clerk, 1st Division Court, United Counties of Stormont, Dundas, and Glengary	Duncan McLennan William Barrett	50 25 25	0 0 0	December 23, 1853	do 17, do	1729
McCrea, Hiram	Clerk, 7th Division Court, United Counties Leeds and Grenville	Ezra Wyatt David Graham	210 105 105	0 0 0	do 23, do	do 18, do	1732
McDonald Robert	Bailiff, 2nd Division Court, United Counties Stormont, Dundas, and Glengary	Colin McDonald Angus McDonell John McGillis Alexander R. McDonell John Cameron	50 10 10 10 10	0 0 0 0 0	do do do	do do do	1736
Merkley, Jacob J.	Bailiff, 5th Division Court, United Counties Stormont, Dundas, and Glengary	Isaac N. Rose Herman Whitaker	50 25 25	0 0 0	do 27, do	February 21, do	1745

McCuaig, John	Clerk, 10th Division Court, United Counties of Stormont, Dundas, and Glengary	Joseph Johnson John Capel	50 25 25	0 0 0	do 30, do	do 25, do	1754
Markel, John L.	Bailiff, 5th and 10th Division Courts, United Counties Stormont, Dundas, and Glengary	Joseph Johnson John G. Merkley	50 25 25	0 0 0	do do do	do do do	1755
McKelvey, Joseph	Clerk, 3rd Division Court, United Counties Leeds and Grenville	Jas. W. Parmenter John L. Macdonald	100 100 100	0 0 0	December 31, do	February 27, do	1758
Munro, Alfred Alpheus	Clerk, 12th Division Court, United Counties Leeds and Grenville	Jeremiah Guild Orin Bailey Adams	240 120 120	0 0 0	do do do	do 28, do	1761
Mathews, Silvester Kenyon	Bailiff, 9th Division Court, United Counties Leeds and Grenville	Sterling Alguire Samuel Wiltse	150 100 100	0 0 0	January 2, 1854	March 1, do	1763
McGregor, John	Bailiff, 8th Division Court, United Counties Leeds and Grenville	John Batise Lashay Abbs Taggart	380 165 165	0 0 0	do do do	do do do	1764
Matheson, Thomas	Clerk, 2nd Division Court, County of Perth	James Hill Thomas Babb	800 800	0 0	do 7, do	do 9, do	1772
McCully, Joseph	Bailiff, 3rd Division Court, County of Perth	Edward Long Henry Willis	432 432	8 8	do 13, do	do 10, do	1781
Masacar, John	Bailiff, 2nd Division Court, County of Norfolk	John Ferrtram Aaron McMichael	200 100 100	0 0 0	do 16, do	do 11, do	1785
McCarthy, John Augustus	Bailiff, 1st Division Court, County of Perth	John Polkinhorn Nivian George Pringle	300 300 300	0 0 0	do 18, do	do do do	1786
McGuire, John	Bailiff, 6th Division Court, United Counties York and Peel	William McLeod James Evans	250 125 125	0 0 0	do 21, do	do do do	1789

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Name of Principal.	Office or Appointment.	Names of Sureties.	Penalty.			Date of Bond.	Date of Record.	No. of Bond.
			£	s	d			
McLennan, Andrew	Clerk, 6th Division Court, County of Norfolk	Henry J. Killmaster Titus Williams	200	0	0	January 23, 1854	March 13, 1854	1792
Maunchy, Thomas	Clerk, 2nd Division Court, County of Simcoe	William Armon Thomas D. McConkey	120	0	0	do	do	1799
McManus, George	Clerk, 8th Division Court, County of Simcoe	George McCoppin Samuel Atkinson	60	0	0	do	do	1802
Meredith, John Cooke	Clerk, 1st Division Court, County of Middlesex	Lawrence Laurason Alexander Anderson	200	0	0	do	do	1825
Morin, A. N. Honorable	Commissioner of Crown Lands, Province of Canada	Etienne P. Taché Jos. Amable Berthelot Geo. Etienne Cartier Richd. A. R. Hubert	1000	0	0	February 7, 1854	do	1826
Murphy, Jasmar	Landing Waiter and Searcher in Her Majesty's Customs	John O'Kane Michael Plunkett	200	0	0	do	do	1829
Marchand, François Henri	Clerk of the St. Johns Circuit Court	François Marchand Edouard Bourgeois	100	0	0	March 21, do	April 8, do	1831
McCarthy, Daniel	Clerk, 2nd Division Court, United Counties Leeds and Grenville	Wm. Lewis Robert Campbell	360	0	0	do	do	1837
Matheson, Thomas	Clerk, 2nd Division Court, County of Perth	James Hill Thomas Bobb	180	0	0	January 19, do	do	1837
			800	0	0	March 4, do	do	1848

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Murphy, William	Surveyor in Her Majesty's Customs	John Comerford Philip Cady Van Brocklin	500	0	0	do	do	1846
Morton, William	Surveyor and Clerk in Her Majesty's Customs	James Dougal Charles Hunt	250	0	0	do	do	1850
Macdonald, John	Surveyor in Her Majesty's Customs	Jos. C. Woodruff Geo. Penfield Shears	250	0	0	do	do	1851
McKelvey, George	Bailliff, 12th Division Court, United Counties Leeds and Grenville	Amasa W. Mallory Jeremiah Guild	240	0	0	January 24, do	do	1863
McCully, Joseph	Bailliff, 3rd Division Court, County of Perth	Edward Long Henry Willis	120	0	0	March 6, do	May, do	1877
McMahon, Timothy	Bailliff, 7th Division Court, United Counties Lanark and Renfrew	Thomas O'Shaughnessy Thomas Enright	400	0	0	do	do	1898
McNeil, Michael	Bailliff, 8th Division Court, United Counties of Lanark and Renfrew	David Bell Jos. Rowan	200	0	0	do	do	1900
McPherson, George	Bailliff, 3rd Division Court, United Counties of Lanark and Renfrew	Albert Teskey Andrew Wilson	100	0	0	February 6, do	do	1901
Noël Rémy Séraphin	Registrar for the County of Lotbinière	Jean Bapt. Isaré Noël Léon Noël François-Xavier Dion	200	0	0	March 15, 1854	December 27, 1852	1875
Noël Rémy Séraphin	Registrar for the County of Lotbinière	Léon Noël François Bertrand François-Xavier Bertrand	2000	0	0	February 17, 1853	February 22, 1853	1897
Nelson, John	Landing Waiter and Searcher in Her Majesty's Customs	Wm. Henry Roy J. Thibaudau	500	0	0	January 4, 1854	January 11, 1854	1711

A DETAILED STATEMENT OF BONDS AND SECURITIES, &c.—(Continued.)

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A. 1854.

Name of Principal	Office or Appointment	Names of Sureties	Penalty.		Date of Bond.	Date of Record.	No. of Bond.
			£	s. d.			
Neal, Thomas	Bailiff 5th Division Court, County of Middlesex	William Neal Alexander D. Ward	200 100 100	0 0 0	February 2, 1854	March 17, 1854	1811
O'Hanley, John Law'ce Power	Surveyor of Lands in and for Lower Canada.	J. A. Maçon John Bignell	250	0 0	May 12, 1853	May 18, 1853	1690
O'Conner, James Bligh	Landing Waiter and Searcher in Her Majesty's Customs	Hamilton Bligh O'Conner Robert Donogh	200 100 100	0 0 0	July 13, do	July 25, do	1653
O'Riley, Alexr. Walter	Bailiff, 3rd Division Court, County of Haldimand	Wm. Clark Osman Arr Brownson	400 200 200	0 0 0	February 15, 1854	March 21, 1854	1823
O'Donohue, Malachy	Landing Waiter and Searcher in Her Majesty's Customs	Jos. Curran Morrison Michael McDonagh	200 100 100	0 0 0	October 20, 1853	April 28, do	1843
O'Conner, James Bligh	Collector in Her Majesty's Customs	Hamilton Bligh O'Conner Robert Donogh	500 250 250	0 0 0	March 28, 1854	do do	1855
Otherson, James	Bailiff, 5th Division Court, United Counties of Lanark and Renfrew	Robert Riddle John Poole	200 100 100	0 0 0	February 18, do	May 12, do	1895
Plumb, Isaac, junr.	Lessee of the Ferry from the Town of Prescott to Ogdensburg for five years, from 10th August, 1852.	Samuel Crane John Holden	1000 500 500	0 0 0	August 14, 1852	August 25, 1852	1598

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Phelps, Oliver Seymour	Issuer of Tavern Licenses for the County of Haldimand	Duncan Campbell John Walters	500 250 250	0 0 0	June 15, do	do do	1548
Perkins, William do, Sureties	Preventive Officer in Her Majesty's Customs do	David Perkins James Manson	100 100	0 0	February 21, 1846	October do do	1565 1566
Prévost, Louis	Bond for Payment of £500 to Government as surety to Felix Glackeneyer, a defaulter in respect of Loans to sufferers by the Fires at Quebec, in 1845		500	0 0	August 6, 1850	December 10, do	1574
Panet, Bernard Antoine, Panet, Jean Antoine	Coroner for the District of Quebec	Charles Panet Charles Alleyr	350	0 0	December 21, 1852	do do	1578
Perry, Peter, and James Rowe	Bond conditioned for the payment of the purchase money, £20,100, for the Port Wharf and Lakes Scugog, Simcoe, and Huorn Roads, bought from the Provincial Government, 13 & 14 Vic. cap. 14, and 12 Vic. cap. 5		6000	0 0	January 15, 1851	January 31, 1853	1588
Painchaud, Antoine Étienne	Surveyor of Lands in Lower Canada	Jos. Painchaud, M.D. Pierre Baillargeon	250 500 250	0 0 0	May 12, 1853	May 18, do	1627
Pennefather, John G	Collector in Her Majesty's Customs	M. O'Meara John Norton	250 250	0 0	do do	do do	1632
Phillips, Edwd. Dixon	Surveyor and Clerk in Her Majesty's Customs	Chs. Stewart Phillips John D. Stewart	250 125 125	0 0 0	November 25, do	December 15, do	1701
Post, Hiram Leonard	Bailiff, 7th Division Court, United Counties Stormont, Dundas, and Glengarry	Henry H. Boulton Alexander H. Munro	50 25 25	0 0 0	December 29, do	February 24, 1854	1752
Pegg, Nathan	Bailiff 1st Division Court, County of Norfolk	John Shepherd Joseph Marr	200 100 100	0 0 0	January 5, 1854	March 2, do	1767

A DETAILED STATEMENT OF BONDS AND SECURITIES, &c.—(Continued.)

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A. 1854.

Name of Principal.	Office or Appointment.	Names of Sureties.	Penalty.			Date of Bond.	Date of Record.	No. of Bond.
			£.	s.	d.			
Paterson, Adam	Clerk, 6th Division Court, County of Simcoe	John Ardagh Thomas Dallas	50	0	0	January 19, 1854	March 16, 1854	1804
Purdon, Simon	Landing Waiter and Searcher in Her Majesty's Customs	Robert Hamilton William Foster	100	0	0	March 17, do	April 28, do	1844
Poser, George Robert	Surveyor of Lands in Lower Canada	Jean Baptiste Frechette John P. Mackay	250	0	0	April 5, do	May 10, do	1884
Pool, James	Clerk, 3rd Division Court, United Counties Lanark and Renfrew	Robert Bell Archibald McArthur	200	0	0	February 14, do	do 11, do	1890
Reade, George John	Collector in Her Majesty's Customs at Port Rowan	Peter Waters Thomas Boulton Read	500	0	0	August 4, 1852	August 30, 1852	1540
Ryckman, G. M., President of the Hamilton and Port Dover Road Company	Bond for the Payment of £7,700 purchase money of the "Public Road, between Hamilton and Port Dover," from the Government, under 13 & 14 Vic. cap. 14, and 12 Vic. cap. 5	L. E. Dorion F. Edmond Dorion	16000	0	0	December 14, 1850	February 4, 1853	1891
Richard, Jean Baptiste	Surveyor of Lands in Lower Canada	William Gear John George Clarke	250	0	0	July 7, 1853	August 3, do	1659
Radcliffe, John	Landing Waiter and Searcher in Her Majesty's Customs		200	0	0	September 2, do	September 17, do	1669

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Richey, Wellesley	Collector in Her Majesty's Customs	Silas Benjamin Farbanks William Tempest	500	0	0	October 15, do	October 31, do	1686
Ryerson, Rev. Egerton, D.D.	Chief Superintendent of Schools in Upper Canada	Reverend John Ryerson Honorable John Ross	250	0	0	November 5, do	November 9, do	1692
Robinson, William	Collector in Her Majesty's Customs	John McGillis Archibald Fraser	250	0	0	December 8, do	December 15, do	1704
Rapeje, Abm. B.	Clerk, 1st Division Court, County of Norfolk	George W. Powell Jacob Lemon	300	0	0	January 7, 1854	March 3, 1854	1771
Robertson, Thomas	Clerk, 10th Division Court, United Counties Leeds and Grenville	Thomas Waddell Thomas Smith	240	0	0	do 12, do	April 27, do	1886
Rogers, James G.	Clerk, 6th Division Court, United Counties Northumberland and Durham	Francis Burnett Asa A. Burnham	150	0	0	February 6, do	do 28, do	1842
Robertson, William	Clerk, 2nd Division Court, United Counties Lanark and Renfrew	James Hannah Jacob Gallinger	250	0	0	April 5, do	May 11, do	1869
Ritchey, John	Bailiff, 4th Division Court, United Counties of Lanark and Renfrew	James Shaw, junr. John McGillivray	200	0	0	March 20, do	do 12, do	1894
Ross, George	Clerk, 6th Division Court, United Counties Lanark and Renfrew	William Morris James Morris, junr.	150	0	0	February 17, do	do 13, do	1896
Symmes, Charles	Revenue Inspector for the District of Ottawa	John Egan Peter Howard Church	500	0	0	August 17, 1852	August 25, 1852	1540
Sherwood, Adiel	(Bond) Sheriff of the United Counties of Leeds and Grenville	George Crawford Ephraim Dunham	1000	0	0	November 4, do	December 1, do	1571

A DETAILED STATEMENT OF BONDS AND SECURITIES, &c.—(Continued.)

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A. 1854.

Name of Principal.	Office or Appointment.	Names of Sureties.	Penalty.			Date of Bond.	Date of Record.	No. of Bond.
			£	s.	d.			
Sherwood, Adiel.....	(Covenant) Sheriff, of the United Counties of Leeds and Grenville.....	George Crawford..... Ephraim Dunham.....	1000 500 500	0 0 0	0 0 0	November 4, 1852..	December 1, 1852..	1572
Steele, John, President of the Ingersoll and Brantford Joint Stock Road Company.....	Bond, for the Payment of £6,100, being the purchase money, from the Government, of the Public Road, leading through the County of Oxford, under 13 & 14 Vic. cap. 14, and 12 Vic. cap. 5. Surveyor and Landing Waiter in Her Majesty's Customs.....	Joseph Clement..... Robert Hobson.....	12300 200 100 100	0 0 0 0	0 0 0 0	do 28, 1850..	February 4, 1853..	1592
Shaw, Arthur.....	Registrar for the County of St. Hyacinthe.....	Gédéon Melasippe Prévoist..... Vermont St. Germain..... Pierre Gédéon Auger.....	2000	0	0	May 9, do..	May 18, do..	1625
St. Germain, Horace..	Revenue Inspector, County of Waterloo..	John Hoffman..... William Walden.....	500 250 250	0 0 0	0 0 0	do 10, do..	do 20, do..	1633
Scott, John.....	Collector in Her Majesty's Customs.....	James McIndoe..... Henry Penny.....	500 250 250	0 0 0	0 0 0	June 28, do..	July 18, do..	1646
Sheehan, Walter Butler.....	(Bond) Sheriff, County of Brant.....	P. C. Van Brocklin..... Jos. D. Clement.....	1000 500 500	0 0 0	0 0 0	July 29, do..	August 19, do..	1661

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do do.....	(Covenant) Sheriff, County of Brant.....	Hugh Finlayson..... Alexander Spottiswood..... Charles Whitlaw..... Robert McCosh.....	1000 250 250 250	0 0 0 0	0 0 0 0	do 6, do..	do do do..	1662
Sharman, John.....	Agent for the Sale of Crown Lands, for the County of Perth.....	William Dunn..... George Wood.....	2000 1000 1000	0 0 0	0 0 0	June 10, do..	do 24, do..	1668
Seaton, Benjamin.....	Collector in Her Majesty's Customs.....	Casper Miner..... G. B. Rolleson.....	250 150 150	0 0 0	0 0 0	January 28, 1854..	February 7, 1854..	1719
Smeaton, John.....	Landing Waiter and Searcher in Her Majesty's Customs.....	Ecl. Gingras..... James Davidson.....	100 50 50	0 0 0	0 0 0	February 4, do..	do 15, do..	1720
Stearnes, Amos Saford.....	Bailiff, 1st Division Court, United Counties Leeds and Grenville.....	Ephraim Dunham..... James Kincaid.....	620 310 310	0 0 0	0 0 0	December 19, 1853..	do 17, do..	1727
Stone, Ervin.....	do do.....	George Marshall..... Asahel Stone.....	210 105 105	0 0 0	0 0 0	do 23, do..	do 18, do..	1735
Stuart, Peter.....	Clerk, 9th Division Court, United Counties Stormont, Dundas, and Glengarry.....	Donald S. Macdonald..... Alexander Stöckler.....	50 25 25	0 0 0	0 0 0	do 24, do..	do 20, do..	1737
Stevens, James Buck..	Clerk, 8th Division Court, United Counties Leeds and Grenville.....	David Buck Stevens..... Richard Leech.....	330 165 165	0 0 0	0 0 0	do 27, do..	do 21, do..	1742
Stata, Simon Sidney..	Bailiff, 8th and 10th Division Courts, United Counties of Stormont, Dundas, and Glengarry.....	Philip Stata..... Henry G. Merkleby.....	50 25 25	0 0 0	0 0 0	do do do..	do do do..	1746
Stacy, Henry.....	Clerk, 6th Division Court, United Counties Stormont, Dundas, and Glengarry.....	Solomon Doren..... Reuben Dellabough.....	85 43 43	0 0 0	0 0 0	do 28, do..	do 23, do..	1747

A DETAILED STATEMENT OF BONDS AND SECURITIES, &c.—(Continued.)

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Name of Principal.	Office or Appointment.	Names of Sureties.	Penalty.			Date of Bond.	Date of Record.	No. of Bond.
			£	s.	d.			
Simpson, Adam	Clerk, 2nd Division Court, United Counties York, Ontario, and Peel	James Peterson Bennet Franklin	250 125 125	0 0 0	0 0 0	January 2, 1854..	March 1, 1854..	1765
Shearer, Gabriel D.	Bailiff, 5th Division Court, County of Norfolk	Robert N. Shearer Peter Mabee	200 100 100	0 0 0	0 0 0	do 28, do	do 13, do	1790
Smith, John S.	Bailiff, 5th Division Court, County of Norfolk	Henry J. Kilmaster Titus Williams	200 100 100	0 0 0	0 0 0	do do do	do do do	1791
Scatchard, Foster	Clerk, 8th Division Court, County of Middlesex	John Scatchard Thomas Scatchard	200 100 100	0 0 0	0 0 0	do 27, do	do 17, do	1810
Scobie, Alexander	Clerk, 1st Division Court, County of Halton	Robert Anderson Robert Young	400 200 200	0 0 0	0 0 0	February 16, do	do 21, do	1824
Switzer, Tobias	Clerk, No. 3 Division Court, United Counties of York and Peel	Daniel Switzer Thomas Elliott	250 125 125	0 0 0	0 0 0	January 31, do	April 8, do	1832
Smith, E. Henry	Clerk, 9th Division Court, United Counties Northumberland and Durham	Abijah Smith George F. Bull	300 150 150	0 0 0	0 0 0	February 9, do	do 28, do	1840
Stitt, William	Bailiff, 10th Division Court, United Counties Leeds and Grenville	James Stitt Jos. Jenkinson	240 120 120	0 0 0	0 0 0	December 31, 1853..	May 1, do	1864

Soper, Henry Waterhouse	Bailiff, 5th Division Court, United Counties of Leeds and Grenville	Isaac Soper, junr Isaac Soper	340 170 170	0 0 0	0 0 0	January 3, 1854..	May 1, 1854..	1866
Sowden, Wm. Henry	Bailiff, 4th Division Court, United Counties Northumberland and Durham	William Sowden George Elias Jones	300 150 150	0 0 0	0 0 0	February 20, do	do 6, do	1874
Sache, Chas. Henry	Clerk, 1st Division Court, United Counties Lanark and Renfrew	Alexander Fraser Andrew W. Playfair	400 200 200	0 0 0	0 0 0	April do do	do 11, do	1888
Thompson, Francois-Xavier	A Culler of Deals, Boards, Planks, and Lathwood	Simon Thompson Francois-Xavier Leimeux	100	0	0	May 6, 1852..	August 27, 1852..	1842
Thompson, James	(Covenant) Sheriff, United Counties of Lanark and Renfrew	James Templeton John Allan	500 250 250	0 0 0	0 0 0	July 6, do	September 21, do	1854
Torney, John Alfred	Agent for the Public Lands, in and for all that Territory, drained by the Tributaries of the River St. John	James Tibbitts W. S. Henderson	1000 500 500	0 0 0	0 0 0	March 13, do	January 27, 1853..	1858
Taylor, James William	Surveyor in Her Majesty's Customs	William Thompson James Paterson	200 200	0 0	0 0	January 17, 1853..	do do do	1856
Torney, John Alfred	Preventive Officer in Her Majesty's Customs	Henry Davidson William Hodgson	100 50	0 0	0 0	April 12, do	April 19, do	1619
Tremblay, Pierre Alexis	Surveyor of Lands in and for Lower Canada	Gaspard Fortin Yves Tessier	250	0	0	October 5, do	October 11, do	1678
Tétu, Lucyer	Joint Coroner for the District of Kamouraska	Pierre Thos. Casgrain Chs. Hilaire Tétu	50 50 50	0 0 0	0 0 0	do 25, do	do 31, do	1688

A DETAILED STATEMENT OF BONDS AND SECURITIES, &c.—(Continued.)

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A. 1854.

Name of Principal.	Office or Appointment.	Names of Sureties.	Penalty.			Date of Bond.	Date of Record.	No. of Bond.
			£	s.	d.			
Thompson, James....	A Collector in Her Majesty's Customs.....	Albert Knight..... Albert Philips Bail	1000	0	0	October 28, 1853..	November 9, 1853..	1691
Treadwell, Chs. Platt..	(Bond) Sheriff of the United Counties of Prescott and Russell	Chauncey Johnson junr	500	0	0	November 16, do ..	February 16, 1854..	1724
do do ..	(Covenant) do do ..	James MacIntosh	500	0	0	do do do ..	do do do ..	1725
Tett, William H.....	Bailiff, 8th Division Court, United Counties Leeds and Grenville.....	Chauncey Johnson, junr	500	0	0	December 27, do ..	do 21, do ..	1744
Thompson, John.....	Bailiff, 8th Division Court, United Counties Stormont, Dundas, and Glengarry.....	James McIntosh.....	330	0	0	do 31, do ..	do 28, do ..	1760
Tate, Thomas.....	Bailiff, 3rd Division Court, County of Norfolk	Herbert Rowsell	165	0	0	do do do ..	do do do ..	1773
Taylor, William.....	Clerk, 5th Division Court, United Counties Lanark and Renfrew.....	Daniel McDonald.....	200	0	0	January 9, 1854..	March 9, do ..	1773
Verrault, Edward	A Culler of Square Timber, Deals, Boards, Planks, and Lathwood.....	Alexander Hume	50	0	0	March 4, do ..	May 11, do ..	1891
Verreault Chs. Arthur.	Surveyor of Lands in Lower Canada	John Cameron.....	25	0	0	do do do ..	do do do ..	1760
		Isaac McInally.....	25	0	0	do do do ..	do do do ..	1760
		George William Powell.....	25	0	0	do do do ..	do do do ..	1760
		Charles Roger.....	200	0	0	do do do ..	do do do ..	1760
		James Dunnett	100	0	0	do do do ..	do do do ..	1760
		Michael Hamel.....	100	0	0	do do do ..	do do do ..	1760
		Henry S. Dalkin.....	100	0	0	do do do ..	do do do ..	1760
		Ovide Bruno Fournier.....	100	0	0	do do do ..	do do do ..	1760
		Yves Tessier.....	250	0	0	do do do ..	do do do ..	1760

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Name of Principal.	Office or Appointment.	Names of Sureties.	Penalty.			Date of Bond.	Date of Record.	No. of Bond.
			£	s.	d.			
Vezina, Pierre Edouard.	Clerk, Yamaska Circuit Court.....	G. S. Badeaux.....	500	0	0	September 6, do ..	September 19, do ..	1673
Vaansteenburg, Peter..	Bailiff, 4th Division Court, United Counties Stormont, Dundas, and Glengarry.....	Chs. Boucher de Niverville	50	0	0	December 26, do ..	February 20, 1854..	1741
VanIngen, Abm. John.	Bailiff, 5th Division Court, United Counties of Northumberland and Durham	Henry Bredin.....	25	0	0	February 25, 1854..	May 1, do ..	1867
Walbridge, Wm. junr..	Surveyor of Lands in Upper Canada.....	Adam Hanes	300	0	0	do do do ..	do do do ..	1867
Walsh, Christopher ..	Collector in Her Majesty's Customs	William Graveley	150	0	0	do do do ..	do do do ..	1867
Wynn, Joseph.....	Lessee of Ferry, between Queenston and Lewiston.....	Roe Buck.....	150	0	0	do do do ..	do do do ..	1867
Williams, William S...	Landing Waiter and Searcher in Her Majesty's Customs	William Holloway Walbridge	250	0	0	January 8, 1852..	March 2, 1853..	1600
Warren, Charles.....	Lessee of Ferry, from Gorman's Landing to Allumette Island.....	Thos. Swainton Campbell	500	0	0	July 5, 1853..	July 18, do ..	1649
Workman, Aaron.....	Landing Waiter and Searcher in Her Majesty's Customs	J. G. Bowes	250	0	0	do 13, do ..	do 19, do ..	1651
Wilson, Thomas.....	A Culler of Deals, Boards, Planks, and Lathwood	Charles Berezy	250	0	0	do do do ..	do do do ..	1651
		James Oswald.....	175	0	0	do do do ..	do do do ..	1651
		John Fairbairn	100	0	0	do do do ..	do do do ..	1651
		Hugh Fraser	200	0	0	do do do ..	do do do ..	1651
		David Porteus.....	100	0	0	do do do ..	do do do ..	1651
		George Thomas	100	0	0	do do do ..	do do do ..	1651
		Robert Andrews.....	100	0	0	do do do ..	do do do ..	1651
		François Begin	100	0	0	do do do ..	do do do ..	1651
		Henry McCready	100	0	0	do do do ..	do do do ..	1651

A DETAILED STATEMENT OF BONDS AND SECURITIES, &c.—(Continued.)

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A. 1854.

Name of Principal.	Office or Appointment.	Names of Sureties.	Penalty.		Date of Bond.	Date of Record.	No. of Bond.
			£	s. d.			
Wells, Isaac Brock.....	Landing Waiter and Searcher in Her Majesty's Customs	Geo. Canning Longley. Richard Dumbrell.....	100	0 0	January 17, 1854..	February 7, 1854..	1718
Wiltse, Martin.....	Bailiff, 9th Division Court, United Counties Leeds and Grenville.....	Simon Algure..... Wm. Wallace King.....	150	0 0	December 22, 1853..	do 17, do ..	1728
Walker, William.....	Bailiff, 11th Division Court, United Counties Leeds and Grenville.....	William Humphries .. Aaron Bellamy Pardec.	240	0 0	do 23, do ..	do 18, do ..	1733
Wiseman, William.....	Bailiff, 4th and 8th Division Courts, United Counties Stormont, Dundas, and Glengarry.....	Adam Hancs	50	0 0	do 26, do ..	do 20, do ..	1740
Williams, Raby.....	Clerk, 1st Division Court, County of Perth.....	Jno. Norman McNarin.	25	0 0	do do do ..	do do do ..	1740
Whaley, Samuel.....	Clerk, 5th Division Court, County of Perth.....	James Woods	1600	0 0	January 10, 1854..	March 9, do ..	1777
Willing, Nathaniel.....	Bailiff, 4th Division Court, County of Simcoe.....	Peter Woods	1600	0 0	do do do ..	do do do ..	1780
Ward, Sheldon.....	Bailiff, 5th Division Court, County of Middlesex.....	William Cossey	200	0 0	do do do ..	do do do ..	1780
		James Trov	100	0 0	do do do ..	do do do ..	1780
		John McRoy	80	0 0	do do do ..	do do do ..	1798
		Francis Keer	40	0 0	do do do ..	do do do ..	1798
		James Jordan.....	100	0 0	do do do ..	do do do ..	1814
		Henry Henderson	100	0 0	February 2, do ..	do 18, do ..	1814

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Wilcox, Abel.....	Bailiff, 7th Division Court, County of Middlesex.....	Francis Frank..... John Page	200	0 0	do 8, do ..	do 20, do ..	1820
Williams, Raby.....	Clerk, 1st Division Court, County of Perth.	Peter Woods	100	0 0	do do do ..	do do do ..	1820
Warran, George Fredk.	Landing Waiter and Searcher in Her Majesty's Customs	James Woods.....	1600	0 0	April 5, do ..	April 29, do ..	1852
Wright, John.....	Bailiff, 9th Division Court, United Counties of Northumberland and Durham.....	John Hutchison	500	0 0	do do do ..	do do do ..	1858
Warren, Berjn. David..	Bailiff, 6th Division Court, United Counties Leeds and Grenville.....	P. M. Vankoughnet ..	250	0 0	February 8, do ..	May 5, do ..	1870
Yielding, James Roysse..	Collector in Her Majesty's Customs	Alfred J. Wright..... Ferdinand Vansicten..	300	0 0	do do do ..	do do do ..	1858
Yarwood, Clare St. George.....	Clerk and Landing Waiter, and Searcher in Her Majesty's Customs.....	Walker Henderson Den- ant	150	0 0	do do do ..	do do do ..	1870
Young, Daniel.....	Bailiff, No. 1 Division Court, County of Haldimand.....	Jaspar Abel Russel ..	170	0 0	March 18, do ..	do 9, do ..	1882
		Henry Vansittart	500	0 0	do do do ..	do do do ..	1882
		John G. Vansittart.....	250	0 0	January 31, 1853..	February 24, 1853..	1599
		Thomas D. Harrington.	200	0 0	do do do ..	do do do ..	1700
		Grant Powell.....	100	0 0	November 18, do ..	December 16, do ..	1700
		Richard Mead.....	400	0 0	do do do ..	do do do ..	1821
		William McPherson.....	200	0 0	February 11, 1854..	March 20, 1854..	1821

Certified.

THOS. AMIOT,

Deputy Registrar.

PROVINCIAL REGISTRAR'S OFFICE,
Quebec, 19th June, 1854.

PROVINCE OF CANADA.

A DETAILED STATEMENT of BONDS and SECURITIES which have been Registered between the 13th day of June and the 6th day of September, 1854; prepared in compliance with the 15th section, 4th & 5th Vic. cap. 91.

Name of Principal.	Office or Appointment.	Names of Sureties.	Penalty.		Date of Bond.	Date of Record.	No. of Bond.
			£	s. d.			
Bullock, Chauncey.....	Collector in Her Majesty's Customs.....	Elias Cheney..... Thomas Griffith.....	500 250 250	0 0 0	June 1, 1854..	July 4, 1854..	1909
Barnard, Edward.....	Clerk, Circuit Court, Three Rivers Circuit..	George Badeaux..... John Whiteford.....	250 0	0 0	July 25, do..	August 1, do..	1924
Barnard, Edward.....	Prothonotary and Clerk, Superior Court, Three Rivers.....	George Badeaux..... John Whiteford.....	1000 0	0 0	do do do..	do do do..	1925
Clark, Eleazer.....	Revenue Inspector, District of St. Francis..	Hollis Smith..... John Johnston.....	500 250 250	0 0 0	May 23, do..	July 4, do..	1906
Coulter, John.....	Bailiff, 5th Division Court, County of Perth.....	James Frow..... William Cossey.....	200 200 200	0 0 0	do 15, do..	do 31, do..	1922
Dorval, J. Bte. Alexis..	A Culler of Square Timber.....	Alexis Dorval..... Jean Fournier dit La-rose.....	100 0	0 0	June 28, do..	do 14, do..	1915
Gunn, George.....	Preventive Officer in Her Majesty's Customs.....	Theodore Granger Brainerd..... Andrew Holden.....	100 0	0 0	do 12, do..	do 4, do..	1910

Great Western Railway Company.....	Bond to the Commissioner of Her Majesty's Customs relative to goods, &c., brought into Canada through the United States of America, by or in the cars of the said Company.....	Robert W. Harris, President for and on behalf of said Company.....	20000	0	0	do 17, do..	do 6, do..	1913
Kemp, Galloway Levi..	Preventive Officer in Her Majesty's Customs.....	Levi Kemp..... William S. Baker.....	100 50 50	0 0 0	May 29, do..	do 4, do..	1908	
LePan, Fredk. Nichs. D'Orr.....	Treasurer of the County of Grey.....	Alexander M. Stephens. John Mills.....	1000 500 500	0 0 0	June 7, do..	do 28, do..	1917	
Leslie, William.....	Clerk, 2nd Division Court, County of Wellington.....	Joseph Black..... John Dixon, sear.....	100 50 50	0 0 0	do 9, do..	do 29, do..	1919	
Moorcraft, William....	Landing Waiter and Searcher in Her Majesty's Customs.....	James McClelland..... Robert Squar.....	200 100 100	0 0 0	May 10, do..	do 4, do..	1904	
McCullough, Henry...	Preventive Officer in Her Majesty's Customs.....	William McCullough..... William Garvey, sear.....	100 50 50	0 0 0	do 19, do..	do do do..	1905	
McFarlane, Duncan...	Bailiff, 2nd Division Court, County of Wellington.....	(Names of Sureties not inserted).....	100 50 50	0 0 0	(without date)....	do 29, do..	1920	
McCarthy, Jno. Augustus.....	Bailiff, 1st Division Court, County of Perth.....	John P. Vivian..... George Scott.....	300 300 300	0 0 0	April 6, 1854..	do 31, do..	1921	
Reynolds, Nelson Gilbert, Sheriff of the County of Ontario.....		John Vandal Ham..... Zaccheus Burnham.....	1000 500 500	0 0 0	June 13, do..	do 28, do..	1916	

A DETAILED STATEMENT OF BONDS AND SECURITIES, &c.—(Continued.)

Name of Principal.	Office or Appointment.	Names of Sureties.	Penalty.		Date of Bond.	Date of Record.	No. of Bond.
			£	s. d.			
Schofield, Adam Killman	Landing Waiter and Searcher in Her Majesty's Customs	John Schofield John Fraser	200 100 100	0 0 0	May 27, 1854	July 4, 1854	1907
Sheppard, Martin	Sheriff, District of Gaspé	Paul Poirier William Langler	1500	0 0	do 24	do 5	1912
Scott, Alexander	Agent for the disposal of public Lands in the County of Lambton	Edward Whitney Thomas Forsyth	2000 1000 1000	0 0 0 0 0 0	July 13	do 29	1918
Trudel, Ambroise	Agent for the Commutation of Tenure in the Seigniorie of Lauzon	Pierre Giroux, père Pierre Giroux, fils	200 200 200	0 0 0 0 0 0	June 16	do 6	1914
Whaley, Samuel	Clerk, 5th Division Court, County of Perth	William Cossey James Trow	200 200 200	0 0 0 0 0 0	May 15	do 31	1928
Young, Alexander	Preventive Officer in Her Majesty's Customs	Jonathan W. Eaton Moore Baker	100 50 50	0 0 0 0 0 0	June 16	do 4	1911

Certified,
THOS. AMIOT,
Deputy Registrar.

DEPUTY REGISTRAR'S OFFICE,
Quebec, September 11, 1854.

COUNTY COUNCILS

OF

UPPER CANADA.

RETURNS

Under the Act 16 Vic., cap. 163, Section 2, submitted to the Legislative Assembly for their information.

By Command.

E. A. MEREDITH,
Assistant Secretary.

SECRETARY'S OFFICE,
Quebec, 5th March, 1855.

RETURN, &c.—

Number.	Total amount of liabilities unsecured			Total liabilities of all kinds			Total value of real property belonging to Municipality.			Total value of stock in incorporated Companies owned by Municipality.			Total value of debts due to Municipality		
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
1							12300	0	0						
2	4000	0	0	400	0	0	10000	0	0						
3	565	3	0	82515	3	0	170	0	0	75000	0	0	542	16	8
4				1525	0	0	4000	0	0				750	0	0
5	29245	0	0	56563	2	8	90538	13	6	35250	0	0	2929	12	5
6				2000	0	0									
7							†								
8	*			†			*			*			*		
9	839	14	7	34791	14	7	8750	0	0	13563	3	7½	12646	0	0
10															
11	23193	14	6	317272	3	9	298000	0	0	150000	0	0	19938	11	11
12							9480	0	0	50000	0	0	1191	0	0
13	47	2	0½				37485	0	0				36	0	0
14				30452	16	2	33472	11	5				230	15	11
15	231	10	7½	231	10	7½	3000	0	0						
16	200	0	0	7501	7	1							405	0	0
17															
18	2854	10	6	81203	2	10	55700	0	0	33750	0	0	2875	10	0
19	2204	13	0	16379	13	0	35150	0	0				594	16	0
20	300	0	0	938	4	5	15250	0	0				1142	17	9
21				320	0	0	480	0	0	300	0	0			
22															

† Court House and Gaol, and nearly two acres of land not valued.

The sums of money marked thus (*) are extracted from the Treasurer's Books.

—(Continued.)—

Total amount of arrears of taxes.			Balance in hands of Treasurer.			All other property owned by Municipality			TOTAL ASSETS.		
£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
100	0	0	3761	19	9						
			1245	12	5				1245	12	5
4849	10	7	5981	5	8				86543	12	11
1261	10	7	870	12	0	Nil			6882	2	7
1578	11	5	3174	17	1	20517	13	6	61718	15	11
2000	10	1	1292	13	3				3293	3	4
*			*			*			*		
206	10	0	4178	12	1				39344	5	8½
7378	6	6	7227	13	3				475166	5	2
			3173	14	8				68344	14	8
1053	11	7	697	18	3	150	0	0	1528131	15	24
1863	11	0							35565	18	4
			556	16	6				3325	5	10½
1532	15	8	486	0	2				2873	15	10
6677	9	11	161	12	0				99164	11	11
3087	4	8							38832	0	9
1142	17	9	480	15	3	35	0	0	16888	3	7
644	7	3	368	12	0	117	10	0	1514	0	7½
† 2689	3	10	870	11	4½						

The sums of money marked thus (*) are extracted from the Treasurer's Books.

† Wild Lands.

GENERAL STATEMENT.

Table with columns: Number, Total amount of taxes imposed by By-laws of any Provisional County Council, Total amount of Lunatic Asylum or other Provincial tax, Total amount of all taxes, as aforesaid, Total amount of income collected or to be collected from assessed taxes for the use of the Municipality, Total amount of income from licenses. Rows 1-21.

&c.—(Continued.)

Table with columns: Total amount of income from public works, Total amount of income from shares in incorporated Companies, Total amount of income from all other sources, Total amount of income from all sources, Total expenditure on account of roads and bridges, Total expenditure on account of other public works and property. Rows 1-21.

GENERAL STATEMENT.

Number.	Total expenditure on account of stock held in any incorporated Company.			Total expenditure on account of Schools and education, exclusive of School Trustees rates.			Total expenditure on account of the support of the poor or charitable purposes.			Total expenditure on account of Debentures and interest thereon.			Total gross expenditure on account of Administration of Justice in all its branches.		
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
1				182	1	6									
2				182	12	1									
3				36	6	8	15	0	0						
4				84	14	8									
5				200	0	0									
6				234	15	8									
7				126	10	9									
8				620	0	0									
9				487	6	6	35	8	10						
10				230	1	6									
11				196	14	1				120	0	0			
				2581	2	7	50	8	10	120	0	0			
12				123	13	1									
13				640	16	0	8	0	0						
14				112	0	0									
15				45	15	9									
16				228	0	2									
17				92	12	4	70	18	9	81	19	10			
18				3823	19	11	129	7	7	201	19	10			
19										429	0	0	4215	0	4
				3823	19	11	129	7	7	630	19	10	4215	0	4
1				174	0	0	7	10	0						
2				89	0	0									
3															
4				120	3	4									
5				201	11	8									
6				95	15	8									
7				102	10	10									
8				137	13	2½									
9				48	11	3									
10				95	2	10½									
11	*			120	12	1									
12															
13				51	2	4	4	2	6						
14				31	3	10									
15							160	0	0						
				1267	7	0½	11	12	6	160	0	0			

* Particulars as to Tossorontio unknown.

&c.—(Continued.)

Amount received from Government on account of Administration of Justice.			Total nett expenditure on account of Administration of Justice.			Total expenditure on account of salaries, and the expenses of Municipal Government.			Total expenditure on all other accounts.			Total expenditure of all kinds.			Total amount of liabilities secured by Debentures.								
£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.						
						116	10	0	55	6	11	171	16	11									
						35	10	0	97	5	9	315	7	10									
						43	2	6	118	1	8	161	3	9									
						65	0	0				65	0	0									
						130	3	9	75	12	4	568	16	1									
						47	10	0	35	10	6	647	15	9									
						162	16	8				162	16	8	474	7	5						
						250	9	0	250	0	0	1370	9	0									
						75	0	0	10	0	0	835	0	4									
						160	0	0	294	0	0	999	1	6									
						63	18	7	69	0	7	786	15	9	675	0	0						
						1150	0	4	1004	17	4	6084	1	11	1149	7	5						
						95	19	9				415	15	10									
						154	3	9				809	11	9									
						100	0	0				462	0	0									
						34	10	8	4	0	0	214	16	9									
						461	3	4				1351	13	4									
						83	15	0				1023	4	2	564	0	0						
						2279	4	2	1008	0	0	9961	3	9	1713	7	5						
						1544	0	0	2671	0	4	1650	12	6	1302	7	10	8026	0	8	1625	0	0
						1544	0	0	2671	0	4	3929	16	8	2310	7	10	179870	4	5	3338	7	4
						408	0	0	309	0	0	712	0	0									
						70	0	0				70	0	0									
						55	16	5				334	5	9									
						67	16	0				197	10	2									
						90	0	0				284	10	8									
						44	5	0				180	5	10									
						36	10	0															
						60	0	0															
						50	5	0	18	1	3	276	0	6									
						24	2	8				204	9	9									
						60	0	0				105	10	0									
						65	2	2	51	16	4	285	15	7									
						32	19	10	35	6	7	134	1	9½									
						180	0	0				1440	0	0	1000	0	0						
						1239	17	1	414	4	2	8574	10	0½	1000	0	0						

* Particulars as to Tossorontio unknown.

GENERAL STATEMENT.

Number.	Total amount of liabilities unsecured.			Total liabilities of all kinds.			Total value of real property belonging to Municipality.			Total value of stock in incorporated Companies owned by Municipality.			Total value of debts due to Municipality.		
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
1				47	12	2									
2															
3															
4															
5															
6															
7				474	7	5									
8	757	12	0	757	12	0	200	0	0						
9															
10															
11				675	0	0	200	0	0						
	757	12	0	1954	11	7	400	0	0				72	16	2
12							100	0	0						
13							25	0	0						
14															
15													80	5	9
16				125	0	0	400	0	0						
17				564	0	0	1500	0	0						
	757	12	0	2643	11	7	2405	0	0				153	1	11
18	2581	11	3	4206	11	3	27916	16	0				2102	6	5
	3389	3	3	6850	2	10	30321	16	0				2255	8	4
1				175	0	0	1000	0	0						
2				364	7	3									
3															
4															
5															
6															
7															
8															
9															
10				27	11	2	27	11	2						
11	*														
12															
13	2	19	5	2	19	5	250	0	0						
14															
15															
	2	19	5	569	17	10	1277	11	2						

* Particulars as to Tossorontio unknown.

&c.—(Continued.)

Total amount of arrears of taxes.			Balance in hands of Treasurer.			All other property owned by Municipality			TOTAL ASSETS.		
£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
15	2	10	275	16	1				292	18	11
			87	19	6				87	19	6
72	16	2	45	5	1				206	8	10
23	3	3	41	0	0				64	3	3
90	12	5	111	15	10				202	8	4
			36	19	6				36	19	6
63	15	0	21	1	5				34	16	5
569	14	6	643	17	7				1213	12	1
40	0	0	28	1	0				68	1	0
297	12	9	169	12	9				169	12	9
116	18	3	43	2	2	15	0	0	347	15	5
1329	10	2	1522	12	9	15	0	0	2774	15	3
22	1	8	50	11	11	100	0	0	272	12	9
			51	10	0				79	17	10
80	0	0	30	0	0				30	0	0
			2	17	1				33	2	10
			686	18	3.				1086	18	3
			43	16	0	175	0	0	1718	16	0
1431	11	10	2398	6	0	290	0	0	6046	2	1
474	14	6				1136	0	0	31629	18	4
1906	6	4	2398	6	0	1426	0	0	37676	0	11
			14	17	1	200	0	0	1200	0	0
350	0	0	160	0	0						
			86	1	0						
			72	16	5½						
			4	8	0						
125	12	3½									
245	17	6							627	17	8
			4	8	10½						
18	0	0	16	14	4						
						35	0	0			
306	16	0	8	11	3				315	7	3
177	19	11									
1224	5	8½	367	17	0½	235	0	0	2143	4	4

* Particulars as to Tossorontio unknown.

GENERAL STATEMENT,

Number.	NAME OF MUNICIPALITY.	Number of persons assessed.	Number of acres assessed.	Total of rentals of real property.			Total of yearly value other than rentals of real property.			Total actual value of real property.		
				£	s.	d.	£	s.	d.	£	s.	d.
COUNTY OF HASTINGS.												
1	BELLEVILLE	1372		20951	10	0	12255	18	0	553450	0	0
2	do											
3	TRENTON	245		4948	0	0	628	0	0			
4	HUNTINGDON	411	51500							46070	0	0
COUNTIES OF LEEDS AND GRENVILLE.												
1	ELIZABETHTOWN	925	78818							240821	0	0
2	FRONT OF LEEDS AND LANS-											
	DOWN	632	59132½							96239	0	0
3	EDWARDSBURGH	685	67489							88649	0	0
4	KITLEY	540	49704							75843	0	0
5	WOLFORD	500	40337½							74208	0	0
6	REAR OF YONGE AND ESCOTT.	303	29724							66875	0	0
7	ELMSLEY	200	20000							26625	0	0
8	NORTH CROSBY	239	44940½							30926	18	0
9	FRONT OF YONGE AND ESCOTT.	476	53846½				344	0	0	77870	0	0
10	SOUTH CROSBY	254	39606½							42116	0	0
11	BASTARD AND BURGESS	614	56880							81084	0	0
12	REAR OF LEEDS AND LANS-											
	DOWN	317	46987½							40417	0	0
13	AUGUSTA	714	73135½							139509	0	0
14	OXFORD	686	57569½							107216	2	5
15	SOUTH GOWER	166	18601							31919	0	0
16	BROCKVILLE, TOWN	918		16187	8	2				161870	0	0
17	PRESCOTT, TOWN	559	545	3780	0	0	4768	6	0	85480	0	0
18	do											
Totals		8778	736825½	19967	8	2	5112	6	0	1407668	0	0
COUNTY OF CARLETON.												
1	TOWNSHIP OF FITZROY	364	52783							52972	0	0
2	do TORBOLTON	84	19228							9009	0	0
3	do HUNTLEY	351	43322							32372	0	0
4	do MARCH	160	26324							15953	0	0
5	do GOULBOURN	390	56195							47209	0	0
6	do MARLBOROUGH	372	60000							34736	0	0
7	do NORTH GOWER	325	30610							28646	0	0
8	do OSGOODE	625	92500							63908	5	0
9	do GLOUCESTER	553	72400							58113	0	0
10	VILLAGE OF RICHMOND	120	1504	675	10	0	356	17	6	5947	19	10
11	TOWN OF BYTOWN	1600					30410	4	0	304100	0	0
12	TOWNSHIP OF NEPEAN	610	60835							84586	0	0
Totals		5554	516201	675	10	0	30767	1	6	688102	4	10

&c.—(Continued.)

Total of taxable incomes.	Total value of personal property.	Total yearly value of personal property.	Total amount of assessed value of real and personal property.	Total amount of taxes imposed by By-laws of the Municipality			Total amount of taxes imposed by By-laws of the County Council.										
				£	s.	d.	£	s.	d.								
9815	0	0	48910	10	0	3672	18	0	597360	10	0	3808	0	3	759	17	0
			7585	0	0	670	0	0	62460	0	0	418	0	0	140	0	0
									53655	0	0	140	0	0	269	17	6
			87455	0	0				278276	0	0	250	0	0	1284	14	10
									115719	0	0	75	0	0	575	9	0
			19480	0	0				107213	0	0	91	2	10	441	15	7
200	0	0	18364	0	0				91718	0	0	318	0	0	498	9	5
50	0	0	15825	0	0				88483	0	0	97	10	0	450	13	7
			14275	0	0				80200	0	0	99	3	0	408	18	11
			13325	0	0				30000	0	0	40	0	0	195	2	2
200	0	0	3375	0	0				36935	15	0	179	6	2	205	19	7
			6053	17	0				93247	0	0	127	1	10	465	6	7
			15377	0	0				50341	0	0	78	0	0	212	9	4
302	0	0	8225	0	0				97759	0	0	107	5	0	516	17	7
600	0	0	16675	0	0												
			7475	0	0				47892	0	0	289	3	1	222	6	2
			25775	0	0				165284	0	0	43	4	5	822	18	0
977	0	0	18815	0	0				126081	2	5	733	10	0	619	6	5
1920	0	0	7565	0	0				39484	0	0	40	0	0	184	0	0
			50535	0	0				215120	0	0	1715	17	10	896	6	8
38218	0	0	29910	0	0	5325	4	0	105860	0	0	1221	0	8½	500	0	0
4060	0	0				2038	4	0									
46527	0	0	308509	17	0	7363	8	0	1769912	17	5	14105	1	6½	8450	13	10
			10045	0	0				63017	0	0	437	0	0	220	0	0
			1930	0	0				10939	0	0	64	4	9½	43	10	1
			8311	0	0				41183	0	0	255	14	0	205	4	11
			3797	0	0				19750	0	0	124	13	6	66	1	2
			8025	0	0				55234	0	0	302	19	11½	213	6	6½
			7000	0	0				41786	0	0	174	2	2	97	14	8
			7081	0	0				35677	0	0	40	0	0	145	11	1
			8018	10	0				71926	15	0	284	1	6	211	0	3
			10180	0	0				68293	0	0	283	9	5	285	10	7
			4975	0	0				1380	7	6	5	17	6	50	15	5
			74266	0	0	298	10	0	34866	14	0	3779	9	0	1269	7	7
			10424	0	0	4456	10	0	95010	0	0	293	8	5	356	11	7
440	0	0															
440	0	0	154002	10	0	4755	0	0	539012	16	6	6049	19	9	3164	13	10½

GENERAL STATEMENT.

Number.	Total amount of liabilities unsecured.			Total liabilities of all kinds.			Total value of real property belonging to Municipality.			Total value of stock in incorporated Companies owned by Municipality.			Total value of debts due to Municipality.		
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
1	600	0	0	15151	7	6	12500	0	0	3245	0	0	2900	0	0
2	871	17	6	371	17	6							70	4	6
3															
4															
1							220	0	0						
2															
3															
4															
5															
6							18168	0	0						
7															
8															
9															
10															
11															
12															
13															
14				6000	0	0				6000	0	0			
15				40	0	0							28	0	0
16	290	0	0	890	0	0	10000	0	0						
17	6275	12	0	31275	12	0	150	0	0	7500	0	0			
18	2204	13	0	16379	13	0	35150	0	0				594	16	0
	8770	5	0	54585	5	0	63688	0	0	18500	0	0	622	16	0
1															
2							180	0	0						
3															
4							84	0	0						
5							100	0	0						
6															
7															
8															
9															
10															
11	4290	0	0	10290	0	0	5900	0	0	15250	0	0			
12	400	0	0							1000	0	0			
	4690	0	0	10290	0	0	6164	0	0	16250	0	0			

&c.—(Continued.)

Total amount of arrears of taxes.			Balance in hands of Treasurer.			All other property owned by Municipality.			TOTAL ASSETS.		
£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
2982	10	3	243	15	4	500	0	0	21471	5	7
150	0	0							220	4	6
50	0	0	90	0	0				140	0	0
			100	0	0						
			37	17	7						
			17	0	4				88483	0	0
5	0	0	7	9	0				12	9	0
			74	7	5						
16	11	11½	28	15	6½				467	10	9
			9	0	0				212	5	3
			97	5	3				818	8	9
29	12	0	49	15	6						
43	4	5	25	14	8						
90	0	0	57	17	6				6147	17	6
28	0	0							40	0	0
			619	8	4						
250	0	0	16	8	4	630	0	0	8546	8	4
3087	4	8							98832	0	9
3540	13	0½	1140	19	5½	630	0	0	149560	0	4
88	9	4	*						6	5	6
2	5	1½	6	5	6				30	0	0
			30	0	0				30	0	0
			30	0	0				100	0	0
100	0	0	84	2	4				184	2	4
			15	0	0						
			39	18	11				1089	0	9
32	8	4	27	10	0						
6	9	0	14	14	10						
300	0	0				1200	0	0	12360	0	0
200	0	0	5	10	0				1200	5	10
729	11	9½	253	1	7	1200	0	0	14949	14	5

* Not known.

GENERAL STATEMENT,

Number.	NAME OF MUNICIPALITY	Number of persons assessed.	Number of acres assessed.	Total of rentals of real property.			Total of yearly value other than rentals of real property.			Total actual value of real property.		
				£	s.	d.	£	s.	d.	£	s.	d.
COUNTIES OF LANARK AND RENFREW.												
1	ELMSLEY NORTH	224	25088						28721	0	0	
2	LANARK AND DARLING	399	47771						44692	0	0	
3	WESTMEATH	235	45950						23356	0	0	
4	McNAB	277	40905						20442	0	0	
5	PAKENHAM	301	30620½						33286	0	0	
6	RAMSAY	508	55037						89007	10	0	
7	SMITH'S FALLS	186	400	2802	14	9						
8	ROSS	146	18636						9076	0	0	
9	BECKWITH	388	52282½						64750	0	0	
10	DALHOUSIE, NORTH SHERBROOKE AND LEVANT.	310	65992½						24446	0	0	
11	ADMASTON	167	22805½						7160	0	0	
12	BROMLEY	127	14235½						9714	0	0	
13	WILBERFORCE	160	18275½						12260	0	0	
14	HORTON	230	26375						35417	0	0	
15	PEMBROKE AND STAFFORD.	189	9500						28048	0	0	
16	BAGOT AND BLYTHFIELD.	162	15988						7489	0	0	
17	MONTAGUE	498	63000						58271	0	0	
18	DRUMMOND											
19	PERTH TOWN											
20	BURGESS											
21	BATHURST AND SOUTH SHERBROOKE.											

&c.—(Continued.)

Total of taxable incomes.	Total value of personal property.	Total yearly value of personal property.	Total amount of assessed value of real and personal property.			Total amount of taxes imposed by By-laws of the Municipality.			Total amount of taxes imposed by By-laws of the County Council.		
			£	s.	d.	£	s.	d.	£	s.	d.
			86395	0	0	188	5	8½	75	11	10
1674	0	0	20576	0	0	478	5	6	199	18	10½
			4544	0	0	81	7	11	85	4	11
			6325	0	0	189	17	0	112	4	11½
800	0	0	45336	0	0	270	15	2	85	9	8
1150	0	0	11250	0	0	597	5	4	217	4	11
7825	0	0	24125	0	0	114882	10	0	3756	14	9
						11349	0	0	85	17	4½
532	0	0	14975	0	0	79725	0	0	267	13	1
			9285	0	0	33731	0	0	57	12	6½
			2050	0	0	9210	0	0	82	9	8
150	0	0	3525	0	0	13389	0	0	223	18	8½
175	0	0	2900	0	0	15335	0	0	154	15	9
			10885	0	0	45302	0	0	164	0	0
254	0	0	9889	0	0	38987	0	0	73	0	4
275	0	0	1681	0	0	9060	0	0	64	15	4½
			7400	0	0	60671	0	0	478	0	0

GENERAL STATEMENT.

Number.	Total expenditure on account of stock held in any incorporated Company.			Total expenditure on account of Schools and education, exclusive of School Trustees rates.			Total expenditure on account of the support of the poor or charitable purposes.			Total expenditure on account of Debentures and interest thereon.			Total gross expenditure on account of Administration of Justice in all its branches.		
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
1				28	0	0									
2				151	18	6									
3				27	12	0									
4				72	10	0	5	5	6						
5				199	18	5									
6				563	13	7½									
7				180	0	0									
8															
9				143	5	3½									
10				58	15	7	0	10	0						
11				18	0	0									
12				95	15	1									
13				37	0	1½									
14				27	7	3									
15				22	0	0									
16				99	14	6									
17				81	0	0	9	0	0						
18															
19															
20															
21															

&c.—(Continued.)

Amount received from Government on account of Administration of Justice.	Total nett expenditure on account of Administration of Justice.			Total expenditure on account of salaries, and the expenses of Municipal Government.			Total expenditure on all other accounts.			Total expenditure of all kinds.			Total amount of liabilities secured by Debentures.					
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.			
							75	8	8	145	8	8						
							76	0	0	216	4	6	769	11	6			
													801	0	0			
							74	17	0				341	18	5			
							66	15	0	40	0	0	773	14	6			
							78	2	6	5	12	1½	353	14	1½			
							58	14	11½	23	10	0						
							26	10	0	15	0	0	328	5	3½			
							65	0	0									
													112	5	6			
							48	9	11				82	9	3			
							34	0	0	48	9	3	75	6	4½			
							37	11	3	75	6	4½	75	6	4½			
							37	11	3									
							37	10	0									
													193	14	6			
							86	10	0				241	0	0			
							90	0	0	14	0	0						

MUNICIPALITIES, LOWER CANADA.

R E T U R N S ,

In so far as they have been received, under 16th Victoria, chapter 163.

Laid before the Legislative Assembly in accordance with the 7th section of the above cited Act.

By Command.

GEO. ET. CARTIER,
Secretary.

QUEBEC, 6th March, 1855.

RETURN,

Total amount of taxes imposed by By-laws of the County Council.			Total amount of taxes imposed by By-laws of any Provisional County Council.			Total amount of Lunatic Asylum or other Provincial tax.			Total amount of all taxes as aforesaid.			Total amount of income collected or to be collected from assessed taxes for the use of the Municipality.			Total amount of income from licenses.		
£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
									50	17	6						
51	11	8	Nil						147	6	9	147	6	9			
												40	0	0			
												47	0	0			
												15	0	0			
												100	15	6	6		
												119	10	0			
												24	4	0			
												15	18	9			
									23	2	0	23	2	0	19	6	0
															118	0	0
												50	0	0	95	0	0
									39	0	0	39	0	0			
															170	0	0
															1	16	0
															20	0	0
															5	18	9
															9	7	3
												2460	19	6½	105	0	0
															24	0	0
												14	11	9½	11	4	7½
												65	6	8½			

&c.—(Continued.)

Number.	Total amount of income from public works.			Total amount of income from shares in incorporated Companies.			Total amount of income from all other sources.			Total amount of income from all sources.			Total expenditure on account of roads and bridges.					
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.			
1													89	17	6	5	0	0
2													46	0	0	27	0	0
3													64	3	8	28	0	0
4	Nil									6	15	0	204	9	9	88	19	9
5																		
6										6	0	0						
7																		
8																		
9													254	2	6			
10													8	0	0			
11																9	9	0
12																		
13													6	7	6			
14										309	10	0	429	0	0	191	18	9½
15										60	6	6	65	6	6			
16													15	18	9			
17													42	8	0	20	0	0
18													70	17	0			
19													35	0	0			
20													125	0	0	75	0	0
21													40	0	0			
22													170	0	0			
23													6	16	9	8	12	9
24										6	0	0						
25													14	6	10½	20	0	7½
26													15	0	0	24	7	3
27													14	0	0	119	0	0
28																		
29																		
30													17000	7	8	41874	15	8
31													9	1	9	74	8	5½

RETURN,

Total expenditure on account of other public works and property			Total expenditure on account of stock held in any incorporated Company.			Total expenditure on account of schools and education, exclusive of School Trustees rates.			Total expenditure on account of the support of the poor or charitable purposes.			Total expenditure on account of Debentures and interest thereon.			Total gross expenditure on account of Administration of Justice in all its branches.		
£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
470	0	0															
Nil.																	
654	1	3															
12	5	10				360	14	7	349	7	5	11880	19	3			

&c.—(Continued.)

Number.	Amount received from Government on account of Administration of Justice.			Total nett expenditure on account of Administration of Justice.			Total expenditure on account of salaries and the expenses of Municipal Government.			Total expenditure on all other accounts.			Total expenditure of all kinds.				
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.		
1									15	0	0	490	0	0	490	0	0
2															46	0	0
3									27	5	0	31	1	1 $\frac{1}{2}$	86	6	1 $\frac{1}{2}$
4									56	0	0	139	19	9	139	19	9
5																	
6									35	0	0						
7												25	0	0	5	0	0
8									15	0	0						
9									27	10	0						
10									8	0	0						
11																	
12																	
13									14	12	3						
14									206	0	10	51	1	2	449	0	9 $\frac{1}{2}$
15									41	13	3						
16									18	2	8				18	2	8
17									9	5	0	29	5	0	29	5	0
18									44	10	0	1	10	10	46	0	0
19									15	0	0						
20															125	0	0
21									40	0	0						
22									140	0	0	35	0	0	140	0	0
23															20	0	0
24									20	0	0						
25									11	5	0				11	5	0
26									5	0	0	1	9	2	24	7	3
27									100	0	0	158	3	5			
28									7	10	0				15	0	0
29									8	7	4 $\frac{1}{2}$				25	16	5
30									14826	10	5	22305	8	9	54341	17	0
31									36	13	9	3	18	4	62	17	11

RETURN,

Total amount of liabilities secured by Debentures.			Total amount of liabilities unsecured.			Total liabilities of all kinds			Total value of real property belonging to Municipality.			Total value of stock in incorporated Companies owned by Municipality.			Total value of debts due to Municipality.		
£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
250	0	0				250	0	0	600	0	0				400	0	0
Nil.			30	0	0	30	0	0	Nil.						48	1	11
									175	0	0						
															15	0	0
									200	0	0						
			10	16	0												
			34	15	0												
			20	0	0	20	0	0									
												5000	0	0			
															40	0	0
									200	0	0						
174622	10	7	14617	9	7	189240	0	2	97586	5	10				17875	5	1

&c.—(Continued.)

Number.	Total amount of arrears of taxes.			Balance in hands of Treasurer.			All other property owned by Municipality.			TOTAL ASSETS.		
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
1	281	6	5½									
2												
3				11	7	3				50	9	2
4	34	10	0	Nil.						34	10	0
5												
6				11	0	0				51	0	0
7				27	10	0						
8												
9	60	0	0									
10												
11												
12												
13				25	3	1½				25	3	1½
14	397	19	6	20	0	9½						
15				23	13	3						
16										15	18	9
17	13	3	0							13	3	0
18				24	17	0				70	17	0
19												
20												
21	14	16	11½	6	15	11½						
22	40	0	0	4	0	0						
23									2	0	0	
24												
25				8	15	7½				8	15	7½
26												
27				190	0	0						
28				10	0	0				10	0	0
29												
30	1	6	2									
31	5364	14	4	55131	6	10				170542	17	* 9
				11	10	6½						

* Total amount of Fund for the Relief of Sufferers by the Fire of the 8th July, 1852 £ 456 9 1
 Total amount received from the issue of Bonds for consolidating the City Debt. 138888 17 8
 Total amount of Premiums received on Bills of Exchange. 13231 15 0
 Total amount received from the Water Works Department. 98163 0 1
 Total amount received from Promissory Notes discounted. 1500 0 0
 Balance in the hands of the City Treasurer on the 1st of February, 1853. 3121 17 1
 Total amount of Bonds redeemed by payment. 121166 11 7
 Total amount paid for account of the Water Works Department. 63860 9 8
 Total amount of Promissory Notes paid. 3100 0 0

GEOLOGICAL SURVEY

OF

CANADA.

MONTREAL, *1st May*, 1853.

SIR,

I have the honor to transmit the accompanying Report of the progress made in the Geological Survey of the Province, for the year 1852-53, to be submitted to His Excellency the Governor General.

I have the honor to be,

Sir,

Your most obedient servant,

W. E. LOGAN,

PROVINCIAL GEOLOGIST.

To the Hon. A. N. Morin,

Provincial Secretary,

&c., &c., &c.

REPORT OF PROGRESS.

To His Excellency the Right Honorable JAMES, EARL OF ELGIN AND KINCARDINE, K.T., BARON BRUCE OF KINROSS AND OF TORRY, one of Her Majesty's Most Honorable Privy Council, Governor General of British North America, and Captain-General and Governor-in-Chief in and over the Provinces of Canada, Nova Scotia, New Brunswick, and the Island of Prince Edward, and Vice-Admiral of the same.

MONTREAL, 1st May, 1853.

MAY IT PLEASE YOUR EXCELLENCY:

I have the honor to submit to your Excellency a Report of the progress made in the Geological Survey of the Province, during the year which has just elapsed.

The exploration of my assistant, Mr. Murray, embraced the country lying between the township of Bedford, in what used to be called the Midland District, and the river Severn connecting Lake Simcoe with Georgian Bay; the object of it being to trace out the general outcrop of the lower fossiliferous rocks, along the more mountainous metamorphic group which comes from beneath them on the north, and to ascertain the nature of the economic materials associated with both, at moderate distances from their junction. The attention of Mr. Hunt has been bestowed upon the analyses of various minerals, mineral waters, ores and other substances collected on his own exploration, as well as on the explorations of Mr. Murray and myself; and his Report upon his labors, with that of Mr. Murray upon the results of his examination, is now transmitted to your Excellency.

The district which has been the subject of my own investigation, is that which lies on the north side of the St. Lawrence, between Montreal and Cape Tourmente below Quebec. The distribution of the fossiliferous rocks, and the economic materials accompanying them, have been the points chiefly attended to, but short excursions to gain facts illustrating the metamorphic series immediately supporting them, were made northwards in two or three places. The want of a good map of the seigniories, on a scale sufficiently large to permit the representation of the facts necessary to ensure a clear understanding of the structure of the district, has rendered the examination exceedingly laborious. The last edition of Mr. J. Bouchette's map is on too small a scale to be perfectly available, while that of Col. Bouchette, the only published one of the whole area, of which the scale (three miles to an inch) approaches the requisite measure, is too incomplete to be of much service. In some parts the latter is tolerably correct, but in the majority it cannot be at all recommended for accuracy. In the settled parts of the country, the roads of course afford the chief means of reaching the exposures of rock, and over large areas, roads which existed at the time the map was constructed, are not represented at all, and many of those which are represented (in so far as I could collect evidence) have never existed. In addition to this, a vast number of the roads over the whole region have been opened since the publication of the map. A good map of the environs of Quebec, on the scale of two miles to an inch, was published by Mr. J. Adams in 1822; it of course wants all the newer roads, and I was not so fortunate as to meet with a copy of it until the examina-

tion of the surface it exhibits, constituting but a small portion of the whole, had been completed. The river St. Lawrence, in the whole distance, has been correctly mapped by Captain Bayfield, on the scale of nearly an inch to a mile; but above Portneuf there are no exposures of rock at the water's edge, and Bayfield's map extends little beyond the margin. In consequence of the want of a suitable map, it became necessary to go over the whole ground on foot, and to measure every road and line of exploration travelled. The bearings of these roads and lines were determined by prismatic compass, and the distances by pacing, care being taken to note, in their proper places, all exhibitions of the strata, all economic deposits, and other objects worthy of remark. The weariness resulting from the attention required to count one's paces accurately every day, and all day long, for five or six months of assiduous exploration, is best understood by those who have made the attempt. In that part of the country between Montreal and Three Rivers, I was aided by Mr. Richardson, a diligent explorer, mentioned in last year's Report; and as saving me some time, I have to express my obligation to Mr. Hale, of St.-Anne-de-la-Pérade, who was so kind as to supply me with a detailed and accurate map of the seigniory, as well as of a part of the seigniory of the Grondines. The map resulting from our own measurements, when protracted on a scale of one inch to a mile, brings out the distances of marked points on the river, to correspond very well in general with the same as laid down by Bayfield.

The country which lies between the upper end of the island of Montréal and Cape Tourmente on the left side of the St. Lawrence, and occupies the space intervening between the river and the flank of the metamorphic hills, to which Mr. Garneau in his History of Canada has given the name of the Laurentides, has a length of about 200 miles, and it gradually widens from a point at Cape Tourmente, to about thirty miles at Montreal, having thus an area of about 3000 square miles. It presents a general flat surface, rising in many places by abrupt steps, (the marks of ancient sea margins) into successive terraces, some of which are from 200 to 300 feet above the level of the river, and the whole have a general parallelism with it. These terraces are occupied by clay and sand, and, the latter predominating, gives them as a whole, a light soil. In some parts extensive swamps prevail on the terraces, but there is not a lake in the whole area. The rivers which cross it, (some of them large streams, of which the St. Maurice is the greatest) descending the flank of the metamorphic hills, all give a succession of falls and rapids before reaching the plain, affording a great variety of picturesque and beautiful cascades, and yielding a vast extent of water-power, capable of application to sawing timber and other manufacturing purposes. Quitting the metamorphic rocks, these streams at once cut deep into the softer deposits of the plains, sometimes at a leap attaining nearly the level of the St. Lawrence, and intersect the country by numerous nearly parallel ravines; they generally display steep banks of clay and sand, but in a few instances run in troughs, exposing perpendicular sections of slightly inclined strata of limestone or black shale, piled upon one another to the height of from twenty to eighty feet.

The name which has been given in previous Reports to the rocks underlying the fossiliferous formations in this part of Canada is the Metamorphic series, but inasmuch as this is applicable to any series of rocks in an altered condition, and might occasion confusion, it has been considered expedient to apply to them for the future, the more distinctive appellation of the Laurentian series, a name founded on that given by Mr. Garneau to the chain of hills which they compose.

The geological formations which underlie the district in ascending order would thus be as follows:

1. Laurentian series.
2. Potsdam sandstone.
3. Calciferous sandrock.

4. Chazy limestone.
5. Birdseye, Black-River and Trenton limestones.
6. Utica slate.
7. Hudson-River group.
8. Oneida conglomerate.

The general characteristics of these formations have been so often described in previous Reports, that it will be sufficient on the present occasion, merely to point out their distribution, and the attitude they assume in the physical structure of the region; and in doing this I shall take up the description where it was, in the last Report, interrupted by the limits of the season's exploration. In that Report, it was stated that at the White Horse rapids, on the river Des-Prairies, a patch of black bituminous shales of the Utica formation, about a mile long and not half that in width, occupies a position not far below Isle-Bizard, showing a narrow strip on each side of the stream, which cuts it in two lengthwise. This is the deepest part of a shallow trough; on the south side of the trough the Trenton limestone, including the Black-River and Birdseye, coming from beneath the Utica slate, has a breadth of six miles extending to Pointe-Claire; on the north it probably does not reach a mile. The Chazy limestone crossing Lake St. Louis from Caughnawaga, outflanks the Trenton, entering on the island of Montreal above Point-Claire, between which and village of St.-Anne, the Calciferous sandrock and a small part of the Potsdam sandstone, in addition to the Chazy formation, occupy the interval. The Chazy is traceable to Ste.-Geneviève where it affords very fine building stone, and thence passes to Isle-Bizard, which it crosses about mid-length from the two ends, in a belt coming upon the Lake of Two Mountains at a point where a quarry is worked in it. In this quarry it is a grey limestone, exhibiting the peculiarity of pink or rose-red spots, and gives fine massive beds. The upper end of the island displays the Calciferous sandrock, and the lower the Trenton limestone, which is seen above and below the seigniorial mill on the river Des-Prairies. The Trenton is also displayed on the opposite side of this stream for some distance, commencing a little below the extreme upper point of Isle-Jésus. The Calciferous sandrock occurs a little below the same point on the opposite side of the island on the river St.-Jean or Jésus; so that the Chazy limestone, unless it is let down and buried by a fault, must enter on the island at the very extremity, in a very narrow band, which widening as it proceeds eastward, sweeps round by St. Martin and the river Des-Prairies above and at Lachapelle's bridge, the upper part of the formation crossing the river to the island of Montreal, somewhere in the vicinity of Isle-aux-Chats; the black limestone of the superior formation is seen a little to the westward of the quarries in the Chazy which are near the bridge above mentioned, and from these quarries the Chazy gains the neighborhood of St.-Laurent church. It is seen again on the north side of the cross-road between Côte-St.-Laurent and Côte-Ste.-Catherine, running close alongside of this cross-road to its junction with the Côte-Ste.-Catherine road, and then turning towards the Mile-End road, which it crosses about fifty yards on the city side of the first mile-stone beyond the toll-bar; here its junction with the Birdseye formation is plainly seen, the one distinguishable by the abundant occurrence of *Atrypa plena* and the other of *Phytopsis cellulorum*. The two formations in close proximity are traceable thence to the road crossing from Côte-de-la-Visitation to Côte-St.-Michel, at the junction of the cross-road with the latter; they then make a sharp turn, and the upper part of the Chazy again reaches the river Des-Prairies a little above the Sault-au-Recollet. Crossing the river, it sweeps round probably about a mile behind Les-Ecours, and the rocks of St.-Vincent-de-Paul, which are of the upper limestones, and gains a position on Isle-Jésus, a little way south of the village of Terrebonne. It here makes another sharp turn, and is traceable to the westward, keeping some distance to the south of the river St.-Jean,

which is occupied from Terrebonne to Delisle's bridge, and above it, by the Trenton and associated formations. The Chazy proceeding westward on Isle-Jésus, probably crosses the river in the vicinity of the river Aux-Chiens, (a tributary joining on the north) whence it runs to Côte-St.-Louis, where it has been quarried about three miles north-eastward from Ste.-Thérèse.

Between Ste.-Rose, a little above the river Aux-Chiens, and St.-Eustache, there are on Isle-Jésus many exposures of the Calciferous sandrock which, as already mentioned, extends nearly to the upper extremity of the island, and between those two places it has a breadth of about two miles south of the river St.-Jean; above St.-Eustache, it runs on the left bank of this river and of the Lake of Two Mountains, certainly two, and probably four miles, where it would be limited by the Potsdam sandstone that surrounds Mont-Calvaire. With the thirteen miles between this point and Ste.-Rose, as a front, it extends back to within a short distance of the river Du-Nord, expanding as it proceeds, stretching on the west to form a junction with the same formation heretofore described on the Ottawa, and to the north-east to run its course further down the valley of the St. Lawrence. On the river Du-Nord, the white beds of the Potsdam sandstone emerge between the Calciferous and the gneiss of the Laurentian series, forming a belt sometimes over two miles wide, and sometimes less than one, which is exposed in many places between Lachute and the road from Ste.-Thérèse to St.-Jerome; at Lachute, its presence was mentioned in last season's Report; the largest intermediate developments occur in the vicinity of Ste.-Scholastique, where huge angular fragments of the rock of a dazzling whiteness, probably in immediate contact with the parent bed beneath, are piled on one another, giving promise of quarries of fine building stone.

From this distribution of the formation over a level country, it will be perceived, that while a flat anticlinal arch, especially described in last season's Report, extends from the vicinity of Lachute to the state of New York, across the county of Beauharnois, bringing to the surface the Potsdam sandstone of that county, and carrying it north of Mont-Calvaire, another and flatter anticlinal form exists to the eastward, projecting the Calciferous sandrock to Isle-Jésus, and the Chazy limestone eleven to twelve miles farther on, across this island and nearly across that of Montreal, to within three miles of the St. Lawrence at the city. The axis of this anticlinal, not quite parallel with the previous one, runs from the north end of the Montreal mountain to a point a little westward of Ste.-Thérèse, and the figure which the Chazy presents on the islands of Montreal and Jésus shows that this anticlinal is crossed by two others, one running along about the middle of each of the islands.

The main body of the Montreal mountain as stated in a former Report, is an intruded trap; the formation which is there entangled with it, is the Trenton and its associated limestones, which are found interstratified and overlaid by the igneous rock; but many dykes connected with the main body of the trap traverse the Chazy in various directions in the quarries and parts adjacent, and between the Chazy development and Lake St. Louis, no higher formation than the Trenton has been met with. The upper part of this latter formation crosses the St. Lawrence from the south shore at St. Louis Rapid, and is traceable by many exposures, all the way down the eastern front of the island of Montreal, in general removed about a mile from the edge of the water, and always dipping easterly at a small angle. The Utica slate succeeds, and can be followed at the margin of river to Point St. Charles, while farther back its spread is detected by the excavation made in it for the third lock of the Lachine canal, and by what appears to be a small outlying patch abutting against the trap of the Montreal mountain near McTavish's monument. It also occupies the opposite bank of the St. Lawrence, being seen at Laprairie, Longueuil and Varennes, and judging by the exposure at Longueuil in the section of the St. Lawrence and Atlantic railroad, it may there

have a breadth of two or three miles. It may have the latter measure at Varennes, as the dip of the exposure there is westward, which probably changes to an eastward one to bring it under the superior rocks to the eastward; and this change would probably carry its width to the immediate vicinity of an exposure of the Loraine shales of the Hudson-River group, which is removed that distance from the shore. From the general strike of the formations, it is probable that the breadth of the Utica slate on the south side of the river, diminishes towards Verchères, and that the summit of the deposit strikes over from the vicinity of the church there, to that of St.-Sulpice on the north bank.

Traversing the country in a north-west direction across the general strike of the rocks, the black shales of the Utica formation are seen at a bend of the Achigan river, where it crosses the line between the seigniories of St.-Sulpice and L'Assomption, and black limestones appear farther up the same river, a-quarter of a mile farther north-west on the same line of division. But still farther up the stream, and about half a mile south-west from these positions on the line, there is a considerable exposure of trap, the course of which would carry the intruded rock between them, though it is there concealed, and there may probably be some dislocation. The limestones, however, belong to the Trenton formation, and about two and a-half miles to the north-west of them, other limestones of the same formation are exposed on the river St.-Esprit, not far from where it crosses the same boundary line below Mr. Viger's mills, and thence at intervals, as far up the stream as the bridge on the road from St.-Jacques to St.-Rocque, and a short distance beyond. South-westward from this, black limestones, more interstratified with black shales, are exposed on the Achigan at the village of St.-Rocque, and for a mile up to the junction of the Ruisseau-des-Anges. With *Orthis testudinaria*, *Leptena sericea*, *Calymene senaria*, *Ceræurus pleurexanthemus* characterising the Trenton, the interstratified shales shew a *Lingula* resembling *L. curta*, and *Graptolithus pristis*, given by Hall to the Utica slates, and it is probable that the beds may be not very far removed from the base of this formation. Toward the middle of La-Chenaye, beds of the Trenton formation are met with on the Mascouche river at Mr. Pangman's mills, and again on the road between these mills and the village of St. Henry, about three-quarters of a mile north-west of the latter place; and from this it would seem probable that the formation extends in a broad band from the development at Terrebonne, to those mentioned on the St.-Esprit. The dip, in all the exposures, is small; on the south-west side of the combined seigniories it is to the south-east, but on the north-east side it approaches more nearly to south.

Between this range of exposures and the next met with to the north-west, an expanse of about six miles, destitute apparently of any exhibition of the strata, crosses the seigniories and extends into the seigniorie of Terrebonne. Whether in this expanse any undulation may bring in the Utica formation, it is difficult to say, but the formations that rise on the north-west side of it, appear to be the Birdseye and Chazy. The junction of these is displayed about a mile north of the church of Ste.-Anne-des-Plaines, and an escarpment, on the summit of which runs the road to St.-Lin, for about a mile, is composed of the upper of the two formations. The junction crosses the road dividing the seigniories of Terrebonne and La-Chenaye, probably a short distance south-east of the point where this road is intersected by the one to St.-Lin, and it thence sweeps round to the vicinity of the village of St.-Lin, on the Achigan. The Black-River is seen at the bridge below Mr. Pangman's mills, marked by *Columnaria alveolata* and *Chætetes lycoperdon*, and the Chazy to the north-west of the mills on the Little River, about half a mile above its junction with the Achigan, where entire thick beds of the formation, giving fine building stone, assume the pink or rose-red color mentioned as occurring in spots on Isle-Bizard. Where the river cuts the formation, it is paved with trap for about fifty yards, and about ten feet of

the thickness of the trap are seen in the cascade which occurs at the spot. This appears to be an intercalated mass, and a calcareous bed of fifteen inches lies on the top of it, converted into a highly crystalline rock. On the Côte-St.-Joseph road, at such a distance as would bring the beds into place a-quarter of a mile behind the proceeding, there occurs an exposure of about eleven feet of strata, consisting of a buff colored arenaceous limestone, holding geodes of calc-spar, much resembling beds belonging to the Calciferous sandrock; but they are overlaid by a bed of about a foot of grey limestone, holding a bivalve shell resembling *Modiolopsis*, a genus not carried lower by Hall than the Trenton, and a *Cythere* similar to one found in the Chazy.

A mile farther, the Laurentian series presents itself, leaving the intermediate space, for what outcrop there may be of the Calciferous and Potsdam formations. No exposures of the Potsdam, however, have been met with between this point and St.-Jerome, a distance of ten miles, nor do any known to me occur for as many miles to the east-ward. Those of the Calciferous sandrock, however, are numerous, and they may be seen near Ste.-Thérèse, St.-Janvier, the Grosse-Chaussée and on the Rang-Double road to New Glasgow.

Proceeding down the valley of the St. Lawrence across the seigniories of St.-Sulpice, La Valtrie, La-Noraye and Dautraye to the river Bayonne in Berthier, a distance of twenty-six miles, I am not aware of a single exposure of rock for a breadth of between nine and ten miles from the margin of the first mentioned stream; in this breadth, two great parallel swamps exist, one of them occupying an area of three, and the other of about fifteen square miles, while in addition to them, a large portion of the 250 miles composing the whole space is still covered with wood. The consequent difficulties of exploration, make it impossible to say with certainty what the geographical distribution of the formations may be. But it appears to me probable, from the general strike of neighboring allied parts, that two or three miles of the front may be occupied by the Loraine shales, and the chief part of the remainder by the Utica slate. In a traverse back from the village of La-Valtrie in a north-west direction, the first exposure of the strata occurred just ten miles in a straight line from the St. Lawrence on the river L'Assomption, where a large island splits its channel into two; and on this stream there is a great succeeding development, extending to the village of Industry. The distance across the strata, in a straight line, is a little over two miles and a-half; the dip, which is between S. S. E. and S. E., does not exceed two or three degrees, and the whole thickness reaches a little over 480 feet. This consists chiefly of the Trenton formation, but beds marked by the fossils of the Black-River and Birdseye limestone, occur at the base, and about thirty additional feet of what appears to be the Chazy, shew themselves under the foundations of the mill and upper bridge, at the village. Some of the lower beds of the Trenton, varying from six inches to a foot in thickness, give good grey building stone, which have been used on the spot, for the construction of the Railroad bridge over the river. This part of the formation is marked by *Leptena alternata* and *Ceraurus pleurexanthemus*; the Black-River and Birdseye beds display *Columnaria alveolata* and *Phytopsis celluloseum*, and the Chazy shew *Raphistoma staminea*.

A similar section giving about the same thickness, occurs on the Naquoarau river, from three to five miles to the south-westward, the summit of which is about two and a-half miles below the junction of this stream with the Red River, while the base reaches Les-Dales about a mile and a-half above. The general course of the Naquoarau river, which, like the river L'Assomption, has a very winding channel cut deeply through the rock, is in this part not so directly across the strata as the course of the latter; hence the section is longer, but the dip of the

strata, varying from one to three degrees, being rather less, the formations have at the same time a greater direct breadth across the measures.

Between these two streams, there is a partial exhibition of the same beds from the Birdseye upwards, on the Red River, and at the village of St. Paul; but following the strike lower down the valley of the St. Lawrence, the whole mass constitutes a low ridge distinctly traceable for eight miles in a direction approaching E. N. E., the breadth of which gradually diminishes the whole way, until at this distance it comes to a point and disappears about a mile and a-half south-west from Mr. Oliver's mills on the Bayonne. The Black-River and Birdseye strata, running along the north-west side of this ridge, are exposed on the river Chaloupe, and so is the upper part of the Trenton beds; but the Chazy is seen only in the two sections already mentioned, and the display of this last formation being confined to perhaps a small part at the summit, it is difficult to say what its full breadth may be. North-west of these exposures, the strata appear to be completely buried beneath the looser deposits between the Naquoarau and L'Assomption rivers, for the width of about two miles, and the beds that then show themselves, appear to belong to the Calciferous sandrock. The exposure of these on the former stream occurs at Mr. Bergerin's mills, about two miles above Les-Dales, where light grey arenaceous layers, with small rounded grains of quartz held together by a small amount of crystallized carbonate of lime, shewing considerable cleavable surfaces, and studded with the grains, after the manner of the Fontainebleau sandstone, alternate with beds of six inches or a foot of a more calcareous character, shewing ripple-mark and an abundance of fucoids. On the river L'Assomption, the Calciferous rocks are about two miles and a-half beyond the Chazy beds at Industry, and a short distance above the line between the first and second concession of Kildare, in the thirteenth lot, which is the last of the township. The total thickness exposed is about twenty feet, and the beds consist of yellow weathering arenaceous limestone, containing geodes of calc-spar, and presenting obscure fucoids and convoluted shells. Farther up the rivers Naquoarau and L'Assomption, the Potsdam sandstone makes its appearance in such positions as to be brought into place, about two-thirds of a mile in the first instance, and a mile in the other, in a direct measurement across the strata, from the Calciferous beds.

On the Naquoarau river, the Potsdam beds are exposed in two places: the lower is at Mr. Dorwin's mills, where they measure about ten feet in thickness, and consist of yellowish-white fine grained and very slightly calcareous sandstone; the upper is a mile beyond, but would probably come in close beneath the previous exposure, and judging from great angular blocks prevailing in abundance, conglomerate beds, with white quartz pebbles up to two inches in diameter, form part of the series. On the river L'Assomption, the Potsdam is at the mills of Madame Lefèvre, on the outside of the north-east line of Kildare, ranging with the front of the third concession, where there are twelve or fifteen of white and greyish beds, interstratified with one another.

The first appearance of the Laurentian series beyond, is on the rear of the fourth concession of Rawdon, in which it crosses the township from south-west to north-east. The rocks of this series proceed thence along that stretch of the L'Assomption river which forms the southern boundary of the seigniory of D'Aillebout-D'Argenteuil; farther on, they cut the Bayonne at Mr. Cuthbert's mills, three miles north of Ste. Elizabeth church; and from the division line between the seigniories of De-Ramzay and Berthier, gradually assuming a more easterly course, they reach the river Chicot, about a mile north-west of Mr. Cuthbert's mills on this stream. About a mile west of these mills on the Chicot, and not far removed from the gneiss of the Laurentian series, there is an exposure of fine grained white sandstone, belonging to the Potsdam formation, characterised

by the same description of foot-prints as those discovered at Beauharnois, to which Professor Owen has given the name of *Protechnites*.

At the Chicot mills, and lower down the river Chicot, dark colored bituminous limestones are seen coming to within three quarters of a mile of the gneiss. The more south-eastern exposures belong to the Trenton; those at the mills are lower bed of the same formation, and between the latter and the gneiss there is probably a north-east and south-west dislocation, letting down the measures on the south-east side. Of this dislocation there are indications where the Industry limestone ridge narrows to a point, as has been mentioned, south-westward of Mr. Oliver's mills on the Bayonne; and the evidence is clear at the mills where dark colored bituminous beds of the Trenton deposit are seen to abut against others of a light grey color, and arenaceous-calcareous character, holding geodes of calc-spar, and exhibiting obscure convoluted shells, probably indicating the presence of the Calciferous sandrock; a mile and a-quarter to the north-east of the mills, the Calciferous sandrock is again observed, forming a ridge with a level country to the south-east. This dislocation, no doubt, has its effect in bringing into view the range of Trenton developments on the rivers Chaloupe, L'Assomption and Naquoarau to the south-westward, which have been noticed above as those nearest the St. Lawrence, and it is probable the line of fault may have its positions not far in front of them. The occurrence also of the trap near Mr. Viger's mills on the Achigan, may be due to some connection with this fault; the position would not be out of the course given to the dislocation by the previous points, and it is not impossible that a farther continuation of it may be indicated by a display of trap on the river Des-Prairies near St. Joseph, while the trap band, mentioned in a former Report as traceable from Côte-de-la-Visitation to the city of Montreal, might be supposed to connect the disturbance with those of which there is evidence in the Montreal mountain.

Down the valley of the St. Lawrence, the influence of this disturbance on the distribution of the formations, is perceptible for twenty-five miles below the river Chicot. Affected by it, the gneiss of the Laurentian rock, which approaching the river Chicot had assumed an eastward direction, again becomes deflected to the north-east, and this course it maintains, as exhibited by many exposures, all the way to the river Du-Loup. This it crosses at a distance of between thirteen and fourteen miles from the margin of Lake St. Peter, measured in a straight line to the mouth of the Yamachiche, having about half-way between the rivers Du-Loup and Chicot, crossed the Maskinongé at a point about twelve miles in a straight line from its junction with the lake. Along the whole distance, the Potsdam sandstone appears to be lost in the fault, and following the road leading from Mr. Cuthbert's mills on the Chicot, through Côte-St.-Jacques and Côte-St.-Joachim, we meet with three exposures of black bituminous limestone in Côte-St.-Joachim, the whole of them belonging to the Trenton formation. The first one, with a dip of five degrees to the south-eastward, reaches to within a little over a mile of the general range of the gneiss, and the other two upon the river Cachée and one of its tributaries, to about half that distance, where they shew a scarcely perceptible inclination; that on the river Cachée is at Mr. Hamelin's mills, where the thickness displayed is ten feet. In a range with these three Trenton exposures, there is another with a dip of not over three degrees, in the fief Carufel, about a mile and a-half from the south-western boundary, again about a mile from the gneiss. On the Maskinongé river the Trenton is covered up, but at the foot of the cascade which this stream sends down the flank of the Laurentian rocks, calcareous beds containing a great amount of fine silicious grains, give evidence of the probable presence of the Calciferous sandrock, and their dip, still to the south-eastward, being raised to an angle of fourteen or fifteen degrees, seems to indicate a proximity to the fault.

In the sixteen miles between the Bayonne and the Maskinongé, it is not easy to decide with certainty where to draw a line representing the summit of the Trenton formation; no indication of the Utica slate has been discovered in the whole distance, nor indeed have any exposures, of any of the formations under description, been heard of, between those already mentioned in this space, and the St. Lawrence, which thus gives another area destitute of indurated rock, of about 100 square miles. The nearest approach I am yet able to make to the upper limit of the Trenton in this area, is indicated by the upper beds of the formation on the Bayonne about a mile and a-half below Mr. Oliver's mills, (in which mile and a-half there is a section shewing about 420 feet of thickness,) and a development on the little river Du-Loup, two miles beyond the Maskinongé in the parish of Ste.-Ursule, a mile south-east of the church.

This last exposure is about seven miles, across the measures, from the margin of Lake St. Peter, and three or four from the gneiss, where the latter comes out upon the stream on which the limestone occurs. From this, the gneiss continues its general north-eastern course to the point where it has been mentioned as cutting the greater river Du-Loup, and beyond it to the Great Yamachiche. Farther on however, its trend changes; for on the St. Maurice river we find it at the Grès rapids, where it constitutes the rock over which descends the cascade driving Mr. Baptist Hall's mills, and this position is south-east from that on the Great Yamachiche. Between the little river Du-Loup and the St. Maurice, the distance is nineteen or twenty miles, and the breadth from the first outcrop of the gneiss as it has been given, to the margin of Lake St. Peter and the St. Lawrence, is twelve or thirteen. The area may thus be considered to contain about 240 square miles. In the whole of this, only two exposures of the fossiliferous rocks have been met with. They both belong to the Trenton limestone; one of them is on the St. Charles brook, on the property of Mr. Honoré Plauder, in the seigniory of Grand-Pré, not far from the division between it and Dumontier, and about a mile and a-half removed from the gneiss; the other at the falls of the Little Yamachiche river, where this is crossed by the road leading from St. Joseph to the Grès. In the latter place the beds, which have a total thickness of about fifteen feet, and contain nodules and patches of black chert, are nearly flat, but the geographical position would appear to indicate a gradual turn in the strike, conforming with the trend of the gneiss.

On the St. Maurice the gneiss occupies the left margin of the river from the Grès to a spot three-quarters of a mile below the river Cachée, but for a part of the distance near the mouth of the Cachée and above it, it is concealed by clay. The gneiss occupies also the right side, to the height of about twenty-five feet in the bank opposite the mouth of the Cachée, but to less than this, farther up. Upon it reposes the Potsdam sandstone, which, in an escarpment at the bend of the river in sight of the fall, composes twenty feet of the cliff, while clay conceals what may be in addition to this thickness at the top. The base which is seen in contact with the gneiss, nearly on a level with the stream, is a four-feet bed of conglomerate, composed of white vitreous quartz pebbles, some of them as large as swans' eggs, and a few larger, in a matrix of fine sand. This fine white sand constitutes the beds above, and the stone they yield is freer in texture than I have anywhere else seen it in this formation. On the right bank of the stream, a little below the Cachée, at a height of eighty-two feet above the water, a quarry has been opened in a limestone rock of a rather arenaceous character, and it is probable that between this and the twenty-five feet of gneiss which come to the water's edge, the Potsdam beds may exist, though covered up by the debris and vegetation; the total thickness to be given to them would thus not much exceed fifty feet, the dip being S. S. E., and not over one degree in inclination. The fossils of the limestone are very obscure, and it has not yet

been determined whether they belong to the Calciferous sandrock or the Chazy formation, though I am inclined to think it may be to the former. Opposite the point where the gneiss below the Cachée ceases on the right bank, the limestone gains the water, but farther down, no great mass of calcareous rock occurs.

Whatever portion of the superior limestone exists on the stream, must lie concealed between the position of the beds already mentioned, and some point above the St. Maurice forges; for at Pointe-à-la-Hache, on the left bank of the river, nearly opposite the forges, there occurs a development of the Utica slate. The exposure occupies a length of 200 yards along the margin of the river, and the dip varies from S. 15 E. to S. 30 E. with a slope of two degrees. The black bituminous shales of the deposit are interstratified with occasional bands of black bituminous limestone; the limestone has a smooth surface and smooth conchoidal fracture, and becomes reddish-yellow under the influence of the weather. The fossils which characterise the beds are *Triarthrus beckii*, *Graptolithus* and a small *Orbicula*. It is probable the deposit extends farther up the stream; for 300 yards above on the right side, fragments of a similar rock are strewed on the bank, and there is here a ripple across the river, perhaps occasioned by the outcrop of the shales in the bottom; it may be remarked that similar broken water extends as far up the stream as L'Islet, a distance of about two miles, while there remains about an equal distance between this and the first appearance of the limestone already mentioned. I am not yet able to assign to the summit of the Utica formation, its position on the St. Maurice, but it appears probable that a breadth of several miles from the margin of the St. Lawrence, will be occupied by the Loraine shales at the mouth of the tributary, as well as at the mouths of the Champlain and Batiscan. A set of fossiliferous strata, such as generally indicate an approach to the summit of these shales is met with on the south side of the main stream just opposite the St. Maurice, and rises into a ridge occupying the space between the shore and Lake St. Paul, on the south side of which lake the red shales, mentioned in former Reports as overlying these beds, constitute a marked escarpment. In this relation, dipping south at an angle of one or two degrees, the fossiliferous and the red strata are traceable down the St. Lawrence nearly as far as Gentilly River, and the red escarpment can be followed in an opposite direction to the Nicolet, four miles and a-half from the mouth of which, rocks of this color are exposed on its banks.

Between the St. Maurice and the Batiscan there is a distance of about eighteen miles, which for a breadth of from ten to twelve miles presents the same level surface of sand, clay and swamps, as other localities mentioned, occurring further up. The same character belongs to an additional space between the Batiscan and the Charest, with that part of the Ste.-Anne-de-la-Pérade river which is below the junction of its tributary. The distance between these last limits is about seven miles, and thus the whole space from the St. Maurice may comprise about 260 square miles. In all this I have yet discovered but two developments of the fossiliferous formations. They both occur in the Ste.-Marguerite range, the first belonging to the Trenton in Cap-de-la-Madeleine seigniory, about four miles from the St. Maurice, and the other on the river Au-Lard, a tributary of the Champlain, about five miles and a-half farther on, in the seigniory of Champlain. In the latter development, the brook in which it occurs, cuts across the measures in a south-east direction for about a mile, and the strata, possessing a dip with the stream of from two to two and a-half degrees, may have a total thickness of about 200 feet. The chief part of the mass belongs to the Trenton formation, but *Columnaria alveolata*, occurring in abundance at the base, shews it to include portions of the Black-River limestone.

On the St. Maurice side of this part, a large portion of the Laurentian series appears to be covered up by sandy deposits, which rise in successive steps to a

height of at least 300 feet above the St. Lawrence ; but carrying a line, modified by the general strike of the strata, from the exposure of gneiss on the St. Maurice, to the next that may be considered as corresponding with it, which occurs at the termination of the Ste.-Marguerite range on another tributary of the Champlain, about two miles removed from the river Au-Lard, this line would pass about two miles to the north-west of the first calcareous exposure in the Ste.-Marguerite range, and about a mile of the second on the river Au-Lard. From the end of the Ste.-Marguerite range, the gneiss turns to a more easterly direction, and crossing the division line between the seigniories of Champlain and Batiscan, just opposite the great elbow, in the Batiscan river above the old forges, it strikes upon the southern sweep of the bend, and crosses the river not far from the mill-dam. From this it runs in a straight line, and presents a moderately bold front as far as the Charest river, which it strikes not far from the elbow made in the stream by a change in its course from south to south-west, about three miles above the Brulé road. From this it still continues straight on, and crossing at an elbow of the Black river, outside of the seigniorship of La-Chevrotière, it reaches the Ste.-Anne about a mile above the Three Rapids, close upon the line between the seigniories of Deschambault and Portneuf. Entering into the latter seigniorship, it sweeps around an extensive flat surface, and returning to the Deschambault line about the middle of the fourth range, attains a position in the second range, about a mile and a-half from the western boundary of the seigniorship, and a little over the same distance from the St. Lawrence. Turning here, it presents a moderately bold front, and a straight course across Deschambault, Portneuf, Jacques-Cartier and D'Auteuil seigniories, shewing itself in the latter on the St. Basil road about a mile north of the church. Farther on, it intersects the road leading north-westerly from the upper bridge on the Jacques-Cartier river, about four miles back. It continues across the seigniorship of Pointe-aux-Trembles, and entering that of Faussembault, veers round again to the former, following the general line of the Jacques-Cartier, and coming to a point on this river, about half a mile above the third bridge. Here it turns eastward, and gaining the neighboring elbow of the river Aux-Pommes, this stream may be considered its boundary across the seigniorship. Just beyond this, it sweeps round to a south course, and comes to a point within a mile of Pointe-aux-Trembles church. From this it turns north again until it obtains a position about so far back as to come into a line with its previous eastward course, when it again gradually veers a little north of eastward, thus leaving the mountain of Bon-homme to form a conspicuous promontory projected beyond the main outline of the rock towards the St. Lawrence. In its farther eastward course, it maintains a conspicuous front, crossing the St. Charles river at St.-Ambroise and Jeune-Lorette, whence it passes about a mile north-west of Charlebourg and close by Bourg-Royal. Thence holding the same direction, it crosses Beauport seigniorship and reaches the boundary between this seigniorship and the parish of Ange-Gardien, about two miles from the St. Lawrence. It then turns back south, nearly to the bank of the St. Lawrence, at the mouth of the Montmorency river, and from it carries a course north of east, gradually receding from the margin of the main river, until reaching a position in the rear of Château-Richer church, where it is about a mile and a-quarter from the St. Lawrence. At the Sault-à-la-Puce it is again projected forward to the cascade on this river, which is about three furlongs from the St. Lawrence. It once more gradually recedes from the coast, and proceeding to the river A-la-Rose, where its distance from the St. Lawrence is over three miles, it crosses the St.-Féréol road, and making a sharp turn, appears to sweep round in the form of a letter S reversed, to the lower fall on the Ste.-Anne river, from which it maintains a nearly eastward course until it comes upon the St. Lawrence at Cape Tourmente.

From this description it will be perceived that the contour of the Laurentian rocks, from the river Ste.-Anne-de-la-Pérade to Cape Tourmente, is much more irregular and indented than higher up the valley of St. Lawrence, and that six positions occur where it is projected forward from the general trend, namely, at Deschambault, on the Jacques-Cartier, at Pointe-aux-Trembles, Montmorency, Sault-à-la-Puce or Château-Richer, and the river A-la-Rose. These six positions mark the axes of six folds or anticlinal forms, and the zones of rock which succeed, affected by these folds, exhibit in their turn a rudely corresponding set of projections; some of the lower zones, however, are partially wanting.

On the Ste.-Anne-de-la-Pérade river, the exposure of the fossiliferous strata nearest to the gneiss is at the Three Rapids, where a black bituminous limestone is met with, about half a mile from it, and within ten acres of the boundary between Deschambault and Portneuf. The dip is down the river N. 80 W. $< 7^\circ$; the beds visible have a transverse measurement of 650 yards, giving a thickness of 250 feet. The beds are rather thin, and those at the base are much loaded with nodules of black chert, and occasionally interstratified with very thin layers of the same mineral, while at the summit occasional crystals of blende occur. The fossils are, *Orthis testudinaria*, *O. lynx*, *Atrypa increbescens*, *Leptena sericea*, *L. alternata*, *Chonetes lycoperdon*, *Lingula* —, *Orthoceras* —, some of which are replaced by cycloidal calcedony and beautifully weathered out; these remains place the beds in the Trenton formation. Three miles farther down the river, and over a mile and a-half from the gneiss, the same characteristic fossils, in the same state of silicification, occur at a spot called the Cascades, close upon the division line between Deschambault and La-Chevrotière, and from this to St.-Olivier bridge (twenty acres) and for some distance below, the river is confined to a narrow channel, with vertical sides of limestone rock, between which the current is sufficiently strong in some parts to make them difficult of examination. Among the fossils at and immediately below the bridge, are *Orthis pectinella*, *Leptena alternata*, a *Lingula* like *quadrata*, but not so large as Hall's figure and a little more sloping from the beak, perhaps the *parallela* of Phillips, *Chonetes lycoperdon*, *Stictopora acuta*, *Isotelus gigas*, and in crowded abundance on some surfaces, but rather obscurely developed, probably a *Cypricardia*. The formation here also most probably belongs to the Trenton, and the distance from the bridge north-westerly to the gneiss, is between two and three miles. Rocks of the same formation are laid bare in many places farther down the river, the last of which is at a rapid some distance above the mouth of the Charest. The dip of the beds is about S. 25 W. $< 1^\circ$ to 3° . The strike would run for a point a little way up the Charest, and not far from the spot, Trenton beds are seen, holding *Leptena sericea*, *L. alternata*, *Orthis testudinaria*, *O. lynx*, *Isotelus gigas*, and an unfigured species of *Avicula*.

From these last positions on the Charest and Ste.-Anne rivers, the summit of the Trenton formation sweeps round by an exposure near the south-western boundary of the fief Dorville, about a mile and a-half from the St. Lawrence. It crosses the river-side road to the Grondines, about a mile within the seigniory, and comes upon the water of the St. Lawrence at Pointe-à-Maçon, a little above the ruin of the old church and windmill at the Grondines village. The Utica zone is seen outside of it, in one or two places on the road from Ste.-Anne to the Grondines, and on the shore at the next point above that with the limestone, as well as between high and low water mark near the latter.

From Pointe-à-Maçon to the river La-Chevrotière, a distance of about four miles, the coast consists of a naked and often vertical cliff of the same limestone in slightly inclined strata, piled up in some parts to the height of 100 feet over the water, and the road on the summit runs on a bare ledge almost the whole way. From the mouth of the La-Chevrotière, a road runs back in a nearly straight line;

across the ranges to St.-Olivier bridge on the Ste.-Anne; a parallel road runs from the mouth of the Belle-Isle brook, and on both of these and in various other parts of the seigniory of La-Chevrotière, the Trenton formation is largely exposed. Extensive quarries are worked in it on the first-mentioned road, in the fourth range, where massive beds of a light yellowish-grey give a very excellent building stone, which somewhat resembles that from the Chazy at Montreal, but the La-Chevrotière, or as it is commonly called Deschambault stone, is more even colored, yellower; more granular and softer than the other. Not having met with these beds in other developments of the Trenton, I am not yet prepared to state what their equivalents may be in other places. *Ceraurus pleurexanthemus*, *Isotelus gigas*, *Leptena alternata*, *Orthis testudinaria*, *Atrypa hemiplicata*, *Chaetetes lycoperdon* occur in the beds.

Following the upper part of the formation from the mouth of the La-Chevrotière, the rock crosses the Belle-Isle brook and the road near, over a mile from the coast, and is seen in a quarry recently opened on the land of Mr. Alphonse Perrault, for the supply of stone for the purposes of the Quebec and Richmond railway. It here shows massive beds of a dark grey colored stone which looks well when dressed, though rather deteriorated by thin patches of black shale; the shale is bituminous, and a black indurated purely bituminous mineral is occasionally met with in small cracks and druses in the beds, which, resembling coal in its color and inflammable properties, has given rise in the vicinity to an erroneous report of the discovery of the latter species of fuel. The quarry is about a mile from the margin of the St. Lawrence, and rising the step in the land close in front of the limestone, the shales of the Utica formation present themselves, dipping S. 27° W. <math>< 35^\circ</math>. Where this step comes upon the road between the first and second ranges of Deschambault, the limestone is again seen, with the shales in front of it, on the road which turns from the water-side to the interior, about half a mile below Deschambault church. The exposure is about a mile and a-quarter from the river-side road; as in the quarry just mentioned, the beds are massive, but there appears to be an irregularity at the spot, perhaps occasioned by a transverse fault; the dip being N. 70° E. <math>< 46^\circ</math>, while the general extended course of the strata is north-eastward.

The gneiss of the Deschambault anticlinal comes out about a-quarter of a mile behind the limestone, and continues in the relation indicated to it and to the Utica formation, up to the division line between Deschambault and Portneuf. On the Portneuf river the Utica formation is exposed at Messrs. McDonnel and Logan's paper mill, about a mile from the St. Lawrence, and the Trenton in the seigniory of D'Auteuil, above and below the bridge on the St. Basil road, where it stretches along the river for between twenty and thirty acres. South of the river, there are indications on the road, of a transverse breadth of from sixty to seventy chains, the dip at the bridge being S. 30° E. <math>< 2^\circ</math>. The gneiss rises about two miles to the north-west, but the interval is concealed.

On the axis of the Jacques-Cartier anticlinal, the gneiss is succeeded by a few calcareous beds of an arenaceous character resembling those of the Calciferous sandrock, but the Trenton formation makes its appearance at the upper bridge, and affords a deep channel for the river, down to the middle one. Here making a detour round a narrow neck of land, the water, confined by the solid masses of rock on each side, to a breadth of fifteen feet, rushes with great violence under the bridge, descending many feet in a short distance, and causing a considerable difference of level on the opposite sides of the neck. Across this neck, a body of water, sufficient to drive a mill, finds a subterraneous passage, and pours out from an opening in the vertical cliff on the lower side. A short distance below the mill which has been erected here, the summit of the Trenton formation leaves the right bank of the river, and the Utica slate occupies

both sides, often giving high vertical sections, all the way from this to its mouth. The junction of the two formations must run on a line very nearly coincident with the road on the right side of the river, for rather less than three miles, and it then folds over the axis of the anticlinal, about half-way between this road and the next parallel with it on the north-west, and about half-way in a straight line between the upper bridge and Cap-Santé church. On the axis of the anticlinal, the distance between the base of the Utica slate and the gneiss, is about four miles and a-half. From the mouth of the Jacques-Cartier, the coast shews a bold and precipitous cliff of the Utica formation, all the way to Cap-Santé. The shales are occasionally found interstratified with a bed or two of black limestone, sometimes reaching a foot in thickness, and on the beach at Cap-Santé village there is a thickness of about twenty feet of argillaceous limestone, of a lighter color. In the vicinity, layers of this lighter colored argillaceous limestone, of from two to six inches are met with at intervals, above the twenty-foot band, and they afford in several places, close to the cliff, and out between high and low water mark, beautifully even slabs, fit for door-lintels, window-sills, hearths and such purposes. Considerable areas are exposed on single beds, but they are often cut up by a jointed structure, the planes of divisions running in three principal directions. Above Cap-Santé village the same formation extends as far as the strata are visible, which is upwards of two miles, but a portion of the Loraine shales may be covered up by the clay banks between this and the mouth of the Portneuf river, over three miles more, about half-way in which would run the synclinal axis between the Deschambault and Jacques-Cartier or Cap-Santé anticlinals, the position being opposite to Pointe-à-Platon, which is composed of the Loraine shales, and would also stand upon the synclinal axis.

Below the Jacques-Cartier, the Utica shales are seen in the cliff for about a mile and a-half, and the coast farther down, still exhibiting a bold vertical front, is occupied for about four miles and a-half by the less bituminous shales of the Loraine portion of the Hudson-River group. The village of Les-Ecureuils is situated about equi-distant from the extremes of this stretch of the coast, and north-easterly from this, the formation has a breadth of upwards of two miles. In this part, the passage from the Loraine shales to the Utica shales is so gradual that the division has to be somewhat arbitrarily assumed, and the position which has been taken as indicating this below Les-Ecureuils, would allow about a mile and three-quarters for the Utica shales, between the Loraine shales and a great development of limestone existing at Pointe-aux-Trembles.

This limestone occupies less than three miles along the margin of the St. Lawrence, presenting a low cliff, and the promontory near Pointe-aux-Trembles church stands almost in the middle of it. The fossils, which are abundant, shew the rock to belong to the Trenton formation, and it here constitutes that part of the Trenton zone which folds over the Pointe-aux-Trembles anticlinal. On the north-westerly side of the axis, the summit of the formation, striking into the country at the spot already indicated, appears to run in a north-easterly direction, and to cross the St. Nicholas road about two miles from the St. Lawrence, which would give about a mile and a-half as its distance from the gneiss on that side of the axis; and judging by the position of the same part of the formation on the Jacques-Cartier and the trend of the gneiss, it would sweep round and again cross the same road, less than two miles from the river Aux-Pommes, in its course to gain the position on the former river. Between the Trenton formation and the Loraine shales of Les-Ecureuils, there would be left in the vicinity of the river Aux-Pommes, a breadth of nearly three miles for the Utica shales. On the north-west side of the anticlinal, and not far removed from the gneiss, massive beds of limestone of a grey color and granular texture occur, on the land

of Mr. J. Gagné and others, affording excellent building material. The stone resembles that of Montreal, but I have not yet been so fortunate as to meet with fossils in it sufficiently characteristic to enable me to determine whether the formation is the Chazy.

On the south-east side of the anticlinal, the dip is more precipitous than on the north-west, and the strata on that side are broken, and let down by a fault. The position and course of this dislocation are plainly seen on the beach at and near a spring a short distance above Mr. Dubord's ship yard, where strata of the Utica formation are brought up against those of the Trenton, without any of that interstratification of calcareous and argillaceous layers which indicates the passage from the one to the other. The course of the dislocation in its continuation strikes the south-east side of the Bon-homme mountain, and near the line of division between Pointe-aux-Trembles and St.-Augustin, the Trenton formation is wanting, and the Utica slate comes in contact with the gneiss. In this relation these rocks cross the seigniory of St.-Augustin, the breadth of the Utica slate, which on the west side of the seigniory is not much more than the sixth of a mile, gradually increasing to over a mile on the east; and a considerable distance further on, a narrow strip of Trenton limestone becomes interposed between it and the gneiss, both fossiliferous rocks being tilted up to a high angle as they approach the gneiss. Arriving at St.-Ambroise, the limestone gets wider, and a few beds of white sandstone of the Potsdam formation, in all about twenty feet thick, present themselves. They are overlaid by a bed or two of grey granular limestone resembling the Chazy, with a *Cythere* of the same species as is found in this formation, but at the same time there occurs a fragment of an *Atrypa* resembling *A. extans* or perhaps *A. hemiplicata*, and *Orthis testudinaria*, which are both Trenton species. These grey beds are succeeded by black limestones, with an *Ormoceras* seen in section resembling *O. tenuistriata*, and a convoluted shell resembling *Lituites convolvans*, belonging to the Black-River limestone, but in the same fragment of rock with the former, there is *Orthis testudinaria*, and with the latter a portion of a *Trinucleus* and of *Conularia granulata*. On the river St. Charles close by, these black limestones rest upon the gneiss without the intervention of the Potsdam formation, and they are followed by beds belonging to the Trenton, shewing with them a breadth of about 700 yards, dipping at an angle varying from fifteen to thirty degrees, and giving about 600 feet of thickness. Through the effect of an undulation, the breadth of the Utica slate on this stream appears to be upwards of a mile and a-half.

On the river Des-Mares, the Utica slate, getting free from the undulation mentioned, is reduced to not over one-fourth of this breadth, while that of the limestone increases, the junction of the two formations being below the mill on the Jeune-Lorette and Charlebourg road. At Charlebourg it would pass near the church; on the Bourg-Royal road, it is about half a mile from the gneiss, and beyond this, the fossiliferous formations sweep round in accordance with the anticlinal of Montmorency, the limestone attaining a breadth of four miles, and the slate nearly a mile and a-half on the synclinal axis, which would cross the road from Beauport to Laval, about two miles and a-half from the St. Lawrence; but on the anticlinal axis, while the limestone continues to maintain about the same breadth, that of the slate becomes very much reduced, the summit of the lower formation crossing the Quebec and Beauport road a little west of the river Beauport, and that of the upper a short distance east of the turn-up to Bourg-Royal. As might be expected, while the breadth diminishes as we follow the strike, the dip greatly increases. On the Beauport road it rises to an angle of fifty-three degrees; following the road, however, which becomes transverse to the measures, the dip suddenly changes and diminishes, where the limestone first comes in, at a small quarry on the north side of the road at the turn to Beauport

bridge. From S. 30 W. < 28° on the west side of the quarry, it becomes N. 67 W. < 6° on the east, and a dislocation may exist.

From Mr. Dubord's ship-yard, near Pointe-aux-Trembles, the shore for upwards of two miles is occupied by a collection of gneiss boulders, but the Loraine shales are seen in many places where water-courses have worn their way down the face of the steep bank, which occurs about half a mile back. Farther on, this bank approaches nearer to the St. Lawrence, and continuing so for two miles, it becomes more precipitous and broken, and the exposures of the strata increase. But from the ruin of the old church at St.-Augustin, high water washes the foot of the precipice, and these shales, occasionally interstratified with thin bands of sandstone and one or two beds of conglomerate limestone, present a bare bold vertical cliff, reaching to a point about two miles below Mr. Scott's mill, or one and a-half above the mouth of the Cap-Rouge river. Approaching this point, the shales become more striped with thin bands of olive-green, and one or two thick beds of a hard jaspery character of this color present themselves, with short cracks in various directions, occasionally holding black indurated bituminous matter. Arriving at the point, a change takes place in the character of the rock, and though it may probably be brought in by a dislocation, producing a down-throw on the north-east side, the amount of which is not known, yet there is no doubt that the strata constituting the coast to the eastward, overlie those to the westward already described. In the lower or first part seen, these strata appear to consist of slightly calcareous sandstones of a light grey color and a hardness approaching to quartz rock, which are interstratified with green and black shales, and frequently become coarse conglomerates with calcareous pebbles, often so abundant as to convert them into conglomerate limestones. In the first 650 yards from the point where they come upon the coast, they are rather obscurely developed, but at a sharp projection of rock then occurring, the following section is observable in ascending order, and I am not yet quite certain whether to consider the strata composing it as a repetition of the more obscurely developed portion, or a distinct band running above it; the dip is about S. 25 E. < 50°.

	Feet.
Sandstone approaching in hardness to quartz rock, of a light grey color and slightly calcareous character,.....	9
Sandstone of the same character, becoming a conglomerate in the strike by the occurrence of limestone pebbles,.....	6
Sandstone of the same character,.....	11
Limestone conglomerate, consisting of calcareous pebbles of various sizes, up to several pounds in weight, imbedded in an arenaceous matrix,.....	5
Sandstone of the same character as before,.....	15
Calcareous conglomerate,.....	5
Concealed,.....	5
Limestone conglomerate, with an arenaceous matrix,.....	3
Sandstone of the same general character as before, with scattered pebbles of limestone, 13	8
Black glossy shales and thin sandstones,.....	3
Sandstone of the same general character as before,.....	10
Black shale and thin sandstone beds,.....	13
Sandstone in a solid mass of a light grey color, approaching quartz rock in hardness,...	21
Sandstone of the same character,.....	8
Sandstone of the same character, but in thinner bands,.....	4
Sandstone in thin beds, interstratified with shale,.....	4
Sandstone in two beds, with two alternating beds of shale equal to the sandstone in thickness,	4
Sandstone interstratified with shale, the sandstone beds swelling into great knots on the slope,.....	22
Grey argillaceous shale with thin beds of sandstone,.....	43
Sandstone in thin beds interstratified with shale,.....	59

In the next half-mile to the eastward, there occurs an additional amount of sandstones of a flaggy character interstratified with black and greenish shales and one or two thin bands of red shale. The measures being rather irregular, the exact thickness cannot be stated with certainty, but the whole, including the previous section, may probably equal 400 or 500 feet. On the surfaces of some of the beds, parallel groves or striæ in the direction of the dip, give evidence of a sliding of the beds on one another, when those movements occurred which have given the strata their present inclination.

Above this group of arenaceous strata, with a small amount of black shale interposed, there occurs a fifteen-feet band of iron-grey sandstone, with dark colored silicious grains, which on the strike breaks into large amorphous masses, longer in the strike than in a direction vertical to the bed, and varying in size from five yards by four, to two yards by one. These lumps are imbedded in the shale, which is much twisted in the vicinity, and the band is followed by grey, black and greenish shales, with a few interstratified beds of red. After an interval of concealment reaching to the Cap-Rouge river, a great mass of red shale occurs with bands of green, and these red and green shales become interstratified with greenish sandstones. The sandstones then exceed the shales, and become a conspicuous succession of fine and coarse grained rocks, sometimes assuming the character of fine conglomerates, with white quartz pebbles as large as peas. Thick beds of these sandstones separated by thinner bands of red and green shale, occupy the coast from Cap-Rouge to Pointe-à-Piseau, and they are outflanked on each side by the underlying red and green shales which extend to the Cap-Rouge river on the one hand, and to the vicinity of Ance-des-Mères on the other. What the true thickness of these deposits may be, it would be hazardous to pronounce with confidence, from the probably contorted condition of the strata, by which beds may be repeated. In regard to the sandstones, however, (supposed to represent the Oneida conglomerates,) no folds have been detected, and the total breadth they possess inland, including the interstratified bands of red and green shale, taken from a point about half-way between the extremes of the stretch they occupy on the coast, appears to be about 600 yards; the dip, which is to the eastward of south, ranges from fifteen to sixty degrees, and may be assumed at thirty; this would give a thickness of 900 feet. The breadth of the underlying red and green shales taken across to the vicinity of Ste.-Foye church, would be upwards of a mile, including a band seen on the descent of the hill, where the road turns from the church towards Ancienne-Lorette.

The calcareous conglomerates, sandstones and black shales, which underlie the red and green shales, are seen as they come out to the eastward, in the cliffs and precipices of the fortress and upper town of Quebec. The calcareous conglomerates are conspicuous on both sides of the promontory which stands between the river St. Charles and the St. Lawrence, and in the section across the measures at the point of this promontory, it can be perceived that several contortions exist in the strata. These appear also to be the rocks of Pointe-Lévy, where some good workable beds of limestone are included in the group. Where cracks occur in these beds, as well as in the upper greenish sandstones, it often happens that they hold black indurated bituminous matter, and in some of the quarries in the vicinity of Cap-Rouge, as that of Mr. Hamel, a vein of two or three inches is sometimes met with, holding fragments of wall rock, with crystals of quartz and calc-spar, the interstices of which are filled with the bitumen, exactly as metalliferous lodes are (with the exception of crystalline condition,) by the ores which characterize them. It has already been stated in a former Report, that this indurated bitumen holds no analogy whatever, in the mode of its occurrence, to mineral coal, for which some persons have been disposed to mistake it.

In the plain, on the north side of the elevated ground which holds these rocks, the Loraine shales in the vicinity of the river St. Charles, have a breadth of about three miles, and the fossils which characterise the upper part of the formation, are seen towards the foot of the hill below Ste.-Foye church. Not far from this church will probably run the axis of the Montmorency anticlinal, though I cannot give any precise fact by which to determine its position, other than the general course it has more to the eastward. In regard to this anticlinal, as in that of Pointe-aux-Trembles, the dip is more precipitous on the south-east side than on the north-west, and it seems also, as in that instance, to be accompanied by a dislocation throwing the measures down to the south-eastward. This fault is traceable north-easterly from Beauport church, from which the road to Montmorency runs nearly the whole way on a bare ledge of limestone with a very small dip, while close on the south-eastern side of the road, the Utica slate is in many places seen in narrow strips, tilted up at a high angle. The details of the fault are well displayed at Montmorency Falls; here the channel of the river is cut down through the black limestone beds of the Trenton formation, to the gneiss of the anticlinal ridge, and the water at and below the bridge, flows down and across the gneiss, and leaps at one bound to the foot of a precipice which, immediately behind the water, is composed wholly of this rock. At the summit of the cascade, the Trenton beds on each side have a thickness of almost fifty feet, and they are marked by *Trinucleus concentricus*, *Calymene senaria*, *Conularia quadrisulcata*, *Leptaena sericea*, *L. deltoidea*, *Orthis testudinaria*, and *Lingula*. The dip of these beds is down the stream at a very small angle; but at the foot of the precipice, and in immediate contact with the gneiss, about the same thickness of limestone is tilted up to an angle of fifty-seven degrees; it is followed by a similar amount of black bituminous shale with the same slope; in this attitude these rocks climb up the face of the precipice, presenting their edges to the chasm on each side. They are followed by about eight feet of strong hard grey sandstone, weathering brown, in beds of ten to eighteen inches, interstratified with black shales, to which again succeed grey arenaceous-argillaceous shales, composing the sides of the chasm, out to the waters of the St. Lawrence. The limestones belong to the Trenton, the black shales to the Utica formation, and the grey to the Loraine shales.

About half a mile beyond the bridge, the tilted limestones and black shales cross the road, immediately on the north side of which the gneiss rises from beneath them, here shewing the point around which the basset edge of the limestone sweeps as it folds over the anticlinal arch. These two fossiliferous formations keep close on the north side of the road for nearly a mile and a-half, when they suddenly become removed between one and two furlongs to the north-westward, by a twist or a transverse dislocation, proceeding beyond which, they gradually increase in width, while the gneiss gradually recedes from the coast, until becoming affected by the anticlinal of Château-Richer, they sweep round to the road. The upper part of the Utica slate comes upon the road about half-way between the churches of Ange-Gardien and Château-Richer, and that of the limestone about three-eighths of a mile above the latter. Along the north-westward—running flank of the gneiss, which rises into a moderate hill, the limestone reposes on this rock at a considerable angle. It is of the Trenton formation, and continues so until reaching the synclinal curve, where it comes upon the Sault-à-la-Puce river; a few beds of a calcareo-arenaceous character are here brought into view, which may belong to the Calciferous sandrock, though no fossils were observed to support the evidence given by the mineral constituents of the rock.

On the south-eastern side of the anticlinal of Château-Richer, the measures are broken by the effects of a fault, which again throws them down on that side, bringing the Loraine shales to abut against the gneiss. At the cascade on the

Sault-à-la-Puce, the water is precipitated over gneiss rock with a fall of sixty-six feet, and above the cascade for some short distance, this rock occupies the left bank of the river, while the calcareo-arenaceous beds above mentioned are seen on the right. At the foot of the cascade the stream makes a sudden turn to the eastward, and the rock on the right bank, in face of the fall, is composed of Loraine shales, which constitute both banks of the stream, for the remainder of the distance to the St. Lawrence. In the course of the fault to the north-eastward, these shales continue in contact with the gneiss for about a-quarter of a mile. The Utica slate then begins to intervene; it continues in contact with the gneiss for upwards of two miles farther; a thin strip of the Trenton limestone is then interposed, and continues with but little augmentation in its breadth, all the way to the river A-la-Rose. Both formations maintain a high angle of inclination, but they diminish in slope and increase in width, as they fold over the anticlinal of this vicinity, again however narrowing, and becoming more precipitous as they proceed eastward on the south side of the axis. On the Ste.-Anne river, the limestone is seen leaning on the gneiss at the foot of the lowest cascade. At the contact it has a southern dip of from thirty to seventy degrees, and the breadth of the band does not exceed some twenty or thirty yards, representing only the upper part of this formation; but farther down the stream the total thickness of the Utica slate is well displayed, and it appears to occupy all that part of the stream which runs between the limestone at the foot of the fall, and the junction of its tributary, the river A-la-Rose. In its windings, the Ste.-Anne cuts the formation twice, and the following is the detail of its component parts in ascending order:—

	Feet.
1. Black brittle bituminous shale, with <i>Lingula and Graptolithus</i>	19
Black brittle bituminous shale, with two bands of yellow weathering limestone, black within.....	8
Black brittle bituminous shale.....	23
Black brittle bituminous shale, breaking into small fragments in consequence of a cleavage independent of the bedding.....	11
Black brittle bituminous shale, with <i>Graptolithus</i>	245
Grey, hard sandstone, interstratified with bands of black shale.....	5
Black brittle bituminous shale, interstratified with beds of sandstone.....	7
	318
2. Light grey, yellow weathering sandstone, with black argillaceous nodules at the top; in some parts the sandstone beds hold fossils, which are obscure, but appear to be <i>Orthis testudinaria</i> and <i>Leptæna sericea</i>	10
Concealed.....	13
Black brittle bituminous shale.....	6
Dark grey argillo-arenaceous shale.....	51
Dark grey argillo-arenaceous shale.....	192
Dark grey argillo-arenaceous shale, with thin beds of sandstone.....	8
Light grey sandstone in a massive bed, weathering greenish in the air, and reddish in the water; two bands of conglomerate occur in the middle, holding pebbles of limestone and of quartz; some parts appear to weather faster than others in bands conformable with the bedding.....	18
Dark grey, slightly greenish argillo-arenaceous shale.....	58
Light grey conglomerate bed, with about two feet of fine grained sandstone at the bottom; the conglomerate parts hold pebbles of limestone and quartz, of various sizes up to two inches in diameter, those of limestone being in greater abundance than the quartz.....	5
Grey sandstone, a massive bed becoming of a conglomerate character in parts.....	14
Grey calcareous conglomerate, as before.....	3
Light grey sandstone, weathering brownish.....	3
Grey calcareous conglomerate, with soft shaly sandstone as a matrix.....	2
Greenish argillo-arenaceous shale, striped with dark grey bands.....	84
Greenish argillo-arenaceous shale, striped with dark grey, and having a six-inch band of hard, light grey, reddish weathering sandstone at the top, and another at the bottom.....	18

	Feet.
Greenish argillo-arenaceous shale, striped with dark grey, with occasional bands of hard, light grey sandstone, weathering reddish-brown as before.....	125
Greenish argillo-arenaceous shales, striped with dark grey, with thinner and finer bands of light grey sandstone.....	39
Greenish argillo-arenaceous shale, with dark stripes, without any bands of sandstone.....	70
	— 719
3. Black brittle bituminous shale, weathering reddish and yellowish-brown, and holding <i>Graptolithus ramosus</i> and <i>G. bicornis</i> with a small <i>Orbicula</i> and <i>Triarthrus beckii</i> ,.....	16
Black bituminous, and slightly arenaceous shale, not quite so brittle as the preceding, except in a few hard black bands which have <i>Graptolithus</i>	17
Black bituminous and slightly arenaceous shale, with two bands of the harder, more brittle and more bituminous character, the latter with <i>Graptolithus</i>	4
Dark grey bituminous and slightly arenaceous shale, finely striped with black lines,	33
Black brittle bituminous shale, weathering a light or yellowish-brown, without grit, and holding <i>Graptolithus</i> and <i>Orthoceras</i> ,.....	7
	— 77
	1114

The second division of this section presents characteristics, which agree rather with these of the Hudson-river group than the Utica slate, but the occurrence in the third of so large an amount of black bituminous shale, characterised by Utica fossils, makes it doubtful to which formation the middle portion, though the largest, should be referred. There is but little doubt that the measures which overlie the third, belong to the Hudson-River group, and the shales of this group occupy the distance between the mouth of the river A-la-Rose and that of the Ste.-Anne, exhibiting in it more than one undulation, and thereby rendering it difficult at present to determine with precision the thickness to be given to them, though it is certain that it is considerable.

Between the river Ste.-Anne and Cape Tourmente, both the Trenton and the Utica formations are seen once more, on the road from St.-Joachim to Bay St. Paul, where the road rises from the plain between the rivers Blondelle and Marsolette; and the limestone is seen for the last time where the river Friponne descends from the gneiss. In both localities, the limestone, dipping nearly south, rests on the gneiss at the angle of about thirty degrees, and at the Friponne the strata are abundantly stored with characteristic fossils, such as *Orthis testudinaria*, *Comularia quadrisulcata*, *Calymene senaria*, *Trinucleus concentricus*, *Lingula curta*, and *Orbicula filosa*.

In the physical structure of the country between Ste.-Anne-de-la-Pérade and Cape Tourmente, it will be perceived that the anticlinal forms which have been described, have apparently a rude parallelism to one another, that every one of them shows a more precipitous dip on the south-east than on the opposite side, and that in two instances the strata, where they take their south-eastern plunge have been torn asunder, the slope becoming a step in the stratification, giving what is called a fault, with a down-throw on the south-eastern side. The effect which these undulations have produced on the physical geography of the district, is shewn in the distribution of its rocks, and the courses of the main streams which drain it, such as the Ste.-Anne-de-la-Pérade, the Jacques-Cartier, the Montmorency, and the Ste.-Anne-de-Montmorency, which run parallel with them; these river-courses are thus the means of demonstrating that the undulations continue much farther to the north-eastward than the examination has been carried. To the south-west also they produce marked effects upon the contour of the formations on the right side of the St. Lawrence, and can be traced to great distances, even to the boundary of the province in the valley of Lake Cham-

plain; but as these effects have been described in former Reports, it is not necessary to allude to them farther on the present occasion.

ECONOMIC MATERIALS.

The materials bearing an economic value which have been met with in the district, the geology of which has been under investigation, appear to be almost wholly confined to bog iron ore and iron ochres, together with stone fit for the purposes of construction and flagging, as well as limestone for burning, clays for common bricks and pottery, and peat in some parts fit for fuel; to these and one or two other substances, which have come under my observation from parts of the country heretofore reported upon, it remains for me to draw attention.

Bog Iron Ore. Indications of this ore were observed on the road between Ste.-Anne-des-Plaines and St.-Lin in the Petite-Chaussée, but the quantity did not appear to be important. The ore was again observed on the same road not quite half-way between the rivers Ste.-Marie and Achigan; the thickness was about six inches, but it was not ascertained that the extent was considerable.

An area which spreads over a part of the township of Kildare, and an adjoining portion of the augmentation of the seigniorship of La-Noraye and Dautraye, comprising a superficies of about nine square miles, exhibits patches of bog ore in so many of those parts which have been cleared, while there is much still covered by primæval forest, as to induce the expectation that it may become worthy of attention as a profitable source of the ore. One of the spots in this area in which the mineral occurs, is on the line between the first and second concession of the township, where it intersects the seventh and eighth lots; the principal part of the deposit is on the lots of Messrs. François de-Boncoeur, J. Baptiste La-Chapelle, and Narcisse La-Chapelle, on which there may be between fifteen and twenty acres yielding the ore in patches, the thickness of which varies from three inches to one foot. Another of the spots is situated on the seventh lot of Kildare, where it is intersected by the road between the fourth and fifth concessions; here the principal patches observed were on the land of Mr. J. Landry, but they were not ascertained to be considerable. Between these localities much of the country is covered with wood.

In the augmentation of La-Noraye and Dautraye, one of the localities is close upon the left of the river L'Assomption, a little above the road leading from the line between the second and third ranges of Kildare; here, on a lot belonging to Madame Lefèvre, five patches of the ore, varying in thickness from two inches to one foot, were observed in an area of about two acres. North of this, about half a mile, in Côte-Ste.-Emilie, bog ore was observed on the lots of Messrs. Norbert Berri and Charles Berri in four patches of three inches to one foot thick, running eastwardly across the lots. A continuation of such patches may extend to another ascertained locality in the same range, shewing itself about three-quarters of a mile to the east-ward; here a succession of patches exists, having a collective length of about a mile and a-half farther eastward, and a breadth in the middle of about 1200 yards, diminishing in opposite directions, and giving to the whole space a lozenge or diamond shape; the patches occupy areas of from ten to fifty square yards, and appear to be in general about three inches thick, but they do not seem to constitute over a twentieth part of the whole ground. A considerable portion of the general area being still covered with wood, the limits could not be ascertained with precision, and they may exceed those given; the largest breadth of the area is upon the land of Mr. Louis Beauplein. South from this, about the sixth part of a mile, a triangular shaped area of about fifty acres occurs in the adjoining range of lots, that of Côte-Ste.-Rose, in which the patches of ore, with a thickness similar to those in Ste.-Emilie, make up about one-fifth of the ground. The greatest breadth, which may be about 600 yards, occurs on

the land of Mr. Cyrille Blanchard, and the mineral area diminishing eastward, crosses the lands of Mr. Léon André and Mr. Barbel.

These various mineral areas in Kildare and La-Noraye and Daustraye, may be stated to be between four and five miles from the village of Industry; the only other locality in this vicinity, in which bog ore was ascertained to exist, in close upon the right bank of the river L'Assomption about half a mile below the village, on the land of Mr. Alexis Larivière, where indications extend over half an acre, in patches of three to six inches thick, occupying about one-third of the ground; this locality was not visited.

The next group of localities yielding bog iron ore is that connected with the sources from which, for a great number of years, the forges of St. Maurice have been supplied. One of these is situated in the augmentation of the township of Caxton, about half a mile south-east from the point where the line bounding the augmentation on the south-west, cuts the Great Yamachiche river. About a hundred acres at this place, on the property of Mr. Pierre Boivin, have given an abundant supply, but the locality is now nearly exhausted; the ore is still obtained, however, in spots along the windings of a small creek which flows through the land, and which once abounded with it, for three-quarters of a mile. At the time the locality was examined, about 600 barriques had been collected from about half an acre along the creek, and the thickness of the deposit appeared to vary from six to fifteen inches.

North-east of this locality about four miles, there is a considerable swamp, in the fourth range of the fief St.-Etienne, which has a south-westward length of about a mile and three-quarters, with a breadth diminishing from about forty acres at the north-west end, to ten acres of the opposite extremity; it may thus have an area of about 1200 acres. Ore is found and has been collected at uncertain intervals of space along the north-western edge of the swamp, and it probably occurs in patches over the most part of it, but the swamp being always covered with water, except for a few months in summer, is not very easy of access, and has only lately been resorted to for the mineral. At the south-eastern end of the swamp, ore was lying in piles which had been collected for the forges, and as shewing the yield of the ground, it may be stated that three patches, occurring in the area of about 500 square yards, produced the following quantities:—

1st patch measuring	12 feet	by 15 feet	10 barriques.
2nd “ “	30 “	“ 7	12½ “
3rd “ “	35 “	“ 6	50 “

About two and a-half miles south-east from this locality, in the second range of St.-Etienne, on the property of Mr. Louis Bellefeuille, bog ore is met with in patches over a surface of from thirty to forty acres. One pile recently collected and lying on the ground was estimated to contain about 1000 barriques, and another about thirty barriques, the latter being the produce of seven patches occurring in a space of thirty yards by from two to three yards across. The thickness of the mineral patches in this ground, which has only recently been resorted to for ore, appears to range from six to nine inches.

Two miles south from the last spot, and within the seigniory of Pointe-du-Lac, a considerable quantity of ore has heretofore been taken from an area of about thirty acres, lying in the woods. Little, however, appears to be left, but about fifty barriques had been recently obtained from the waste of the workings of former years. The expediency of resorting to this refuse may be taken as an indication of an increasing scarcity of the ore.

From a point about a-quarter of a mile farther south, and from another about 600 yards still farther south, there start two bands or strips of ore-patches, which varying in breadth from sixty to one hundred yards in the one case, and ten to

220 yards in the other, run to a common point about a mile to the eastward ; with the exception, however, of a small portion of the patches at the point of union, the ore is pretty nearly exhausted ; the thickness of the patches that remain, appears to be from six to twelve inches.

The last mentioned locality is about three miles from the margin of Lake St. Peter, at the mouth of the river A-la-Glaise ; and two miles nearer the lake, in the range St.-Nicolas of Pointe-du-Lac, on a small branch of the stream just named, and within a-quarter of a mile of the end of the range, there is on the land of Mr. Cyrille Vincent, an area which appears to have yielded a considerable quantity of ore in former years ; it has a north-east and south-west length of about 350 yards, by a transverse measure of about 100 yards, and the ore is said to have been from three to six inches in thickness. About 120 barriques collected from the waste of former workings were in piles at the time of examination.

Intelligence was obtained of another exhausted area in this vicinity, on the property of Mr. Etienne Berthiaume, and other lots adjoining, situated near the range Garceau, about a mile and three-quarters north of Pointe-du-Lac church. It has a measure of three-quarters of a mile in length north-eastwardly, by a breadth varying from half an acre to an acre. Small quantities of the ore are still collected from the waste ; this place was not visited.

The country between the St. Maurice and the Batiscan appears to be an ore-field of some importance ; several extensive areas abounding in the mineral are known to exist in it, and much of the ground being still covered with wood, it is probable more will be discovered. In this district, indications of the ore were noticed not far from the bank of the St. Maurice, on the land of Mr. Macaulay, about a mile and a-half below Pointe-à-la-Hache, but the ore-ground of an important character, nearest the forges, on this side of the river, is situated to the north-east at a distance of between six and seven miles. It occupies a triangular area lying in the St.-Felix and Ste.-Marguerite ranges, partly in the seigniorly of Cap-de-la-Madeleine, and partly in that of Champlain. Its superficies may extend over about six square miles ; it has a pretty uniform level, and may stand 180 or 200 feet over the level of the St. Lawrence. A road leads from the Ste.-Marguerite to the St.-Felix range, between the forty-eighth and forty-ninth lots ; on this road, in the vicinity of its junction with the road of St.-Felix, five or six patches of ore belonging to the area in question, were met with, of from two to four inches thick ; and about a mile to the north-east from this, additional patches were observed running in a zigzag course in the same general direction for half a mile, which appeared to be unusually abundant sources. They have been worked for some years for supplying the forges, and considerable quantities which had been collected, lay in piles on the spot at the time of examination. Twenty-four piles, which were the produce of several patches included in about three-quarters of an acre, were estimated by measurement to contain about 390 tons ; two large piles from different surrounding places gave about 750 tons, and several parts examined appeared to shew that over a considerable extent in the neighbourhood, areas of from a-sixteenth to three-quarters of an acre were more or less occupied with patches of from two to four and occasionally six yards across, and from six to ten inches thick. The position is about the thirty-fifth lot on the north-west half of the St.-Felix range, and the ore is traceable by the thirty-fourth lot on the south-east half, to the Ste.-Marguerite range, where it is known on the thirty-fourth and thirty-third lots, on the north-west side of the Ste.-Marguerite road, as well as on the twenty-fourth, and it was met with still farther to the north-eastward, about a-quarter of a mile beyond the river Au-Lard, on the lot of Mr. Hubert Rault.

Mr. McFarlane, who, while the St. Maurice forges were in the possession of the Hon. J. Ferrier, made several explorations in search of ore, has informed me

that the mineral is met with in some quantity in the vicinity of a small sheet of water called Lac-aux-Tourtes, tributary to the St. Maurice, and falling in by a short stream on the left bank. The distance back to the lake is uncertain, but it is supposed to be about six or seven miles from the St.-Felix range, and near the division between the seigniories of Cap-de-la-Madeleine and Champlain.

In the seignior of Champlain a considerable field of the ore exists on the south side of the river which goes by the same name. According to the information received, it extends in a band from within fifteen acres of Mr. Richardson's mills, (which are situated on the Champlain, about mid-breadth of the seignior,) in a north-easterly direction to the settlement on the river A-la-Lime, in the seignior of Batiscan, a distance rather less than three miles, and has a breadth of twelve to eighteen acres; its superficies would be about 1100 square acres. The north side of the band is ten or twelve acres to the south of the road at the river A-la-Lime, and there is another and parallel band north-west of it, and separated from it about ten acres, which commences fifteen acres within the boundary of the Champlain seignior on the north-east side, and extends about fifteen acres in the opposite direction; the breadth is from three to six acres, and it would thus have an area of about seventy-five square acres. The ore, as in other instances, occupies these bands in numerous patches, the thickness of which varies from three inches up to a foot. From that part of the band which lies in the vicinity of the river A-la-Lime, the forges, which some thirty-five years ago were in operation on the Batiscan river, were supplied with ore, and in the woods there, many good piles of the mineral were seen remaining, which had been abandoned when the forges were blown out. I have been informed that the quantity thus abandoned is estimated at 20,000 barriques.

On the eastern side of the Batiscan river, bog ore is found in the vicinity of Mr. Marchand's mill on the river A-Veilette, upwards of a mile and a-half from the bend in the Batiscan, below the old forges. It occurs on the land of the three brothers, Messrs. Desaulniers, in several patches, one of which appeared to extend over about the third of an acre, with a thickness of from three to six inches, and sometimes a foot. Upwards of a mile and a-half beyond the mill on the road to St.-Prosper, it occurs not far from the boundary between the seigniories of Batiscan and Ste.-Anne-de-la Péraide, on the lots of Messrs. J. Bte. Veilette and Archange Baril; the patches are small, and the thickness does not exceed three to four inches.

In the seignior of Ste.-Anne-de-la-Péraide, indications of the ore were met with on the south-west side of the road, which turns up from the Ste.-Anne river, and runs parallel with the Charest, but the patches do not seem to be numerous; the thickness is from three to four inches.

Another locality in which bog ore was met with, was on the road between Portneuf and St. Basil, in what is called the Bois-de-l'Ail, on the land of Mr. F. Marcotte, where I was informed by the proprietor, patches occurred for the breadth of four acres. This area I was given to understand belonged to a general band, extending from the land of Mr. William du-Chemin, Petit-Bois-de-l'Ail, by those of Messrs. F. Marcotte and F. Suzor, to the land of Mr. Jean Tourangeau at St. Joseph, but it was not ascertained whether the quantity was abundant.

Indications of the ore are said to exist also on the Jacques-Cartier in Bois-Brulé, Cap-Santé, on the land of Mr. Amable Tourangeau, but the place was not visited.

Iron Ochres. Indications of these substances were observed in a great many of the localities which have been mentioned as yielding bog iron ore, and in others in the vicinity of ore beds, though unmixed with ore; in some few cases where no bog ore was observed in association with them, the ochres may perhaps be taken as suggestive of the probable existance of the ore in the neigh-

bourhood, seeing that both substances have the same origin, and nearly the same composition, with a difference chiefly in condition.

On the lands of Madame Lefèvre, Messrs. Norbert and Charles Berri, Cyrille Blanchard, Léon André and M. Barbel, in the Ste.-Emilie and Ste.-Rose ranges of the seigniory of La-Noraye and Dautraye, already mentioned for bog iron ore, ochre also was met with in small patches of from one to five yards in diameter, and one to three inches thick; it was yellow in color and appeared to contain a good deal of sand, while wide intervals existed between the patches.

About 300 yards from the left bank of the Great Yamachiche river, at the first bend, above the south-west line of the augmentation of Caxton, five patches of yellow ochre were observed in a distance of 250 yards; the largest patch had an area of six square yards, with a thickness of twelve or fifteen inches, and it is not improbable that others may exist in the vicinity, though it is not supposed that they are numerous. The ochre was not much mixed with sand.

A very large ochre-bed is situated on the St.-Nicolas range of Pointe-du-Lac, on the property of Mr. Pierre Chaillon and his brother. It is crossed by the range road, running north-westward, over a mile from the point where this starts from the water-side road; the deposit extends on each side of the road, about ten acres to the south-west, and forty acres to the north-east; the breadth is irregular, and varies from one to twenty acres, and the whole area may be about 400 acres; the thickness of the deposit ranges from six inches to four feet, and may have an average of about eighteen inches. The prevailing colors of the ochres are red and yellow, but there occurs also in some parts a beautiful purple tinge, and in others a blackish-brown. At the Industrial Exhibition which took place in Montreal, in October 1850, some of the ochres of this locality, presented to public view by Mr. D. G. Labarre, attracted the attention of persons acquainted with the commercial value of such products, and arrangements were subsequently made with the proprietors of the land, by Messrs. H. A. Munroe & Co., of New York, for the purpose of entering upon such a preparation of the crude material as should fit it for sale. With this view a couple of furnaces have been erected in the vicinity of the ochre bed, and an agent established to carry out the details of the manufacture, and attend to the forwarding of the article to New York, where the sale of it is effected. I was given to understand by the agent that 400 barrels of the ochre had been disposed of at five dollars each, and that as many as twelve barrels had occasionally been prepared in a day. From the few natural colors that have been mentioned, eight tints are said to be prepared. The deposit being but little mixed with sand, the chief impurity to be got rid of consists of the roots of those plants which have been growing on the surface, some of which penetrate to a considerable depth. Two modes are resorted to for this purpose; one is by dry sifting, which is used where the natural colors of the ochres are to be preserved, as in the case of the yellow variety, of the purple, and of the blackish-brown. The yellow is a hydrated peroxyd of iron, the purple also is probably in some peculiar state of hydration, but the red is the anhydrous peroxyd. By exposure to a sufficient heat in the furnace, the water of combination is driven off from the yellow and purple, and both, becoming anhydrous peroxyd, assume the tint of the natural red ochre; the vegetable matter in this operation is burnt out. The blackish-brown variety is scarcer than the others, and affords colors of a more valuable description; purified from roots without fire, it is sold under the name of raw sienna; it is admirably adapted for graining, and brings in retail, I am informed, so much as a shilling a pound. When subjected to fire it assumes a brown of less intensity, and it is sold as burnt sienna. As it does not turn red from burning, it is probable that there may be, in this ochre, an admixture of manganese.

Further to the north-west, on the road of the same range, patches of ochre were observed in considerable abundance, for upwards of a mile; but they were not in general so pure as the great one just described, and the thickness by no means so considerable, being no more than from three to six inches.

About a mile and a-half below the forges of St. Maurice, but on the opposite side of the river, a patch of ochre was observed associated with the bog iron ore already mentioned there. It might have an area of about 200 square yards; its thickness did not appear to exceed from three to six inches, but the ochre was free from all impurities with the exception of those of vegetable origin.

On the north-west side of that part of the road through the range Ste.-Marguerite, which runs south-west from the river Au-Lard, patches of yellow and brown ochres are met with for a distance of six miles; they do not exceed from three to four yards in diameter, and the observed thickness rarely went beyond four inches. They all contain more or less sand, but, by washing, the quality and quantity would be sufficiently good and extensive to supply the wants of the inhabitants in the vicinity for a great number of years.

In the St.-Malo range of the seigniory of Cap-de-la-Madeleine, a great deposit of ochre occurs opposite to the end of the road which turns up from the margin of the St. Lawrence, about two miles below the Cap-de-la-Madeleine church. The locality is upwards of two miles back from the river, or about half a mile from the front of the St.-Malo range; its breadth on a line continued from the road is about eleven acres, and it extends rather more to the north-east than to the south-west, with a length altogether equal to about two miles; the area would thus be upwards of 600 acres. A section was examined across the deposit on the farm of Mr. David Bruyère, near the mid-length, partly by sounding with a boring rod, and partly by excavation; the following is the result of the trials:—

For 50 paces forward,	Six inches of yellow ochre rested upon six inches of peat, below which an equal quantity of ochre was followed by two feet of peat.
For 50 paces farther,	One to two feet of ochre rested on four feet of peat.
45 " "	One to two feet of ochre rested on eight feet of peat.
26 " "	One to two feet of ochre rested on four feet of peat.
100 " "	Nine feet of peat rested on about six inches of brownish-white colored fresh water shell marl.
160 " "	Two feet of yellow ochre of superior purity, rested on alternations of peat, marl, and ochre, to the thickness of seven feet.
320 " "	Twelve feet of peat occurred, gradually thinning out to the margin of the sandy plain at the edge of the deposit.

An almost inexhaustible quantity of red and yellow ochres might be obtained from this locality, and when the ochres are mixed with peat, masses of the mixture might be cut out and dried, and afterwards burnt with facility, experiments on a small scale shewing that the quantity of peat in the mixture is often sufficient to calcine the ochre.

In the parish of Ste.-Anne-de-Montmorency, on the property of Mr. E. Caron, about a mile and a-quarter above the mouth of the Ste.-Anne river, there is a deposit of ochre extending over about four square acres. The locality is on the top of the bank which overlooks the main road, from which it is removed about a-quarter of a mile. The surface of the deposit has a slope to the south-east of about fifty feet in about 150 yards, but the bottom of the deposit keeps nearly on a level with the lower side for some distance back, and then rises quickly up to the higher side. The thickness of the deposit is thus about seventeen feet in the deepest part, and varies from that to four feet. The form of the deposit would give great facility in excavating the ochre, as by beginning on the lower side, a considerable face of it would be exposed, and the water would run from it without the necessity of cutting drains. Three colors exist at the surface yellow, red, and

blackish-brown, similar to those of the deposit at Pointe-du-Lac; but the lower and by far the larger part, is an ochre of a whitish-green color. In this green portion the iron is in a lower state of oxidation than in the yellow, but like it, becomes red upon ignition.

On the road to St. Stanislas, at Lac-Capabusca or Corsettes on the river Des-Envies a tributary of the Batiscan, and about seven leagues from Ste.-Geneviève, iron ochre is said to occur in some abundance.

Iron Sand. The margin of the St. Lawrence between the Batiscan and Champlain rivers, is frequently blackened by the occurrence of magnetic iron sand, which in some spots near the Batiscan appears to be in such abundance, that it might be collected with facility to be used instead of blotting paper for absorbing ink, for which purpose it is sold by stationers.

Wad or Bog Manganese. On the St. Louis road, about four and a-half miles from Quebec, there is a small deposit of this ore on the property of Mr. Michel Hamel. It occurs in black honey-combed masses imbedded in sand, and occupies an area of about sixty yards in an east and west direction, by five yards wide; it has a thickness of about one foot in the middle, and gradually thins out all around.

Clay for Common Bricks and Pottery. Of the terraces that have been mentioned in a previous part of the Report, as succeeding one another in steps between the flank of the Laurentian series of rocks and the St. Lawrence, the upper ones are to a great extent occupied by sand, but clay fit for the manufacture of common bricks, coming from beneath the sand, is of such frequent occurrence, that in addition to a vast number of localities in which it is met with on the margin of the main river, or not far removed from it, there is scarcely a tributary, when its channel is cut deep through the drift formation, that does not hold it in some part of its banks; bricks might thus be manufactured in the vicinity of almost any part where a demand for them might arise, and the places chosen for carrying on this branch of industry, are therefore chiefly dependent on the convenience of carriage to a market.

The following is a list of such localities as came under observation during the season, including several on the south side of the St. Lawrence. The quantities of bricks manufactured at them, are derived in many cases from the manufacturers themselves, and in others from common report in the neighbourhood:—

At the upper extremity of St. Antoine Suburbs, Montreal, bricks were made for several years by Mr. Tully, but the field is not at present worked.	
In a field on Ste.-Elizabeth Street, Côteau-Baron, Montreal, Messrs. Peel and Comte manufacture annually, and sell chiefly in Montreal, from 2,500,000 to.....	3,000,000
On the Papineau road, Montreal, Mr. J. Richardson makes and sells in Montreal.....	300,000
On Colborne Avenue, Montreal, Mr. C. Adams makes and sells chiefly in Montreal from 2,500,000 to.....	3,000,000
On Parthenais Street, St. Mary Suburbs, Montreal, Mr. John Bowden manufactures and sells in Montreal,.....	800,000
On the left bank of the Naquoraau river, about two miles below Dorwin's saw mill, Mr. Lafon manufactures for sale in the neighbourhood, about.....	13,000
On the river Richelieu, one mile below the village of St.-Ours, bricks are made and sold in the neighbourhood to the extent of between 40,000 and.....	50,000
On the right bank of the same stream, five miles above Sorel, Mr. W. Jenkinson makes and sells in the neighbourhood, about.....	100,000
On the right bank of the same stream, about a mile and a-quarter above Sorel, Mr. James Sheppard manufactures and sells chiefly in Montreal, 400,000 to.....	500,000
On the same bank of the river, about a mile above Sorel, Mr. Charles Sheppard makes and sells generally in Montreal, about.....	700,000
At Yamachiche, Mr. François Pichette makes and sells in the neighbourhood, about from 400,000 to.....	600,000
At Pointe-du-Lac, Mr. Duval manufactures and sells chiefly in Montreal and Quebec, about.....	100,000

At the same place, Mr. C. Dupras makes and sells at Montreal and Quebec, about... 100,000
Above Three Rivers a few miles, the following persons are said to make the following quantities which are sold between Montreal and Quebec.

Mr. J. Lalancette,.....	600,000
“ Michel Barbinas,.....	450,000
“ Olivier Boisvert,.....	375,000
“ Joseph Lamérise, père,....	375,000
“ Joseph Lamérise, fils,.....	200,000
“ Elzéard Abraham,.....	525,000
“ Joseph Gouin,.....	200,000
“ Louis Boisvert,.....	100,000
“ Joseph Dugé,.....	175,000
“ Elzéard Aubry,.....	500,000
“ Henry Felix,.....	200,000
“ Joseph Lotinville,.....	200,000
	3,900,000

At and near Cap-à-la-Roche, St. Jean, there are seven brick makers, who are said to manufacture on the average, about 300,000 each..... 2,100,000
On the Batiscan river, two miles up from the mouth, bricks have been manufactured.
On the Charest river, not far from its junction with the Ste.-Anne-de-la-Pérade, bricks were at one time made, but the manufacture was given up for want of demand.
On Isle-au-Sable, and also upon Isle-au-Grande, at the mouth of Ste.-Anne, there was once a manufactory of bricks.
On the Little River road, Quebec, Messrs. W. & D. Bell manufacture and sell, chiefly at Quebec, from 1,500,000 to 2,000,000
Near the same locality, Mr. Ward makes and sells in Quebec, from 700,000 to..... 1,000,000
At St.-Pierre, on the Island of Orleans, Mr. Modeste makes and sells chiefly in Quebec, from 80,000 to..... 100,000

In addition to bricks, roofing and drain tiles are made at several of the principal brick-fields. A large number of the latter are manufactured by Messrs. Peel and Comte of Montreal, and Messrs. W. Steele and McLaren at the mouth of the Yamaska; Messrs. W. & D. Bell of Quebec, besides tiles, manufacture various vessels for the use of the dairy and garden, as well as water-pipes, chimney-tops, and ornamental glazed bricks.

On the river L'Assomption, about a mile below the village of the same name, Mr. Michael Porteous, makes all such articles of common pottery as are used in the neighbourhood, and of the same description of articles, there are three makers at Yamachiche, Messrs. B. Brière, A. Dumont and J. Féron. The clay here used for the purpose of this common pottery is an eighteen-inch bed of a light brownish-red color, which in thinner bands is extensively found interstratified with a very fine and unctuous clay, of an ash-grey when dry. Instances of it were observed at St.-Rocque and Ste.-Anne-de-la-Pérade; and on the right bank of the St. Lawrence, a short distance below the lesser river Du-Chêne, a vertical cliff of eighty-five feet shews a fine example of the interstratification of the two kinds of clay. The brownish-red beds have a tendency to split into thin vertical slices and prisms, and are in consequence called by the pottery manufacturers at Yamachiche, *terre à grains*. Common pottery used to be manufactured at Gentilly, nearly opposite to Three Rivers, as it is at Baie-de-Févre, on Lake St. Peter, and at St.-Denis, on the Richelieu.

Building Stones and Flagging Stones. In the neighbourhood of Ste.-Scholastique, fine grained white sandstone fit for building purposes is displayed in some abundance. It belongs to the Potsdam formation, and has a general similarity to that heretofore described as existing at Beauharnois. The beds are very even and of various thickness up to two feet; and the most massive ones are frequently marked on the sides by striæ, shewing the edges of subordinate planes of lamellation, in which it is probable the rock would split with facility by the use of wedges. Although harder than the various calcareous rocks so commonly used for building purposes, it is capable of being dressed to a good face, even

across the beds, and possesses the valuable property of resisting the effect of fire. Though the interior of a house built of this stone were consumed by fire, the walls would still remain sufficiently sound to permit the reconstruction of the wood-work within them.

In the vicinity of Montreal the lower part of the Trenton formation holds massive beds of grey granular limestone, from which a very large amount of the best building material used in the City has been obtained. The quarries opened on them run obliquely across that portion of the Côte-de-la-Visitation road, which is southward of the Papineau road, their general direction in respect to one another, being about north and south; they are situated chiefly on the properties of Messrs. Hughes, Smith and Lacroix, and are rented to various parties. The beds vary in thickness from three inches up to three feet, and present an aggregate of from eight to twelve feet. In successive quarries, from the one to the other of which the beds can be traced with considerable certainty, individual beds appear occasionally to change in thickness, a massive one gradually dividing on the strike into two or more, or several thin layers uniting into a solid mass. Slight changes in the color also occur, giving shades of lighter or darker grey. The different quarries are usually separated from one another by trap dykes running in directions varying from N. N. E. to E. N. E., on the opposite sides of which the beds are generally found to be dislocated by up-throws or down-throws, of from one or two inches to one or two feet. There does not however appear to be any difficulty in identifying the beds on the opposite sides, with the exception of one instance on the land of Mr. Smith, where the aggregate thickness is twelve feet on the one side, and is represented to be only eight feet on the other. The quarry in which the latter thickness is said to prevail, being filled with water, it was not in my power to ascertain whether the change was sudden, or sufficiently gradual to be taken as a case in which some beds had thinned out. If the beds on the opposite sides of the dyke are equivalent, there must be a down-throw on the northwestward side, of eight or ten feet; but it appears to be the opinion of the quarrymen that they are not equivalent, in which case there must be two sets of grey strata towards the base of the Trenton formation, of nearly equal amount—a fact which has not been ascertained by any individual section in the workings of the quarries. Above and below the grey beds, the color of the stone is black, and from three to eighteen inches of a similar color are in some places interstratified among the grey. The black stone is used for inferior buildings and for *backing*, and with the fragments resulting from the dressing of the grey stone, is burnt for lime.

Another and parallel range of grey granular limestone beds quarried for building purposes, exists three-quarters of a mile to the westward of those just mentioned. This stone even when freshly cut is not quite so uniform in color, and it is more liable to become affected by a yellow tinge from the action of the weather, but the beds yield large blocks, and have in consequence been much resorted to for the massive masonry of the quays and canal docks of the city. These beds are in the Chazy formation, the distribution of which in the islands of Montreal and Jésus has been described in a previous part of this Report. The superficies under which it lies in each island, is about three square miles, and the drift covering it does not in general appear to be very great. It is probable that a large amount of good building stone would be obtained in these areas, but it appears to be those beds which are near the summit of the formation, that have hitherto been chiefly resorted to for it. It is in this part of the formation that are situated the quarries belonging to Dr. Beaubien, which have been a considerable time in operation on the east side of the Mile-End road, beyond the first mile-stone from the toll-bar, and material of the same character, as yet nearly untouched, is to be met with on the west side of the road as far as Madame Nolan's farm, Côte

Ste.-Catherine, where massive beds, lying in a nearly horizontal attitude, would supply a large quantity of good stone. In the strike of the formation northward from Dr. Beaubien's quarries, the same beds have been worked by various parties for the supply of the city, at intervals extending to a distance of three-quarters of a mile.

On the road between Mile-End and Sault-au-Recollet, a quarry, not quite half a mile beyond the second mile-stone, and another about a-quarter of a mile short of the third, are excavated in the Chazy formation. They shew beds of from one to two feet of good grey granular building stone, and large blocks may be obtained from them.

On Isle-Jésus, a mile and a-half south from Terrebonne, a quarry has been worked in the Chazy formation. Two massive beds of five feet each, have yielded blocks of the largest size of excellent grey stone, granular in texture, and composed of a cemented aggregation of comminuted organic remains. The stone was highly esteemed by the officers of the Board of Works, and heavy blocks were brought round to Montreal from the quarry, and used by them in the construction of the enlarged locks at the lower end of the Lachine canal.

On the L'Assomption river, at the village of Industry, good building stone occurs near the red bridge, where beds of six inches to one foot, belonging to the Trenton formation, have been quarried and used in the construction of the bridge for the railroad. The color of the stone is gray, of rather a darker tinge than that of the Montreal stone, and the texture is more compact, but the beds appear to occupy a position very nearly equivalent to the place of those mentioned as quarried in the front part of Messrs. Smith's and Lacroix's properties, near the city. At the village of Industry they appear to be between sixty and seventy feet from the base of the Trenton. Near the upper bridge at this village, the Chazy formation would yield massive blocks of good grey granular stone in beds of from two to three feet thick, but they have not been worked.

On the Naquoar river, about a-quarter of a mile below Mr. Dougal's mill, and just below Les-Dales, beds exist, corresponding with those as the red bridge of the village of Industry, and giving building stone of equally good quality.

Just below Mr. Dorwin's saw mill, on the last mentioned stream, a short distance from the south-east boundary of the township of Rawdon, and opposite the line between the twenty-third and twenty-fourth lots, the white sandstone of the Potsdam formation, for a thickness of four feet, would yield material fit for the purpose of flagging. The beds are from two to three inches thick, and though no quarry has been opened on them, to enable it to be determined with certainty what size of flags might be obtained, it appears probable they would measure four or five feet square, and in some instances more.

In the same formation, on Côte-Ste.-Catherine in the parish of St. Cuthbert, on two farms adjoining one another, belonging to Messrs. Maxime Durand and Jacques Nicolas, four and a-half feet of good flagstones are exposed; the thickness of the slabs being as before, between two and three inches. With care, slabs of seven feet by three and four feet may be got out. They are easily squared, and are used in the neighborhood for hearth-stones, door-flags and such purposes.

Still in the same formation, on the St. Maurice river, at a place called the Grès, probably from the presence of the sandstone, a mass of eleven and a-half feet would answer for the purpose of flagging; the beds are one to three inches thick, and they are a good white color. A subjacent thickness of ten feet resting on the gneiss, would, from the freeness of its texture, yield an easily worked and handsome building stone, which might be dressed to the thickness of six inches to one foot, and even eighteen inches.

Near the village of Grondines, a large amount of limestone is exposed, which does well for burning into quicklime, but no beds requiring to be especially

noticed as giving material for the best purposes of construction, were observed, though no doubt there is a great amount capable of application to common buildings.

In the seigniory of La-Chevrotière a very excellent calcareous building stone is obtained in the fourth range of lots from the St. Lawrence. It usually goes, however, under the denomination of the *Deschambault* stone, though I am not aware of any exposure of the same beds in the latter seigniory. The stone is of a yellow or warmer grey than that of Montreal; it is more even in its tint, and does not become so much discolored by weathering; it is more granular and more easily cut, being softer and tougher, but it does not take so fine and sharp an edge, nor does it *pick* so well. Three beds are worked, of pretty uniform quality; the top and bottom ones are eighteen inches each, and the middle one three feet; and there is said to be a fourth bed beneath, which has not been quarried, with a thickness of four feet. The strata are so nearly horizontal that it is difficult to say which way they dip; it is therefore probable that the stone will spread to a considerable extent in the vicinity. Along the concession it is known for twenty-six acres to the westward and five acres to the eastward, and on the road across the concession it has a breadth visible for ten acres, beyond which, in sinking wells to a depth of twenty feet in blue clay, no rock is met with. The produce of the quarries of La-Chevrotière has a deserved celebrity in Quebec, where it has been used in the construction of churches and other buildings.

At the St.-Olivier bridge, over the Ste.-Anne river, in the same seigniory, there is limestone of the same color as that of the fourth range, but it is closer in its texture; it would yield good stone for building purposes, but not in such massive beds as the previous quarries. Both exposures are supposed to belong to the Trenton formation, though the fossils observed are not so characteristic as to make it quite certain.

In the same seigniory a quarry has been opened on the property of Mr. Alphonse Perrault in the first range, from which stone was last summer obtained for the purposes of construction on the Quebec and Richmond railroad. The beds are thick and yield massive blocks, which, when freshly dressed, look well; thin bituminous leaves, however, run through them in patches, and these will be very apt to injure the aspect of the stone when it has been for some time exposed to the action of the weather.

At Cap-Santé, the black bituminous shales of the Utica formation are at intervals interstratified with calcareous layers of two to three inches thick, and sometimes a little more. They are of two colors, dark grey and light grey; the former are the more bituminous, the latter the harder and more calcareous, giving, I was informed, good lime when burnt. From the remarkable evenness and smoothness of these layers, they are greatly resorted to by the inhabitants for stones for hearths, chimney-jamb, window-sills and door-lintels, and they would yield excellent material for the paving of dairies, cellars, hall-floors and such like purposes; but it is to be feared they are scarcely strong enough for foot-pavements in public thorough-fares. They are too much jointed in various directions, and great weights, after the stone had been exposed to the weather for some time, might crack them in these joints, which are often with difficulty perceptible. I was informed by workmen who were quarrying the stone at the time of my visit, that slabs had sometimes been procured of twelve feet square without joints, but none such came under my observation. The joints are vertical to the plane of the beds, and they run chiefly in three directions, giving rise to two sets of rhomboids, one much more acute than the other. There seem to be no regular intervals at which these parallel joints occur, and they are occasionally so close as to cut up a bed into square prisms; sometimes the prisms are twice as broad as thick, and when squared at the ends and broken into equal

lengths, would afford a building material of as great regularity as bricks. These beds are conspicuously displayed on the beach at Pointe-à-l'Abri, and I was informed that they are also met with in several places between high and low water mark for a considerable distance out from the cliff, the foot of which is washed by the flood of spring tides.

At Point-aux-Trembles, on the land of Mr. Joseph Gagné, and several other lots to the eastward, there is a grey limestone in massive beds, in which quarries have been worked. It has a colder tint than the stone of La-Chevrotière, and is less granular; it is not so soft, but can be worked to a sharp edge, and a good deal resembles the Trenton grey beds of Montreal. The beds yield good large blocks, and the stone has been used at Quebec in the construction of public buildings.

Along the coast from Cap-Rouge to Point-à-Piseau, near Québec, several quarries have been long worked in the sandstones, which have been described as probably equivalent to what is called the Oneida conglomerate in New York. A good example of these quarries is that of Mr. Michel Hamel on the St.-Louis road, about four miles and a-half from the city. The beds are massive, and dip to the south-south-east, at an angle of about fifteen degrees, and those which have been quarried would make up a thickness of about forty feet. The upper beds are even, and split well both with the layers and across them, but at the bottom there is a surface which sinks into great pits, some of which are three or four feet in diameter, and rises into smooth swells; the rock below this is valueless, as it will not split evenly. The stone is of a greyish-green color; it is moderately fine grained, but becomes coarse in patches, and consists of grains of transparent and translucent quartz, mingled with a few of opaque white feldspar; where the beds separate from one another, they are slightly micaceous. In some parts of the quarry, spheroidal masses of a coarser grain and lighter color occur, and the whole rock is slightly calcareous; nodules and fragments of green shale are occasionally seen, and it is probably from a small amount of this argillaceous material finely mixed up in the rock, that its general color is derived. The stone, though hard, yields readily to the chisel, and is capable of being dressed to a moderately fine face. It has been used in the construction of many of the houses in Quebec, as well as of various parts of the walls of the fortress; but it does not appear to me to be a stone of a very durable character; it is slowly disintegrated by the action of the weather, scales of it peel off, and it wears into irregularities of surface, which in time very much disfigure the structure in which it is used.

In the range of the limestone from St. Ambroise to Beauport, and from that to Montmorency, a great quantity of stone is quarried for the purpose of being burnt into quick-lime, but from the extent of the excavations at the village of Beauport, it seems probable that this spot has heretofore been resorted to for material for building also, though there does not appear to be any great demand for the stone at the present time. Some of the beds give good blocks of black stone capable of being dressed for ordinary purposes, but none of them were observed with the grey color and granular texture usually marking the best stone.

At Chateau-Richer, about fourteen miles below Québec, several quarries are actively worked in the limestone of the Trenton formation for supplying the city with building stone for ordinary purposes. Although there does not appear to me to be any great difference between the stone of Chateau-Richer and that of Beauport, I am informed that architects give the former a preference, and generally insert a condition in their contracts, for the construction of the better houses, that the Chateau-Richer stone shall be used.

All the building and flag stones which have been mentioned, belong to the fossiliferous formations, but a great abundance of lasting material, though more

expensive to work, might be obtained in many places from the gneissoid masses of the Laurentian series. A bed of this character has been resorted to for the stone used in building the dam and reservoir of the Quebec water-works on the St. Charles river, and it is the first instance, that I am aware of, in which the harder constituents of this series have been applied to the purposes of construction. The reservoir on the St. Charles is situated about three-quarters of a mile above the village of Jeune-Lorette, and the quarry is about a-quarter of a mile farther up the stream. The gneiss is here hornblentic, being composed of transparent and translucent colorless quartz, transparent, translucent and opaque white feldspar (the feldspar predominating over the quartz,) and black hornblende, all running in irregular parallel planes, the arrangement of which shews the gneissoid structure very distinctly, while the proportions which the mineral bears to one another give, at a little distance, a general grey color. The rock splits in several, indeed in almost any direction, by means of wedges, but most easily in that in which the gneissoid structure prevails, particularly when this is even. The gneissoid structure, however, is occasionally affected by undulations and contortions, but these contortions do not materially deflect the splitting force of the wedges, though they sometimes do so to a small extent; in these instances, the rock splits less in conformity with the irregularities of the gneissoid planes, than with the rending power applied. The rock splits and dresses with most difficulty at right angles to the gneissoid structure; and of course, with most ease in the direction of the structure, causing the expenditure of a great amount of steel in both cases. It is capable of receiving fine smooth faces, giving sharp edges and corners where these faces meet. Masses of almost any size can be blasted out from the rock, and large blocks have been dressed and applied in the masonry work of the reservoir, which will no doubt prove a structure of the most lasting character.

On the left bank of the Batiscan river, not far from the site of the old forges, an old quarry exists in a band of micaceous gneiss, from which I was informed stone had been taken for building purposes in connection with the smelting establishment once existing there, but no traces remain of the structures in which it was employed. There is a little doubt it would constitute an excellent building material, as it would split and dress well, and the beds in the quarry would yield good heavy blocks. The flank of the mountain all the way from this to the Charest river, consists of the same material, and in the vicinity of St.-Prosper and of the St. Charles range, approaching the Charest, it is so evenly and regularly stratified, and rendered so fissile by the arrangement of the mica, that it would yield good flagging as well as good building stone; a great supply of flags two to three inches thick might be obtained.

At the St.-Joachim Falls, on the St.-Anne-de-Montmorency, the rock consists of micaceous gneiss, of which the stratification is most beautifully and remarkably regular, without any twists or undulations, the dip being up the river N. 70. E. < 40°. The rock is thin bedded, and though the beds appear to adhere pretty firmly together, it is probable that, by the aid of wedges, large slabs might be split off of any required thickness, down to two or three inches, and would constitute an excellent material for foot pavements.

Refractory Sandstone. The sandstone of the Potsdam formation at the Grès, on the St. Maurice river, which has already been noticed as yielding beds fit for flagging and building, appears to be of a freer texture than the rocks of the same formation in other parts of the province; it has been found capable of resisting a very strong heat without injury, so much so, that the deposit has been resorted to for the material used in the construction of the hearths and other parts of the St. Maurice forges. The stone in thicknesses of from twelve to eighteen inches, is found to answer the purpose admirably, not requiring renewal oftener than once

in two years. The masses used in the construction of the hearth and dam, with the thickness above stated, measure about four feet by eighteen to twenty inches. The spot where the stone has been quarried for the furnace, is on the right bank of the river at the foot of the Gabelle rapid, below the mouth of the Cachee.

Stones suited for such purposes are obtained from the same formation in the State of New York, in the vicinity of Potsdam; a trade of some importance is carried on in them, and in addition to being used in the smelting establishments on Lake Champlain, they are exported to considerable distances.

Millstones.—The Potsdam beds, fit for flagging, which have been mentioned as existing on the properties of Messrs. Maxime Durand and Jacques Nicholas, in Côte-Ste.-Catherine, in the parish of St. Cuthbert, are overlaid by seven and a-half feet of conglomerate sandstone, in beds of from one to two feet, which are used for the purpose of millstones. A pair supplied to Mme. Lefèvre's mill, on the L'Assomption river, is said to have answered well for grinding wheat and other grain, and a pair intended for Mr. Parent's mill, on the Bayonne river, was lying in a half-completed condition when the quarry was inspected.

Sandstone for Glass-Making.—The white sandstone of the Potsdam formation, mentioned as existing in the vicinity of Ste.-Scholastique, appears to be sufficiently free from iron to be fit for the manufacture of glass; but to the north-eastward, the exposures are in general more charged with iron, which appears in the frequent discoloration of the surface, and they would not give material suitable for such a purpose.

Marble.—Some beds of the Chazy limestone in the neighbourhood of Montreal are known to take a moderately good polish, and they are cut into slabs for the purpose of chimney pieces and occasionally for tables, one of which, manufactured by Mr. Hammond, of Montreal, and sent to the London Industrial Exhibition of 1851, attracted attention, and was readily sold. The color of these slabs is a dark grey; in some parts of the district the grey shews occasional spots of red, as on Madame Nolan's farm at Ste.-Catherine, and on Isle-Bizard; but in the seigniory of La-Chenaye, on the Little River, about a mile from St.-Lin, massive beds of the formation become almost wholly red, and give large slabs of a very handsome aspect. The beds are composed of a mass of comminuted organic remains, consisting of shells and corals, the latter predominating, and the prevailing species being *Chonetes lycoperdon*. The corals are colored ochre-red, while some of the shells approach rather a rose-red, and parts of the stone are mottled with a greyish-red running irregularly over the surface. A large supply of this marble might easily be procured.

Peat.—Many peat bogs of large and small extent exist in the area which has been examined, but the surface of them being usually covered with wood, and from this cause, and the nature of the deposit, difficult of exploration, a detailed inspection of them all would have required more time than it was expedient to devote to them. One of these peat bogs is met with about a mile and a-half on the road from St.-Janvier to St.-Jerome, in the Rang-Double of Mille-Isles. Its breadth on the road is about half a mile, and extends it three-quarters of a mile to the north-east, and half a mile to the south-west, giving to the bog a superficies of about five-eighths of a square mile. The depth was ascertained at several spots on the road; it ranged from two to eighteen feet, the latter depth being near the south-east side; the average of the trials is about eight feet. A smaller area occurs about half a mile nearer to St.-Janvier; it is about a-quarter of a mile wide, but its superficies and depth were not ascertained.

About a-quarter of a mile north of the church of St.-Anne-des-Plaines, on the north-east side of the road between it and New Glasgow, a peat bog, which is in the same plain as the previous ones, but considerably to the north-east of them, spreads over an area of about a square mile; its depth was not tested, though it

was in some parts on the south side ascertained to be over four feet, as much as this being exposed in ditches cut through it; the average depth is not supposed to exceed five feet. The peasants are in the habit of annually burning the peat in different parts of the bog, and then applying the ashes as a manure to the portion beneath, until by repeated burnings they reach nearly to the subjacent clay, which mingled with the last thin layer of the peat and part of the ashes of the previous burnings, constitutes a very fruitful soil.

About a mile and a-quarter to the north-west of that part of L'Assomption river which is below the peninsula of L'Assomption village, a peat bog extends for three miles and a-half, south-west of the St.-Sulpice and L'Assomption line: it has an average breadth of about half a mile, giving it an area of about a mile and three-quarters. Its depth varies from two to fifteen feet, and the results of ten trials taken in two lines across the deposit, give an average of ten feet.

In the seigniories of La-Valtrie and La-Noraye, two extensive peat bogs occur, running parallel to one another; the northern is the larger, and is called the Grande-Savanne. Across this two sections were made, one of them on the road which runs up the middle of La-Valtrie seigniory from the village of La-Valtrie, and the other on the line of the railroad between La-Noraye and Industry. The breadth of the bog in the former is about half a mile, extending a furlong beyond the south bank of the river Point-du-Jour, about five miles from the St. Lawrence, and the depth, varying from seven to fourteen feet and a-half, averaged in seven trials eleven feet. In the other section, the breadth is about two miles and a-half, reaching to within four miles of the St. Lawrence, and the depth, from four to fourteen feet, averaged in a dozen trials about eleven feet. The distance between the two sections is four miles, and the bog may extend three miles south-west of the one, and one mile north-east of the other, which would give it a superficies of about from twelve to fifteen square miles.

The smaller peat bog lies between the former and the St.-Lawrence. The river St.-Jean which empties at La-Valtrie, runs through the middle of its whole length, at a distance of about two miles from the main stream. Only one section was made across it, which was on the line of the railroad, where its breadth was upwards of half a mile, with an average depth of about five feet. It extends about three-quarters of a mile north-east and four and a-half miles south-west of the railroad, and possesses a superficies of about three square miles. The peat in both these bogs appears to be such as would hold together when dried, but no analysis has yet been made to determine how much combustible matter and how much ashes it may give.

In the fief St.-Etienne, about a mile and three-quarters south-west from the Grès, on the St. Maurice river, the main road crosses a peat bog, which there shews a breadth of about half a mile, with an average depth of about six feet, but its length south-west and north-east was not ascertained.

Another was met with in the seigniory of Champlain, about three miles back from the St. Lawrence, on the road leading from Champlain church to Champlain river. Its breadth on the road is upwards of three-quarters of a mile, and its average depth in this part, five feet; as far as could be ascertained, its length from south-west to north-east is about two miles, which would give a superficies of about a mile and three-quarters.

In the fief D'Auteuil, there is a peat bog on the road between Cap-Santé and the village of L'Enfant-Jésus, with a breadth of about a-quarter of a mile, but its area and depth were not ascertained.

Mineral Springs. Independent of the mineral springs of Pointe-du-Jour, Caxton and St.-Léon, which have been analysed and described by Mr. Hunt in previous Reports; several others exist, of which, as they will all come under his attention at some future time, it is at this moment not necessary to give more than a catalogue:

1. On the Bayonne river, about four miles above Berthier, and close to the margin of the stream, on a farm belonging to Mr. Charles Boucher, there is a spring giving a considerable quantity of water, which is saline. It issues from the ground in jets, and gives a slight hissing or crackling noise. The formation beneath is the Trenton limestone.
1. On the same stream, about two miles above the previous spot, and below the mill occupied by Mr. Elzéard Olivier, four separate issues were observed within the space of twenty yards, just below the fault or dislocation noticed farther up, with which they are probably connected. Their site is in the bed of the river, and they appear above the level of the stream only in the driest part of the season. The water which comes from them is saline, but less so than in the previously mentioned spring. The formation beneath is the Trenton limestone.
3. There is said to be a saline spring on the property of Mr. Antoine Normandais, on the river Champlain.
4. Half a league below Ste.-Geneviève church, on the right bank of the Batiscan, a strong saline spring is reported to exist on the property of Mr. Ambroise Tiseau.
5. About the same distance from the same church, a saline spring is said to exist on the Little Champlain river, on the property of Mr. François Normandais.
6. Half a mile from the same church, there is said to exist a sulphurous spring on the left bank of the Batiscan. Its strength is not spoken of as being very great. It is on the property of Mr. Abraham Massicotte.
7. On the right bank of the Batiscan, nearly opposite to Ste.-Geneviève church, there is a saline spring on the property of Mr. Blaise Trudel. It is said to be of considerable strength.
8. About a league above the same church, on the right bank of the Batiscan, there is said to be a saline spring on the property of Mr. Louis Pronoveau.
9. A saline spring is reported to exist on the river A-Veilette, a tributary of the Batiscan, about three-quarters of a league from Ste.-Geneviève church, on the property of Mr. Charles Massicotte.
10. Another saline spring is reported on the same stream, on the property of Mr. Olivier Trudel.
11. In the fief Belair, on the right bank of the Jacques-Cartier river, close by the mill of Mr. Louis Marcotte, a sulphurous spring, giving about a gallon a minute, issues from the black bituminous shales of the Utica formation just above the bed of the stream; it has a strong taste and smell of sulphuretted hydrogen. Through the water of the spring there escapes every few seconds, several bubbles of gas, which the people of the mill have collected in small quantities, and have found to burn with a blue flame. When the water of the river is high it covers the spring, but from this it would be easy to protect the source by a wall.
12. On the north-west side of the island of Orleans, and nearly three-quarters of a mile from the upper end, there is a spring said to give out a strong sulphurous odor when completely free from surface water, by which however it was covered at the time of inspection. It gives a blackish deposit, and discolours the grass, and to some depth the ground about the issue. The peasants of Lower Canada have a general impression, that wherever there is a mineral spring or any spring of uncommon appearance, it must be connected with some mine. In this instance they suppose that the spring indicates the presence of coal; and confirmed in the opinion by the color of the black shale and limestone (belonging to the Hudson-River group) which are exposed on the south-east edge of the spring, one of the inhabitants had expended about fifty dollars in a fruitless search for the fuel.

Bituminous Shale. Of this material, which appears to be gradually attracting increased attention as an economic source of bituminous products, the description given in the geological division of the Report, shews the existence of a very large amount in the distribution of the Utica formation. With various degrees of thickness, up to 300 feet, the bituminous shales of this formation run the whole length of the district examined, and become occasionally displayed in a very conspicuous manner, particularly between Ste.-Anne-de-la-Pérade and Ste.-Anne-de-Montmorency. In those parts of the distance which lie in the vicinity of Cap-Santé, the Jacques-Cartier river, and Les-Ecureuils, they form extensive cliffs on the St. Lawrence of from thirty to eighty feet in height, and the river St. Charles near St.-Ambroise and the Ste.-Anne-de-Montmorency below the St.-Joachim falls, make deep incisions through the rock; but it would require practical experiments to decide whether the shales are sufficiently rich in bitumen to give promising results.

Copper Ore. In the augmentation of La-Norraye and D'Autraye, on the left bank of the river L'Assomption, about three miles above the point where it enters the fifth range of the township of Kildare, an evenly bedded mass of

micaceous gneiss, dipping N. 44 W. $< 26^\circ$, is cut by a vein running N. 24 W., which consists of calc-spar mingled with pearl-spar, and has a breadth of about nine inches; three reticulating strings of iron pyrites, associated occasionally with copper pyrites, run through the vein, and spots of both of these minerals, with blende, are observed sparingly scattered through the spar. Mr. Gravel, who has a farm in the vicinity, has sunk a pit upon the spot about sixteen feet, and the character of the vein appears pretty uniform throughout. On each side of the nine inches, several strings of an inch and less in thickness, intersect one another and run into the main vein; these also hold specks of copper pyrites, and the whole may be included in a breadth of about nine feet, which is that of Mr. Gravel's pit. Though the vein does not by any means look like a promising one, it yet bears too many of the characteristics of a regular lode to be passed over without notice.

Tripoli Earth. This substance which is extensively used as a polishing powder, is an infusorial deposit; it consists of the silicious remains of microscopic animals so very minute as to give the earth nearly the fineness of flour. From the hardness of the silica and the smallness of its grain, the earth becomes a very delicate and effective grinding material for cleaning and polishing metals, for which chiefly it is sold in commerce. Of this earth there is a very considerable deposit at Laval, about twenty miles from Quebec. It is to be seen on the lot of widow Corcoran, (the twentieth lot of the second range of the settlement,) which is on the right bank of the Bras, just at its junction with the Montmorency, about ten acres above the chapel. A trickling stream of water, issuing from a spring on the summit of the bank, has worn the face of it into a small ravine, and exposed several of the beds of which the bank is composed. About fifty feet at the top consists of yellowish sand, mixed with boulders of gneiss and other rocks from the Laurentian series, which supports in that vicinity the looser deposits. Then occur about fifteen feet of tripoli earth, which is partly yellowish and partly lead-grey, the colors being sometimes arranged in different layers, and sometimes irregularly intermixed in spots and patches. Beneath this the edges of the beds are concealed, but for forty feet farther, the high slope of the infusorial part of the escarpment is continued, and this may be an addition to the amount. A much more gradual slope, giving about forty feet more of vertical height, brings us to the margin of the river. The beds of the infusorial deposit are horizontal, and the escarpment in which they occur is traceable from some distance up the Bras and down the Montmorency, but no other section exposing them was observed.

The material from this deposit has for some time been used as a plate powder by jewelers in Quebec; and one of a similar character, from the vicinity of Albany, is sold in Montreal under the name of American tripoli.

Gold. In the month of December, a few days were devoted to a farther examination of the distribution of this metal in the Eastern Townships, and particles of it were found in the valley of the St. Francis at various intervals from Richmond to Hunting's mills on the Salmon river, flowing into the Massawippi a little above Lenoxville. Though the weather was rather adverse to the examination on account of the cold and frost, yet the results were much the same as those of similar previous explorations farther to the east. One of the positions examined was on the road passing to the north of the millpond on the Magog river above Sherbrooke, where particles were met with in an ancient hard bound gravel, which probably has never been disturbed since the time when the surface arose from beneath a tertiary sea. The position is about 156 feet above the level of the St. Francis at Sherbrooke, and would probably be over 600 feet above the St. Lawrence in Lake St. Peter; this fact serves to shew that the metal is not

confined to the lowest parts of the valleys, but will have a distribution co-extensive with the original drift of the district.

It may be considered that the auriferous drift has now been shown to exist over 10,000 square miles on the south side of the St. Lawrence, comprehending the prolongation of the Green Mountains into Canada, and the country on the south-east side of them. In the following range of this drift north-eastwardly, the researches of the survey have not extended beyond Etchemin Lake; but the general similarity of the rocks beyond, renders it probable that little change will be found for a distance extending much farther; perhaps to the extremity of Gaspé. It may be proper to remark that though the ascertained auriferous area is thus so much increased beyond the measure given to it in a previous Report, no fact has come to my knowledge of sufficient importance to authorise any change in the opinion that has already been expressed, *that the deposit will not in general remunerate unskilled labor, and that agriculturists, artizans, and others engaged in the ordinary occupations of the country, would only lose their labor by turning gold hunters.*

In the examination of the valley of the St. Francis, one of the spots tried was in the immediate vicinity of the quartz vein, holding copper pyrites, mentioned in the Report for 1847-8, as occurring in the seventeenth lot of the seventh range of Ascot, belonging to Mr. Moes. In that Report it was stated that the copper pyrites was auriferous, and in corroboration of the fact, a small unworn but loose octohedral crystal of gold was on this occasion obtained from a crevice, in an two-inch string of quartz spotted with copper pyrites, which appeared to be subordinate to the principal vein.

This vein occurs in a mass of talcose slate, supposed to belong to the Lower Silurian series; but from a vein on the river Du-Loup, specimens of quartz and iron pyrites have lately been brought me derived from the clay slates of the Upper Silurian series, and in some of these traces of gold have been met with. The metal thus appears to belong to the veins of both the lower and upper series. If Sir R. I. Murchison's theory be well founded, that the gold when it was originally placed in the veins, occupied only that part of them which was towards the then existing exterior of the earth's crust, the presence of it in Upper Silurian veins would lead to the conclusion that it should be more abundant in them than in the Lower. For it is probable that those parts of the lower rocks now found exposed, were once covered by the upper, which have been removed by denudation, and the veins of the lower rocks, being but the remaining inferior, and therefore less productive parts of those veins which once cut both, should be surpassed in richness by those of the upper rocks, which present parts nearer the original surface. The line of division between the two series of rocks has been given in a former Report, and according to the theory in question, the more productive veins should be met with rather on the south-east of the Green Mountain range, than in it.

Roofing Slates. The conflagration which destroyed so large a portion of Montreal last summer, having determined the corporation of the city to interdict wood-built houses and shingle-covered roofs, caused public attention to become directed to the advantages of slate; at the recommendation of, and in association with Mr. Joseph Scobell of the city, a quarry was in consequence opened by Mr. R. A. Hubert, in the band of slate rock which was mentioned in the Geological Report of 1846-7, as existing on the fourth lot of the first range of Kingsey, samples of which, such as could be obtained from the weathered part of the exterior, had been deemed worthy of being sent as part of the Canadian contribution of economic minerals to the London Industrial Exhibition of 1851.

The slates obtained from the quarry are better than was anticipated, and they are, in my opinion, equal to the best which I know to be worked on this side of the Atlantic. They are of a purplish-blue color, have smooth, even, silky surfaces,

and are free from iron pyrites or other impurities; when struck they give a ringing sound, and they are cut and pierced with facility, without shewing ragged edges, or splitting.

The specific gravity of this slate is 2·88, and its chemical composition as determined by the analysis of Mr. Hunt is as follows:

Silica.....	54·80
Alumina.....	23·15
Protoxyd of iron.....	9·58
Lime.....	1·06
Magnesia.....	2·16
Potash.....	3·37
Soda.....	2·22
Water.....	3·90

100·24

The lime, which is but in small quantity, exists as a silicate; it is only when present in the form of carbonate of lime, that this ingredient is prejudicial to the quality of slate. For the purpose of comparison, I give below two analyses by Mr. Hunt, the one being of the best description of Welsh slate, and the other a slate from Angers in France, which has been on the roof of the seminary buildings at the corner of Notre-Dame and St.-François-Xavier Streets, for upwards of 100 years, and has been but little affected by the climate. It is scarcely necessary to point out the strong resemblance between these and the Kingsey slate. Their specific gravities were respectively 2·824 and 2·882.

	Welsh.	French.
Silica.....	60·50.....	57·00
Alumina.....	19·70.....	20·10
Protoxyd of iron.....	7·83.....	10·98
Lime.....	1·12.....	1·23
Magnesia.....	2·20.....	3·39
Potash.....	3·18.....	1·73
Soda.....	2·20.....	1·30
Water.....	3·30.....	4·40

100·03

100·13

Now that the Kingsey quarry is opened, it is plainly discernable, that as in the case of all good slates, the cleavage of the rock is independent of the original bedding; and in the quarry the cleavage joints stand at an angle of fifty-seven degrees to the horizon, facing on the north-west. The locality of the quarry is on the river St. Francis, and a turn in the river at the spot, carrying the stream for nearly a mile in the strike of direction of the cleavage, while the bank rises rapidly to a height of upwards of 100 feet, offers great facility for extensive working. The quantity that can be obtained on the lot may be considered inexhaustible. It is not to be supposed, however, that the slate band is confined to this lot; on the contrary, it is probable that in the general strike of the rocks of the country, it will extend to the south-west and north-east for many miles. In former Reports it has been shown that clay slates are extensively distributed through the Eastern Townships, though not always possessed of the proper cleavage for roofing purposes; but there is no doubt, now that a quarry on this band is opened, and the nature and use of the rock practically displayed, the inhabitants will quickly discover other bands in various parts across the strike, that will prove equally available.

I have the honor to be,

Your Excellency's

Most obedient servant,

W. E. LOGAN,

Provincial Geologist.

REPORT

OF

ALEX. MURRAY, ESQ., ASSISTANT PROVINCIAL GEOLOGIST,

ADDRESSED TO

W. E. LOGAN, ESQ., PROVINCIAL GEOLOGIST.

MONTREAL, 15th March, 1853.

SIR,—During the past summer and autumn I have been engaged, as you were pleased to direct last spring, in pursuing a geological examination of the country lying north of Lake Ontario, in a general line between the neighbourhood of Kingston and that of Lake Simcoe, comprising portions of those parts formerly distinguished as the Midland, Victoria and Newcastle Districts.

Before commencing operations in the field, a visit was paid to Ogdensburgh, where through the politeness of Mr. Hazlewood, C. E., who had been previously on the survey of the contemplated railroad from Prescott to Georgian Bay on Lake Huron, much valuable information was received, particularly regarding the levels ascertained through the country I was about to explore. These levels were found of the greatest service, and I was enabled by means of them, to determine with tolerable accuracy the relative elevation of most of the principal lakes, and particular points that were visited.

The neighbourhood of Kingston having already been partially examined, no time was spent there, further than was sufficient to furnish myself with a few necessary supplies, and I proceeded with as little delay as possible to Loughborough Lake, where my operations fairly began. There on enquiry, I was informed that the country to the north was an almost uninterrupted succession of navigable lakes, many of them connected by streams capable of floating canoes or small boats, and that by far the better method of making an exploration of it, was by water. A small boat was accordingly purchased and a guide hired, and my subsequent experience fully proved that I had been correctly advised.

My plan of operations was to effect a set of north and south traverses between the shore of Lake Ontario and the rear of the surveyed lands, making east and west offsets from the general course on all convenient occasions; and with a few slight modifications this plan was carried out. The first traverse extended northward through Bedford into Oso, from which latter township I crossed over to the head of Salmon River, in Oldon and Kennebec. The second traverse descended the Salmon river to Beaver Lake in Sheffield, below which the river was rendered unnavigable by the accumulation of pine logs on their way towards the front, as well as well as the low state of the water in the rapids. From Beaver Lake, the traverse was consequently continued by land through part of Camden, returning thence and crossing through the west part of Sheffield to the Clare river, and following its course in Hungerford down to Stucco Lake. A third traverse was made to the front, by pursuing the Moira river to Belleville. My attention was then turned to the townships of Rawdon, Madoc, Marmora and Belmont, and a fourth traverse was effected to the front, by following down the Crow river, and the Trent to Trent Village, on the Bay of Quinté. My course was then directed to Cobourg and thence to Rice Lake, where having provided

an assistant and an Indian with two canoes, the examination was continued up the Otonabee to Stony Lake, from which we followed the chain of lakes up to and north of Balsam Lake, taking the Scugog river and lake on our return.

In the first part of the first traverse, particularly after leaving the village of Sydenham, the country passed through was thinly settled in general, and indifferently adapted for the pursuits of agriculture, but abounded in many places with pine timber, which, however, has already been culled to some considerable extent, south of the boundary line between Bedford and Oso; and in the latter more remote township also, the work of the lumberman was occasionally perceptible, wherever the advantages of water communication could be rendered available for transportation of the timber to the settlements.

This part of the country appears to have been but imperfectly and partially surveyed, and in consequence, its topographical features being often either misrepresented or not represented at all on any of the published maps, it was found necessary to continue a series of measurements along the general course pursued, checking positions as advance was made, whenever an opportunity offered, by concession and lot lines, when such could be identified. The measurements were effected as in former years by the use of the micrometer telescope, and the bearings by a prismatic compass or theodolite, and by the latter instrument I was enabled to carry a series of levels from one lake to another all through. To indicate in a general way, the line of country thus examined and partially measured, the following table shewing the lakes surveyed, the townships in which they are situated, their heights over the surface of Lake Ontario, and the waters to which they are more nearly or more remotely tributary, may be found more serviceable than a detailed description.

Name	Township.	Height in ft.	Falls into
Loughboro' Lake.....	Storrington & Loughboro'.....	166.12	Rideau River.
Sloat's Lake.....	Loughboro'	189.05	Lake Ontario.
Knowlton Lake.....	"	217.53	Mud Lake.
Mud Lake.....	"	217.53	Desert Lake.
Desert Lake.....	Bedford.....	217.53	Birch Lake.
Birch Lake.....	"	217.53	Devil Lake.
Devil Lake.....	"		Rideau River.
Canoe Lake.....	"	229.97	Desert Lake.
Batting's Mill Pond.....	"	287.00	Wolf L. & Rideau R.
Green Bay & Bob's Lake.....	"	384.80	Tay & Rideau Rs.
Crow Lake.....	"	398.88	Mud Lake.
Sharbord Lake.....	Oso and Olden.....	505.29	Madawaska & Ottawa Rs.
White Lake.....	Olden.....	555.29	Sharbord Lake.

From White Lake a portage of between four and a-half and five miles in a W. N. W. direction brought me to a small lake lying towards the north-west corner of Olden, which falls into a long narrow lake stretching from the west boundary of Olden nearly half-way across the township of Kennebec; it is known as Cross Lake by the lumberers, and is the source of the main body of the Salmon and Clare rivers. The country between Sharbord Lake and Cross Lake consists alternately of low rugged ridges, and long narrow strips of marsh or prairie land, the former frequently supporting a stout growth of white pine, the latter bearing, in many places, a profusion of long coarse grass, which in new settlements might be very profitably preserved as winter fodder for cattle.

The bearing of Cross Lake is a little south of west, and the Salmon river flows out of it, as I was informed by my guide, within two miles from its western extremity on the south side, and immediately assumes a course nearly parallel with the lake, so that a portage which leaves a small bay about two miles east of the exit and about mid-length of the lake, and bears southward nearly at right angles to the lake, strikes the river in little more than half a mile, where its level is 30.38 feet below that of the lake.

From this the Salmon river maintains a nearly straight general course S. 25° W. to Beaver Lake in Sheffield. At one point, which appears to be in the fourteenth lot of the tenth concession of Kennebec, there is a sudden bend in it with strong rapids, giving a fall of 11·37 feet within the distance of three-quarters of a mile. A short distance below these rapids the river opens into an extensive sheet of water known as Bull Lake, which lays across less than half the township of Kennebec, in a direction nearly parallel with Cross Lake, contracting again about the sixth lot of the sixth concession, and then immediately opening into a small marshy sheet called Horse Shoe Lake; from this it flows sluggishly in a nearly straight line for about seven miles, forming towards the end of the distance a narrow expanse called Long Lake, about a mile above the foot of which on the right side, it branches into the Clare river on the twenty-second or twenty-third lot of the tenth concession of Sheffield. Below Long Lake there is a succession of rapids and small leaps, giving in all a fall of 57·87 feet to the level of Beaver Lake. The river leaves Beaver Lake at its eastern extremity, and after flowing about eight miles southward, (cutting the line between the townships of Sheffield and Amden about half-way,) it turns to the south-eastward, and crossing Richmond and Tyendnaga obliquely, falls into the Bay of Quinte on the east side of the latter township near Shannonville. Though the lower part of the river was not examined, it is evident from the difference of level between Beaver Lake and Lake Ontario, that it must have considerable rapids in its course. A list of these Salmon River lakes is as follows:—

Name.	Township.	Height.	Falls into
Cross Lake,.....	Kennebec,.....	412·84.....	Long Lake.
Long Lake,.....	Sheffield,.....	365·69.....	Beaver Lake.
Beaver Lake,.....	Sheffield,.....	307·22.....	Salmon R. & B. of Quinte.

The Clare river, taking its origin as above indicated, flows through the township of Sheffield into Hungerford, and falls into Stucco Lake in the sixteenth lot of the ninth concession of the latter township, making several extensive meanders in its course, the general direction of which in a straight line is about S. 65° W., with a length of not quite fifteen miles, and a fall of 155 feet, the level of Stucco Lake being 210 feet above Lake Ontario. A large portion of the tract on either side of the Clare appears to be unproductive near its head, where the river passes among a succession of almost bare ridges of gneiss; and from Mr McDonell's mills on the sixteenth lot of the second concession of Sheffield to the mouth, it may be said to divide the productive land on the south, from a less productive area as far as examined on the north.

The upper Moira or western main branch of the river, flows through the eastern part of the township of Marmorata, receiving the contributions of several minor streams in its course, crosses through the north-east angle of Rawdon, and enters Huntingdon about the middle of the twelfth range; from this point after making a considerable southerly bend, it runs north-easterly and empties into Hog Lake, an extensive sheet of water situated between the twelfth and fourteenth ranges, and the seventh and eighteenth lots of the township. From Hog Lake the river pursues a north-easterly course for about four and a-half miles, and then turning abruptly to the southward, falls into Stucco Lake below Hungerford mills, in the twelfth lot of the tenth range of Hungerford township. The waters of Stucco Lake discharge themselves through a large and frequently very rapid stream still called the Moira, which passes through the western portion of Hungerford, cuts across the north-west corner of Tyendenaga into Thurlow, and flowing through the centre of this township, empties into the Bay of Quinte at Belleville, about seven miles east of the Salmon River; the country between the Salmon river and the lower Moira is thus a great island.

The Crow river is an important tributary of the Trent, and is the connecting link joining Belmont Lake, in the township of that name, and Crow Lake in Belmont and Marmora. Flowing from the latter lake through the south-west part of Marmora, where it is joined by a considerable stream called Beaver Creek, it crosses the north-west corner of Rawdon, and joins the main body of the Trent at Crow Bay about a mile below Healy's Falls in Seymour. Belmont Lake was estimated to be 367 feet, and Crow Lake 350 feet above the level of Lake Ontario, Crow Bay being, according to the levels of the railroad engineers, 310 feet.

A great chain of lakes extends across the northern part of what used to be called the Colborne District, one connected with another by streams usually of inconsiderable length, the waters of which are poured into Rice Lake through the channel of the Otonabee river, and finally by the main body of the Trent into Lake Ontario. The relative positions and heights of the most important of these lakes are as represented in the following table:—

Name.	Township.	Height.	Falls into.
Balsam Lake.....	Bexley and Fenelon,.....	588	Cameron's Lake.
Cameron's Lake.....	Fenelon,.....	583	Sturgeon Lake.
Sturgeon Lake.....	Fenelon and Verulam,.....	561	Pigeon Lake.
Pigeon Lake.....	Harvey.....	556	Deer Bay.
Buckhorn Lake.....	Ennismore, Smith and Harvey.....	556	Deer Bay
Chemong or Mud Lake.....	Ennismore and Smith,.....	556	Buckhorn Lake.
Deer Bay.....	Smith,.....	553	Salmon Trout or Clear L.
Stony & Salmon Trout Ls.	Dummer and Burleigh,.....	526	Otonabee R. & Rice L.
Rice Lake.....	Monaghan, Alnwick, Hamilton, Otonabee,.....	364	Trent River Ontario, L.

Scugog Lake also, in the township of Cartwright, of the Newcastle District, contributes its water to the Otonabee; its elevation above Lake Ontario was estimated at 565 feet, there being only an inconsiderable fall on the river of the same name, issuing from it at the village of Lindsay in Ops. The Scugog falls into Sturgeon Lake about the fourth lot of the eighth range of Fenelon.

DISTRIBUTION OF THE FORMATIONS.

The rocks of the area whose principal geographical features are given in the above sketch, belong to two distinctly different periods; one set being fossiliferous and nearly undisturbed, and the other unfossiliferous and greatly disturbed, contorted and altered. The fossils of the former are all of the Lower Silurian age, and the strata to which they belong, as may be inferred, rest unconformably on the tilted edges of the latter. By drawing a straight line from about the middle part of Loughborough Lake, across the heads of Knowlton and Beaver Lakes, to Round Lake in Belmont, a small sheet of water a little beyond Belmont Lake, and then another from Round Lake to the northern extremity of Balsam Lake, a tolerably fair representation of the junction of the two series of rocks will be indicated; the metamorphic, to which you have given the name of the Laurentian series, keeping on the north, and the fossiliferous on the south side of the lines. There will, however, be several deviations from the regularity of the straight lines, occasioned by undulations in the more ancient rocks, bringing them occasionally to the surface on the south, while a number of outlying patches of the more recent formations are spread over portions of the country to the north.

Laurentian Series.

The description which you have given of the rocks of this series in your Report for the year 1845-6 on the Ottawa region, where they are extensively exposed, would equally well apply to them in the country examined by me last

season. They consist of masses of micaceous and hornblendic gneiss, and masses of crystalline limestone interstratified by gneiss. In the great masses of gneiss the prevailing color appears to be reddish, but they are frequently striped with interstratified bands of grey, the reddish part taking its general aspect from the reddish feldspar which is the principal constituent, while the grey is chiefly made up of small grains of white quartz and feldspar, with small scales of black mica, and occasionally grains of black hornblende. The rock is for the most part fine grained; there are, however, masses of a coarse texture, which may be veins, but apparently maintaining a parallelism which the bedding, cannot with certainty be considered so. These latter masses were found in general to be chiefly of feldspar, sometimes white and sometimes red, more frequently the former, which weathering often to an opaque white, causes them to contrast strongly with the other associated rocks. Beds also occur, of which almost the only constituent is white quartz, and these often alternate with thin layers of yellowish white feldspar. Loughborough Lake, lying N. E. and S. W. in the strike, exhibits rocks of these characters from its northern extremity, for about three-fourths of its length on the N. W. side, and nearly one-half of its length on the S. E.; to the south and west of which positions on the lake, the Laurentian series is covered over and concealed by the unconformable fossiliferous formations. At the northern end of the lake, where the gneiss is of the red and grey variety, the general dip is about S. E. $< 55^\circ$; and on the eighth lot of the tenth concession of Storrington (formerly Pittsburgh) on the N. W. side of the lake, where the rock is a very fine aggregate of white quartz, white, and in smaller proportion pinkish feldspar having small veins and segregated nodules of black tourmaline, the dip is S. E. $< 68^\circ$. At the south-west horn of a bay, on the opposite side of the same lake, on the division line between the twenty-third and twenty-fourth lots of the fifth concession of Loughborough, the rock is of a similar character to the last described, being a very fine grained aggregate of quartz and white feldspar, with minute scales of white mica sparingly distributed between the layers, alternating with layers of coarser grained gneiss, containing pink feldspar, and intersected by veins holding black tourmaline, quartz and feldspar, which continue irregularly through a fine grained mica schist underlying the whole; at this place the dip is N. W. $< 35^\circ$ to 40° , and going S. E. across the measures between Vanluvin's mills on the eleventh lot of the ninth concession of Storrington, and the dead water of Dog Lake about the sixteenth lot of the same concession, red gneiss, which is occasionally seen, also indicates a N. W. dip.

At Vanluvin's mills, there is an intrusive mass of red granite upwards of 200 yards wide; the general course of which, transverse to the strike of the gneiss, is a little north of west and south of east, until it is lost sight of beneath the fossiliferous rocks; the prevailing mineral is red feldspar in rather coarse grains, with quartz and mica in smaller proportion and in finer grains.

Crossing to Sloat's Lake, about two miles transverse to the measures from the general line of Loughborough Lake, we find red and grey gneiss along its eastern shore, until we come to a point about a mile and a-half farther, on Eel Lake, (which is a long, northward running bay from Sloat's Lake), in the tenth lot of the eighth concession of Loughborough, where alternations of thin beds of white quartz and feldspar, again occur, which are succeeded, in about 200 yards to the north, by crystalline limestone, both dipping rather irregularly to the N. W. If these alternating beds of quartz rock and feldspathic rock are to be considered the same as those seen on Loughborough Lake, there would exist an anticlinal form between that lake and Sloat's Lake. Overlying the alternating quartz rock and feldspathic beds, the following section in ascending order occurs on Eel Lake on the same lot.

	Ft.
White quartzo-feldspathic rock, composed chiefly of white translucent crystalline feldspar (orthoclase,) some of the individuals of which measure an inch across, with disseminated grains and nodules of milk-blue, partially opalescent and translucent quartz, and dispersed crystals of brilliant black tourmaline and clove-brown sphene, with a few spots of green pyroxene;.....	60
Not well seen;.....	70
Very coarse grained red rock composed of large individuals of red feldspar (orthoclase,) and irregularly disposed greyish translucent quartz; possibly a vein, but running parallel with the stratification;.....	140
White crystalline magnesian limestone, with nodules and patches of serpentine, and aggregated individuals of dingy green pyroxene, a large amount of brown mica, and small spangles of graphite;.....	30
	300

Crystalline limestone is seen on the opposite side of the lake, near the mouth of a small brook, on the ninth lot of the eighth concession, and again towards the north end of the lake, on the eleventh lot near the line between the eighth and ninth concessions, and it is not improbable that all these exposures belong to one band, which may occupy the bed of the lake. The exact breadth of the band was not determined with certainty, but in a line transverse to the measures, across from Eel Lake to Gold Lake, by the stream which empties the latter into the former, gneiss, holding disseminated pink garnets in abundance, was met with in the ninth lot of the eighth concession, the distance from the dolomitic exposure being about half a mile; about a-quarter of a mile beyond this another small exposure of crystalline limestone occurred, and farther on, the north bank of a pond called Long Lake consists of gneiss, which runs in the strike to Bull's Eye Pond on the south-west, and another lake on the north-east, while garnetiferous gneiss re-appears on the seventh lot of the ninth concession, and an exposure of white crystalline limestone dipping to the south-east occurs beyond, near the shore of Gold Lake, the distance between this lake and Eel Lake being about a mile and a-half. The limestone is magnesian, but the quantity of carbonate of magnesia is not sufficient to constitute the rock a dolomite, being only about seven per cent. The rock is massive and small grained, and holds sparingly disseminated small crystals of white, green and blue apatite, golden and silvery mica and graphite, with a few small grains of rose-colored quartz, and of greenish serpentine. Apparently below this mass, but close to it, there is a band which holds in great abundance grains and nodules of serpentine of a color intermediate between pistachio-green and oil-green, and of various sizes from that of snipe to swan shot. These exposures are on the north side of the brook, while on the south, in a position which would probably come in still beneath them, an exposure of white dolomite with pinkish streaks and spots was seen, containing a large amount of disseminated graphite, with irregular forms of quartz, and small grains and patches of serpentine. The whole of the south-eastern side of Gold Lake appears to be occupied by these calcareous rocks, from the south part of the sixth lot in the ninth range, to the north part of the tenth lot in the tenth range, a distance of about two miles. A small island in the middle of the lake is composed of white crystalline limestone, holding much mica and a small quantity of graphite; it is associated with masses of large grained greyish feldspar and dull green pyroxene, stained with oxyd of iron, and it probably underlies the limestone on the south-east side, while it is again underlaid by a quartzo-feldspathic band, consisting of white translucent feldspar and milk-blue, partially opalescent quartz; this occurs on a small island on the north-west side of the lake, and the north-west shore is composed of gneiss. It seems probable that the breadth of the limestone in Gold Lake may be about the breadth of the lake, which would be a little over a quarter

of a mile; and all the facts on the line of section across from Eel Lake, appear to indicate that a synclinal form exists between the two lakes.

South-west from the Gold Lake limestone, in the continuation of the general strike, an exposure was met with on the fourth lot of the eighth concession; the rock was white and crystalline, but did not appear to give evidence of much magnesia; it held abundance of golden colored mica, with a few nodules of steatitic pyroxene studded with graphite. From the vicinity of this exposure, crystalline limestone is traceable, emerging from beneath the fossiliferous formations, for a mile and a-half, to the south part of the first lot of the seventh concession, and although there is an interval of nearly a mile south-west of Gold Lake, in which no exposure was observed, there appears a great probability that the rock is the same all the way. From the most southern part just mentioned, crystalline calcareous rock is traceable at intervals along the whole western side of Knowlton Lake, with fossiliferous rocks immediately overlying it, to the second lot of the ninth concession, and the same numbered lot in the tenth concession, as well as to the first lot of the same two concessions, where it is accompanied by tremolite, but whether in a bed or a vein is uncertain; at the south end of the lake there is white crystalline dolomite with grains of pea-green and yellowish-green serpentine in some abundance, and a few disseminated scales of graphite; and on the stream which empties the lake, in the fourth lot near the line between the tenth and eleventh concessions, dolomite again occurs; it is not here so white as before, being mottled with pinkish specks, but it holds the same golden colored mica, with oil-green serpentine in small grains and patches. From the most southern exposure to this point, the distance is three miles and three-quarters, and the dip, with a few turns which compensate one another, appears, as a general rule, to be westward all the way. The breadth of Knowlton Lake is nearly half a mile, and it is not unlikely that it may indicate the breadth of the limestone. On the eastern shore of the lake, the rock in so far as examined, is composed of fine grained hornblende gneiss, dipping to the southward of east; it is not improbable that this and micaceous gneiss constitute the country between Knowlton and Gold Lakes, in the continuation of the line of section carried up from the Eel Lake to Gold Lake; on this line the distance between Knowlton and Gold Lakes would be three-quarters of a mile, while on the line between the tenth and eleventh concessions, the distance between the diverging bands of limestone would be about double that amount.

It is plain that these two bands of crystalline limestone, converging to a point at the southern extremity of Knowlton Lake, are in equivalent positions on the opposite sides of an anticlinal form, and the Gold Lake and Eel Lake bands, being on the opposite sides of a synclinal, and converging in an opposite direction, will probably meet also. Although their point of union was not ascertained by observation, it probably occurs south of Otter Lake, which lies chiefly in the twelfth range between the sixth and thirteenth lots. For though the axis of the synclinal form would cross the upper or eastern part of this lake, the north shore, from the eastern extremity to the eight lot, a distance of about two miles, is composed of gneiss; and so is the southern shore on the tenth lot. The western extremity of the lake, however, from the middle of the ninth lot on the south, and of the eight on the north side, consists of crystalline limestone, which was observed to extend down the stream emptying the lake, to the middle of the sixth lot. But this mass appears to be too far westward to belong to the synclinal in question, unless it suffers an extraordinary turn in that direction; it appears also to be too far to the eastward for the continuation of the Knowlton Lake band, and it may therefore be an outlying patch.

It is uncertain what course the Knowlton Lake band takes from the line between the tenth and eleventh concessions. The stream on which the exposure

there was observed, flows into Mud Lake, which runs diagonally across the third and fourth lots of the twelfth concession, its length being about a mile. Both banks are composed of fine grained micaceous gneiss, and stand apart about a quarter of a mile. The strike is with the lake, and the dip vertical, but it could not be ascertained whether the bed of the lake was composed of limestone. On the north-west side of the lake, about half-way down, a thirty-feet dyke was observed consisting of flesh-red feldspar, and translucent colorless quartz, the individuals of the former being very large. The course of the dyke was N. W. cutting the strata nearly at right angles, its attitude was vertical, and lateral branches from it were seen running with the strike of the gneiss. A little lower down Mud Lake, between the third and fourth lots, veins of quartz run parallel with the feldspar dyke, in two of which, from two to six or eight inches wide, plumbago was seen in considerable abundance, running in irregular strings of from an eighth to half an inch, while small spangles of the mineral characterised the gneiss on each side.

Between Mud Lake and Desert Lake, into which Mud Lake empties, there is scarcely the eighth of a mile, and the second named lake, which is a nearly straight continuation of the other, lies in a depression extending to the N.N.E., from the fifth lot of the thirteenth concession of Loughborough to the fifth lot of the fifth concession of Bedford, where by a short stream, it receives the waters of Canoe Lake, lying in a continuation of the depression, between the lot in Bedford just mentioned, and the fifteenth lot of the eighth concession of the same township. Both lakes are long and narrow, and Desert Lake about mid-length branches into a deep narrow bay, which extends to the south-west, from the first lot of the fourth concession of Bedford to the third lot of the fourteenth concession of Loughborough. The exit of Desert Lake occurs in a bay on the east side, in the sixth lot of the fourteenth concession of this township, and its waters run to Birch Lake, which begins to open out on the ninth lot of the last mentioned concession, and extends in a N.E. direction to the third lot of the seventh concession of Bedford.

From the northern end of Desert Lake to the extremity of the south-west branch, the shore is composed of crystalline limestone, and an exposure of the same description of rock on a small lake in the first lot of the thirteenth concession of Loughborough, being in the general strike from the other, is probably an indication of a continuous outcrop, which would thus be traceable for three miles and a half. The dip on Desert Lake appears to be to the north-west. On the opposite side of the lake, from the exit to within a short distance of the north end, the margin is again crystalline limestone; so also in continuation is the east side of Canoe Lake to the eighth lot of the sixth concession of Bedford, the distance altogether being four and a half miles, and the dip in general appears to be from the lakes, or south-eastward. Near the north end of Desert Lake the bands of limestone on the opposite sides come to within a quarter of a mile of one another, but gneiss appears at the very extremity of the lake, to separate them, and runs into the lower end of Canoe Lake, on each side of the stream which empties it. Gneiss also forms the west side of Canoe Lake from the one end to the other, and the east side as far down as a bay which occurs on the ninth lot of the seventh concession of Bedford. It composes likewise the west side of Desert Lake from its southern end, and the south-east side of the south-west branch or arm, its extremity, to the point where these sheets of water unite, the rock being at the point marked by abundance of garnets. Gneiss seems also to extend across from Desert Lake to the calcareous exposure on the first lot of the thirteenth concession of Loughborough, within a few hundred yards of which, as well as of Desert Lake, it was again marked by garnet bands. Garnets were also observed on a peninsular point a-quarter of a mile out from the limestone,

on the east side of the lake, in the first lot of the fourth concession of Bedford, and again beyond the limestone on the east side of Canoe Lake.

From the exit of Desert Lake, crystalline limestone can be traced by exposures, on the brook which conveys away its waters, and on the north shore of Birch Lake to its eastern extremity, where it composes a promontory about three-eighths of a mile wide, with a deep bay on each side, the distance from Desert Lake being about three miles and a half, and the dip appearing to be in general to the N.W.; while the east side of Desert Lake from its south end to the exit, and the south-west side of Birch Lake, consist of gneiss, in the latter lake characterised by garnets in two positions bearing for one another, the one at the eastern end coming to within a hundred and thirty yards of the limestone.

The transverse exposure at this end of Birch Lake being considerable, a section was measured across the promontory in which the limestone is there found, beginning from the south side of the south-east bay, and the following are the rocks in ascending order.

	Feet.
1. Somewhat thinly bedded red and grey gneiss, with layers of mica schist, seen at the stream which falls into Birch Lake on the south side towards its eastern extremity; the dip is about N. W. < 65° to 70	132
2. Beds of which a large part is concealed, but supposed to be chiefly mica schist; a portion is coarse grained feldspathic rock, perhaps a vein, and of this about thirty yards are seen on the north side of the stream, and on a small island near.....	300
3. Thin alternating layers of white quartz and fine grained feldspar, in which a series of very sharp corrugations is exhibited, which show a general dip N. W. < 35°	130
4. Gneiss, of which the chief constituent is quartz, holding mica of a black or brown color, and garnets in abundance; the rock weathers to a rusty yellow; the dip is irregular, on the whole nearly N. W. as before; this is to the water's edge on the south side of the south-east bay.....	260
5. The narrowest part of the bay is five or six chains in width, the upper part of it is swampy, and the rock is concealed: Supposing that the dip is regular, and that there is no repetition or dislocation, the thickness resulting from the width would be about.....	231
6. Coarse grained crystalline limestone with small spangles of graphite, nodules and angular fragments of quartz, giving it a sub-brecciated character; an interstratified six-inch band of a bright red, fine grained, slightly calcareous rock, resembling sandstone or quartz rock, passing into jasper, exists near the bottom.....	100
7. Coarse grained disintegrating crystalline limestone, being an aggregation of large sized crystals of calc-spar, but not exceeding a quarter or half an inch across.....	30
8. A red ferruginous mass, having a brecciated appearance; it seems to be chiefly composed of coarse red feldspathic rock, passing occasionally into a sub-jaspersy condition; much of this is carious or vesicular, and the vesicles are coated with small brilliant steel-grey crystals of specular iron, sometimes accompanied by colorless transparent quartz; all the cracks and some of the vesicles are coated with a thin film of the ore, in the form of a shining red powder, staining the fingers; the rock is micaceous, and the mica becomes occasionally aggregated in bunches of six to eight inches in diameter, and more or less calcareous matter permeates the whole bed. Nearly in the strike of this rock, one resembling a conglomerate was met with on one of the small islands to the southward, and it was there supposed to be interstratified with crystalline limestone, but being seen only close to the water's edge, the fact could not be satisfactorily made out.....	10
9. Alternations of red feldspathic quartz rock, and coarse disintegrating crystalline limestone, generally stained of a red or dirty brown color, derived from specular iron.....	50
10. Coarse disintegrating crystalline limestone, not well exposed, the debris being a mass of calc-spar, with angular fragments of white quartz.....	40
11. Fine grained mica slate, of a greenish-grey color, dividing into thin layers, with bands of coarse disintegrating crystalline limestone and some of red ferruginous feldspathic quartz rock holding scales of brown mica; a red unctuous ochreous earth is found near the outcrop of the ferruginous rock, holding among it fragments having a vesicular slag-like character, similar to the rock of No. 8.....	86

1369.

On the north side of the north-east bay of Birch Lake, alternate bands of light and dark grey gneiss, with much quartzite holding garnets, is exhibited, which

near the outlet at the entrance of the bay, dips N. 10° to 20° W. $> 62^{\circ}$, and at the head of the bay, N. 23° E. $> 40^{\circ}$; white crystalline limestone comes up from below it on the south side, but an interval of drowned land concealing the rock between this bay and the termination of the section, it is difficult to say whether the whole breadth should be taken as additional strata. If so, the corresponding thickness would be about 330 feet, which would probably be limestone, making the whole amount of the section about 1700 feet.

The exit of Birch Lake is on the north-west side and not far from the east end, being close by the mouth of the bay in which the above section terminates, on the third lot of the sixth range of Bedford. The stream which receives its waters flows to the north-east for exactly three miles, and enters Devil Lake at Mr. Woolworth's mill, on the eighth lot of the ninth concession of Bedford. Devil Lake lies between the eighth and fourteenth concessions and the third and twelfth lots; it has a very irregular form which is projected into many deep, narrow, irregular bays, and an island of about the tenth of a square mile in superficies, appears about the middle of it; this island is intersected by the lines dividing the seventh and eighth lots and the eleventh and twelfth concessions. The coast of the lake and the south side of one of these deep bays run from the sixth lot of the twelfth, to the fifth lot of the tenth concession, the course being W. S. W., and the distance about a mile and a quarter. The rock composing it consists of contorted gneiss bearing abundance of pinkish garnets, and the strike would carry it to the garnetiferous band in the south-east bay at the east end of Birch Lake, with which it is not improbably identical. As a proof of the truth of this supposition, on the north side of the Devil Lake bay mentioned, and not more than 120 yards from the garnetiferous gneiss, there is an exposure of crystalline limestone.

To the eastward of these positions, the coast of the lake was not examined, but crystalline limestone was found to compose the island in the middle, and also the north side of a long stretch of the lake on the eighth lot, from a strait occurring on the line between the tenth and eleventh concessions, to the entrance at Mr. Woolworth's farm, the distance between the farm and island, being about two miles and a half. The south side of this long stretch of the lake, is composed of gneiss, which at the strait assumes the character of a slaty quartz rock. Exposures of crystalline limestone were also met with at intervals, on the road from Woolworth's farm across to the position on the east side of Canoe Lake, where it has already been mentioned as limited by garnet-bearing gneiss.

From the distribution of the rocks on Canoe, Desert, Birch and Devil Lakes, it must be inferred that the two bands of crystalline limestone diverging south-westerly on the second of these lakes, are in equivalent positions on the opposite sides of an anticlinal form, the axis of which runs through the length of Canoe Lake, while the two bands diverging north-easterly from the exit of the same lake, are in equivalent places on the opposite sides of a synclinal. Each of these latter bands is probably prolonged into Devil Lake, where they appear to sweep round and join one another, thus forming a complete basin. The east side of Devil Lake, however, not having been examined, and no exploration having been made between this lake and the northern extremity of Canoe Lake, subordinate undulations may prolong the trough to the north-east, and give that portion of its perimeter a very irregular form. The probability of these subordinate undulations is the greater, as exposures of crystalline limestone which may be due to them, were met with in the interval between Desert and Birch Lakes; one of these was on the second lot of the fifth concession of Bedford, at the south end of a small sheet of water called Eel Lake, which is tributary to Canoe Lake.

In the same general depression which holds Canoe Lake, at about a mile and a half to the north-east, we meet with an arm of Upper Rideau or Wolf Lake, which for four miles runs on an extension of the anticlinal axis passing through

the former; this axis has thus been traced altogether for about seventeen miles. The rock between Canoe Lake and this arm of Wolf Lake, appears to be gneiss, but on reaching the latter lake, limestone is met with on the north-west side, a short distance below a stream which flows into it, on the eighteenth lot of the ninth concession of Bedford. This limestone was traced about three-quarters of a mile down the lake to the north-eastward, and about as far in a contrary direction to the old Bedford road, on the seventeenth lot of the eighth concession. For about three-quarters of a mile to the north-west on this road, however, there are one or two alternations of gneiss and limestone, resulting from subordinate undulations, which appear to carry the outcrop of the limestone by minor zig-zags to the north-west side of a small sheet of water tributary to Wolf Lake, on the eighteenth and nineteenth lots of the eighth concession; from this it was traced to a position on Hunt's Lake, (supplying the previous pond,) on the eighteenth lot of the seventh concession. On the road which runs to the south-westward on the left or west side of this lake, and of Potspoon Lake feeding it, the rock was further traced to the twelfth lot of the fifth concession. Gneiss was observed to bound it to the eastward in the last place, and in an intermediate one on the seventeenth lot of the sixth concession, where the dip was north-west, and the calcareous rock was supported by a band of gneiss characterised by garnets. Between the upper end of Hunt's Lake and Canoe Lake, to the south-east there is a distance of about two miles, of which a part only was examined, being the interval between the latter lake and Garter Lake, a straight and narrow sheet of water, with a length of two miles; the distance across on the line examined is three-quarters of a mile, and the rock consists wholly of gneiss, dipping from the lakes on each side; the lakes converge slightly to the south-west, and this convergence accords with the dips, to prove an intermediate synclinal, the axis of which would run for the corresponding part of the first undulation of the limestone mentioned as existing to the north-west of the arm of Wolf Lake. The interval between Garter and Hunt's Lakes, is supposed to consist of gneiss, but not having been examined, the fact cannot be affirmed with certainty.

That the band of limestone traced to the twelfth lot of the fifth concession, has a continuous outcrop connexion with that on the west side of Desert Lake is extremely probable, but they have not yet been followed to a junction, and the undulations which have just been alluded to, it is very probable, will give to the intermediate portion an irregular indented form, corresponding with that near Wolf Lake.

Green Lake is a long straight narrow sheet of water, removed about two miles to the north-west of Hunt's Lake; it extends from the sixteenth lot of the third, to the twenty-fifth lot of the fifth concession of Bedford; the general bearing is N. N. E. and S. S. W., and beyond its southern extremity, about half a mile in the same general bearing, is Tett's Lake. Green Lake falls into Bob's Lake, from which it is separated on the west side, for nearly its whole length, by a strip of land scarcely exceeding two-fifths of a mile; Bob's Lake by a rectangular turn outflanks the northern end of Green Lake, and then by another turn is carried northwardly, in a continuation of the same depression as that holding the latter lake.

In the country between Hunt's Lake and Green Lake, crystalline limestone is very largely displayed, and it appears to be kept at the surface all the way across, by repetitions of the strata occasioned by undulations. On Wolf Lake as has been already stated, the dip of the limestone is to the north-westward, and in following the twenty-first lot of the township of Bedford, from the rear of the ninth concession to the fifth, which comes upon Green Lake, various changes were observed. About nine or ten acres from the rear of the ninth concession, a band of gneiss crosses the lot. The dip is here still to the north-west, but there may

be a reverse dip between the position and the western side of Wolf Lake. A transverse dislocation cuts the gneiss, and produces a horizontal displacement of about 150 yards to the south-east, on the south-west side. At the junction of the limestone and gneiss, there occurs a bed of magnetic iron ore of a few feet thick, on the north-east side of the fault; but no trace of it was observed on the south-west. In the eighth concession, the dip changes to S. 73° E. < 30°, and there is brought to the surface, a thickness of strata equal to 535 feet. The mass consists chiefly of crystalline limestone, enclosing in some places many fragments which often appear to be portions of bands of quartz, some of them folded and corrugated, giving to the beds enclosing them a sub-brecciated character. Thick masses of a mixture of white feldspar and colorless translucent quartz are now and then interstratified with the limestone, generally in such an irregular manner as to render it not quite certain whether they are beds or veins, but the limestone is the great prevailing mass. Transverse veins of calc-spar holding galena, cut these strata, and are occasionally traceable to some distance; one of them is on the twenty-first lot, and two of a similar character are met with in the same range, near the line between the eighteenth and nineteenth lots. In the run of the vein on the twenty-first lot, about 500 yards east of the spot where a shaft was sunk on it for ore, a dark grey crystalline limestone was found holding mica, and small spangles of graphite; the position of this limestone gave the impression of its forming part of the vein; it appeared to fill a crack or hollow in the crystalline beds about two or two and a half feet wide, and small cubic crystals of galena were strewed about the ground near, as if derived from it, or from the walls on each side. Continuing the line on the twenty-first lot the dip which is still to the south-eastward in the rear of the seventh concession, changes to the westward towards the front. It again changes to eastward towards the rear of the sixth concession, the exposures being all of crystalline limestone. On the fifth concession the dip is still eastwardly, but there may occur an unobserved contrary dip in the intermediate distance; a band of gneiss with an eastward dip is seen within 200 yards of Green Lake, and crystalline limestone beyond on its margin in a bay, with gneiss still farther on, forming part of the eastern side of the lake and an island near; the observed exposures of this gneiss on the lake run in the strike from the nineteenth to the twenty-second lot, but limestone may lie outside of them again in the bed of the lake.

The west side of Green Lake appears to consist almost wholly of rugged ridges of contorted reddish and grey gneiss, with the exception of a point in the nineteenth lot, on the line between the third and fourth concessions; this point is composed of crystalline limestone, and the same rock forms a point immediately opposite on the east side, and an island between the two. From this, the limestone continues along the east side rising into high bold cliffs towards the southern extremity, and it is continued across to Tett's Lake. Crystalline limestone overlying gneiss, is seen on the eastern side of Green Lake towards the north end also, and again on the west side of that part of Bob's Lake, which was mentioned as lying to the N. N. E., in the same depression, while gneiss forms the east side. Between the most northern and the most southern exposures of crystalline limestone, which have thus been indicated in Bob's, Green and Tett's Lakes, it seems to me probable that there exists a continuous outcrop connexion, though it would require a few additional facts to make the details of its course certain, and the whole distance thus traced would be about six miles.

If a line be drawn in a direction W. N. W., from the twenty-fourth lot of the fifth concession of Bedford, to the twenty-sixth lot of the third concession it will run from the east side of Green Lake across Bob's Lake, (which is here divided into two parallel limbs running S. S. W.), to the exit of Crow Lake, falling into the western limb of Bob's Lake. On this line, which

starts from an exposure of crystalline limestone, (part of the outcrop just traced,) and has a length of about a mile and a-half, gneiss is met on an island in Green Lake, on the land separating Green from Bob's Lake, and on the long tongue-like peninsula running southward and separating the two limbs of Bob's Lake, all with an easterly dip; the western side of the western limb was not examined, but on a point which would be in the strike of it to the northward, toward the upper end of the lake and on the east side, crystalline limestone was again met with, but its course was not traced out. Beyond, it about one-third of a mile, at a fall by which the waters of Crow Lake are precipitated into Bob's Lake, the rock, again with an easterly dip, (S. 69° E. $< 80^{\circ}$) consisted of gneiss filled with garnets and overlaid by mica schist. Although the dip all the way appears to be easterly, at angles varying from forty to seventy degrees, it would be hazardous in a country shewing so many undulations, to say that there are no repetitions through reverse dips, which may have been either passed over altogether without observation, or may have been mistaken from being inverted. If there were no reverse dips or dislocations running with the stratification, the thickness would be about 6000 feet.

The course of Crow Lake is nearly north, and it extends from the twenty-sixth lot of the third, to within a short distance of the thirty-fifth concession of Bedford. It has a length of about three miles, with a breadth at the southern extremity of about three furlongs, gradually widening to a mile and three-eighths at the northern, where it is divided into two bays. The eastern side was not examined, but the western, which is the straighter, was found to be composed of gneiss, of which the dip varies in direction from S. 70° E. to S. 60° E., and in inclination from thirty to forty degrees.

From the northern end of Crow Lake a portage was made to Sharbord Lake; in a straight line, the bearing of the portage was N. 20° W., and the distance nearly two miles and three-eighths. Gneiss was the only rock observed upon the portage; the exposures in the first third of the distance were in the strike of those on the west side of Crow Lake, and the breadth of the remaining two-thirds, measured in a direction at right angles to the strike, would scarcely reach three-quarters of a mile; the dip of this appeared to be easterly.

Sharbord Lake is a considerable expanse of water; its length is about five miles and a half, the first half of which lying in the township of Oso, bears N. 72° W., and the other in Olden runs parallel to the south line of the township, which bears S. 74° W. The breadth is very irregular; towards the eastern end of the eastern half, two transverse belts of water occur, the more easterly of which, with a small bay on the northern side, makes a deep indentation on the southern, and measures from the bight of the one bay to that of the other, about three miles; while the second belt of the same character, measures two miles. The lake on the line dividing the two townships that have been mentioned, is cut into two nearly equal parts by a peninsula projected from the north side, while the western extremity is cut into two branches by a promontory, and two long parallel islands nearly touching one another, which are a continuation of it.

The eastern transverse belt of water appears to rest upon crystalline limestone, which is seen all along the west side of it to the south, where it is associated with beds of white quartzo-feldspathic rock; and on the east side to the north, beyond which it is continued to the exit of the lake, about half a mile farther in the same direction; the bearing of the whole is a little north of north-east, while the dip on the one side, as indicated by the gneiss bounding it, is to the eastward, and on the other to the westward; from which it would appear, if there be no inversion, that the limestone runs upon the axis of an anticlinal. The limestone is white, holding graphite and mica, and in some parts tremolite with grains of quartz.

Proceeding up the lake, the promontories on each side, that divide the two belts of water, are composed of gneiss and so are others which succeed on the north side; but the islands which occur immediately east of the great peninsula dividing the lake into two, consist chiefly of fine grained black hornblende slate, with dark brown mica between the layers, and the rock in parts is slightly calcareous. The whole of the peninsula itself consists of crystalline limestone, and at this point displays a very important mass of the rock. The breadth of the exposure is about twenty chains, and the direction of the dip varies from S. 60° E. to S. 67° E. while the inclination is from eighteen to forty-five degrees, which would give a total thickness of about 700 feet. Towards the base, the great mass of limestone is underlaid by fine grained mica slates, which alternating with some thin calcareous beds at the bottom, pass into slaty limestone, and shew the planes of division very distinctly.

The promontory which splits the western extremity of the lake into two branches or bays, exhibits mica slate on the north side, and crystalline limestone on the south side and at the extremity; a small island in the mouth of the south bay, as well as the two long islands projected from the promontory, are also of limestone. The dip shewn by the promontory and islands, varies in direction from S. 55° E. to S., and in inclination from twenty-eight to forty degrees; and it seems not improbable, that the limestone of the promontory and its islands, and that of the peninsula, may form a junction under the waters of the lake, though there are still wanting a few facts on the south side of the lake, to determine it positively. The island in the great bay on the north-west side of the peninsula, shews gneiss, interstratified in the parts nearest the limestone, with bands of quartzite, and gneiss composes points and islands to the westward, on the north side of the lake.

The western extremity of Sharbord Lake is about half a mile from White Lake, which empties into it. On the portage from the one to the other, which runs a little to the westward of north, gneiss was the only rock observed, the exposures occurring near to White Lake. This lake may be called a square with a deep bay on the western side, and including this, it is rather less than a mile and a half long, in an east and west direction, and rather more than three-quarters of a mile wide. Gneiss was observed on a narrow island running along the south side for half a mile, and crystalline limestone on a point on the east side, which would be north of the strike of the narrow island. Crystalline limestone constitutes also the north shore of the lake, and if the trend of this may be taken as an indication of the strike, it is east and west, but it was found difficult to determine the direction of the dip.

A portage was made from White Lake to a small lake which flows into Cross Lake. The bearing of the line was W. N. W., and the distance about four miles and a half. The first exposure of rock on this was a mile and a-half from White Lake; it consisted of mica slate, dipping about S. S. E., half a mile beyond which, at a small meadow called Beaver Dam, crystalline limestone with a conformable dip, and holding much tremolite, was met with, resting on mica slate. It occurred again three-eighths of a mile farther on, and gneiss beyond it as much farther.

The small lake at which the portage terminated, is about a mile long, in a direction a little south of west, and it is fed by a stream which flows into it from the east. On the north side of this stream, about 1200 yards eastward of the lake, a large dyke was observed, composed chiefly of reddish feldspar in large individuals, with which colorless translucent quartz was mingled in smaller quantity, with a very sparing amount of mica. In the widest part, the dyke measured upwards of a hundred yards; its course was S. 7° W., and it obliquely cut the strata, which consisting of hornblendic and micaceous slate, dipped

about E. S. E. Lateral branches from the dyke on either side, cut the strata, generally in the direction of the strike; small strings and patches of magnetic iron ore were found in various parts both of the main dyke and the branches. The distance between the portage lake and Cross Lake is about three-quarters of a mile in the general course of the stream uniting them, and the direction south. The intermediate rock observed was hornblende slate, dipping about E. S. E.

Cross Lake is a long narrow sheet of water, running S. 74° W. for two miles with a breadth of 200 to 400 yards, and about four more S. 30° W. with a breadth of half a mile; of the first two miles, three-fourths are in the township of Oso, and one-fourth in Kennebec. The part in Oso consists of mica slate on the south side, and that in Kennebec on both sides. The western four miles were not examined, but the bearing of the lower part of the lake coinciding with the strike of the rocks, it is probable that mica slate will be found to compose its banks. The strike is a little oblique to the coast on the upper part of the lake, and on this and on the portage, (where the lake was abandoned for Salmon river,) a great development of the mica slate was observed to exist; the measurement across it, including ten chains for the breadth of the lake, was forty-three chains, and the dip with great regularity was S. 20° to 25° W. $< 30^{\circ}$ which would give a thickness of about 1400 feet. On the summit of the slate rested a thirty-foot band of crystalline limestone, again followed by mica slate, of which a thickness of about seventy feet was seen, making the section about 1500 feet all. On striking the Salmon river about fifteen chains farther on, mica slate was again displayed, a good deal contorted, dipping much more to the eastward than at the lake, and twenty-five chains further about S. S. E. down the stream, it was again followed by crystalline limestone which appeared to be in great volume.

The course of the river here changes to S. 10° W., and for nearly a mile and a half there is no exposure of rock; seven-eighths of a mile further in a straight line in the same direction, reaches Bull Lake, but the river first veering to the eastward, and then serpentine by two subsequent sharp turns, measures a distance of two miles and a half. In this crooked part of the stream, crystalline limestone is largely exposed in the rapids which it occasions. In the upper bend it is of a slaty character, and it is interstratified with a band or two of mica slate; at the lower, supposed to be on the fourteenth lot of the tenth concession of Kennebec, it is arranged in very regular alternate layers of white and bluish grey; the bluish-grey layers are thinner and harder than the white; they appear to owe their color to the presence of a multitude of very fine scales plumbago; each so small as scarcely to be discernible by the naked eye, and their hardness to an aggregation of fine rounded grains of quartz, not distinguishable on weathered surfaces from quartz sand; with these are present a small number of very small modified cubes of iron pyrites. In the action of the water upon the rock, the hard thin bluish bands offer a greater amount of resistance than the white, which being purer limestone are more readily dissolved. The result is, that the latter stand out in relief, presenting sharp edges, while the intermediate more calcareous part is worn into rounder grooves, and the contrast of colors and forms presents a very distinct and striking picture of the stratified character of the rock. The grain of the calcareous part of the rock is generally rather coarse, but patches of it are tolerably fine and very white; these, however, rarely afford more than hand specimens, which are of a quality resembling statuary marble. The exposures in this part of the river, which so distinctly afford the evidence of stratification, appear to be in a nearly horizontal attitude, and hence in the square mile they occupy, very little thickness is seen. A few local and very limited contortions were observed however, and in the neighbourhood of these, tremolite was usually found in abundance.

Bull Lake has a length of about four and a quarter miles, and breadth varying from a quarter to half a mile; it is divided into two nearly equal parts by a very narrow strait, and from the entrance, the upper part bears east, the lower about S. 50°W. The entrance to it is three-quarters of a mile above the middle on the north side, and here crystalline limestone is seen dipping southward; but from the strait to the exit, which is at the western end on the south side, the only rock observed was gneiss, and this prevailed to Horse Shoe Lake, a small sheet of water about three furlongs to the south; while at the exit from it about three furlongs farther, mica slate was met with, and half a mile farther to the south, crystalline limestone again made its appearance.

From this point to Beaver Lake, a distance of about twelve miles, the Salmon river runs on the strike of the rocks in a nearly straight line to the S. S. W. Ridges of the gneiss and occasionally mica slate occupy the west side, and mica slate in a large part of the distance was seen immediately on the east side, all generally dipping E.S.E.; but the crystalline limestone is probably not far removed from the left bank. It was observed in the river for the first mile, and at the end of that distance, it gave support to mica slate filled with garnets. Six miles farther down, it was seen below the exit of Long Lake, where it is brought in by a dislocation, indicated by a coarse grained quartzo-feldspathic dyke, transverse to the stratification; the mica slate abutted against the dyke on the north-east, and the limestone on the south-west. The limestone is here interstratified with mica slate, and upwards of a mile farther, on the eighteenth lot of the eighth concession of Sheffield, some beds of limestone occur of a dark blue color and compact texture, holding small rounded grains of quartz, with some of feldspar, which stand out in relief on weathered surfaces, and appear as if loosely scattered over them. The rock has a conchoidal fracture, and in freshly broken parts exhibits small spots, presenting a soft greenish cleavable mineral, supposed to be decomposing pyroxene. The bluish beds are overlaid by thin alternating layers of blue and white limestone, succeeded by thicker layers of a similar color, the white part being more crystalline, but containing the same grains of quartz and feldspar, with the addition of serpentine and mica; in one part they are found to envelope a few large nodules, some of them six inches in diameter, of pure white granular limestone, the blue and white layers being slightly bent at the point of contact with the nodules, and partially accommodated to their form. These beds are associated with a set of variegated mica slates of calcareous character, of which the colors are red, green, and brown or blackish. They keep near the margin of the river on the east side, to its entrance into Beaver Lake, a distance of two miles, and are again seen on a tongue of land running south-west, which divides the lake into two unequal parts longitudinally, beyond which they pass under the unconformable fossiliferous rocks.

Between the north-east end of Beaver Lake at its outlet, and the bridge across the Salmon river, on the twelfth lot of the seventh concession of Sheffield, there is another large exposure of crystalline limestone, shewing a dip to the south-east; and at the town line between Sheffield and Camden, on the twentieth lot of the latter, a band of very white dolomite comes from beneath the fossiliferous strata, and forms a well marked ridge running N. 70° E. It is bounded on the south by gneiss, which continues on the road up to the nineteenth lot of the ninth and part of the eighth concession; a small exposure of crystalline limestone appears on the farm of Mr. Neil Stewart, on the second lot of the fourth concession of Sheffield, where it protrudes through the flat beds of the fossiliferous formations, in the form of a dome, the base of which is not more than twenty yards in diameter.

On the Clare river, gneiss was observed in several spots to the sixteenth lot of the third concession of Sheffield, dipping to the south-east, and in continuation on the same strike to the fourteenth lot of the second concession. It also appear-

ed near the line between the ninth and tenth concessions of Hungerford, on the thirty-second, twenty-eighth, and twenty-third and twenty-second lots, associated in the last locality with mica slates, and dipping to the S. E. ; on the twenty-first and twentieth lots at Doak's Mill, crystalline limestone occurs, as in former instances, associated with mica slates. On Stucco Lake, gneiss appears on both sides towards the western end, dipping S. W. ; it occurs also on the south and west sides, and from the south-west corner of the lake it is continued in a ridge to the road between the fifth and sixth concessions of Hungerford, on the fourth lot, where a moderately high escarpment of the superior, unconformable fossiliferous rocks rises at no great distance on each side.

In Huntingdon, Madoc, Marmora and Belmont, many interesting diversities occur in the Laurentian series, but the rocks belonging to it become so frequently and unexpectedly covered up by projecting and outlying masses of the unconformable fossiliferous formations, in the part investigated, that it is as yet impossible to give any connected view of their arrangement. In the first named township, a rock composed chiefly of red feldspar and translucent colorless quartz, with a small amount of greenish hornblende and small disseminated crystals of iron pyrites, is seen at both ends of Hog Lake, and on an island in the middle of its breadth towards the east end. It is without observed stratification, and is probably intrusive ; to the westward it becomes covered up by the fossiliferous rocks, but a rock of a similar character was observed running from the twelfth to the twenty-second lot of Madoc, in the second and third concessions. If the two have any connection, the latter mentioned mass might be supposed to come from beneath the fossiliferous formations, about the ninth lot of the third concession of the township. In that part of its course between the last named lot and the twenty-second of the second range, it would run obliquely transverse to the general direction of the stratification to the westward, which is about north-east and south-west.

On the bridge-island in Hog Lake on the eleventh lot of the thirteenth concession of Huntingdon, calcareous mica slates are seen dipping to the north-west, and on the road in the same lot farther north, there is crystalline limestone. If the observed strike of these is continuous north-eastwardly, it would carry them into the lake. On the north side of the lake, in a position which would appear to overlie the previous mentioned exposures, are contorted gneiss and talcose slates, cut by red syenitic veins ; the dip of the stratification is north-westward. Proceeding northward, gneiss occurs on the first lot of the sixth concession of Madoc, and white crystalline limestone beyond it in the same numbered lot in the sixth and seventh concessions. In a field a little way north from the village of Madoc a ridge of a somewhat talcose slate occurs ; it is slightly calcareous, of a bluish color, weathering greenish, and holds numerous fragments of rock, different in character from the matrix, being all without calcareous matter, some of them resembling syenite or greenstone. North from this ridge, another succeeds, consisting of talcose slate, beyond which for 300 yards, ridges of a decided conglomerate with distinctly rounded pebbles enveloped in a matrix of talcose slate, alternate with ridges of slate with few or no pebbles. The exact dip of the beds could not be ascertained to my satisfaction, but crystalline calcareous beds, portions of which appear to be pure dolomite, with small crystals of yellowish mica, and a few small grains of serpentine and thin reticulating strings of magnetic iron ore, were found at the village on the south side of the ridges, while black or dark bluish calcareous and pyritiferous slate was found to the north of them, and these usually indicated a northerly dip. On the fourth and fifth lots of the fifth concession, another band of conglomerate occurs associated with a fine grained silicious clay slate, which has been used for whetstones, and fine grained mica slate. The matrix of the conglomerate weathers white, and appears to be

a dolomite; the pebbles, which are frequently large, the largest being equal in size to an eighteen-pound cannon ball, are chiefly quartz, but there are also pebbles or patches of feldspar, and a few of calc-spar; the quartz pebbles are for the most part distinctly rounded, and their colors various, some being on fracture bluish, some white, and others pinkish; the feldspar is red and white, and the calc-spar white. The whetstone slate and the mica slate appear to pass into one another, and in both are occasionally seen disseminated crystals of magnetic iron. The dip of these beds appears to be in a direction southward of east, but the slope is irregular, and may probably be thirty-five or forty-five degrees. Rocks of a similar character were crossed on the road between the seventh and eighth concessions of the township, on the fifteenth and sixteenth lots which may possibly be a continuation of the same strata, as the position is not greatly out of the general strike from them; but whether the conglomerates near the village are to be considered as a repetition of these beds, or a distinct set in the same formation, sufficient evidence has not yet been collected to determine. South from those mentioned as being found on the road between the seventh and eighth concessions, a fine grained, compact, dull white, sandy dolomite occurs, weathering to a brownish-yellow, with a staly conchoidal fracture. Bluish calcareous slates appear on the seventeenth, and crystalline limestone on the twentieth lot of the eighth range. On the eleventh lot of the fifth range, a black micaceous rock occurs, the stratigraphical relation of which, in respect to the other rocks of the formation, has not yet been made out, but it possesses an interest from the fact that there is associated with it a twenty-foot bed of magnetic oxyd of iron, part of which possesses polarity. It has been mined for the ore, and farther allusion will be made to it in the economic division of this Report.

Belmont Lake lies between the twelfth and twenty-first lots and the third and sixth concessions all inclusive, of the township from which it derives its name. It has a triangular shape, and its western side runs about N. N. E. and S. S. W. At the northern extremity, it receives the waters of the Deer river on the twenty-first lot of the third concession, and its exit is on the fifteenth lot, near the line between second and third concessions. The general dip of the strata upon it, appears to be about E. S. E. Mica slates form the more western indentation of the western side, showing an inclination of about forty degrees, upon which rests crystalline limestone in a band of some importance, seen on a promontory on the seventeenth lot of the fifth concession, where some of the beds appear to double completely over on themselves, and shew an inverted dip with as great a slope as the true one; it occurs again on an island in the twentieth lot of the second concession, and once more in the Deer river, a little above its entrance into the lake. On the Deer river, the crystalline limestone rests upon fine grained slightly calcareous mica slate, and the lower beds of limestone are in thin layers, and shew an alternation of colors, which are rose-red or pinkish, grey or bluish, and white; golden yellow mica is distributed in small scales on the divisional planes. Mica slates succeed the limestone in ascending order; they are seen on a projecting part of the west side of the lake, in the fourteenth lot of the fifth concession, where they slope at an angle of sixty degrees, and on the western side of the island which are on the strike of it to the N. N. E. On the east side of the largest of the islands, and a small one to the N. N. E., there occur beds of conglomerate, which, according to the dip, would overlies the previous rocks; they are interstratified with talcose slate, and the matrix of the conglomerate exhibits a slaty structure and talcose character, at the same time that it is calcareous or dolomitic; feldspathic portions appear to run through it, the feldspar being red, and small crystals of magnetic iron ore are frequently disseminated through the mass. The general color in fresh fractures is greenish or

reddish white, but the external surface weathers to a dark brown. The pebbles are distinctly rounded and flattened, the flat side usually but not always lying parallel with the bedding; they are of various sizes, the largest being about five or six inches in diameter, while the smallest do not exceed the size of snipe shot. The prevailing color of the pebbles is very dark grey; they have a flat conchoidal fracture, with a very close impalpable grain; they are harder than steel and appear to be quartz rock. The inclination of the beds on the larger island is sixty-nine degrees, and the successive islands which are in the strike of them, stand in a distance of about three miles. The transverse distance from the east side of the islands to the more western belt of mica slates, is just a mile. On the eastern side of the lake, the rocks are dark colored, and appear to be hornblende gneiss, or perhaps syenite, the aggregate being chiefly fine grained quartz with some hornblende and feldspar; at the rapids at the outlet, they assume somewhat the character of hornblende slate, the general dip of which appears to be still easterly.

On Crow Lake in Marmora the proximity of the overlying fossiliferous rocks to the margin, gave but little opportunity of ascertaining the stratigraphical relation of the great bed of magnetic iron ore, which is on the eighth lot of the first concession; it was however determined to be conformable with the strata in contact with it, which appear on one side to be crystalline limestone, and to dip to the north-eastward; but little more can be said of it and other masses in the neighbourhood, than belongs to economic considerations.

Between Belmont Lake, and Stony Lake which divides the townships of Dummer and Burleigh, no facts were ascertained in connection with the Laurentian series. Stony Lake lies between the sixth and twelfth concessions of the two townships, and occupies nearly two lots on each side of the town-line common to both. Its direction is W. S. W. and it appears to run on the crown of an anticlinal form in the Laurentian series of rocks. Gneiss constitutes the east of the lake at Boshing's and some of the islands in the middle of it, as well as a part near the coast at the entrance of Jacques' Creek in the second lot of the eleventh concession of Burleigh, and it appears to extend to a very picturesque lake called by the Indians Kah-sey-bah-gah-mog, which lies between the sixth and eleventh lots of the seventh and eighth concessions of Methuen. At the eastern extremity of Stony Lake there is a considerable display of crystalline limestone, but there the dip is $W. < 75^\circ$, an irregularity which is probably due to a dislocation running in a nearly north line across the lake up Jacques' Creek. Slates of a calcareo-micaceous character are seen on the south side of the lake, dipping S. S. E. and S. E., and crystalline limestone with the latter dip is seen farther to the westward, on the south side of Salmon Trout Lake, into which Stony Lake is discharged, the exposure occurring on a small island on the line between the fourth and fifth concessions of Dummer. On the north side of Stony Lake, crystalline limestone is met with on the second lot of the seventh concession of Burleigh, and again at the mouth of Eel Creek, where it is of a disintegrating character, and contains a large quantity of black mica, while at the falls a little higher on the creek, white crystalline limestone alternates with blackish-grey gneiss, showing a dip $N. 87^\circ W. < 15^\circ$. At Eel Creek the slates and limestone are intersected by a set of parallel veins or dykes chiefly of fine-grained pale red or flesh colored syenite, the largest about three feet thick; their general course is $N. 24^\circ E.$, and the underlie of the largest $S. 66^\circ E. < 45^\circ$. At the same place a vein cutting the others occurs, its course being $N. 60^\circ E.$; it is a fine grained mixture of quartz and reddish-white albite, some of the albite being in large cleavable masses exhibiting a bluish opalescence. The vein holds occasional patches of fine granular black tourmaline, and is slightly calcareous in parts.

About four miles up Jacques Creek on the east side, a mountain rises probably 1000 feet above the level of Stony Lake; it appears to be situated somewhere about the fourteenth and fifteenth lots of the tenth concession of Methuen; it was found to be composed of disintegrating crystalline limestone, interstratified with mica slate and bands of dark colored gneiss, and it stands on the north side of the anticlinal axis,

On Salmon Trout Lake, a considerable island opposite the fourth concession of Dummer, consists of gneiss, and this rock with mica slate composes the point between the lake and Burleigh Rapids. A large island opposite Deer Bay is composed of gneiss, but beyond this the Laurentian series was not seen until getting north of Balsam Lake. Following up a stream called Gull River to Little and Big Mud Turtle Lakes, which are expansions of it, crystalline limestone again occurs on the west side of the latter lake towards the lower end, about five miles above Balsam Lake; it is here cut by a quartz vein, holding molybdenite, and dipping east-ward, keeps the west side of the lake to the head, where the examination terminated.

Fossiliferous formations.

The fossiliferous series of the area under description, is as before observed all of the Lower Silurian epoch, the Potsdam sandstone being the lowest formation, while the Trenton limestone is the highest, coming within the limits of the season's examination.

Potsdam sandstone. The Potsdam sandstone is not largely developed, the greatest thickness of it observed at any one place, being certainly not over forty or fifty feet, while west of Knowlton Lake in Loughborough, it appears gradually to decrease in thickness, and eventually to die out altogether. The largest spread of the formation is in Storrington, (formerly Pittsburg), where it comes out from under the limestone escarpment, and terminates in an irregular outcrop, running from Brass's Point on Loughborough Lake in the ninth lot of the tenth concession of Storrington, to the twelfth lot of the eighth concession on Vanluvin's creek, a short way below Daly's Mills. The rock is for the most part of red and greenish colors, generally fine grained, having pebbles of opaque white quartz distributed scantily and irregularly through it. At some parts it is of a pale greenish color, striped with reddish or yellowish layers, and at others it is a nearly pure white, fine grained silicious sandstone. Some portions also are bright red and very ferruginous, and others are a coarse quartz conglomerate. Near the road leading from Vanluvin's Mill to Dog Lake landing, in the twelfth lot of the ninth concession of Storrington, a cliff of sandstone exhibits the following section in ascending order:

	Ft. In.
A solid bed of grey sandstone, moderately fine grained, holding angular pebbles of white quartz, the largest of which are from six to seven inches in length,.....	4 0
Dark grey, rather coarse grained sandstone, with frequent very red stains, and weathering of a rusty red color,.....	2 0
Fine grained yellowish sandstone,.....	0 6
Dark grey, rather coarse grained sandstone, mottled and striped with red and yellow, holding pebbles of opaque white and bluish-grey quartz, usually angular, sparingly distributed through the bed,.....	2 0
Dark grey, yellow weathering, very hard, silicious sandstone, striped yellow and reddish,.....	0 6
Rock of the same character, with spots of bright red,.....	1 9
	—10 9.

At intervals for about eight chains, the road east from this section exposes flat surfaces of grey sandstone, sometimes ripple-marked rather obscurely, and sprinkled with quartz pebbles; four chains to the south, another cliff rises, show-

ing strata, supposed from their position to be higher beds, which in ascending order, are as follows :

	Ft.	In.
Alternate beds of grey and red coarse grained sandstone,	8	9
Coarse grained red and white sandstone, with small pebbles of white quartz distributed over the divisional planes of the bedding,	4	0
A confused mass of conglomerate, composed of large pebbles of quartz, loosely and irregularly imbedded in a sandy matrix,	8	0
Red and grey coarse grained sandstone in a set of thin beds, with small quartz pebbles scattered over the divisional planes,	3	0
	23 9	

At the place where the conglomerate occurs, the dip as indicated in the overlying beds is S. E. $< 10^\circ$, but that dip is only local. On the north side of the road, the rocks are very nearly flat, and no conglomerate resembling the eight feet bed in the above section was observed at all. At Daly's Mills on the eleventh lot of the eighth concession, there is an exposure of about thirty feet of sandstone; the upper beds of which dip about N. 10° W. $< 10^\circ$ to 12° ; and in the same stream a little higher up, on the twelfth lot of the tenth concession, similar beds dip S. 60° E. $< 15^\circ$. But the strata between are nearly flat, and these comparatively high angles of inclination appear only near their junction with the inferior Laurentian series, abutting against which, the fossiliferous beds seem almost universally to be slightly tilted. At Brass's Point the sandstone is very white and fine grained, and it is frequently penetrated by slender cylindrical holes, for the greater part vertical; these are tinged of a dirty brown or rusty color, and contrast strongly with the white stone; they are supposed to be occasioned by organic remains, and are probably the *Scolithus linearis* of Hall. Below the white sandstone there is a fine silicious conglomerate, and that is underlaid by grey sandstone, which was occasionally seen resting on the gneiss, the whole thickness displayed not exceeding from five to six feet.

At a point on the south side of Loughborough Lake, in the seventh lot of the ninth concession of Storrington, a cliff exposes about twenty feet of sandstone, sloping gently south-west towards the foot of the calcareous escarpment, which rises abruptly on the south side of the bay, west from this point; and at Knapp's point opposite, and a small island near, there are similar strata. The formation was next met with in the township of Loughborough, where it occurs occasionally in outlying patches, resting upon gneiss or crystalline limestone. One of these outliers is on the eleventh lot of the ninth concession, at the northern end of Eel Lake, where a cliff about forty or fifty feet high is capped by red or purplish and white silicious sandstone, arranged in regular beds of from six inches to one foot thick, the whole thickness being about sixteen feet. The lower part of the cliff is concealed by debris from the sandstone beds, but the patch, which does not appear to exceed a few acres in extent, is surrounded by gneiss. Other small outliers occur near the base of the fossiliferous escarpment, on the fourth and fifth lots in the rear of the seventh, or the front of the eighth concession of Loughborough, some of which occupy an area of about an acre, and rest immediately on crystalline limestone. On the west side of Knowlton Lake, sandstone strata come out from below an escarpment of fossiliferous limestone, and rest upon crystalline limestone. At the south end of the lake, there is an exposed thickness of fourteen feet of red and grey or greenish massive sandstone, in beds of from three to four feet, over which the ground is level for about fifty yards, and then rises rather abruptly on the talus of the escarpment of the fossiliferous formation. One portion of the red bands here is very ferruginous, almost passing into a hæmatitic iron ore; the unctuous powder resulting from it imparts its red color to the soil around, and the surface of the hæmatitic bed is marked by the occurrence of sub-globular, concretionary ferruginous-arenaceous masses, sometimes as

large as an orange, but oftener about the size of a walnut, giving it a mammillated character. At the north end of Knowlton Lake, on a bold square-shaped bluff which comes out between the outlet and a long bay on the east side, there is a considerable display of sandstone. The cliffs rise at some points to the height of sixty feet, but the strata making some gentle undulations, the thickest accumulation is probably not over forty feet. The upper part is red or red and green, in rather thin beds, some under three inches in thickness; and the upper surface is mammillated as before. The lower beds are mostly massive, being nine to eighteen inches thick, and their colors are red, green and drab, in some parts alternating in very thin stripes: the lowest of these beds appears to rest on a rather fine silicious conglomerate; but the latter being seen only just at the edge of the water its relation was not satisfactorily ascertained, although the impression at the time of examination was that it belonged to the Laurentian series below. The same measures come out at a little distance north from the lake on the second lot of the tenth concession, and are again seen on a small brook on the road between the ninth and tenth concessions, near to the town-line between Loughborough and Portland, immediately west of which the fossiliferous limestone rises in an escarpment.

Calciferos sandrock, Chazy, Birdseye, Black-River and Trenton limestones. For the sake of convenience these formations are arranged together; the whole series being sometimes found in partial exposures in one continuous transverse section, and occasionally occurring in a single vertical cliff. Along the line of outcrop, the inferior formation usually constitutes a low and gentle rising escarpment surmounted by table land extending to the base of the higher limestones, which most generally rise in a bold rocky cliff. The attitude of the series is for the most part horizontal, the inclination in many instances being so small as to be almost inappreciable, and in consequence it so happens that except at the terminal outcrop, and in sections worn out in the course of rivers and streams, the rock is seldom seen, being covered over and concealed by great deposits of drift. The general strike is about west by north, and the dip on an average about two degrees to the southward; but there is a series of gentle parallel undulations which affect the strata, running nearly at right angles across the general strike, their usual bearing being about N. N. E. and S. S. W. Where the undulations occur, the lower rocks come to the surface in long narrow ridges, sometimes extending for several miles to the southward, and on either side of them the fossiliferous escarpments rise, usually at no great distance, sloping gently in directions opposite to one another. These features were most particularly observed in Loughborough, Camden and Sheffield, and in Hungerford, Madoc and Marmora, extending thence on the Crow River into Seymour. The most conspicuous of these undulations are between the Townships of Camden and Belmont, where the terminal outcrop is in consequence, although tolerably straight in its general bearing, extremely irregular.

At Vanluvin's mills, on the tenth lot of the ninth concession of Storrington, where the series rests on intrusive red granite, the sequence of the beds in ascending order, is as follows:

	Ft.	In.
Green shaly conglomerate; the pebbles are of white quartz chiefly, and generally rounded, the largest being about the size of a walnut; they lie in a green calcareo-arenaceous matrix.....	0	6
Beds of the same general character; the conglomerate, however, is finer, and some angular fragments of quartz about two inches long occur; a reddish tinge pervades some of the parts, and divisional planes occur of a bright green color.....	2	0
Calcareous sandstone, with small rounded grains or pebbles of white quartz, seen on the road towards an escarpment.....	1	0
Concealed by drift.....	20	0

	Ft. In.
Fine-grained compact dark brownish-black bituminous limestone, with a somewhat nodular surface where exposed to the action of the atmosphere, and somewhat shaly towards the top; organic remains are seen on the upper surface, consisting chiefly of an obscure turbinated shell resembling <i>Maclurea</i> ; <i>Cythere</i> is also present.....	5 0
Compact dark brownish-black bituminous limestone with small crystals of calcspar disseminated.....	2 6
Concealed.....	5 0
Slightly arenaceous limestone.....	0 3
Grey compact limestone, a good building stone.....	0 10
	37 1
Brownish dark grey bituminous limestone, with fossils consisting chiefly of a small <i>Leptana</i> , and a straight-limbed reticulating fucoid on the upper surface; the bed makes good building stone, and yields good lime of a darkish color.....	0 11
Thin-bedded dark grey bituminous limestone, with large fucoids on the upper surface.....	0 3
Pale bluish-grey very compact bituminous limestone.....	0 9
Dark brownish-grey bituminous limestone, with broken fragments of fossils, chiefly the same <i>Leptana</i> as before, and large fucoids on the upper surface. Minute crystals of calcspar are disseminated through the bed.....	0 10
Dark brownish-grey bituminous limestone, with large fucoids, and some small bivalve shells, all <i>Leptana</i> , one of them three-quarters of an inch broad.....	0 2
Compact dark grey limestone with one division of calcareous shale; the beds hold many specks of white iron pyrites.....	2 9
A parting of grey brown-weathering, slaty limestone.....	0 3
Pale grey limestone.....	1 1
Bluish-grey calcareous shale, weathering a rusty brown color.....	0 9
Brownish-black bituminous limestone with small translucent crystals of calcspar.....	1 6
Black shaly limestone approaching calcareous shale.....	2 0
Dark grey or blackish thin-bedded brittle limestone, with a splintery fracture.....	1 8
Dark grey or blackish brittle limestone of very fine texture with a conchoidal fracture	1 0
Concealed.....	30 0
Brownish dark grey bituminous limestone having a conchoidal fracture; the exposed surfaces and edges are peculiarly marked with sharp deep angular cavities, supposed to have held lenticular crystals of calcspar.....	0 8
	44 7
	81 8

These rocks keep the south side of Loughborough Lake; the lower portion comes out to the shore, and is seen resting on the Potsdam sandstone at Knapp's Point; the upper forms a sharp escarpment at no great distance south from the other and is traceable to a bay on the twenty-sixth lot of the sixth concession of Loughborough, where the Laurentian rocks come up, and run back to a small sheet of water called Round Lake, situated on the town line between Storrington and Loughborough. On the west side of the bay, the corresponding escarpment rises over the gneiss, and continues to run nearly parallel with the lake, at a distance south of it from 200 to 300 yards, to the eighteenth or nineteenth lot of the fourth concession, where it strikes the lake. On the north side of the lake, the continuation of the escarpment was traced to the south-east end of Sloat's Lake. At the base of the cliff at Sloat's Lake a calcareous conglomerate occurs, resting upon red gneiss; the pebbles of the conglomerate are chiefly of gneiss of the same character as the rock it rests upon, with some of white quartz, imbedded in a matrix of green and reddish calcareo-arenaceous shale. A conglomerate, sometimes of a sub-brecciated character, was observed in many other parts, coming out from below the limestone; its pebbles and general composition were evidently more or less derived from the Laurentian rocks, with which it frequently was found in contact. On the rear of the third and fourth lots of the seventh and eighth concessions of Loughborough, there is an outcrop of coarse conglomerate,

resting on crystalline limestone, which in ascending order is composed as follows :

	Ft. In.
The lower bed touching the crystalline limestone, is of a green color, and holds many small pebbles of white quartz; the matrix is very calcareous.....	0 6
A coarse boulder breccia or conglomerate, consisting of large masses of red gneiss, crystalline limestone and quartz, imbedded in a green and sometimes reddish calcareous matrix.....	4 0
Beds of from three to four inches thick of green calcareo-arenaceous rock, with small rounded pebbles of white quartz.....	1 6
	6 0

The escarpment being traced to the head of Knowlton Lake, the section in ascending order is as follows :

	Ft. In.
Fine-grained red and greenish or grey sandstone, in strong massive beds of from three to four feet thick; this is on the lake shore; (<i>Potsdam sandstone</i> ,).....	14 0
Concealed.....	35 0
A strong compact bed of bluish or brownish-grey bituminous limestone.....	1 4
Dark grey very compact bituminous brittle limestone of very fine texture, with a conchoidal fracture; it holds organic remains, among which are a pentacrinite and many indistinct minute fossils.....	2 0
Dark grey limestone, with small translucent crystals of calcspar.....	1 8
Dark grey limestone of a texture coarser than the beds below; it holds <i>Cythere</i> at the top.....	2 0
Dark grey limestone with crowds of small fossils on weathered surfaces, among which a pentacrinite is frequent.....	0 6
Similar beds, in solid strata of from six inches to one foot thick.....	7 0
Black or very dark grey limestone, dividing into thin slaty laminæ.....	1 8
Black calcareo-arenaceous shale.....	1 0
A light grey argillo-calcareous bed resembling hydraulic limestone.....	2 0
Greenish calcareo-argillaceous shale.....	2 0
	21 2
	70 2

The following is a section behind Switzer's Tavern, at the village of Sydenham, on the third lot of the fifth concession of Loughborough, in ascending order :

	Ft. In.
1. Green shales ascertained to be in the lower part of the well behind Switzer's, and supposed to be the same as the shales which crop out on Sloat's Lake, at the end of the road between the fifth and sixth concessions; the depth of the well is.....	20 0
2. Black bituminous limestone of very fine texture, dividing into beds of from four to seven inches thick, with a conchoidal fracture; the bed weathers drab or yellowish.....	2 6
3. Green shale,.....	1 4
4. Alternations of black bituminous shale, and thin bands of black bituminous limestone, both weathering of a greenish tinge,.....	1 2
	25 0
5. Three solid beds of dark grey brittle limestone of close texture, with a conchoidal fracture; the surfaces of the upper beds exhibit <i>Pentacrinus</i> , <i>Cythere</i> , and fragments of <i>Leptæna</i> ,.....	1 3
6. Very thin-bedded dark grey bituminous limestone, and black calcareous shale,.....	1 0
7. Thin bedded black bituminous limestone, weathering bluish-grey, parted by thin divisions of black shale; the limestone is very compact and brittle, and holds <i>Cythere</i> in abundance,.....	0 9
8. Beds of a similar character but thicker; where not weathered the planes of division are not discernable, and the whole appears one solid bed; <i>Cythere</i> is present in abundance.....	2 6
9. Grey bituminous limestone of a texture less compact than the beds below; its structure appears to be somewhat oolitic; many small obscure fossils are weathered out on the surfaces; the most conspicuous are the same <i>Cythere</i> and the same <i>Pentacrinus</i> as before.....	1 6
10. Concealed,.....	2 0

	Ft. In.
11. Grey bituminous limestone, of rather fine texture,.....	1 6
12. Concealed,.....	5 0
13. Dark grey nodular bituminous limestone,.....	1 0
14. Bluish-grey bituminous limestone, with small disseminated crystals of calcspar; it holds a small <i>Leptæna</i> and fucoids on the upper surface, which weathers to a bright yellow color,.....	2 0
15. Not distinctly seen,.....	4 0
16. Blackish limestone of a rather shaly structure, weathering brownish,.....	2 0
17. Not well seen; but supposed to be all green calcareo-argillaceous shale,.....	5 0
18. Pale blue limestone splitting into thin and very regular laminae, the upper surface peculiarly weathered and having forms composed of sharp reticulating upright plates in relief,.....	1 6
19. Not well seen; beds of blue limestone come out occasionally,.....	5 0
20. Pale bluish limestone, weathering brown,.....	0 6
21. Pale bluish limestone, with shale-like patches on the upper surfaces, supposed to be fossils,.....	0 7
22. Thin bedded shaly blue limestone,.....	4 6
23. A solid bed of dark grey limestone, weathering bluish-white,.....	0 8
24. A similar bed, but less compact in texture,.....	1 0
25. Concealed,.....	3 0
	46 3
	71 3

North of the above section there is a quarry between the third and fourth lots of the sixth concession, in which a light grey yellow-weathering argillaceous-calcareous rock, holding geodes of calcspar, is underlaid by compact greyish-drab limestone, the beds of which interlock into one another; the interlocking parts present on their sides a columnar structure, and are generally bevelled at the extremities, while a thin film of bituminous matter lies between them. How these beds are related to those of the section is not quite certain, but they probably from a part of the lower division of it.

On the third and fourth lots of the third concession of Loughborough, beds of dark brownish-grey or black bituminous limestone crop out; among other fossils they hold a very broadly foliated *Stictopora*, *Leptæna deflecta* or *filitexta*, *L. deltoidea*, *Modiola*, the cast of a univalve resembling a very depressed *Pleurotomaria umbilicata*, *Bucania expansa*, a large *Orthoceras* of which a fragment shews chambers resembling in their proportions *O. fusiforme*, *Ormoceras tenuifilum*, with fragments of a trilobite supposed to be *Isotelus gigas*. These rocks, which appear to resemble the Birdseye and Black-River limestones, strike over to the first or second lot of the eighth concession of Portland, and beds resembling them are met with on the road between Portland and Loughborough in the ninth concession, at a little distance west from the calcareous escarpment already noticed on Knowlton Lake: in these beds are found the same broadly foliated *Stictopora* as before, *S. acuta*, *Chatetes lycoperdon*, a finely and regularly striated *Leptæna* perhaps *L. tenuilineata*, *L. deltoidea*, with *Ormoceras tenuifilum* and *Orthoceras multicameratum*.

A small section on the farm of Mr. Purdy, in the eleventh lot of the eighth concession of Portland on the bank of Pond-Lily Lake, exhibits *Cythere* at the base, abundant in black bituminous limestone, and at the top *Stictopora acuta*, *Chatetes lycoperdon*, two species of *Leptæna*, one like *L. alternata* or *deltoidea*, and the other resembling Hall's figure of *L. recta*, with *Orthoceras*. From their position it is probable that the beds are nearly equivalent to those last mentioned.

From this, the formations that include the rocks that have been mentioned pass diagonally through Camden, the lower parts extending out more and more from the main or superior escarpment, and striking for Beaver Lake in Sheffield,

while the limestones of the latter trend to the north-west angle of Camden, thence crossing into Hungerford. The main escarpment in its course runs close by Centreville, which is situated on the twenty-fifth and twenty-sixth lots of the sixth concession of Camden. At the foot of it, there are beds of compact limestone with a conchoidal fracture, having a mottled aspect, and a color between a drab and a darkish grey, weathering to a light grey, which hold *Cythere* in moderate abundance; the beds exhibit a suture-like interlocking at their junction, with the same columnar structure already mentioned in the lower beds. The summit of the escarpment is composed of brownish-black bituminous limestones, which in their fossils resemble those of Pond-Lily Lake.

About a mile and a-half south of the village of Tamworth, which is situated upon the intersection of the lines between the fifth and the sixth lots and the sixth and seventh concessions of Sheffield, the following section, in ascending order, was met with on the Kingston road, in the channel of a brook:

	Ft. In.
Green calcareous sandstone in thin irregular beds, with forms bearing an imperfect resemblance to <i>Scolithus</i> , filled with calc spar,.....	0 10
Irregular beds of light grey impure limestone with numerous small masses of quartz, chiefly pebbles; the beds hold calc spar, and are each about six inches thick.....	2 0
	— 2 10

A little way beyond where this section was seen, a ridge of the Laurentian series, with crystalline limestone, rises to a higher level, and the surface of the limestone is occasionally patched over unconformably with a greenish calcareous paste, cementing together fragments of the more ancient rock, and pebbles of compact grey limestone. It has already been stated that a dome shaped mass of crystalline limestone rises on the farm of Mr. Neil Stewart, on the second lot of the fourth concession of Sheffield. It is entirely surrounded by nearly flat beds, which in their general mass resemble the paste of the ridge. The rock is extended into the third lot of the same range, where it holds *Cythere*, and on the fourth lot of the same range there is a compact greyish-drab limestone, a good deal resembling that at the foot of the Centreville escarpment, but rather lighter in color, and holding the same *Cythere* in about the same abundance, with *Isotelus gigus*. The flat rocks of Mr. Stewart's farm are probably equivalent to the patches on the ridge, and in their stratigraphical relation belong to a series that is intermediate between the above section and the Centreville escarpment: they may perhaps be considered to represent the base of the Chazy formation, while the *Scolithus* bed may be near that of the calciferous sandrock.

Various places in the vicinity of Tamworth shew similar calciferous strata. At the village there is a bed of compact drab grey limestone with a conchoidal fracture, weathering into deep vertical cylindrical holes; in the solid parts of the rock they are filled with yellowish calcareous matter, which appears to be more crystalline in the centre of the cylinders than at the sides. About six feet of greenish calciferous strata in strong beds, the lowest one a fine greenish conglomerate, occupy the south-eastern side of the long tongue of land in Beaver Lake, and rest upon the upturned edges of the mica slates which come out on the north-western.

The lower formations, sweeping round by the western end of Beaver Lake and turning northward to Clare River, take a course somewhat parallel with the latter, to Sugar Island, on the south side of Stucco Lake, but occasionally cross over to the north side of the river on the way. The greatest thickness of the beds observed in one mass along the Clare country was on the line between the third and fourth concessions of Sheffield, where there is a cliff of about forty feet, the upper beds of which hold *Cythere* in compact brownish-grey limestone, while on the bank of the river within seventy yards the rock is gneiss.

Below Hungerford Mills on the twelfth lot of the tenth concession of Hungerford, the beds at the edge of the river, in ascending order are as follows :

	Ft. In.
Dark blue limestone,.....	0 7
Drab-colored limestone of very fine texture, in courses of three inches thick, supposed to be of a quality fit for lithographic purposes,.....	0 9
A bed of bright red arenaceous limestone passing into red calcareo-arenaceous shale at the top,.....	0 8
Beds of grey limestone occasionally coming out on the bank,.....	4 0
	6 0

At the termination of the Laurentian ridge, at the third lot of the fifth and sixth concessions of Hungerford, an escarpment rises from forty-nine to fifty feet high, in nearly horizontal strata. The lower beds of this, exposed at a distance of about a hundred yards from the gneiss, consist of a pale bluish-drab calcareous rock, apparently without fossils, and are supposed to belong to the calciferous sandrock formation, while the strata at the summit are dark brownish-grey or blackish limestone in pretty regular courses of from two to three feet thick, holding *Cythere* and some small univalves.

On the Moira, where the road between the second and third concessions strikes the river, the beds exposed in ascending order are as follows :

	Ft. In.
Dark brownish-grey very compact limestone in the bed of the river,.....	0 2
Similar rock in one solid bed,.....	0 7
A parting of grey-colored shale,.....	0 1
Dark brownish-grey or blackish limestone, with fragments of trilobites and other very obscure fossils on the top,.....	0 4
Drab-colored shaly limestone,.....	0 3
Dark brownish-grey or black limestone, hard and brittle, with fragments of shells and <i>Cythere</i> ,.....	0 7
A bed of compact brownish limestone, which occasionally divides into thin equal courses; it holds among other fossils <i>Chateles lycoperdon</i> , a small encrinure, <i>Leptana deltoidea</i> , and fragments of other species of <i>L.</i> , <i>Orthis testudinaria</i> ? a small spiral univalve like <i>Murchisonia</i> , <i>Cythere</i> , <i>Isotelus gigas</i> , and <i>Asaphus extans</i> , which is a Birlseye species,.....	1 8
Greenish calcareous shale with thin beds of dark grey limestone,.....	0 8
Dark brownish limestone with a few obscure fossils,.....	0 6
Dark brownish-grey limestone of fine texture, with small glittering specks of calcspar,.....	0 6
Beds of dark brownish-grey or blackish limestone, penetrated by thread-like forms of calcspar; the beds divide into thin regular courses,.....	2 8
Similar rock to the last, with very obscure fossils and calcspar; the upper surfaces exhibit small corals and other forms,.....	0 8
Concealed,.....	5 0
Brownish dark grey limestone of very fine texture, with crystals of calcspar,.....	0 6
	14 2
Concealed by the talus of the escarpment,.....	55 0
Massive dark brownish-grey and drab-colored limestone in beds of from two to three feet thick, weathering to a nodular aspect on the surface; the beds hold numerous fragmentary fossils, for the most part only obscurely weathered out on the upper surfaces; among the most conspicuous are <i>Chateles lycoperdon</i> , <i>Leptana sericea</i> , and a spiral univalve probably a <i>Murchisonia</i> ; this may represent the base of the Tieuton formation,.....	20 0
	89 2

Commencing two and a-half miles further down the Moira River, the following section in ascending order is obtained between Coleman's Mills, on the fifth and sixth lots of the ninth concession of Tyendenaga, and Wilson's Mills, on the twenty-fourth lot of the seventh concession of Thurlow :

	Ft. In.
Blackish-green calcareous shale, weathering green, covered over by large reticulating fucoids; this is below the bridge at Coleman's Mills,.....	0 7

Blackish limestone and shale, with a small <i>Cythere</i> , <i>Orthoceras mullicameratum</i> , and numerous fucoids,.....	Ft. In.
	2 0
Brownish-black limestone of very close texture, in solid and regular beds of from six inches to one foot thick, with numerous obscure fossils; there is a shaly band at the base, covered with fucoids,.....	10 0
Brownish-black limestone, weathering white, of very fine texture in very regular strata, the beds averaging one foot thick,.....	18 0
Dark grey or blackish brittle limestone of very fine texture, with a conchoidal fracture; fucoids are displayed on weathered surfaces, but no fossils were perceived on breaking the rock,.....	8 0
Dark grey limestone with some obscure fossils in the lower part of the bed,.....	1 0
Dark grey limestone with encrinites and small broken fossils weathering out on the upper surface; the bed holds small crystals of calc spar,.....	2 0
Greenish-drab limestone, weathering very white; very full of fossils, chiefly convoluted or turbinated shells, resembling <i>Pleurastomaria</i> ,.....	4 0
Compact brownish-grey limestone,.....	0 6
A single compact bed of greyish-drab limestone, weathering white; on the upper surface are weathered out in strong relief, many small fossils replaced by silica; the bed holds black chert in nodules, and is cut up by joints into great square blocks, the joints running N. and S., and E. and W.,.....	5 0
Brownish-black limestone with large encrinite stems,.....	0 6
Dark brownish-grey limestone in a strong bed, with a great many nodules of black chert; it abounds in fossils, chiefly of two species, the <i>Columnaria alveolata</i> and <i>Stromatocentrum rugosum</i> of Hall,.....	3 0
Dark grey earthy limestone dividing irregularly into thin beds,.....	2 0
Brownish-grey compact limestone very full of fossils, among others <i>Leptana fistulata</i> , notched on the ridges and punctured in the furrows of the radiating striae, with <i>Cerataurus pleurexanthemus</i> ,.....	0 10
Brownish-grey limestones in thin beds, shaly towards the top,.....	1 6
Brownish-grey thin-bedded limestone, weathering very white,.....	2 6
Brownish-black limestone of a crystalline texture, in beds of three to six inches thick, with occasional nodules of black chert, and silicified fossils, weathered strongly in relief on the upper surfaces, among them <i>Stromatocentrum rugosum</i> , <i>Leptana alternistriata</i> , <i>Orthis tricenaria</i> ,.....	4 0
	-----65 5
The next exposure on the river is at Latta's mill on the twenty-sixth lot of the seventh concession of Thurlow, where thin alternations of beds of grey limestone with a crystalline texture, and grey calcareous shale, are seen in a cliff. The limestone weathers yellowish, and the strongest beds are at the base, and about eight inches thick; those above are not over six inches, and the upper part of the section is shale; the fossils here are <i>Chaetetes lycoperdon</i> , <i>Streptoplasma corniculatum</i> , <i>Schizocrinus nodosus</i> , <i>Echineocrinites anatiformis</i> , <i>Porites</i> , <i>Leptana sericea</i> , <i>L. deltoidea</i> , <i>L. alternata</i> , <i>Orthis testudinaria</i> , <i>O. lynx</i> , <i>Murchisonia</i> and small fucoids, all belonging to the Trenton formation,.....	20 0
	-----85 5

At Reid's Mills, on the seventh lot of the fourth concession of Thurlow, the lowest strata consist of thin-bedded blue limestone of a granular texture, weathering white; the fossils are replaced by silica, and being weathered out, and blackened by vegetable matter, are brought into strong relief. The most abundant fossil thus exposed is *Orthis testudinaria*, but in the beds there are also *Leptana alternata* and other fossils of the Trenton limestone. From Reid's Mills to the front on the Bay of Quinte, the river exposes a continuous section, accumulating the strata by a dip at a very regular rate of about two degrees. The rocks consist of blue limestone in thin beds, frequently of a nodular structure, and shale, the latter increasing towards the top; both are filled with the fossils of the Trenton limestone, and the whole thickness is estimated at 594 feet.

At the lower end of Hog Lake, on the south side, on the nineteenth lot of the thirteenth concession of Huntingdon, beds nearly corresponding with the section at Hungerford Mills form a low cliff close to the beach. They are in ascending order as follows:

	Ft. In.
Red shale,.....	0 6
Green calcareous shale,.....	0 7
Thin-bedded drab-colored limestone, of very close texture, but holding numerous specks of calc spar,.....	1 7
A single bed of very fine-grained drab limestone, with specks of translucent calc spar,.....	1 2
Similar beds in very even and regular courses of six or eight inches thick,.....	2 0
	5 10

A short distance south from this, the limestone escarpment rises to the height of about eighty feet, and approaching the lake to the westward, keeps the south shore up to its head, where crossing the inlet, it strikes northerly into Madoc. The outcrop through Madoc and Marmora is very irregular, and a number of large outlying patches extend far north in both townships. In almost every exposure examined, a portion of the beds which have been classed as calciferous sandrock was found at the base of the cliffs forming the main outcrop, as well as in the lower part of the outlying patches; but while the upper beds of the main outcrop were usually found to display the recognised fossils of the Birdseye or Black-River groups, none of the fossils in the upper beds of the outliers seemed to indicate a more recent age than the *Cythere* beds, which are about the base of the Birdseye, or may belong to the Chazy.

A fine conglomerate or coarse sandstone was found in some parts at the base of the horizontal rocks; it was usually of a red color; the pebbles were seldom larger than musket balls, and were for the greater part of white quartz; the matrix, although chiefly of silicious sand, was found in every instance to be slightly calcareous. This rock was observed near the village of Madoc, about the second or third lot of the seventh concession of the township, and at the fifth lot of the fourth and fifth concessions. A rock of precisely the same description and in the same geological position was likewise found in Marmora, particularly on Mr. B. John's farm, the nineteenth lot of the fourth concession, where there is probably altogether a thickness of from four to five feet. In ascending order the section is as follows:

	Ft. In.
Sandstone of a red or green color, or green mottled with red spots, and moderately fine grained, occasionally holding small rounded pebbles of white quartz,.....	1 0
Compact buff or drab-colored limestone, with small translucent crystals of calc spar,...	0 4
Compact drab limestone of finer texture, supposed to be fit for lithographic purposes,...	0 2
Green calcareous shale,.....	1 6
Red and green calcareo-arenaceous shale, giving a red soil to the surface,.....	1 0
	4 0

The section at the Marmora iron works, on the banks of the Crow River, in ascending order, is as follows:

	Ft. In.
1. At the base of the cliff, the rock is contorted gneiss with beds or veins of fine-grained reddish syenite; the rock has an irregular surface, and the depressions are filled up with shaly limestone,.....	1 0
Red sandstone, soft and calcareous; the color is deep red in the divisions of the beds, and lighter towards the middle of them; there is probably a good deal of clay in the beds, which are of a marly character,.....	5 9
Rock of the same character; about an inch at the top is greenish, and about half of it is green twenty yards to the left; internally the green is whitish, and is much more calcareous than the red, and more shaly,.....	2 6
Very smooth nearly white or rather yellowish-white limestone of the lithographic character; this increases to four inches about twenty yards to the N. N. W. on the strike, where, however, it appears to have too many crystals of calc spar to be serviceable for lithographic purposes; it has rough slightly dentated interfitting surfaces, with a greyish film between, in some parts; it has also small light green and some dark or olive-green patches,.....	0 1

	Ft. In.
Greenish calcareo-arenaceous shale, spotted with red ; in this layer there are some quartz pebbles, and there are a few cavities, as if calcareous pebbles had been worn out of them,.....	1 5
Greenish calcareo-arenaceous shale ; there are some small red spots in it, and a few small quartz pebbles.....	1 0
Green shale, softer than the previous, particularly at the top,.....	0 9
Soft clay becoming green shale at the bottom, between which and the former bed there is a thin layer of snuff-brown earth, probably manganesian,.....	0 3
Argillaceous limestone, slightly bituminous ; it is of a mottled aspect, being a mixture of grey and greenish white,.....	1 5
Moderately dark grey bituminous limestone,.....	0 7
Rock of the same character, rather lighter grey and more shaly,.....	1 7
Light grey compact slaty limestone ; this would probably form good building stone ; it is strong and very even, but thin-bedded ; some of it appears to be fine enough for lithographic stone,.....	2 0
Light brownish-grey compact limestone in a single bed ; this is apparently fine enough in the texture for lithographic stone, but not of the right color ; it has some small quantity of bitumen in it ; though apparently one bed, it splits apart in some places, and shews surfaces with short tooth-like inter-fitting columnar projections having a thin film of bituminous matter between,.....	1 7
	—19 11
2. Light brownish-grey calcareous shale, the last inch and a-half of which becomes a hard limestone in an even bed.....	0 10
Light brownish-buff compact very fine limestone, the grain wholly impalpable ; the lower half is much better than the upper, which is much affected by thin lenticular crystals of calcareous spar, often intersecting ; the upper inch, which is just above the most crystal-studded part, fits upon it in tooth-like projections of a marked character, the projections having columnar sides at right angles to the bed, of an inch long in some places ; a thin film of bituminous shale darkens the surfaces ; in the lower part there are obscure tooth-like divisions ; this is the <i>Marmorata lithographic bed</i> ; the best stone being in the lowest part. Where exposed to the weather, this part is generally affected by cracks or gashes, which appear to terminate both ways, and run in two general directions, dividing the mass into rhomboidal forms ; but there are other gashes which run at a small angle to these ; the stone weathers nearly white,.....	2 0
Light grey limestone ; the fracture is conchoidal and slightly scaly, the stone is strong and tough, and it would make a good building-stone ; it weathers slightly yellowish at the joints and bed divisions ; the beds are three to four inches thick, but aggregated beds of a foot and more occur ; some of them separate in tooth-like projections with a film of bituminous shale between ; large slabs may be obtained, some of them six feet square ; some of the surfaces are wavy,.....	5 0
Light greyish-brown compact smooth limestone, weathering into gashes like the lithographic stone, and more divided by joints than the bed immediately below,...	1 2
Rock of the same character	1 0
Rock of the same character, rather lighter in color, with intersecting lenticular crystals of calcspar. This would make lithographic stone, were it not for the crystals,.....	0 7
Brownish-buff compact limestone with a conchoidal fracture ; the crystals are much finer than before ; this might yield lithographic material, but there are perhaps too many crystals of calcspar in it,.....	0 7
Moderately dark grey very smooth limestone, with a conchoidal fracture,.....	5 8
Concealed,.....	5 0
	—21 10
3. Limestone not well seen, but fossiliferous,.....	30 0
Brownish-grey bituminous limestone with fossils,.....	5 0
Brownish-grey bituminous limestone with nodules of chert and various fossils, among others <i>Phytopsis cellulosum</i> , <i>Streptoplasma</i> , <i>Columnaria alveolata</i> , <i>Lepetana</i> , <i>Marchisonia gracilis</i> , <i>Pleurotomaria</i> , <i>Orthoceras</i> ; some of them are replaced by silica,.....	4 0
	—39 0
	80 9

The upper beds of the previous section are evidently part of the Birdseye formation, but in what part of the eighty feet to draw a line as its base, it is not

easy to say. The lowest fourth of the section is supposed to belong to the calciferous sandrock; and it may be the case that the second quarter, including the beds marked by the intersecting lenticular crystals of calcspar may belong to the Chazy, but there is as yet no satisfactory way of proving it. The upper beds of the section shew a slope a little west of south, and they reach the level of the Crow River at the falls, on the north side of the town-line of Marmora and Rawdon, giving a dip of forty-two feet in a mile, but an undulation, on the axis of which the river flows, brings up the inferior beds farther south, where they again rest on members of the Laurentian series. On the line between the thirteenth and fourteenth concessions of Rawdon there is an exposure of fine-grained reddish syenite on the right bank of the river, while on the left side, a little way below, there are beds of limestone, resembling those of the second twenty feet in the previous section. At Allan's Mills, on the twenty-fifth lot of the twelfth concession of Seymour, the Laurentian series appears on the left bank, holding magnetic iron ore, while on the right bank the following section of limestone was measured in ascending order:

1. Greenish drab-colored limestone with small translucent crystals of calcspar,.....	1	4
2. Grey and greenish thin-bedded shaly limestone, weathering yellow.....	1	6
3. Strong beds of buff-colored brittle limestone, with a conchoidal fracture; fossils occur among which are pentacrinites, and some small very obscure shells; some of the fossils are replaced by calcspar,.....	1	3
4. Drab-colored limestone of close texture, with small indistinct fossils replaced by calcspar, being a convoluted shell, fucoids, and corals,.....	0	4
5. Similar rock but darker in color, very brittle and apparently without fossils,.....	0	4
6. Similar rock rather coarser in texture, with small crystals of calcspar,.....	0	2
7. Brownish-black bituminous limestone with crowds of small indistinct fossils; this divides into three pretty regular beds,.....	0	7
8. Grey fine textured limestone, which sometimes appears in one solid bed, at others divides into two or more; the strata are very regular and weather a bright yellow,	1	10
9. Dark grey fine-grained limestone; calcspar is abundant in small crystals and crowds of fossils are weathered out on exposed edges, all of a yellow color; the fossils seem to be chiefly corals and some turbinated shells,.....	0	8
10. A strong compact bed resembling the last,.....	0	4
11. A drab-colored bed of fine texture, holding numerous small specks or crystals of calcspar,.....	1	6
12. Dark brownish-grey brittle limestone with calcspar,.....	1	0
13. Strong massive beds of limestone, which weather very white, and are slightly nodular at the top; numerous corals are exhibited on the upper surfaces,.....	5	6
14. Beds like the last, with abundance of fossils, among which are <i>Phytopsis cellulosum</i> , <i>Chatetes lycoperdon</i> , <i>Orthoceras</i> and <i>Crinoidea</i> ,.....	5	0
	—2	24

The fossils of the upper part of the above section appear to belong to the Birdseye formation, but those of the lower are too indistinct to determine with certainty whether they are Birdseye or Chazy. The upper beds show a dip S. 15° W. < 5°, and come to the level of the river on the twenty-third lot of the eleventh concession of Seymour, where as well as on the twenty-second lot, strata with black chert and silicified fossils are conspicuously displayed, the best recognised being *Columnaria alveolata* and *Stromatocerium rugosum*. At the Crow Rapids, on the twenty-first lot of the eleventh concession, Laurentian rocks again appear, patched over and surrounded by beds of limestone, with chert and fossils similar to the preceding, among which *Columnaria alveolata* is the most frequent; beds also occur thickly covered with silicified bivalves, among which *Orthis testudinaria* is very abundant. The general character of the older subjacent rock here is a greenish-grey fine-grained augitic trap, holding small disseminated crystals of iron pyrites; large fragments of the trap cemented together by limestone form a brecciated bed at the base of the fossiliferous rocks. Near the junction with the trap, the limestones are of a variety of colors—red, orange

blue, green and yellow, and it sometimes occurs that all these colors are displayed upon one surface, giving an appearance a good deal resembling rude mosaic. In the strata south from the trap the black chert and silicified fossils, which form the adhesion of vegetable matter, are black, lie on a ground of white-weathering limestone, in great abundance; *Columnaria alveolata*, *Stromatocentrum rugosum*, and *Streptoplasma* occur with *Orthoceras*, a fragment of one of which was three feet long, the diameter of the upper part being about ten inches; besides these, the general *Leptaena* and *Orthis* are met with.

The banks of the Trent below Healy's Falls rise in verticle limestone cliffs sometimes upwards of forty feet; the strata are all filled with the fossils of the Trenton limestone. The lowest beds of the cliffs are from four to six or eight inches thick, the surfaces being covered over with black weathered fossils chiefly an *Orthis*, and over them is a strong bed about three feet thick, holding *Leptaena sericea*, *L. alternata* and *Orthis testudinaria*. The rest of the exposure consists of thin beds of dark grey or blackish and blue limestone, alternating with dark green calcareo-argillaceous shale; these beds are all very fossiliferous, *Leptaena sericea*, *L. alternata* and *Orthis testudinaria* being the most numerous species. From Crow Bay to Ramsay's Falls on the ninth lot of the sixth concession of Seymour the measures accumulate at the rate of about forty feet in a mile, and at the latter place they rise in verticle cliffs on each side of the river to the height of from forty to fifty feet. All the beds are filled with Trenton fossils, and some are almost a mass of *Leptaena sericea*. At Chisholm's Rapids on the Trent, on the eighth lot of the eighth concession of Sydney, a section of about six feet is exposed of thin-bedded bituminous grey limestone, the prevailing fossils of which are *Orthis testudinaria*, *Leptaena sericea*, *L. alternata*, *Chaetetes lycoperdon* and *C. rugosus*. Below Chisholm's Rapids the rock is occasionally seen in small sections on the bank of the river in all parts holding abundance of the characteristic fossils of the Trenton limestone, and dipping gently a little west of south at an average rate not exceeding forty feet in a mile. If this dip be continuous, and there be no undulations repeating the strata, the thickness from Healy's Falls to the front would be about 960 feet. I am of opinion, however, that there is at all events one slight undulation, on the east and west reach of the river, north of the town-line between Murray and Seymour, and that the total thickness is probably not more than 750 or 800 feet.

In its western run, the outcrop of the formations we have been following approaches Stony Lake in two escarpments, the lower, of small elevation, reaching to within about one mile south of the lake, and the higher in an abrupt rocky cliff, from a mile to a mile and a-half farther removed. After sweeping round a small sheet of water called White Lake, in the Township of Dummer, the two escarpments partially unite, striking Salmon Trout Lake about the fourth concession of that township, and keeping the southern shore of the lake to its western extremity. The corresponding escarpment rises on the north-west side of Salmon Trout or Clear Lake, and then follows the sinuosities of the chain of lakes and the river, up to Buckhorn Lake, keeping on the south side at a distance seldom exceeding a-quarter of a mile; it crosses Buckhorn Lake at the strait, about two miles above the falls, and then strikes nearly straight, by the head of Sandy and Pigeon Lakes, to Little Mud Turtle Lake, north from Balsam Lake. In their general course westward from Belmont, the lower formations appear to thin out, and before reaching the western end of Salmon Trout Lake, the portions supposed to belong to the calciferous sandrock have disappeared altogether. The base of the escarpment is there composed of very regular beds of buff colored limestone, bearing the general lithological characteristics of the succeeding portion, supposed possibly to represent the Chazy, while the upper tier of beds contains the black

chert, and silicified corals of the species which peculiarly distinguish the Birdseye and Black-River groups, the whole height of the escarpment seldom exceeding fifty feet. On the Otonabee a thick-bedded coral-bearing stratum with chert, the chief fossils being *Columnaria alveolata* and *Stromatocerium rugosum*, crops out on the twenty-second lot of the sixth concession of Duro, where the river opens into a small Lake called Kaw-che-wah-nook, below which there is a continuous section of limestones and shales all the way to Peterborough, holding many of the characteristic fossils of the Trenton limestone. Below Peterborough, the Otonabee nowhere exhibits a rock section, nor was the rock observed *in situ* at any place between Rice Lake, and the shore of Lake Ontario at Cobourg; but at the latter place, and between it and Port Hope there are some small exposures of blackish-grey thin-bedded nodular limestone and shale, which hold fossils of the Trenton limestone.

The limestone escarpment south from the Burleigh Falls, in the Township of Smith, is about eighty feet high. On the summit, thin beds of limestone and shale occur, holding one or two species of *Leptæna*, with fragments of trilobites, encrinites and corals, but not sufficiently characteristic to determine the formation. Except at the top, the rock is generally more or less concealed by moss and small trees, but about twenty-five or thirty feet below, strong beds of limestone occasionally come out in points, which probably represent the chert beds of the Black-River or Birdseye. In the continuation of their course westward, the chert beds, with their characteristic corals, are displayed at the top of the cliffs which rise over the exit of Buckhorn Lake, and striking from these to about the middle part of a small intermediate tributary sheet of water called Sandy Lake, and to Pigeon Lake beyond, they reach Robcaygevan Rapids, at the foot of Sturgeon Lake. From Bobcaygevan, the same beds strike diagonally across the Township of Verulam to the north part of Balsam Lake, in a great bay on the west side of which they were observed, with *Columnaria alveolata*, and *Stromatocerium rugosum*, on the property of Mr. Stephenson, in block E of Bexley, inclining at a very small angle to the southward. The base of the inferior beds was seen at the foot of Little Mud Turtle Lake, near where the continuation of the line between the eighth and ninth concessions of Somerville would cross it, about three miles due north from the N. E. Bay of Balsam Lake. It consists of pale drab-colored limestone of fine texture, in very regular layers of from three to six inches thick, without fossils; and over it an escarpment rises, a little way south, to the height of from forty to fifty feet; the upper beds are massive and fossiliferous, but the fossils are very obscure. Among the fossils a small *Leptæna* was observed to be very abundant, and another bivalve was occasionally found, with encrinites and fucoids, but the specimens are too ill-defined to be easily identified. Their position with relation to that of the chert beds is all that can be taken to indicate that they may belong to the upper part of the Chazy formation.

At the rapids at the outlet from Balsam Lake, there are flat surfaces of limestone exposed below the edge of the water, with fossils weathering in relief, among which *Chatetes lycoperdon*, *Schizocrinus nodosus*, *Leptæna sericea*, *Orthis testudinaria*, *Isotelus gigas*, were observed; and at Fenelon Falls, where there is a section of about twenty feet in the gorge of the river below the falls, in addition to those Trenton fossils just mentioned, there occurred *Stictopora acuta*, *Leptæna alternata*, *Orthis pectinella*, with *Murchisonia* and *Orthoceras*.

On Sturgeon Lake, opposite the mouth of the Scugog River, where the strata are greenish calcareous shale with very thin beds of limestone, the fossils in greatest abundance are *Chatetes lycoperdon*, *Streptoplasma corniculum*, *Schizocrinus nodosus*, *Leptæna sericea*, *Orthis testudinaria*, *Atrypa increbescens*, *Calymene senaria*, and *Ceraurus vigilans*.

At the village of Lindsay, on the Scugog River in Ops, there is a small exposure of blue limestone in beds of from six to seven inches thick, interstratified with blue calcareo-agrillaceous shale holding abundance of fossils, among which turbinated shells of two species, one of them *Pleurotomaria bellicincta* and the other *P. lenticularis*, are very frequent, associated with *Leptæna sericea*, *Orthis testudinaria*, *Schizocrinus nodosus*, *Alrypa increbescens*, *Chaetetes lycoperdon*, and fucoids.

Drift.

Having been engaged for the greater portion of the season in parts removed back from the more level country on the borders of Lake Ontario, and situated where the more recent formations are but little developed, it has not been in my power to bestow upon the relations of these the attention which they merit. A large area of the more southern portion of the country, partially within the limits of the season's investigation, is spread over with deposits, consisting of clay, sand, gravel and boulders, but their arrangements may be the result of so many independent causes that the precise relation of one mass to another can only be ascertained by careful and minute examination. No organic remains of any kind belonging to these deposits having been found within the area, except in the alluvial fresh-water shell marls, by which light might be thrown upon their origin, it has been extremely difficult in most parts to discriminate between those portions which pertain to the tertiary drift, and those which have at a later period been arranged by the local influences of rivers and lakes.

Belonging probably to the more ancient drift, boulders and rock fragments were found in many parts associated with the clays, and strewed extensively over the surface, and their characters were, with but few exceptional cases, recognized as identical with the rocks observed *in situ* in one place or other among the ranges of the Laurentian series on the north. In various parts also parallel grooves and scratches on the rounded and polished surfaces of the solid rocks were met with, invariably bearing westward of south, and these two facts leave little doubt that the general direction of the drift has been from north-east to south-west in the area examined.

At Belleville an excavation that was in progress in front of the new court house, at the time of my visit, laid bare the following ascending section :

	Ft.	In.
Clay filled with large boulders and pebbles, almost all of limestone, some round and some angular, the largest boulder having a diameter of about two feet.....	6	0
Very tenacious drab-colored clay in regular strata but tilted at one place N.30° E. <40° ; the boulder formation below shows an uneven surface, the clay filling up hollows ;	8	0
Brown clay, the top of which is horizontal, and passes into clay mixed with sand,.....	2	0
Brown sand partially mixed with clay,.....	1	0
Very fine yellow sand to the surface,.....	4	0
	-----21 0	

It is probable there are other alternations of clay and sand still higher ; as at a higher level, on the road at the upper part of the town, near the Roman Catholic church, clay and sand were observed, the latter being uppermost. At one part of this road, the ancient limestones and shales, instead of presenting the usual horizontal attitude, were observed to be turned up on edge almost vertically : this may be occasioned by a fault affecting the whole formation ; but within twenty yards eastward of this place, the rocks are apparently quite flat again ; and the very local character of the disturbance suggests the possibility of the attitude of the strata being attributable to the falling of an overhanging cliff, at some period of the drift epoch, probably about the time the clays and sands below were being deposited.

A great accumulation of drift, chiefly a fine yellow silicious sand with calcareous material mixed through it, rises into a high ridge in the Township of Sydney, and crossing the Trent above Frankford runs through the townships, thence

westward, keeping a nearly parallel line with Lake Ontario. Near the summit of this ridge in Sydney there is a remarkable lake which without any apparent inlet supplies a stream sufficiently large to keep a saw-mill which has been erected on it in constant operation. It appears to me to be most probable that the lake receives its supply by under-ground currents guided thither on the surface of some of the more impervious beds which support an aggregation of gravel and boulders, giving an easy passage through large interstitial spaces, for the flow of the water. This supposition is to a certain extent strengthened by the fact that the water in escaping from the lake runs for a considerable distance under ground. A similar lake was observed in 1843 near the Pinnacle House on the Toronto and Holland Landing road, situated on the continuation of the same ridge, near the summit of the water shed.

The low ground between this ridge and Lake Ontario was usually found to possess a soil of clay or loam, under which, particularly near the lake, are beds of brown and blue or drab clay. Near Cobourg, on the property of Mr. Geo. Castle, a drab or buff-colored clay occurs, about four feet thick, which on a neighbouring farm where there is a brick yard was found to be overlaid by a dark brown clay of about four feet.

On the north side of the ridge, on the shores and islands of Rice Lake, the drift is clay with boulders of limestone and gneiss, the limestone most numerous, but the gneiss in the larger masses; the whole is covered over by a fine yellow sand.

The country, near the terminal outcrops of the fossiliferous limestones, is generally strewn over with large boulders, in many parts so thickly as to render the land difficult of cultivation. The boulders of Laurentian rock are usually smoothed and rounded, while those of limestone, being at no great distance from their source are often angular. It was remarked on several occasions that some of the largest sized boulders were situated on or near the top of the highest ridges of the surrounding country; one instance of this occurs on the twelfth lot of the third concession of Sheffield about the highest point between Beaver Lake and the Clare River, where the whole ridge is covered by huge rounded masses of gneiss and crystalline limestone; one boulder of the latter was found by measurement to contain about 6500 cubic feet.

In the month of February, previous to the commencement of the season's operations, a visit was paid to Hamilton, C. W., for the purpose of examining a cut in the drift of Burlington Heights, made on the line for the Great Western Railroad where some large fossil bones had been exhumed, afterwards pronounced by Mr. Thos. J. Cottle, of Woodstock, on comparison with Professor Owen's work on comparative anatomy, to belong to the extinct species of elephant, *Eliphas primigenius*, or mammoth. The sequence of the beds in the cut in descending order is as follows:

	Ft.	In.
Soil,	3	0
Coarse limestone gravel, cemented pretty strongly together,	7	0
Limestone gravel, coarse at the top, finer below,	2	0
Coarse sand mixed with gravel, with a layer of large pebbles of limestone at the bottom,	4	0
Fine gravel with layers of large pebbles,	2	0
Alternate layers of limestone gravel, and sand,	2	0
Fine limestone gravel cemented together,	1	0
Coarse sand,	2	0
Very coarse limestone gravel, strongly cemented together,	5	0
Coarse sand with mammoth bones at the base,	19	0

—————47 0

The level of the sand bed holding the remains is sixty feet over Lake Ontario.

The gravel drift of Burlington Heights has evidently at one time formed a bar or spit at the mouth of an estuary of a river flowing from the west. It extends in a narrow ridge from the Desjardins Canal under Flambourgh Heights, to the heights opposite in Barton, having a great marsh to the westward, called the Dundas Marsh, west of which the valley is all clay. In the clay of the marsh, near the canal, some bones were found about eight feet below the surface, which Mr. Cottle supposed to have belonged to some ruminating animal, probably a species of deer, but the specimens were not such as to enable him to identify them specifically. The bar across the mouth of Burlington Bay, extending across from Wellington Square to Stony Creek, in Saltfleet, affords a good modern illustration of what Burlington Heights were, when the relation of land and water in the vicinity was from sixty to one hundred feet different in level from what it is now.

We have no direct evidence associated with the remains, to show whether the deposit is of fresh or salt water origin, but it appears probable that as an additional height of one hundred or even sixty feet would carry the waters of Lake Ontario over a large tract of country farther down, where remains of marine testacea are abundantly found, that it is of the latter.

The remains that were found at the time of my visit were a jaw with two molar teeth and a nearly whole tusk, but since then I learn that many more have been met with.

ECONOMIC MATERIALS.

The substances met with under this head were the magnetic and specular ores of iron, galena, plumbago, and molybdenite; grindstones, and flagging, scythe-stones and whetstones, lithographic stone, building stones, limestone, marble, water-lime, brick-clay, shell-marl and peat.

Magnetic and Specular Iron Ores. Ores of iron are very generally disseminated through the rocks of the Laurentian group, and when existing in large workable masses, appear to be usually either in contact with or at no great distance from the crystalline limestones. The localities where the magnetic oxyde was chiefly met with were in Bedford, Madoc, Marmora, Belmont, and Seymour; and although the information received by me from time to time, makes it appear probable there must be many more places where it abounds, I did not see, except in these townships, any instance where the material was in sufficient quantity to warrant the experiment of working it. One of the localities visited was on the twenty-first lot of the ninth concession of Bedford, where the magnetic oxyde occurs at the foot of a ridge of gneiss, associated with a greenish rock consisting of an aggregate of greenish feldspar, and numerous large prismatic crystals of greenish hornblende in a pale fawn-colored calcareous base. The bed to which it belongs is not well exposed, as it lies in a hollow, the greater portion of which, at the time I was there, was covered with growing grain; but its presence was indicated in the same position and associated with the same minerals, by the fragments strewed upon the surface for about a-quarter of a mile in a north-east direction from where it was first seen. To the westward there is a fault running N. 25° W. and S. 25° E., which throws the ridge of gneiss about 150 yards to the south-eastward on the south-westward side, but although a careful search was made for the continuation of the ore both in the direction of the dislocation, and on the south-western continuation of the ridge, it was nowhere found. The bed of ore did not appear to be over three or four feet thick. Immediately on the south-east of the ridge, crystalline limestone comes in with its associated beds, dipping on the average N. W. < 30°.

Another exhibition of the ore occurs in Bedford, near the north-east end of Bob's Lake, supposed to be in the twenty-fifth lot of the fifth concession. It was

found in small fragments near the foot of a ridge of crystalline limestone, but nowhere in place, and is probably of no economic importance.

I was informed by an Indian that iron ore had been found a little way to the north of the Portage, about half-way between a place called the Beaver Dam and Cross Lake in Olden, but although a whole day was expended in the search, it was nowhere found, except in small specks or crystals, in the fieldspathic rock of the country.

The deposits of iron ore in Madoc, Marmora and Belmont, some of which have long been known and have been worked, will probably hereafter become of great commercial importance. The ore which was formerly smelted at the village of Madoc, by Messrs. Seymour & Co., and produced an excellent quality of iron, was mined on the eleventh lot of the fifth concession of the township. The bed appears to run through a black soft micaceous rock, and holds a course which as far as it was traced, was about W. by E. and E. by S., while the slope of the bed which is towards the south, was between seventy-five and eighty degrees. The greatest observed breadth of the bed appeared to be about thirty feet, and its average would probably not fall short of about twenty feet. A material similar to the soft black micaceous rock, which accompanies the bed of ore on each side, appears every now and then to cut it diagonally in thin belts. In one place the bed is said to have been thus cut at distances of from every three to ten feet, and in another there was an unbroken part with a length of fifty feet. The ore is very black and very fine-grained, and while the whole body of it is magnetic, some portions of it have polarity, one end of a fragment repelling and the other attracting the north end of the magnet. When the ore is bruised with a hammer on these portions of the bed, or on fragments taken from them, the particles adhere to one another and stand up on the mass as they would on a magnet, the ore being in short a natural magnet or loadstone. The portions which have polarity appear to run across the ore-bed at right angles. Nodules of actynolite or green fibrous pyroxene, made up of radiating crystals, are disseminated in the ore, and yellow uranite is found investing small cracks.

I was informed that in the general direction of the bed, traces of ore have been met with twice to the eastward, in the tenth lot of the sixth and the ninth lot of the seventh concession, and to the westward in the twelfth lot of the fourth concession, the distance between the extreme points being about two miles.

On the eighth lot of the first concession of Belmont is situated the bed of magnetic oxide, which yields the ore formerly smelted at the Marmora iron works. It is commonly known as the *big ore bed*, and has usually been called a hundred feet thick; it appears, however, not to be a single bed, but a succession of them, interstratified with layers of greenish talcose slate and crystalline limestone, occupying a breadth across the strike and back from Crow Lake, into which it obliquely runs, of about eight chains. The general strike of the strata appears to be about S. 40° E., and the slope toward the north-eastward from twenty-five to fifty degrees. At one place on a surface of greenish colored mica slates, underlying coarse disintegrating crystalline limestone, the dip was N. 62° E. < 50°, but surrounded by the strong magnetic attraction of the ore-bed, the compass could not be relied on as giving a true bearing. Crystalline limestone overlies the mass, and the first hundred feet of the metalliferous strata shew a vast bulk of ore, the upper portion of which chiefly was mined for smelting; of the lower part, thirteen feet towards the bottom were also mined, but not to the same extent. Associated with the ore and the talcose slates accompanying it, diallage rock and serpentine occur, and a pale green rock, translucent on the edges, and harder than serpentine, deriving its character from the presence of pistachio green epidote; through this green rock the ore is usually very thickly disseminated. The

upper metalliferous beds suffer in quality from the presence of iron pyrites, from which the lower beds appear to be wholly free, thus yielding a much finer quality of ore. This part of the mass was not resorted to while the smelting works were in operation, until a short time before they were abandoned; but when the ore from it was used, the daily yield of iron, I am informed, was increased, in the ordinary process of smelting, from three and a-half up to four and a-half and five tons.

On the north side of Crow Lake, about 300 yards from the shore, on the twelfth lot of the third concession of Marmora, magnetic oxide of iron occurs, thickly but irregularly disseminated in a pale green epidotic rock, similar to some portions of the rock of the big ore bed. At the time the Marmora works were last in operation, an opening was made at this place, which shows a breadth of twenty to thirty feet, all of which contains the ore, sometimes distributed in patches in the direction of the stratification, and sometimes in large irregularly shaped lumps and solid masses. The bed runs nearly east and west, apparently dipping south, and was readily traced for about 300 yards to a clearing where it terminates in a sharp cliff. Such of the ore as was used at the works is represented to have proved of excellent quality, and to have added considerably to the daily yield of smelted metal; it seems to be peculiarly free from pyrites.

The rock along the north shore of Crow Lake is frequently of the pale green color and epidotic character which marks this ore bed, and has grains of magnetic iron ore diffused through the mass, from which circumstance it appears probable that the ore-bearing portion is continuous, although it may not in all places be equally productive. The course of this ore westward would at length carry it to an intersection or junction with the north-westward course of the big ore bed, and the dip of the one bed being south and the other north-east, it seems probable that they may prove to be different parts of the same bed, on the opposite sides of a synclinal form.

At Allan's Mills, on the twenty-fifth lot of the twelfth concession of Seymour, where the dome of Laurentian rock protrudes through the fossiliferous limestone, magnetic iron ore is thickly disseminated in the rock over all the area exposed, which is about two or three acres. The rock on the left bank of the river appears to be a conglomerate of the Laurentian series, in which the presence of rounded forms supposed to be pebbles is perceptible on the smooth polished surfaces, where they display various colors; but these pebbles, when the mass is broken across, are so intimately blended with the matrix as to seem almost perfectly homogeneous with it; the iron ore in the conglomerate is disseminated only in small crystals and thin strings at wide intervals, but the succeeding rock, which seems to overlie it, (the dip being to the south-east,) and is a strong and tough mixture of whitish feldspar with dark green pyroxene, yellowish-green epidote, and occasional patches of red feldspar, holds magnetic iron ore in considerable quantity. The breadth of the ore-bearing portion is at least thirty yards, and the run seems to be nearly parallel with the river; but although the distribution of the ore is pretty general, it scarcely appears to be in sufficient abundance, so far as may be judged from surface specimens, to be worked with advantage.

There are other places in Marmora and the adjoining townships where iron ore has been found, and some that have been partially worked, one of which was on the ninth lot of the eighth concession of Marmora, in which a fine-grained hæmatite in patches constitutes the ore. Near the ore bed are large loose masses of rock with dark red garnets in cavities or druses, associated with pyroxene and calcspar.

Specular oxide of iron is known to exist at some place near the Deer River, north of Belmont Lake; I procured a few specimens of it from a person who had

been diligently working the ore under the delusion that it contained from forty to sixty per cent. of silver. What the character of the vein or bed in which it occurs may be it is not in my power to say, as I did not succeed in finding the place, nor could I get any satisfactory account from those who had visited it. In almost all parts visited this year, but more especially in the back settlements, a great number of the inhabitants are possessed with the delusive belief that the precious metals abound among the rocky ridges of the Laurentian country, and that they by their own individual exertions are capable of realizing vast wealth. Iron pyrites, mica, plumbago, specular iron, galena, and other bright or metallic substances, are indiscriminately collected, barrelled and buried in the woods, with the full impression by those engaged in such business, that they have stored away so much gold and silver; and although every second person met with had a specimen of some sort to present, with anxious inquiries as to its nature, hardly a single individual could be found who was willing to give the smallest information as to its locality. It was in vain to argue with such persons that the consequences of a proper examination might possibly be more advantageous to the common interest than anything they were likely to accomplish in secret and unassisted; such an argument was only regarded as the result of a governmental scheme to deprive them of their imagined wealth; and an appearance of anxiety to procure information only rendered their secrecy the more profound.

The specular oxide of iron was seen during the season's examination in a few places, but in no one instance in any thing like sufficient quantity to be of any economical importance.

Galena. This ore of lead was met with in veins, cutting the crystalline limestone of the Laurentian series, in the Township of Bedford. One of the veins is situated on the twenty-first lot of the eighth concession. Its general course is about N. 85° W. and its underlie N. 5° E. < 80°. The lode is about four feet thick and is composed chiefly of calcspar, which in druses appears in the form of dog-tooth spar, but in some parts scapolite and tremolite are present. The galena occurs in detached aggregations of crystals, and in strings some of which are occasionally one or two inches thick, and usually run parallel with the underlie. To ascertain what might be the yield per fathom of ground would have required a much more expensive test than it was in my power to give, but a shaft was sunk on the lode several years ago by Messrs. Hunt and Brooke to the depth of about twenty-five feet, and the work having been abandoned after a trial which continued for some time, it is to be inferred that the quantity was not sufficient to pay the costs. Since that time, means of a more economic character for separating the ore from the gangue than then existed having been invented, it would require a farther trial to ascertain whether the lode could now be made available. Some of the refuse specimens at the mouth of the shaft appeared to hold a sufficient amount of galena to pay for separation, but not enough to defray also the charges for mining and raising; but it is probable all the best lumps of ore were carried away to be crushed, and no sound opinion can be founded on what remains.

Towards the line between the eighteenth and nineteenth lots of the same concession, there are two more veins of the same character, one running N. 15° W. and the other N. 32° W., upon which trials had been made by the gentlemen already mentioned. Specimens collected among the refuse about the mouth of the shaft on the latter vein appeared to hold more ore than any obtained on the twenty-first lot. If these two veins continue their course south-eastwardly, they would apparently meet in a spot towards the eastern end of the eighteenth lot, and their junction would be a favorable position to test their value, did it not unfortunately appear to be in the midst of a small lake or pond.

Plumbago. This mineral is almost universally disseminated through the crystalline limestone, and frequently occurs in veins, in the latter case occasionally giving the expectation that the quantity may be workable. A vein was observed in crystalline limestone near the outlet of Gold Lake, on the sixth lot of the ninth concession of Loughborough, running slightly oblique to the stratification, in a course N. 60° E., with a nearly vertical attitude, the dip of the strata at the same place being S. 40° E. < 80°; the matrix of the vein is chiefly calc-spar, of a similar character to the walls of the lode, with vitreous translucent quartz running irregularly through it, all very highly charged with scales of plumbago, while patches of the purer mineral are irregularly distributed in the quartz. The width of the vein varies from three feet to eighteen inches. A small excavation had been made on it by some persons belonging to the silver hunting fraternity, who having removed a few shovels-full of what, as I was informed, they supposed to be the part richest in the precious metal, had abandoned the place to make another such experiment elsewhere.

Another vein of a similar character occurs on the south side of a small island at the east end of Birch Lake. The course of the vein appears to coincide with the stratification, running through a mass of coarse disintegrating limestone, which is overlaid by white limestone of a more coherent character, holding geodes and nodules of white quartz. Where the plumbago is in greatest quantity, it is associated with translucent white quartz, and is distributed in lumps or patches. On the north side of Birch Lake, at a short distance from the inlet, plumbago occurs in disintegrating limestone, where loose fragments of quartz were observed to be numerous, and this possibly may be a continuation of the vein seen on the island.

Plumbago, I was informed, had been obtained at a place on the bank of a small creek in the eighteenth lot of the ninth concession of Bedford, on the property of Messrs. Hunt and Brooke, by their agent, Mr. Edward Boiting, or one of his neighbours, in sufficient quantity for ordinary household purposes, such as blacking stoves. It occurs in lumps and patches in the crystalline limestone, but whether in a bed or a vein I could not determine.

The same mineral was found in a small vein, cutting the gneiss at right angles, on the west side of Mud Lake in Loughborough, which was only remarkable as being associated with gneiss instead of crystalline limestone; the vein in its thickest part is not over one inch, and is totally valueless in an economic point of view.

Molybdenite. The white crystalline limestones north of Balsam Lake are intersected by huge veins of white quartz, in one of which small masses of sulphuret of molybdenum were found on a small island in Big Mud Turtle Lake; it occurs disseminated in the vein, accompanied by greenish scapolite, green cleavable pyroxene, sometimes assuming a radiating form, and iron pyrites, which is abundantly disseminated in some parts. Specimens were shown to me by an Indian on the same lake, apparently of the same character as those procured by myself, which he stated had been found a few miles higher up the Gull River. The ore was mistaken on the spot for plumbago (which it very much resembles,) and although the quantity, judging by the specimens brought away, does not appear to be of any economic importance, yet the metal in some of its combinations being valuable as a chemical reagent and as a pigment, and at the same time of rather rare occurrence, the position is worthy of remark.

Grindstones. Some parts of the Potsdam sandstone formation, in the Townships of Loughborough and Storrington, yield an inferior description of grindstones. The beds best suited for such a purpose were met with on the north end of Knowlton Lake, at a spot called Grindstone Point, where the stone is an

aggregate of small rounded grains of quartz, with mica sparingly scattered through it. It is usually more or less of a red color, and frequently presents alternating stripes of red and yellowish-white. There are beds of sandstone near Vanluvin's Mills in Storrington, which I believe have also been tried for grindstones; but although the rock is silicious and the grain fine and regular, it appears to be too hard to be suitable for the purpose.

Flagging. Flagging of excellent quality can be obtained from the same formation as the grindstones. The beds at a low cliff on the road from Vanluvin's Mills, on the twelfth lot of the ninth concession of Storrington, are very regular, and some of them divide into layers of from one to two inches thick, and may readily be procured in slabs of any ordinary dimensions. The thin beds at Grindstone Point on Knowlton Lake are also well adapted for such purposes, and the same may be said of some of the beds at the outlying patch of the Potsdam formation on Eel Lake.

Where easily obtained, the thin beds of the Trenton limestone are occasionally used for flagging, though they cannot be considered of the best description. An example is met with at Belleville, where the side walks are all laid with stone from that formation.

Scythe-stones and Whetstones. The mica slates associated with the crystalline limestones of the Laurentian series are frequently of the quality used as scythe-stones. The localities where the material appeared best situated for that purpose are on the south side of Cross Lake, in Kennebec, near the portage to the Salmon River, and on the south side of Stony Lake. In both instances the slate may be procured of fine and uniform grain, and is probably as well adapted for use as the stones usually sold, most or all of which are imported.

The finest quality of whetstones that came under my observation was in the fifth concession of Madoc, on the property of Mr. O'Hara. The stones may be procured by careful selection from the silicious clay slates, which have been mentioned as associated with the dolomitic conglomerate. Mr. O'Hara, at one time, cut and wrought the rock into whetstones for sale, and I was given to understand that they were found unobjectionable, but that the price at which it was necessary to sell them did not prove remunerative. I was informed that a slate of similar character to that at Mr. O'Hara's had been found in the back part of the Township of Lake, but not having visited the place, or seen any specimens from the rock, it is not in my power to state any particulars regarding it.

Lithographic stone. Limestone suited for the purposes of lithography has already been stated by yourself to exist in the Township of Marmora, in the immediate vicinity of the iron works, and the opinion pronounced by the jury on mineral products, on the specimens of this stone sent to the London Industrial Exhibition of 1851, leaves little doubt as to its excellent quality. The presence of the same material in Rama was reported to you by myself in 1844; and during the last season, stone of a similar character, which has not yet, however, been tested, was found in one or two places more.

Along the whole range of the basset edge of the calcareous portion of the Lower Silurian series, from what has been considered the Birdseye limestone downwards, the more calcareous strata are in general of a close compact texture; with a conchoidal fracture, and of a color almost universally partaking of a brownish tinge, varying from dark brownish-grey or brownish-black, to greyish-drab and nearly buff. These beds for a certain distance down are often marked by *Cythere*, and are sometimes associated with argillo-calcareous strata, occasionally fit for the purpose of hydraulic lime. This portion of the series is supposed to represent the Chazy limestone, and it is toward the bottom of this, or perhaps the summit of the calciferous sandrock, that the light drab or buff color

prevails. When these lighter colored beds are free from organic remains, which are usually replaced by calespar, and from silicious grains, they frequently have the character required in lithographic stone, and they become fit for use when not too thin.

At Hungerford Mills, on the eleventh lot of the tenth concession of the township, a bed of this character occurs, and the specimens from it very much resemble those already tried from Marmora; very minute silicious grains, however, are partially disseminated in it, and it might perhaps be difficult to procure large slabs quite free from them.

In the bottom of a brook, on the seventh lot of the third concession of Madoc, there is a bed of the same character, but unless its thickness, which is there not over one and a-half or two inches, increase a little to one side or other of the spot, slabs from it would scarcely be strong enough to resist the pressure necessary to be used in the process of printing.

The stone in Marmora being already known, it is only necessary for me to refer to its stratigraphical position, which will be found in the section of the strata in the vicinity of the Marmora iron works, given in the geological part of the report, where its thickness will be seen to be about two feet.

Building-stones. Along the whole range of country examined, from Storrington to Bexley, the Black-River, Birdseye and Chazy formations afford building stone, which exists in courses of from four feet to one foot thick or less. The line of country through which these formations are principally exposed, being for the greater part still in an unreclaimed state, the material best suited for purposes of construction has hardly yet been tested, but when communication is once established to the rear of the more level lands, by means of railroads, which seems likely soon to be the case, there is no doubt that its value and importance will be fully appreciated.

The stone buildings of Kingston are derived from the beds of what is supposed to be the Chazy limestone, and the beautiful market building of that city affords a good example of the rock. After being dressed it has a good appearance, but it is a brittle stone and is very subject to break off short where used for lintels, nor does it seem to have great strength in resisting pressure.

The lock below Peterborough, on the Otonabee, is constructed of the strong beds of the Black-River formation; the whole of the stone was drawn from quarries in the neighbourhood of Warsaw in Dummer, a distance of about fourteen miles, and were a canal to be cut, as was at one time intended, to connect the back lakes with the Trent, the same beds would be found on all occasions the best adapted for the construction of locks, or other structures where stone is required.

It was a little surprising to observe, however, at Bobcaygevan, between Sturgeon and Pigeon Lakes, where a lock had actually been built, that while the Black-River bands of limestone are laid bare on the banks of the river, a great portion of the construction was of wood. This lock is likely to be rebuilt in order to admit of communication by steamers, between Scugog and Chemong Lakes, the landing at the latter being within three miles of Peterborough, and I am not aware of any better material for such construction, than the limestones on the spot itself.

The thinner beds of the Chazy, where the texture is very close, are usually too brittle to stand dressing well, and although handsome slabs may frequently be procured, their value is much depreciated by the tendency to crack or break under the hammer.

The thicker beds of the Potsdam sandstone in Loughborough and Storrington would doubtless give a strong durable material, which would probably be

easily quarried in large blocks, and readily dressed; being, however, in hardly any instance of a uniform color, but generally more or less striped or spotted with red or green, it would produce by no means an agreeable effect in the appearance of a well finished building.

Beds suitable for building occur in the Trenton limestone near the base, but the upper portions of the formation, which occupy a great breadth, are usually too thin, irregular and shaly to be well adapted for the purpose; it is for this reason that the houses of large towns along the front, such as Belleville, Trent, and Cobourg, standing upon beds of Trenton limestone, are yet chiefly built of brick.

Marble. The objections to the use of the white crystalline limestone of the Laurentian group, given in my Report of 1851-2, apply equally to by far the greater portion of similar strata examined last season, and although occasionally a limestone of fine and compact grain was observed, it seldom was sufficiently thick or continuous in that state to afford much more than small hand specimens.

Near the road between the seventh and eighth concessions of Madoc, about the thirteenth lot, a very fine-grained white and yellowish rock, probably a dolomite, occurs in a ledge of thirty yards wide, much of which would take a good polish; and a number of broken pieces of similar rock was observed lying about the iron works below the village of Madoc, which I was informed were derived from strata in the neighbourhood. Mr. Seymour had polished a specimen of this; it appeared to be very hard, and would probably be difficult to cut, but when a smooth surface is once obtained, it affords a handsome marble.

A small specimen was presented to me by the Rev. Mr. Bower of Sydenham, of a pure white saccharoidal dolomite, said to have been obtained from the Madawaska River, above a lake called Crotch Lake, but to what extent it exists he was unable to inform me. It is precisely similar to the specimens obtained from Mazinaw Lake on the Mississippi, mentioned in your Report of 1845-6, and may possibly be from the same place.

Water-lime. Associated with those strata which are characterised by *Cythere*, and are supposed to represent the Chazy formation, there were occasionally met with one or two interstratified beds of an argillo-calcareous character; a specimen from one of these, near the top of the escarpment at Knowlton Lake, on the first lot of the eighth concession of Loughborough, upon being burnt and pulverized, set under water, and there is not much doubt that the bed would yield a good hydraulic lime; the rock bears a strong resemblance to that near Bytown, from which what is called the Hull cement is derived; and although other specimens obtained from the formation in other places, supposed to be equivalent in position, and to have the same character, failed to set under water, it is reasonable to expect that in more parts than one of the distribution of the formation, where beds of this aspect present themselves, they will yet prove available for hydraulic purposes.

In the ditch surrounding the fort at Kingston, there is a three-foot bed of the same appearance, which has been successfully used as a water-lime, and is very probably in the same geological position.

Brick-clay. Bricks are manufactured along the shore of Lake Ontario at almost every place of any importance between Napanee and Cobourg. The clay used for the purpose is of two kinds; one of a bluish or buff color, the other brownish; the former, where both are found in contact, being the lower stratum. This was particularly remarked at several places near Cobourg, and especially on a farm adjoining the property of Mr. Geo. Castle, where there is a brick-yard.

The same sort of arrangement is met with in the superposition of the clays yielding red and white bricks at Toronto, as may be seen on the properties of Mr. Sheriff Jarvis and the Honorable Mr. Caley, being the nineteenth and twenty-

first lots of York, in the second concession from the bay; these deposits, which have no doubt a great extent throughout the region, might readily be met with wherever the courses of brooks have cut ravines through them.

In the brick-field on Mr. Sheriff Jarvis' land the following descending section was obtained:

	Ft.	In.
1. Yellow clay fit for the manufacture of red bricks.....	3	0
2. Yellow clay in layers of from a-quarter to an-eighth of an inch, with thin leaves of calcareous material between some of the layers. This is used to mix with the white brick clay beneath, and gives to the white a cream-yellow,.....	1	6
3. Yellowish sand,.....	9	0
4. Yellow clay, the same as No. 2. The yellow clay and sand of Nos. 3 and 4 lock into each other, and each is consequently of unequal thickness,.....	1	9
5. Bluish clay, when dry of an ash-grey. This is used for making white bricks. It is stated to be of inferior quality towards the bottom, and to be in thickness.....	60	0
	75	3'

Another descending section in the same brick-field is as follows.

	Ft.	In.
1. Yellow clay giving red brick,.....	3	0
2. Yellow clay making cream-yellow bricks by mixture; there are small calcareous concretions in it,.....	1	3
3. Yellow sand with a thin layer of calcareous material at the bottom,.....	0	9
4. Yellow clay giving white brick,.....	1	3
5. Bluish or ash-colored clay, giving white brick; the clay is calcareous,.....	0	9
6. Yellow sand,.....	1	3
7. Ash-colored clay, burning white,.....	1	6
8. Yellow sand,.....	0	9
9. Ash-colored clay, burning white,.....	2	0
10. Bluish sand,.....	0	2
11. Ash-colored clay, burning white; it has a jointed structure and the thickness is said to be,.....	60	0
	72	8

The bluish or ash-colored clay fit for white bricks is said to have been cut to a depth of between seventy and eighty feet in a well in the neighbourhood, where it was as well suited for the purpose at the bottom as at the top. Boulders are occasionally found throughout it, but the number is not great. Pebbles and boulders occur in the red brick clay; on its surface it supports large gneissoid boulders of a red color, and boulders of crystalline limestone from the Laurentian series are met with near Mr. Jarvis' house.

The bed immediately under the red brick clay is called too strong for bricks, that is, it holds too little sand; and it is sold at half a dollar the cart-load, for the manufactory of common red pottery.

A circumstance worthy of observation is that the potter's clay, with occasionally a layer of sand, and the red brick clay above, appear to undulate with the general surface, (not, however, descending to the bottom of deep ravines,) while the white brick clay lies in very horizontal strata; from which it would appear that the one must have been worn down into gentle hollows before the other, which may be much more recent, was deposited. The red and white brick clays, which were mentioned in the Report made to you in December, 1850, as existing near London in the western Peninsula, have the same order of superposition as those now brought under your notice. The lower strata invariably produce white bricks, while the upper always produce red.

All the clays met with were found to be more or less calcareous, and in consequence the bricks made from them, although of a good durable quality, would not be suited for furnaces, when a more than ordinary strong heat is to be applied.

Shell-marl and peat. A great portion of the bottom of Loughborough Lake is a thick deposit of shell-marl, and the bottoms of all the lakes from this to White Lake in Olden are more or less of the same substance. It was also found in White Lake in Sheffield, and on the brook which flows from it to Beaver Lake, but the largest and most available deposits met with were on Mr. McDonell's property, on the fifteenth and sixteenth lots of the second concession of Sheffield, and on the twelfth lot in the third and fourth concessions of the same township. The deposit on Mr. McDonell's place extends over an area of 200 acres and perhaps more, with a thickness over the greater portion of at least ten feet, which was proved by pushing a pole of that length through in various places, without striking any other material. On the surface there is a thin soil, bearing a luxuriant growth of prairie grass.

The marl on the twelfth lot of the third and fourth concessions extends over at least 300 and perhaps 400 acres or more, but its thickness I could not ascertain. The place where it occurs is mostly a marsh or swamp, and the deposit is covered over by an accumulation of peat averaging about four feet in thickness. Some of this peat I saw dried, and procured some specimens for examination and illustration, which unfortunately have not arrived; but my impression on the spot was that the quality was superior for fuel to any I had seen elsewhere.

I have the honor to be, Sir,

Your most obedient servant,

ALEX. MURRAY.

REPORT

OF

T. S. HUNT, ESQ., CHEMIST AND MINERALOGIST,

TO THE

PROVINCIAL GEOLOGICAL SURVEY,

ADDRESSED TO

W. E. LOGAN, ESQ., PROVINCIAL GEOLOGIST.

LABORATORY OF THE GEOLOGICAL SURVEY,

MONTREAL, 1st May, 1853.

SIR,—In a previous Report I have had occasion to call your attention to the importance of an extended inquiry into the composition of the mineral waters of the Province, considered in connection with the different rock formations through which they rise. I have been encouraged in this inquiry by a hope that the results might lead to generalizations which would throw light upon some obscure points of geological chemistry. While geologists have seldom taken into account the nature of the soluble matters yielded by the strata to the springs flowing through them, it is not less true that the chemists who examined these springs have neglected to note their geological position, or to trace any connection between the composition of the waters and the rock formations in which they have their source. The extended researches of Bischof, and those of Von Walterhausen in Iceland, among others, have, however, been pursued with especial reference to these relations, and have given a new interest to inquiries in this direction. The Silurian rocks of this Province present such differences in mineral character, and afford such a great number of mineral waters, that their connected study might be expected to yield results of general interest.

As I have examined during the last winter a considerable number of waters, I shall first give the results of their analyses, and then proceed to arrange and classify the mineral springs of the Province, as far as they have yet been investigated.

Chambly. Having, in the month of October last, collected a farther supply of the alkaline water from the Grand Coteau at Chambly, described with an incomplete analysis in my Report for last year, I was enabled to confirm the results before obtained, and to make a more extended examination. It will be recollected that it was described as a strongly alkaline water, containing besides chlorid of sodium, with traces of the iodid and bromid, and carbonates of lime and magnesia, a large proportion of carbonate of soda, besides silica in some saluble state. To these must be added carbonates of baryta and strontia, and borate of soda. It is but a few months since Professor H. Rose, of Berlin, pointed out a reaction which enables us to detect borates, even when present in minute quantity. It depends upon the power of free boracic acid to change to red the yellow colour of paper stained with turmeric. The liquid suspected to contain a borate is neutralized with hydrochloric acid, and slips of turmeric paper are dipped in it and allowed to dry, when they are to be moistened with somewhat diluted hydrochloric acid, which at once produces a red-brown colour when boracic acid is present. By the aid of this test, Fresenius, Bouis, and Filhol, have just succeeded in discovering the presence of boracic acid in many of the mineral

springs of Germany and France, and the same means have enabled me to detect it in several springs in this Province. When the Chambly water is evaporated to one-tenth, and neutralized with hydrochloric acid, turmeric paper which has been three or four times dipped in it and dried, becomes very red when moistened with diluted hydrochloric acid. Our present processes do not afford us any direct means of determining the amount of boracic acid when associated with carbonates and chlorids; but some experiments to be mentioned farther on serve to give an approximate notion of the proportion in which it exists.

One thousand parts of the Chambly water gave of chlorine .5241 parts; the alkalies in the state of chlorids equalled 2.040, of which .0324 was chlorid of potassium; the remaining chlorine corresponds to .8387 of chlorid of sodium, leaving still 1.1693 of chlorid, equal to 1.0604 of carbonate of soda. The carbonate of lime from 1000 parts was .0380, and the carbonate of magnesia .0765, with carbonate of iron .0024, carbonates of strontia and baryta .0045, alumina with some phosphoric acid .0063, and silica .0730. We have then as the ingredients of 1000 parts of the water:

Chlorid of Sodium,.....	·8387
“ “ Potassium,.....	·0324
Carbonate of Soda,.....	1·0604
“ “ Lime,.....	·0380
“ “ Magnesia,.....	·0765
“ “ Iron,.....	·0024
“ “ Strontia and Baryta,.....	·0045
Alumina, with a little phosphate,.....	·0063
Silica,.....	·0730
Iodid and Bromids, traces,.....	

 2·1322

The colour assumed by this and other alkaline waters when boiled has been noticed in a previous Report, and referred to the probable presence of an organic acid. On evaporating a litre of the Chambly water to one-sixth, and filtering to separate the precipitated earthy carbonates, it appeared of a bright clear brown colour, which was made paler by the addition of a slight excess of acetic acid, but remained perfectly clear. On adding acetate of copper, a brown precipitate appeared, which was collected after twenty-four hours, and weighed when dried .010 grammes. It was completely soluble in ammonia, and had the characters of apocrenate of copper, corresponding to .0043 of apocrenic acid. The filtrate treated with carbonate of ammonia gave no trace of crenate of copper.

In an analysis of Gillan's spring in Fitzroy, published in my Report of May, 1851, I have remarked that the precipitate of earthy carbonates thrown down on boiling that water contained silica in combination, and dissolved in hydrochloric acid, with a subsequent separation of gelatinous silica. It was also stated that even when the water of that spring was evaporated to one-tenth, the filtrate, which was strongly alkaline, became turbid on further boiling, and yielded a flocculent precipitate which contained lime and magnesia, combined with a large proportion of silica. I had already observed similar facts in an examination of the alkaline waters of Varennes, and Dr. J. Lawrence Smith, in a series of analyses of the thermal waters of Broosa, in Asia Minor, published in the American Journal of Science for Nov., 1851, vol. xii, p. 377, has remarked that these alkaline waters, when concentrated by boiling, still retain in solution a portion of silica, together with some lime, which he suggests may be dissolved in the alkaline liquid, as a silicate of lime and soda. He did not farther examine the subject.

I have observed that in certain cases, the whole amount of silica appears to be separated when the water is evaporated to entire dryness, but it is so probably

only when the evaporation is completed in presence of the previously precipitated earthy carbonates, for I have since found that when the concentrated liquid is decanted from the precipitate, a portion of silica remains soluble in water, even after evaporation to dryness. This, in one experiment thus conducted upon one litre, amounted to $\cdot 0275$ grammes, while $\cdot 0455$ remained in combination with the lime and magnesia, which are rendered completely insoluble by the evaporation to dryness. On evaporating the same quantity of water to one-twentieth, the silica precipitated amounted to $\cdot 031$.

In comparing the analysis above given with that of the preceding year, it will be seen that while the quantity of chlorine remains unchanged, the carbonate of soda, as calculated from the amount of alkaline bases, has diminished from $1\cdot 1744$ to $1\cdot 0604$, and the carbonates of lime and magnesia from $\cdot 0540$ and $\cdot 0908$ respectively, to $\cdot 0380$ and $\cdot 0765$, while there has been a similar decrease in the amount of silica.

The addition of caustic ammonia to the water effected no apparent change, even after standing many hours, or heating to the boiling point; nor did a solution of carbonate of ammonia produce any sensible effect. Chlorid of baryum did not disturb the transparency of the water, nor produce any precipitate after sixteen hours at 60° F. The mixture was then gradually heated to 140° F., when it became troubled, and slowly deposited a granular precipitate of carbonate on the sides of the glass. Chlorid of calcium gave in the same way a crystalline precipitate on heating. When, however, a portion of the recent water was boiled down to one-eighth, filtered, and the original volume made up by adding distilled water, the cold liquid immediately gave a copious precipitate of carbonate of baryta, on the addition of a solution of chlorid of baryum. When half a gramme of carbonate of soda was dissolved in a litre of the recent water, the solution was also at once precipitated by a solution of barytic chlorid.

When the solid residuè obtained by evaporating to dryness a litre of the water was dissolved, and the filtrate mixed with a solution of chlorid of baryum, the precipitate of carbonate of baryta, after being well washed, weighed $1\cdot 882$, corresponding to only $1\cdot 0156$ grammes of carbonate of soda. A similar difference between the quantity thus calculated, and that deduced from the amount of alkaline bases present is always observed in these alkaline waters, and is probably due to the borates, which do not form insoluble precipitate with baryta salts, but a sparingly soluble borate of baryta, which it, however, requires long continued washing with water to remove from the carbonate.

St. Ours. In constructing the lock at St. Ours, some years since, a mineral spring was found, which was carefully enclosed in the bank, so as to exclude the waters of the river, and render it accessible from above by a pump. The well having, however, been filled up with stones, I applied to the Hon. John Young, Commissioner of Public Works, who was pleased to order the well to be cleared, and the spring put in order. This was done under the direction of Mr. Harrison, who at two different times in the month of November last sent me specimens of the water. It is like that of Chambly, alkaline, and although it does not contain so large an amount of fixed ingredients, is remarkable for the great proportion of alkaline carbonate, and the unusually large quantity of potash salts which it contains. Evaporated to one-twentieth, it affords, by Rose's test, distinct evidence of the presence of borates. 1000 parts of the water give $\cdot 03857$ of chlorine, and $\cdot 2250$ parts of alkalis in the form of chlorids, of which chlorid of potassium constitutes $\cdot 0565$ parts. The water contained besides, $\cdot 0037$ of sulphuric acid, equal to $\cdot 00805$ of sulphate of potash, leaving $\cdot 0496$ for chlorid of potassium. The residual chlorine equals $\cdot 02075$ of chlorid of sodium, leaving $\cdot 14775$ of chlorid of sodium, equal to $\cdot 1340$ of carbonate of soda. The water gave besides, $\cdot 1740$ of

carbonate of lime and $\cdot 1287$ of carbonate of magnesia, with traces of carbonate of iron, and $\cdot 016$ parts of silica. The above results give for 1000 parts of the water :

Chlorid of Potassium,.....	$\cdot 04960$
“ “ Sodium,.....	$\cdot 02075$
Sulphate of Potash,.....	$\cdot 00805$
Carbonate of Soda, with borate,.....	$\cdot 13400$
Carbonate of Lime,.....	$\cdot 17400$
“ “ Magnesia,.....	$\cdot 12870$
“ “ Iron,.....	traces.
Silica,.....	$\cdot 01600$
	$\cdot 53110$

If we take the two alkalis as chlorids, the proportion of chlorid of potassium equals $25\cdot 11$ per cent. ; in another determination it was found to be $24\cdot 52$ per cent. A portion of the water obtained from the spring immediately after it was re-opened, and three weeks before the specimen whose analysis has been given, yielded a larger weight of mixed chlorids, equal to $\cdot 340$ in 1000, of which $\cdot 0596$, or only $17\cdot 53$ per cent., were chlorid of potassium, while the amount of this salt from the same quantity of water was but little more than that previously obtained ($\cdot 0565$), showing an admixture of a more strongly saline water, containing principally soda salts.

The determinations of the chlorid of potassium were repeated with great care, the mixed chlorids being combined with chlorid of platinum, and the soda salt then removed by spirit of wine. The reagents, whose purity was previously tested, were the same as those used for the Chambly spring, and the other waters whose analyses follow. The proportion of potash salts in natural mineral waters is generally very small ; in the Chambly water the chlorid of potassium equals only $1\cdot 58$ per cent. of the mixed chlorids, and in the water of the Mediterranean Sea, according to Usiglio, it amounts only to $1\cdot 7$ per cent.

The amount of carbonate of baryta obtained by precipitating with chlorid of baryum the solution of the solid matters obtained by evaporating to dryness 1000 parts of the St. Ours water, was (deducting the sulphate), $\cdot 1890$, equal to $\cdot 1125$ of carbonate of soda. The difference between this and the calculated amount given above may probably be considered, as in the case of the Chambly water, to correspond to the amount of soda combined with boracic acid.

The water which you brought me from a spring at Marcotte's Mills, on the Jacques Cartier River, belongs to the same class as the preceding ones. The spring is, as you have informed me, strongly sulphurous, and the water in well corked bottles still retained a portion of sulphuretted hydrogen. When evaporated to one-twentieth it is strongly alkaline to the taste, while the saline flavor is scarcely perceptible. The concentrated water gives with chlorid of baryum a copious precipitate, which dissolves in hydrochloric acid with effervescence, leaving but a very small residue of sulphate. 1000 parts of the water gave $\cdot 0247$ of chlorine ; the sulphuric acid was not determined. The same quantity yielded $\cdot 257$ of alkaline chlorids, containing $\cdot 0076$ of chlorid of potassium. There was obtained from the portion rendered insoluble by evaporation to dryness $\cdot 071$ of carbonate of lime, and $\cdot 0278$ of carbonate of magnesia, with $\cdot 011$ of silica ; there was besides a portion of silica remaining in solution, which the small quantity of the water remaining at my disposal did not allow me to determine. Neglecting the small amount of sulphuric acid, and estimating as in the previous analysis, the excess of alkaline bases over the quantity required to form chlorids, as carbonate and borate, we have for 1000 parts of the water :

Chlorid of Sodium,.....	·0347
“ “ Potassium,.....	·0076
Carbonate of Soda, with borate and traces of sulphate,.....	·1952
Carbonate of Lime,.....	·0710
“ “ Magnesia,.....	·0278
Silica (in part),.....	·0110

·3473

The weight of solid matters obtained by direct experiment was ·355. The proportion of chlorid of potassium to the mass of chlorids equalled 2·95 per cent. By treating the aqueous solution of an evaporated litre of the water with acetate of baryta, a precipitate weighing ·247 was obtained, which, not deducting the sulphate, corresponds to ·147 of carbonate of soda, leading us to infer the presence of a large proportion of borates.

The seigniories of Nicolet and La-Baie-du-Fèbvre afford a number of saline and alkaline springs, three of which I visited last summer; after my departure, M. Desaulniers, of the College of Nicolet, made further inquiries, and was so kind as to collect and send me the waters of three other springs, informing me at the same time of the reported existence of two more. Of these six springs, two are simply saline and four are alkaline.

The first of these is in the seignory of La-Baie, about one and a-half leagues from the church, and near the line of Nicolet, in the Grand Rang, upon the land of M. Antoine Loizeau, and about ten arpents south of the high road. The spring is in a ravine near a small rivulet, and evolves no gas. The water is pleasantly saline to the taste; its qualitative examination showed besides alkaline chlorids, a large amount of chlorids of calcium and magnesium, but no sulphates. There is a considerable precipitate of earthy salts on boiling, consisting of carbonates of lime and magnesia, with a little strontia; iodine and a trace of bromine were found in the alcoholic extract of the water. 1000 parts gave 5·44 of solid matter and 4·54 of alkaline chlorids, of which ·0916 or 2·0 per cent. were chlorid of potassium.

Another spring of this kind occurs in the same concession, about a mile above the church of St. Antoine, on the land of Mr. Lafort, and about eight arpents north of the road. I am indebted for a specimen of this water to Mr. Desaulniers; it is strongly saline, and contains, like the last, earthy chlorids in abundance, besides a portion of strontia with the other earthy carbonates. 1000 parts of the water yield 15·49 of solid residue. When evaporated to one-tenth, and mixed with a slight excess of hydrochloric acid, a strong reaction of boracic acid was obtained with turmeric paper; the red colour was distinct after one immersion.

About half a league east of the church, and ten arpents south of the road, there is another spring upon the land of Ignace Courchène. It is at the foot of a hill in a little ravine, and is surrounded by a large cask, which is full, but has no perceptible discharge. Large bubbles of carburetted hydrogen gas escape from time to time. The water, which is somewhat turbid, is pleasantly saline. When evaporated, it deposits an abundant earthy precipitate, and becomes very alkaline to the taste; it gives a strong reaction of iodine, and distinct evidences of bromine. Traces of baryta and strontia were found in the earthy precipitate. 50 grammes of the water gave ·1476 of chlorine, and ·330 of alkaline chlorids, including ·00305 of chlorid of potassium; while a litre yielded ·218 of carbonate of lime, ·4623 of carbonate of magnesia, and ·212 of silica. Calculating the carbonate of soda from the excess of alkaline bases over the chlorine, we have for a 1000 parts of the water:

Chlorid of Sodium, with bromid and iodid,.....	4·8334
“ “ Potassium,.....	·0610
Carbonate of Soda (with borates ?)	1·5416
“ “ Lime,.....	·2180
Carbonate of Magnesia.....	·4263
“ “ Baryta and Strontia, traces,.....	
Silica,.....	·2120
	7·2923

The amount of solid matter obtained by evaporation was 7·040, but a large part of the earthy bases here represented as carbonates are by that means obtained in the form of silicates, the carbonic acid being expelled. The chlorid of potassium amounted to ·92 p. c. of the alkaline chlorids obtained.

Another alkaline spring is met with on the land of Mr. David Houlé, which adjoins on the east that of Mr. Antoin Loizeau above mentioned. It is in a little ravine about four arpents south of the road, and constantly evolves bubbles of carburetted hydrogen gas. Like the last it is strongly saline, and contains in addition a portion of carbonate of soda, abundance of carbonates of lime and magnesia, and a trace of strontia. It yielded 4·96 parts of solid matter to 1000.

I am indebted to M. Desaulniers for the following description of an alkaline spring which is found upon the farm of the widow Honoré Hébert, of Nicolet, in the concession known as the Quarante-arpents, and upon the line of St. Grégoire. In a cultivated field there is a nearly circular area about fifty feet in diameter, entirely destitute of vegetation except in the centre, where there is a clump of reeds. The surface is a soft yielding mud, covered at the season, which was the middle of July, by a thin crust apparently of dried saline matter. The water which impregnates this spot issues from among the reeds; a small portion collected by digging a hole in the earth was sent me. It was coloured brownish yellow, and had a disagreeable slightly alkaline taste. When concentrated by boiling, it deposits but very little earthy matter, and is strongly alkaline but scarcely saline to the taste; mixed with hydrochloric acid it effervesces strongly, a brownish precipitate of organic matter separates, and the filtrate gives, with a solution of chlorid of baryum, a slight precipitate of sulphate. A half litre of the water gave ·838 of alkaline chlorids, and ·0159 of chlorid of potassium, equal to 1·89 per cent.; while 50 grammes boiled, acidulated with nitric acid, and filtered, gave with nitrate of silver ·051 of chlorid, equal to ·2522 of chlorine, to a litre. From these data, neglecting the small amount of sulphate, we deduce for 1000 parts of the water:

Chlorid of Sodium,.....	·3920
“ “ Potassium.....	·0318
Carbonate of Soda, with a little sulphate,.....	1·1353
	1·5591

A half-litre of the water having been evaporated to dryness, the filtered solution of the residue gave, with chlorid of baryum, a precipitate which blackened on ignition, and then weighed ·929 grammes. It dissolved with a slight odour of sulphuretted hydrogen in hydrochloric acid, leaving a little carbonaceous matter. The filtered solution precipitated by carbonate of ammonia gave ·906 of carbonate of marylta, which would correspond to 1·078 grammes of carbonate of soda in a litre.

Mr. Desaulniers also sent me a bottle of water from a spring on the land of Oliver Roy, in Nicolet, not far from the line of La-Baie, and about half a league from the farm of Antoine Loizeau, near the high road. The water was colorless and nearly tasteless, but when concentrated, deposited some earthy salts, and

became strongly alkaline; it then gave, with chlorid of baryum, a copious precipitate of carbonate, which when dissolved in hydrochloric acid, left a trace of sulphate. This water was not further examined.

The number of mineral waters described in this and the preceding Reports is in all fifty-four. Of these twenty-two have been subjected to a quantitative analysis, while the others have been qualitatively analyzed, the entire amount of solid matter having generally been determined, together with some points of special interest. The great abundance of springs almost identical in composition seemed to render the complete analysis of the whole of them unnecessary.

These waters may be divided into two classes, namely, the saline and the acid; and the saline springs may be arranged in two divisions. The first includes such as contain, in addition to the alkaline chlorids, sulphates or hydrochlorates of lime and magnesia. These we shall designate as group A, and shall arrange them in the order of their saline strength, that is, according to the amount of solid matter which they afford. Of the twenty-seven waters in the list, twenty-two of them contain iodids and bromids, which I have never found absent in the proper saline waters of the country, whose characteristic ingredient is common salt. The five at the bottom of the list are very feebly saline, containing only traces of chlorids, with some sulphate of lime and magnesia.

A great number of the proper saline waters contain small portions of salts of baryta and strontia; they are found in part dissolved as chlorids, and are in part thrown down as carbonates, with the precipitate of carbonates of lime and magnesia, which all of these waters afford when boiled, and which are dissolved in the recent water as bi-carbonates. The two bases, baryta and strontia, are generally if not always found together, and they are seldom wanting except in those waters which contain sulphates. Small quantities of carbonate of iron are generally found with the earthy carbonates, but it is in no instance in sufficient quantity to give a marked chalybeate character to the water; I have never failed to detect traces of manganese when it was searched for, and I find that phosphates in small portions are seldom wanting. When evaporated to dryness with an acid, these waters always yield a portion of silica. I have recently detected boracic acid in a water of this division from La-Baie (No. 3,) and it is probable that it may be found in many others. None of the waters yet examined contain that excess of carbonic acid which gives to the Seltzer and Saratoga waters their sparkling appearance and acidulous taste. Many of the springs, however, give off carburetted hydrogen gas, in greater or less quantities; the most remarkable instances are 5, 6 and 7 of division A, and 2 and 4 of division B.

In the following list, the amount of solid matter for 1000 parts of the water is given, while in each instance reference is made to the page of the Report in which the analysis may be found, and a star (*) marks such as have been quantitatively analysed. Those containing sulphates are marked with the letter S, and those in which baryta and strontia have been found, with B.

CLASS I. SALINE WATERS.

Division A. Containing Chlorids of Earthy Basis.

LOCALITIES AND NAMES.			IN 1000 PARTS.	SEE REPORT FOR
1	Ancaster (Salt Well),.....	S	36·67	*1848 p. 161
2	Bay St. Paul,.....	S	20·68	1851 " 53
3	La-Baie-du-Fébvre (Lafort's Spring),.....	B	15·94	1853 " 160
4	Alfred,.....	B	14·50	1852 " 112
5	Caledonia (" Intermittent,").....	S	14·68	*1848 " 149
6	St.-Léon,.....	B	13·83	*1849 " 53
7	Caxton,.....	S	13·65	" " 55
8	Rivière-Ouelle,.....	S	13·36	1852 " 113
9	Plantagenet (LaRocque's Spring),.....	S	13·16	*1849 " 57
10	Lanoraie,.....	B	12·88	*1851 " 48
11	Gloucester,.....	B	11·20	1852 " 112
12	Plantagenet (Georgian Spring),.....	S	10·98	*1851 " 47
13	King-ton,.....	S	10·16	1852 " 117
14	Pointe-du-Jour,.....	B	7·36	1850 " 103
15	L'Original (Langlois' Spring),.....	S	6·40	1851 " 53
16	La-Baie-du-Fébvre (Loizeau's Spring),.....	B	5·44	1853 " 160
17	Ste.-Anne-de-la-Pocatière,.....	S	5·06	1852 " 114
18	Pike River (Saline),.....	B	4·76	1849 " 59
19	Ancaster (Sulphur),.....	S	....	1848 " 162
20	St. Benoit,.....	S	....	1849 " 60
21	Pike River (Sulphur),.....	S	....	1849 " 59
22	St. Eustache,.....	S	1·88	1850 " 103
23	Les-Eboulemens (Sulphur),.....	S	·70	1851 " 53
24	Pitzroy (Graut's Sulphur Spring),.....	S	....	1847 " 124
25	Pakenham Village (Sulphur Spring),.....	S	....	" " "
26	Westmeath (Petrifying Spring),.....	S	....	" " "
27	Matan River Gaspé,.....	S	....	" " "

The amount of solid matter in 19 and 20 was not determined, but their observed specific gravities were near that of 18. The proportion of the chlorids of calcium and magnesium combined, to the entire amount of solid matter, varies greatly in the above waters; in the Ancaster Salt Well it is equal to one-half, making the water bitter and disagreeable to the taste, like sea-water, but far more intense; those chlorids are also present in large proportion in the waters of Kingston, Bay St. Paul and Rivière-Ouelle, and render them unpalatable. The waters from 3 to 12, that of Rivière-Ouelle excepted, are very much alike in character, and are all agreeably saline to the taste. Of the waters among these last, which have been quantitatively analyzed, the Intermittent of Caledonia will be seen to contain the largest amount of these earthy chlorids, after which follow the St.-Léon and Georgian Springs, then those of Lanoraie, Caxton and Plantagenet, which contains the least of all.

In the second division of saline springs, these earthy chlorids are wanting, and we find instead, a portion of carbonate of soda, which gives to the waters when concentrated, an alkaline or soapy taste. Some of these are at the same time strongly saline, but in others the alkali predominates, and renders the taste of salt in the evaporated waters hardly perceptible. They all afford the reactions of bromine and iodine, and many, perhaps all of them, contain a portion of borate of soda. Carbonates of baryta and strontia are found in all those which do not contain a portion of alkaline sulphate.

CLASS I. SALINE WATERS.

Division B. Containing Carbonate of Soda,

NAMES AND LOCALITIES.			IN 1000 PARTS.	SEE REPORT FOR
1	Varenes, (Outer Spring,).....	B	10·72	*1849 p. 49
2	" (Inner Spring,).....	B	9·58	" " 51
3	Fitzroy, (Gillan's Spring,).....	B	8·34	*1851 " 49
4	Caledonia, ("Gas" Spring,).....	S	7·77	*1848 " 141
5	" ("Saline" Spring,).....	S	7·34	" " 148
6	Belceil,.....	B	7·33	*1851 " 51
7	La-Baie (Courchéne's Spring,).....	B	7·29	*1852 " 161
8	Chambly (Rang-des-Quarante,).....	B	5·74	1852 " 116
9	St. Hyacinthe (Providence Spring,).....	B	5·16	1850 " 102
10	La-Baie (Houlé's Spring,).....	B	4·96	1853 " 161
11	Caledonia (Sulphur Spring,).....	S	4·94	*1848 " 145
12	Chambly (Grand-Côteau,).....	B	2·13	*1853 " 154
13	Ste. Martine,.....	S	1·98	1852 " 114
14	Nicolet, (Hébert's Spring,).....	S	1·56	*1853 " 162
15	St. Ours,.....	S	·53	" " 157
16	Ste. Anne-de-la-Pocatière,.....	S	·36	1852 " 113
17	Jacques-Cartier River,.....	S	·34	*1853 " 159
18	Nicolet (Roy's Spring,).....	S	.....	" " 162

The quantity of alkaline carbonate bears no constant proportion to the whole amount of saline matter, for while the waters of Varenes, Caledonia, Fitzroy and Belceil, contain but from .05 to .58 parts in 1000 parts of carbonate of soda, equal to from 1 to 12 per cent. of the whole amount of soda salts present, the Jacques-Cartier Spring contains 1·95, that of St. Ours 1·34, that of the Grand-Côteau of Chambly 1·06, and Hébert's Spring in Nicolet 1·13 parts, equalling 82, 63, 52, and 72 per cent. of the whole amount of alkaline salts present. These less saline waters then contain not only relatively but actually more alkaline carbonate than the more strongly saline springs. It will be understood that a small undetermined portion of the soda represented as carbonate exists combined with boracic acid.

The second class of springs consists of a small number containing free sulphuric acid, together with sulphates of lime, magnesia, alumina, protoxyde of iron, and small portions of alkalies, without any trace of chlorine; they all contain sulphuretted hydrogen. Of these four are known, all being in the same region of Western Canada; they are the Tuscarora Sour Spring, containing 1·87 parts of sulphates and 4·29 of free hydrated sulphuric acid, in 1000. (See Report for 1848, p. 152); another in Niagara with about .6 parts of sulphates of the above bases, and two parts of free acid in 1000; besides a third from near Chippewa, described by Dr. Mack, of St. Catherines, C. W., in the British American Journal, vol. v., p. 63, which in composition and strength is very much like that of Tuscarora; and a fourth furnished me by Dr. Chase of St. Catherines, from the vicinity of St. Davids, and similar to the last, although weaker. (Report for 1850, p. 100.) The connection of these springs with the gypsiferous rocks, and their supposed relations to the deposits of gypsum, have been discussed in the Report for 1848.

The Charlotteville Spring is not included in either of the above classes, as its saline ingredients are principally earthy sulphates and carbonates, with but a very small proportion of chlorids; its solid ingredients amount to 2·49 parts in 1000. This water is remarkable for the great quantity of sulphuretted hydrogen gas which it holds in solution, amounting to 32·1 cubic inches to an imperial gallon. (Report for 1848, p. 157.) The quantity given in that Report, 26·8 cubic

inches, was calculated for an American standard gallon of 231 cubic inches. The feebly saline and sulphurous waters 23, 24 and 25 of division A, resemble this in the predominance of sulphates.

All of the springs of division A, with the exception of those of Ancaster, which belong to the Niagara group, issue from Lower Silurian rocks; the water of Ste.-Anne, No. 17, comes from the Oneida conglomerate, and of the others, Nos. 3, 8, 16, 18, 21, and perhaps 6 and 14, issue from the Utica slates or the Hudson River group, while the others belong to the Trenton limestone, or to inferior Silurian strata. Of the springs of division B, the three of Caledonia belong to the Trenton limestone, and that of Fitzroy to the Chazy or calciferous sandrock, to the later of which the water of Ste. Martine is probably to be referred. Of the remaining thirteen, Nos 1, 2 and 17 rise from the Utica slates, and the others from the Hudson River group, with the exception of 16, which issues from the conglomerates immediately above.

ANALYSES OF MINERAL SPECIES.

Labradorite. Among the mineral species examined during the past year none has a greater interest than a feldspar which forms the great bulk of some specimens of a crystalline rock, brought by yourself from the Townships of Morin and Abercrombie, where it is very abundant. It often yields large cleavable masses which show the spar to belong to the triclinic system of crystallization; two of the lateral faces of the prism are delicately striated longitudinally, like the albite (peristerite) of Bathurst. The colour is greenish-grey, passing into lavender-blue occasionally with a pearly-grey opalescence; hardness, 6; density, 2.684—2.695. An analysis of a specimen from Morin gave:

Silica,.....	54.20
Alumina,.....	29.10
Peroxyde of Iron,	1.10
Lime,.....	11.25
Magnesia,.....	.15
Alkaline, by difference,.....	3.80
Loss by ignition,.....	.40
	100.00

From this result, as well as from its physical characters, the mineral is shown to be labradorite, identical with that whose analysis I have given in the Report for 1850-51, p. 40. That specimen was from a boulder found in Drummond, C. W. The species has long been known to occur in rolled masses from the coast of Labrador, where it was first found, to Lake Huron, but this is the first instance in which we have been able to examine this peculiar rock *in situ*, so that it is to be hoped that the present discovery will afford an opportunity for studying the relations of a species which is so interesting both in a mineralogical and geological point of view.

Associated with the feldspar are grains of magnetic iron, and a greenish amorphous material having a hardness of about 5, and a density of 2.690—2.708. Digested in powder with dilute hydrochloric acid, a slight effervescence ensued from the solution of an admixture of carbonate of lime, which amounted to 4.8 per cent.; no magnesia was taken up by the acid, and but .85 per cent of alumina and oxyde of iron. The insoluble residue did not differ much in composition from the feldspar.

Scapolite. The following results were obtained with a scapolite which was found with black mica, forming a boulder, near Perth. It had a hardness of 5.5, and a density of 2.540—2.667, and was of a greenish-grey color, sub-translucent,

with a waxy lustre, pearly upon the cleavage surfaces, which were very distinct in two directions at right angles to each other; it was exceedingly tough:

Silica.....	46.30
Alumina.....	26.20
Protoxyde of Iron.....	60
Lime.....	12.88
Magnesia.....	3.63
Potash.....	2.88
Soda.....	4.30
Loss by ignition.....	2.80

99.59

It differs from ordinary scapolite in the large proportion of potash, and in a partial replacement of the lime by magnesia.

A specimen said to be from the second lot of the ninth concession of Bathurst, furnished by Dr. Wilson, of Perth, to Professor Williamson, of Kingston, to whose kindness I am indebted for the opportunity of examining it, has afforded me two very interesting species. It consists of a white crystalline pyroxene, or diopside, with copper pyrites, small crystals of silvery-grey mica, prisms of bluish-green apatite, and portions of a milk-white cleavable calcite, together with a rose-red mineral, having in its general aspect some resemblance to a common variety of wollastonite or tabular spar.

It occurs massive, with cleavages which indicate an oblique system of crystallization; according to Prof. E. C. Chapman, of the University of Toronto, who has examined a specimen in the collection of the Canadian Institute, the cleavage prism is apparently right rhomboidal, and the inclination of $M : T = 110^\circ - 115^\circ$. The cleavages with M and P are perfect and easily obtained, giving to the mass a fibrous aspect; with T the cleavage is imperfect. Hardness, 3.5; density, 2.765—2.776. Lustre vitreous, shining; occasionally pearly on the cleavage surfaces. Colour, rose-red to peach-blossom red; sub-translucent; fracture uneven.

Before the blow-pipe it becomes white and opaque from the loss of water, and fuses easily with intumescence into a white enamel. When pulverized and boiled with hydrochloric acid, it is partially decomposed with separation of pulverulent silica. A qualitative analysis showed the presence of silica, lime, magnesia, alumina, with a little iron and traces of manganese, besides a large amount of potash. The results of three quantitative analyses are subjoined; the earthy ingredients were determined by fusion with carbonate of soda. The alkalis in the first analysis were separated by a method for which I am indebted to Dr. A. A. Hayes, of Boston; it consists in fusing the pulverized mineral for half-an-hour, with one part of pure lime and four parts of chlorid of calcium in a platinum crucible; the fusion was effected over a spirit lamp. After cooling, the fused mass was digested with water, and the solution then contained all the alkalis as chlorids, mixed with chlorid of calcium. The lime salt was decomposed by carbonate of ammonia, and the sal-ammoniac separated by sublimation from the evaporated mass, leaving the alkaline chlorids in a state of purity. The whole amount of water in the mineral is only expelled by a heat which produces incipient fusion. The small portion of silica, which in the ordinary process of analysis adheres to the alumina, was not separated except in the third of the following analyses:

	I	II	III
Silica,.....	42.90.....	43.00.....	43.55
Alumina.....	28.10	27.80.....	27.94
Oxydes of Iron and Manganese,...		.70.....	.20
Lime,.....	6.94.....	6.72.....	6.50
Magnesia,.....	3.99.....	3.83.....	3.81
Potash,.....	8.27.....	8.27.....	8.37
Soda,.....	.95.....	.95.....	1.45
Water,.....	9.00.....	9.40.....	8.61
	<u>100.15</u>	<u>100.67</u>	<u>100.43</u>

As this interesting mineral appears to constitute a new species, I have named it *wilsonite*, after its discoverer Dr. Wilson, who has long been known as a zealous student of the mineralogy of his district. It is to be wished that farther examination may detect distinct crystals of the mineral; a single imperfect one, having its angles rounded, was found in the calcite. Small masses of wilsonite are often completely imbedded in the accompanying pyroxene. This pyroxene is massive crystalline, and affords cleavage prisms having the ordinary angles of the species; in a crevice it was observed in small crystals. Its hardness is 6.5; density, 3.186—3.192; lustre vitreous, pearly on the cleavage surfaces. Colorless or grayish-white; translucent to semi-transparent, fracture uneven, sub-conchoidal. Before the blow-pipe the grayish portions become colorless; it retains its transparency and lustre, and fuses with some difficulty and with intumescence, into a colorless glass. The results of two analyses were as follows:

	I	II
Silica,.....	51.50.....	50.90
Alumina,.....	6.15 }	6.77
Peroxyde of Iron,.....	.35 }	
Lime,.....	23.80.....	23.74
Magnesia,.....	17.69.....	18.14
Loss by ignition,.....	1.10.....	.90
	<u>100.59.....</u>	<u>100.45</u>

This pyroxene is peculiar from the amount of alumina, which has not hitherto been observed in any considerable quantity, except in the dark colored ferruginous varieties. The alumina in these is supposed to replace a portion of silica, and admitting a similar relation in the present variety, we have the ordinary formula of pyroxene. The silica of the first analysis corresponds to 27.28 and the alumina to 2.87 of oxygen=30.05, while the oxygen of the other constituents, including the water, amounts to 14.95. The ratio of 30.05 : 14.95 is very nearly 2 : 1, conducting to the formula $2(\text{SiO}^3, \text{Al}^2\text{O}) 3(\text{MO})$.

Lievrite. A mineral which is to be referred to this rare species was received from C. Billings, Esq. of Bytown, a gentleman whose zeal and activity in the pursuit of mineralogy and geology give promise of valuable results. It was found as a roled mass of some ounces in weight, coated with a hydrated oxyde like limonite, resulting from a superficial decomposition. Within, the mineral is unaltered, and has a hardness of 5.5, and a density of 4.15—4.16. Lustre sub-metallic, shining, occasionally iridescent; color velvet-black; streak and powder yellowish ash-grey; it is slightly translucent on the edges, very thin scales transmit a brownish light. Fracture uneven, brittle, strongly attracted by the magnet. It cleaves imperfectly in two directions oblique to each other.

Before the blow-pipe on charcoal the mineral intumescs and yields a black slag, which is still magnetic. It gelatinizes readily with hydrochloric acid, but the silica which separates retains a small portion of iron. The solution contains

protoxyde with some peroxyde of iron, besides a little magnesia, lime, and a trace of manganese. For its complete analysis the mineral was decomposed by fusion with carbonate of soda.

The amount of peroxyde of iron was determined by decomposing the finely powdered mineral with hydrochloric acid in a vessel filled with carbonic acid gas, and after adding recently boiled water, digesting it with a weighed plate of metallic copper, in the manner prescribed by Fuchs, the amount of copper dissolved corresponded to 9.93 per cent. of peroxyde. Another determination was made with similar precautions, by adding to the diluted hydrochloric solution phosphate of soda, and then acetate of soda in excess. The precipitated perphosphate of iron gave 10.80 per cent. of peroxyde, while the entire amount of iron as peroxyde was 73.6 per cent., giving 56.52 for the amount of protoxyde in the silicate. The results of analysis were as follows :

Silica,.....	27.80.....	28.20
Protoxyde of Iron,.....	56.52	
Peroxyde " ".....	10.80.....	9.93
Magnesia,.....	2.59	
Lime,.....	.64	
Loss by ignition,.....	1.20	
	99.55	

The ratio between the oxygen of the silica and that of the other constituents, the water included, is 14.72 : 18.21, or very nearly 4 : 5, which is that required by Rammelsberg's formula for lievrite. In the present specimen, the lime ordinarily present is replaced by protoxyde of iron and magnesia.

Celestine. I have examined the mineral from Kingston, to which Thompson gave the name of baryto-celestine, on the ground that it contained 35 per cent. of sulphate of baryta. This celestine is white or bluish-white; translucent; hardness, 3.5; density, 3.962—3.967, (3.921, Thompson,) which is that of pure sulphate of strontia. A portion of the mineral was decomposed by fusion with carbonate of soda, and the separated carbonate was completely soluble in hydrochloric acid. The solution having been evaporated to dryness, the re-dissolved chlorides were mixed with an excess of hydrofluosilicic acid; after twenty-four hours not a trace of baryta salt had separated, showing the absence of that base. The solution gave the reactions of a pure strontia salt, from which it was concluded that the mineral is nothing more than celestine or sulphate of strontia.

Apalite. As mineralogists have seldom observed this species in trappean rocks, the following notice of a locality of the mineral, detected by Mr. J. Richardson on the Achigan River, is not without interest. About two miles below St. Roch there is a mass of grayish trap, composed of black hornblende and white glassy feldspar, generally in small grains, but occasionally in crystalline individuals of half an inch in length; in this rock occur abundantly disseminated, hexagonal prisms, apparently regular in form, with an imperfect basal cleavage. They have a hardness of 5, are transparent or translucent, with a vitreous lustre, a conchoidal fracture, and an amethyst-purple color, passing into pink and reddish-white, rarely colorless. The crystals are sometimes an inch in length, and from one to two lines in thickness, but their surfaces are seldom polished; the mineral also occurs in rounded grains. In powder, the crystals dissolve readily in hydrochloric acid without effervescence or separation of silica, and are found to consist of phosphate of lime.

In the Report of last year I had occasion in speaking of the masses of phosphate of lime found in the calciferous sandstone at the Lac-des-Allumettes, to call your attention to the fact that the lingule which occur in the same stratum seemed to be encrusted with the phosphate. It appears upon farther examination,

that the fossil shell itself is composed of that material. Specimens of *Lingula quadrata*, from the Trenton limestone on the Naquoarau River, were separated from the adhering rock, and appeared as thick brownish scales, retaining the form of the fossil. They yielded a brown powder, which was soluble with scarcely any effervescence in hydrochloric acid. The solution gave with ammonia an abundant white precipitate; this was soluble in acetic acid, and oxalic acid threw down from the solution abundance of oxalate of lime. With molybdate of ammonia a very copious precipitate of the yellow molybdo-phosphate was obtained. The shell therefore consists chiefly of phosphate of lime. The shale which is found between the layers of the limestone holding the fossil lingulae is bluish-black, giving a white powder, and is partially soluble with strong effervescence in hydrochloric acid; the solution contains besides limes, with some iron and alumina, a notable amount of phosphates.

A fragment of a trilobite, *Isotelus gigas*, which was grey, sub-translucent, and finely granular, was readily soluble with effervescence in hydrochloric acid, and was pure carbonate of lime, without a trace of phosphate.

Some beds of the Trenton limestone, at Bytown, contain casts in dolomite, of the interior of species of *Orthoceras*, *Pleurotomaria*, *Murchisonia*, and fragments of perhaps other species. The limestone is compact, dark bluish-grey, and bituminous; it dissolved in acids, leaving an insoluble residue of sand and clay, amounting to 3.9 per cent.; the solution gave .6 per cent. of oxyde of iron and alumina, and not a trace of magnesia. The fossil casts, which are very abundant, are coarsely crystalline, and white or bluish-white within. Upon the weathered surfaces of the rock they appear in high relief, and are reddish-brown externally. By the aid of dilute hydrochloric acid, which is almost without action upon the dolomite, the limestone matrix is removed, and it is seen that the fossil is in many cases but partially replaced by the dolomite; that portion of the fossil which was uppermost in the stratum is often filled by pure carbonate of lime, in some instances to the extent of one-third or one-fourth of the whole, while in other specimens the replacement is entire. Small veins of dolomite no thicker than paper are also found cutting the rock. In the interior of some of the large casts are found drusy cavities lined with imperfect crystals of dolomite; in one of these were found two small terminated prisms of smoky quartz, implanted upon the dolomite crystals.

A fragment of the cast of an *Orthoceras* from this locality was found when pulverized to be completely soluble in heated hydrochloric acid, and the solution contained a considerable portion of a proto-salt of iron, but no manganese; its analysis gave for 100 parts :

Carbonate of Lime,.....	56.00
“ “ Magnesia,.....	37.80
“ “ Iron,.....	5.95
	99.75

This occurrence of dolomite in a limestone destitute of magnesia is evidently the result of a subsequent deposition in the cavities of the shells, but the frequent replacement of small fragments of the shells is not easily understood. In the pearlspar which is found crystallized in the cavities of the Niagara limestone, we have an analogous instance of the deposition of a magnesian carbonate.

The silicified fossils which are so often found in the Lower Silurian limestones of the Province appear to be replaced by pure silica. A shell of *Orthis testudinaria*, which had been separated by the aid of dilute hydrochloric acid, and retained perfectly its form, was found to consist of silica with but a trace of oxyde of iron.

Iron Ores from St. Maurice. You have remarked in page 46 of your last Report, that the iron from these bog ores attracted particular attention at the Great Exhibition at London in 1851, from the fact that a superior quality of metal is in this case manufactured from a species of ore which is supposed to yield only an inferior iron. The poor quality of the iron from bog ores has generally been ascribed to the presence of phosphates in the ore, phosphorus having been supposed to render the metal brittle when cold. It is, however, the opinion of Schafhautl and some other recent investigators, that this notion is erroneous, and the following examinations of specimens of the ore used at the St. Maurice forges, furnished me by yourself, go to confirm the opinion. The analyses were made by the process described in my Report of last year. The first specimen was regarded as an ore of the best quality, and was a bright reddish colored limonite, with a brilliant black fracture; it gave for one hundred parts:

Peroxyde of Iron,.....	77.60
Sesqui-oxjde of Manganese,.....	.30
Phosphoric Acid,.....	1.81
Silica,.....	5.40
Loss on ignition, (water and vegetable matter),.....	17.25
	<hr/>
	102.36

The second specimen was from a parcel supposed to be inferior in quality, and said by the workmen to be rotten, a change which they suppose to be produced by long exposure to the air. There was, however, nothing in the character of this specimen to support such a notion, and except in the larger amount of water and volatile organic matter, it did not differ from the last; it gave:

Peroxyde of Iron,.....	74.30
Sesqui-oxjde of Manganese,.....traces.....	
Phosphoric Acid,.....	1.80
Silica,.....	3.60
Water and organic matter,.....	22.20
	<hr/>
	101.90

A portion of the iron in these ores appears to exist in the state of protoxyde, causing the apparent excess in the analyses. The amounts of peroxyde in the two specimens correspond to 54.3 and 52.0 per cent. of metallic iron. A third variety of the ore was dark colored, and evidently manganesian, dissolving in hydrochloric acid with an evolution of chlorine. A portion of the silica was chemically combined, and separated from the acid solution in a gelatinous state. This ore yielded:

Peroxyde of Iron,.....	64.80
Sesqui-oxjde of Manganese,.....	5.50
Water and organic matter,.....	23.65
Silica,.....	4.80
Phosphoric Acid and loss,.....	1.25
	<hr/>
	100.00

Iron Ochre. In connection with the above ores, which are hydrated oxides of iron, combined with various proportions of an organic acid derived from the decomposition of vegetable matter, the results of some observations upon the composition of an iron ochre are not without interest. Beds of this material which are found at Pointe du Lac, Ste.-Anne-de-Montmorency, and many other places, have already been described in your Reports. The extensive deposits at the last named locality afforded me the specimen which I have examined. It is here constantly forming, and is the deposit of a ferruginous water, which issues in a great number of places over the surface of the bed. The water is at first color-

less, transparent and ferruginous to the taste, but by exposure to the air soon lets fall a reddish-yellow flocculent precipitate, and becomes tasteless. The bed, which is several feet in thickness, is yellowish-brown upon the surface, becoming reddish or purplish-brown in those parts which are most exposed to the air and light. Below the surface, the color becomes greenish, and at the depth of a few feet it is a dirty pale green, from the partial de-oxidation of the iron, which appears to have been reduced either by the organic matter which is intimately combined with the oxyde, or by the gases evolved from the decaying trees and roots, which are abundant in the deposit. When exposed to the air, the greenish ochre grows yellowish as it dries, and the iron finally becomes again peroxydized.

The specimen examined was reddish-yellow in color; it was dried at a temperature of about 212° F., gently crushed and sifted. When closely pressed into a crucible covered to exclude the air, and heated to redness, it evolves inflammable gases, and leaves a mixture of metallic iron and charcoal, which even when cold takes fire spontaneously if exposed to the air, and is changed into the red oxyde. When ignited in an open vessel, and carefully stirred to promote oxydation, it lost in three experiments 36·10, 36·15 and 36·20 per cent. of its weight. By solution in hydrochloric acid, a residue of 3·6 per cent. of silicious sand is obtained, and by evaporating the solution to dryness, a portion of silica separated in a gelatinous state; the whole amount equalled 4·75 per cent. The solution contained only traces of phosphates, and gave of peroxyde of iron, previously thrown down from a solution in tartrate of ammonia, as sulphuret, 59·10 per cent. We have then for 100 parts:

Peroxyde of Iron,.....	59·10
Silica,.....	4·75
Volatile matters,.....	36·10
	99·95

In order to ascertain the nature and proportion of the organic matter combined with the iron oxyde, a portion of the ochre was boiled with half its weight of hydrate of potash, and two or three parts of water, for half an hour in a platinum vessel; a great part of the organic matter was thus rendered soluble. After washing out the dark reddish-brown liquid by water, the residue was boiled with a second portion of potash solution, but gave only a slight color to the liquid. To the mixed filtrates, acetic acid was added in slight excess: the color became paler, but no precipitate was formed. A solution of acetate of copper now gave a dark brown precipitate, which after twenty-four hours was collected on a weighed filter, and dried at 280° F.; it was regarded as apocrenate of copper, and the amount of it from 10 grammes was ·388, corresponding to ·221 grammes, or 2·21 per cent. of apocrenic acid. The filtrate mixed with a slight excess of carbonate of ammonia, gave no immediate precipitate; only after twenty-four hours, a few white flakes of crenate of copper separated. From these experiments it appears that the great proportion of organic matter exists in some state distinct from either crenic or apocrenic acid.

To a solution obtained by treating five grammes of the ochre with a solution of potash as above, acetic acid was added, and then a solution of neutral acetate of lead, which gave a copious dark brown precipitate, weighing when dried at 212° F., 1·463 grammes. To the clear slightly colored filtrate, containing an excess of acetate of lead, ammonia was added until the reaction was feebly alkaline, when an additional precipitate weighing ·078 separated, leaving the liquid colorless. The mixed precipitates weighing 1·571 grammes, gave by solution in nitric acid, and determination as sulphate, ·468 of oxyde of lead, leaving for the matters combined, ·808 grammes, or 16·16 per cent. of the weight of the ochre. In

another trial, where only the precipitate from the acid filtrate was collected, the organic matter obtained in combination with the oxyde of lead was 14.11 per cent.

In one experiment, a weighed portion of the ochre, dried at 212° F., was exhausted by digestion with its own weight of hydrate of potash and two or three parts of water, washed and again dried at the same temperature; it lost 20.47 per cent. of its weight. In another experiment a calculation from the loss of the dried ochre by ignition, compared with that of the residue from the action of potash, gave 20.8 per cent. for the soluble matter. As there is about 1.15 per cent. of silica in a condition soluble in potash, we have, subtracting this amount from 20.63, (the mean of the last two determinations,) 19.48; and as this dissolved silica would be precipitated with the lead salt, its weight must also be deducted from 16.16, leaving 15.01 for the organic acids obtained in connection with the oxyde of lead. As the organic matter is wholly precipitated by the acetate of lead, the difference would appear to indicate that it exists in the ochre in a higher state of hydration than in the lead compound, so that the portion dissolved out by a solution of potash consists of 15.01 of organic acids as they exist in the dried lead salt, and 4.47 of water, equalling 19.48, and giving for the whole amount of water 21.14. We have then for the composition of 100 parts of the ochre:

Peroxyde of Iron.....	59.10
Organic Acids.....	15.01
Water by difference.....	21.14
Soluble Silica.....	1.15
Sand.....	3.60

100.00

For a farther determination of the nature of the organic acids, it will be necessary to submit the ochre and the lead precipitate to the ordinary process of organic analysis by combustion.

I have the honor to be,

Sir,

Your most obedient servant,

T. S. HUNT.

QUEBEC:

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1854.

REPORT.

The Select Committee appointed to report upon the best means of making public the valuable information already obtained by the Geological Survey, and completing it at an early period upon an uniform system, beg leave to report :

That they have diligently enquired into the subject referred to them, and in pursuing their investigations, they have necessarily had before them the whole subject of the Geological Survey; they have called for evidence from several gentlemen conversant with Geology and its applications in this Province, and have asked for, and obtained the advice of distinguished Geologists in the neighbouring Union, the whole of which is herewith submitted.

The first branch of the enquiry referred to your Committee is the best means of making public the information already collected by the Geological Survey; but before submitting to your Honorable House any recommendation upon this subject, it may be desirable to point out what has been the actual progress of the Survey up to the present time, and what the nature of the materials at our disposal.

Since the first commencement in 1843, Mr. Logan and his assistants have traversed and examined every part of Canada, from Gaspé to the head of Lake Superior, in the uninhabited portions, following for the most part the course of the Lakes, the St. Lawrence, and the Ottawa, and their principal affluents, and in the settled parts penetrating farther into the interior.

The minuteness, with which the exploration of this immense tract of country has been conducted, has varied very much according to circumstances, as the means of access, the immediate requirements of the country, and the interest and importance of the formations under examination. In some cases, where the geological structure maintains an uniform character over large areas, as on the north side of Lake Ontario, little more has been done than to trace the boundary between the principal formations. In others, as on Lakes Superior and Huron, in the upper part of the Ottawa Country, and in Gaspé, the nature of the country, and the entire absence of reliable topographical surveys, rendered any other examination impossible in a limited time; except to trace the course of the principal streams, with such occasional excursions into the interior, as the Geological observations seemed to dictate; whilst in some, where the facilities were greater, and the field more inviting, considerable minuteness has been attained, as in the region between Lakes Huron, Erie, and Ontario, the country between the St. Lawrence and the Ottawa, and some parts of Lower Canada, south of the St. Lawrence. The result has been such, as to enable Mr. Logan to lay down with sufficient certainty the general geological features of the whole of Canada, and to fill up many of the more interesting parts in considerable detail.

From the absence of accurate maps, Mr. Logan and his assistants have, in almost all cases, been obliged to conduct a topographical survey, as well as an examination of the strata; a fact which should not be lost sight of, as having materially retarded the progress of the survey, but which at the same time has been of great use to the Province, in giving certain information as to rarely visited localities, and even in correcting erroneous surveys in settled parts of the country, as is acknowledged by Mr. Russell of the Crown Lands Department in his evidence,

Ques. 65.] who bears testimony to the great accuracy of some of Mr. Logan's surveys.

During these investigations many new fossils and mineral forms have been discovered, and new facts of great interest to Geologists have been brought to light; amongst the latter may be mentioned the crustacean tracks discovered by Mr. Logan in the Potsdam Sandstone; the chemical composition of certain fossil and recent shells, which had hitherto been thought exclusively to distinguish the skeletons of vertebrate animals; the parallelism of the disturbing forces throughout the Silurian, Devonian, and carboniferous eras; and more particularly, the researches on the metamorphism of rocks, which seem to establish with certainty, that not only the crystalline formations of the great Apalachian Chain, but also the still older rocks which separate the St. Lawrence from the Arctic Ocean, are merely stratified sedimentary deposits in an altered condition.

Of more immediate practical interest is the knowledge gained of the mineral wealth of our country. Besides building materials of all kinds, and limestone, the discovery of which in some parts is of as much practical value as that of gold itself, there is the copper of Lakes Huron and Superior, the slates, marbles, serpentines, soapstones, and iron and copper ores of the mineral region south of the St. Lawrence, and the magnetic iron ores of the Laurentine formation, of greater extent and value than exist probably in the rest of the known world. Upon the whole, with the single exception of coal, the Canadas, on the testimony Ques. 87.] of Professor Hall, have been shewn to stand higher in respect of their mineral products than any of the surrounding states. All these and numerous other economic materials, a list of which is given in the report of 1849, 1850, and the description of the London Exhibition of 1851, if not actually first discovered by the survey, have been made generally known, the formations which yield them pointed out, and in many instances the localities, where they can be profitably worked, indicated.

Whilst the survey was in progress, a very large collection of specimens has been brought together, with the intention of illustrating, not only the science of Canadian Geology, but its practical application in the supply of useful materials, the whole of which are now deposited at the house of the survey at Montreal.

Such is the present result of the Canadian Geological Survey, and although much remains to be done, considering the vast extent of country under examination, the difficulties presented by the uninhabited state of much of it, the total absence of reliable topographical maps, and the short period of each year which our climate renders available for the field work, your Committee think they may pronounce with confidence, that in no part of the world has there been a more valuable contribution to geological science for such a small outlay, (hardly more than £20,000 in all.) In confirmation of this opinion your Committee would refer to the letter of Professor Agassiz, and the evidence of Professor Hall, [Ques. 5. and to the opinions of scientific men quoted by Mr. Logan, and Mr. [Ques. 101. Ques. 3.] Hunt. They beg also to add two other quotations, as shewing the estimation in which our survey is held by men of science in England and France. "In Canada especially, there has been proceeding for some years one of the most extensive and important Geological Surveys now going on in the world. The enthusiasm and disinterestedness of a thoroughly qualified and judicious observer, Mr. Logan, whose name will ever stand high in the roll of votaries of his favorite science, have conferred upon this great work a wide spread fame."—*London Quarterly Review, October, 1854.*

"De toutes les colonies anglaises, le Canada est celle dont l'exposition est la plus intéressante et la plus complète, on peut même dire qu'elle est supérieure à l'exposition minérale de toutes les contrées qui ont envoyé des produits à Londres; cette supériorité vient de ce qu'elle a été faite d'une manière systématique; il en résulte que son examen fournit des moyens d'apprécier à la fois la

constitution géologique et les ressources minérales du Canada. Cette circonstance vient de ce que notre collègue, M. Logan, qui remplit dans le Canada, les fonctions de *Geological Surveyor*, a présidé sur les lieux aux choix de la plupart des échantillons qui ont été envoyés à l'exposition, et qu'il les a classés depuis leur arrivée à Londres."—*M. Dufrenoy membre de l'institut*, in the Jury Reports of the London exhibition.

It is mortifying to your Committee to have to report, that results of so much value are almost inaccessible to the public, and that a great proportion of the inhabitants of Canada, if not ignorant of the existence of the survey, are at least unacquainted with what it has achieved. The annual reports are presented to Parliament, and buried in the Journals of the House, except a few hundred copies, which are distributed by Members amongst their friends, so that the reports of two consecutive years rarely fall into the same hands. Professor Chapman, [Ques. 49.] complains of the difficulty of procuring them, Mr. Lovell [Ques. 133.] speaks of the frequent applications to him for complete sets, both at home and [Ques. 109.] from abroad, and Mr. Bell, says that, so much is this want felt, that it has been proposed to reprint them in New York. Were it not for additional copies, which Mr. Logan orders at his own expense and kindly distributes; it is doubtful whether (apart from the Journals) there would be a hundred complete sets in the Province. Mr. Logan also, speaks of the demand [Ques. 85, 86, 87.] for the reports, the imperfect knowledge in the country of what they contain, and the consequent verbal and written applications, which are made to him for information. As a further proof of the ignorance which prevails as to what has already been done, your Committee may mention, that the existence of a combustible material, closely resembling coal, in the rock at Quebec, which has lately occupied so much attention, is fully described, and the reasons why there is small probability of its being profitably worked given at large in the report of 1844, pp. 19 and 20. These facts speak for themselves as to the necessity of republishing the reports in some shape.

Another serious deficiency is the want of a map. Not only are the annual topographical measurements of the survey unknown, till the publisher of some new map obtains copies of them, but it is extremely difficult to follow a geological description without a map, and a student must colour one for himself from the reports, before he can get a clear knowledge of the geological features of the country.

Again there are many things which even the reports do not contain, were they accessible, viz: plates and descriptions of new and characteristic fossils, sections and illustrations of the disturbances of the strata, &c., without which a complete understanding of the subject cannot be obtained. We may mention also generalizations, and theoretical conclusions, deduced, not from the report of one season's work, but from a comparison of the whole, such as the investigations upon the metamorphic rocks already mentioned, which must be sought for in a perfect form in the papers communicated by Messrs. Logan and Hunt to the scientific bodies of Europe and the United States.

Lastly, the vast collection of minerals accumulated at Montreal, from insufficiency of funds to provide for their proper arrangement, lie in a great measure buried in packing cases in the vaults and sheds of the Survey Office.

With a view to remedying these deficiencies, your Committee would recommend the immediate republication of the substance of all the former reports. The original documents will always be valuable in their present shape, and will be accessible for reference in the journals of the House; this does not, however, appear to your Committee to be the most convenient shape, in which the facts they record should be distributed, as a whole, to the country. From the partial nature of each season's examination, there is necessarily much repetition in the reports of succeeding years, when they record the progress over similar

ground. For the same reason, the reports, as they stand, do not follow up the subject either topographically, or geologically, and any person desiring information as to a particular formation, or a particular locality, would have to gather it out of several different reports. The absence of a map also has rendered detailed verbal descriptions necessary, which would only encumber the volume, if a map were at hand. Some portions too, as the enquiries into the alleged discovery of coal at Les Eboulements, are of temporary interest only, and need not be republished. There may also, though none occur at present to your Committee, be instances where subsequent examinations have corrected or modified opinions expressed in previous reports, and certainly there will be found general views, which are only partially developed in the works as they now stand. The course which your Committee recommend, would be, to publish all that is necessary of the old reports, revising, re-arranging, and if necessary, adding to them, so as to give a connected and systematic view of the geology of the Province, as far as it is at present known. This volume, which would not be a very large one, should be accompanied by a coloured geological map of the whole Province, upon a scale of from 20 to 25 miles to the inch, and should be illustrated with a few wood cuts of the most characteristic fossils, and, the most common crystalline forms of minerals, with plates of such geological sections as may be requisite to elucidate the subject, and, if necessary, with maps on a larger scale of particular localities, which may require more minuteness of detail to exhibit their structure, or the occurrence of mineral veins. There should also be a copious index of the localities reported upon, and another of economic materials, with a reference to the body of the work, where a fuller description of them and their geological relations, and geographical distribution, would be found.

The publication of the annual reports of future progress should continue as heretofore, with the addition of such wood cuts, sections, and detailed maps, as might be judged necessary to elucidate the report in an uniform shape with the volume above mentioned, to which they would, in fact, become an annual Appendix. In order to secure this uniformity, as the annual reports would be published by the House, and form part of the journals, the revised reports, though not on the journals, should be published in the same form.

Your Committee would also recommend the publication, in numbers, from time to time, as materials accumulate, of plates of new and characteristic fossils, with letter-press descriptions, together with such other illustrations, sections &c., as may be thought of scientific value, but not of a nature to accompany the reports as above mentioned.

In the Geological Survey of the State of New York the publication of these illustrations was delayed till the whole examination was complete; but for the reasons stated by Professor Hall, your Committee prefer [Questions 29, 30, 31, the former method. The only advantage of the latter is, that the plates would be published on a systematic arrangement, but if a little care is taken to keep this ultimate object in view, the information may be, at once, given to the world, without interfering with the arrangement of the plates, when the whole work is finished.

With regard to the distribution of these publications your Committee believe that great advantages would arise from the printing of a very large number, say, from 10,000 to 20,000 of the revised reports, and future annual reports, and from 2,000 to 3,000 of the plates and illustrations. The former should be distributed as follows:—The usual number to each Member of the Legislature, and, upon application, one copy to every University, College, Literary and Philosophical Society, Public Library, Mechanic's Institute, Grammar, Model, and Normal School, and every Common School and Municipality which has established a School or Municipal Library, also some copies to the Governments of each of our sister Colonies for distribution, and one to all the principal libraries and learned Societies in the United States and Europe.

In the distribution of the plates, which are not only much more expensive, but also of less general interest, one copy to each Member of the Legislature would suffice, the Common School and Municipal libraries might be omitted, and the number sent abroad might perhaps be reduced. These would, of course, be distributed gratuitously, but whatever decision may be arrived at with regard to the parties to be so supplied, your Committee think it expedient that a considerable number of both publications, should be for sale, at the lowest cost price, that being the only way in which they could often be procured by those most likely to make a profitable use of them.

Your Committee also recommend that increased means should be placed at Mr. Logan's disposal, to enable him, not only to complete the arrangement of the Geological Museum, upon the system explained in his report for 1852, but also to procure such additional assistance, as may allow of its being kept open to the public at stated hours, without interfering with the other duties of Mr. Logan himself, and the other officers of the Survey.

If these recommendations are carried out, your Committee believe that the first object on which they were instructed to report, viz: "How best to make available the information and materials already collected," will be fully secured. It remains for them to enter upon the second branch of their enquiry, "The best means of completing the Survey at an early period."

It must be at once evident, that if our Geological Survey is limited to its present establishment, many years must elapse before the great extent of country, embraced in the two Canadas, will have been examined in a manner at all comparable with the national Surveys of other countries. Even with the very largest increase to the department, which prudence would admit of, it would be impossible for many years, and indeed it would be neither necessary nor practicable, to attempt the same minuteness of detail, which characterizes the French and English, and a few other European Surveys. Nevertheless it appears to your Committee very desirable that the whole country should, within no very distant period, be efficiently examined, and that the rich mineral localities, with which it abounds, should receive more minute attention than has hitherto been found practicable; and they believe that there is no way, in which the annual expenditure of a few thousand pounds could be made to conduce, so much to the material prosperity of the Province. Your Committee have directed a great part of their attention to this branch of the subject, and they find two different methods recommended for hastening the completion of the undertaking.

It has been proposed that the Upper and Lower Provinces should each have its geological survey, or that the whole country should be still farther subdivided. A similar plan was adopted in the State of New York, where four separate surveys were established; but the disadvantages of this system are numerous, and are explained in Professor Hall's evidence, to which [Questions 18, 19] your Committee beg especially to refer, and which appears to them conclusive against it. Time would undoubtedly be saved, but at the expense of much additional outlay, and less unity and perfection in the execution. The other plan, which your committee very much prefer, is, whilst preserving the unity of the Survey, to make a considerable addition to the assistants in the different departments, with the view of relieving Mr. Logan from such duties as could be efficiently performed by others, and leaving him free to pursue his geological investigations, and superintend the whole.

To accomplish this object, the most important improvement would be to give him the means of ascertaining the correct topography of the region under examination. In England, where there are the Ordnance maps upon a large scale, showing every stream and road, and almost every building, with the greatest accuracy, a geologist has a sure foundation for his work, and has rarely to make any measurements or observations, except for the thickness or inclinations of the strata. In this country, however, no such aids exist; and as there can be

no certainty in geology without topographical accuracy, Mr. Logan, and his assistants are engaged, fully one half of the time they are in the field, in work which any land surveyor, under proper directions, would perform as well, and perhaps better. For details of the difficulties and delays experienced from this cause your Committee would refer to Mr. Logan's evidence. [Questions 47, 70 and 71.] The employment of a proper surveying party, whenever required, with each geological exploration, would leave the geologist free to devote his time exclusively to his own researches, which would, in consequence, be more rapid, and more efficient, and the Surveyors employed would have opportunities of gaining geological information, which could often be otherwise turned to account.

It would also be advantageous to increase the number of persons employed as assistants and explorers; by their means the examinations might be very much extended, whilst the head of the survey would be able to devote himself to those sections of the country, where the peculiar formations seemed to require the greatest amount of care and scientific attainments. The latter class, of whom Mr. Richardson is the only one now employed, might perhaps be the most profitably increased. The necessary attainments for such a person, and the kind of work entrusted to him are explained in Mr. Logan's evidence. [Questions 74.]

Other branches or departments, might also be added to the survey with advantage, if sufficient funds were voted by the Parliament; but the object your Committee has had in view is to ascertain what addition, without any immoderate expenditure, would most tend to perfect the undertaking. In the state of New York a Palæontologist, a Zoologist, and a Botanist were employed; and latterly, an Agricultural department was added. The three last your Committee believe may be dispensed with; but although not regularly attached to the survey, the services of a Palæontologist will be required in preparing descriptions of fossils. Most of the European Governments have also organized a department of mines, either separately, or in connexion with the geological survey; a most useful branch, if means sufficient were attainable. To make the establishment of the survey quite complete, it ought, probably to consist of four or five departments. Geology, in its most confined sense, Mineralogy, Chemistry, Palæontology, and Mines. Each of these require special talents and opportunities, and a special training. Few men, who are familiar with all the refinements of modern Chemistry, can have had opportunities for the personal experience, which is necessary to judge of mineral lodes, and no human intellect can be expected to combine a thorough acquaintance with the endless forms of Mineralogy, and the 30,000 recognized species of fossils, together with a competent knowledge of the associated sciences of Chemistry, on the one hand, and Zoology, Botany, and Comparative Anatomy, on the other. In England and France, accordingly, where scientific men abound, and can give their aid without altogether interfering with their other avocations, these different departments are established, and filled by some of the greatest names in science. In this country, however, the material is not easily found, and the expense would probably be disproportioned to the results. A department of mines alone would require, in order to produce any useful results, an appropriation equal to all that has hitherto been allotted to the Geological Survey. It must also be borne in mind, that in those countries where special departments and schools of mines are organized, mining operations have been largely carried on for centuries, and the workings afford the means of examining the modes of occurrence of mineral lodes, the indications which are most trustworthy, both in the search for them, and for judging of their value of studying, in short all the facts, which constitute the science of mines, as a distinct branch of geology. In this country, however, the case would be very different; and the labours of a mining department would necessarily be confined at present to the search for the surface indications of mineral wealth below. Even on the lands of the Crown it may well be doubted, whether it would be prudent to undertake such preparatory workings, as would alone justify any confident

opinion upon an object so capricious as a metalliferous vein, and on private property, it would clearly be beyond the province of the state. It is not, however, what might be desirable with unlimited funds, but what is practicable in the present condition of the Province, that your Committee would press upon the attention of Your Honorable House. The three first branches of a Geological Survey, as above mentioned, are already well represented by Mr. Logan, Mr. Murray, and Mr. Hunt, and as Mr. Logan has been himself professionally a miner and metallurgist, the last branch has been in no way neglected. Should it, however, be practicable to increase the establishment materially, it might, without forming a special department, be advisable to add a second assistant, more particularly charged with the examination of mineral veins; and as the occasional services of a professed Palæontologist will certainly be required, this branch may perhaps be combined with that of resident assistant in charge of the Museum hereafter recommended; they would not advise the formation of a special mining department at present. In any case your Committee would strongly recommend, that the unity of the whole survey should be maintained, by keeping it under the direction of one responsible head.

The Museum, besides the collection already made, and additions from the results of future explorations, should be enriched with foreign specimens, so as to render it the means of a complete practical study of geology. Your Committee also believe, that it would greatly conduce to the progress of geological studies in the Province, if, during the progress of the survey, it were a general instruction to procure several specimens of the more important and rare fossils and minerals met with, with the view of supplying other public Museums in the Province, and of exchanging with foreign scientific institutions. The difficulty of transportation in explorations of remote districts will, your Committee are aware, render it difficult to carry out this recommendation to the fullest extent, but it is an object which should always be kept in view, and should be acted upon as far as possible. Hitherto all the books, and almost all the instruments, used by the survey, have been the private property of Mr. Logan and his assistants, but in so important a public institution, a library should be kept up, containing the best standard works and books of reference connected with geology and the allied sciences, and the necessary instruments should be provided by the Government. In the arrangement and classification of the present collection, some additional aid will be absolutely necessary, and your Committee recommend that a resident assistant should be permanently added to the establishment, to take charge of the Museum, and assist in the general business of the department, which now occupies an undue share of Mr. Logan's valuable time.

With the increased efficiency which these additions would impart to the survey, your Committee believe, that in a few years our knowledge of the resources of the country would be greatly extended. The assistance, however, which may be obtained from quarters, not immediately connected with the department, should not be neglected; a taste for Geological studies, it may reasonably be expected, would be much promoted by the general circulation of the reports, by the accessibility of the Museum, and the encouragement of local institutions of the same character, a taste which, from the evidence of Mr. Bell, and of Mr. [Question 114. Logan himself, seems already to be developing itself. Of the extent to which private enquirers may contribute to the general information, examples are given by the latter gentleman. Every encouragement should be given to [Question 77. such voluntary assistance, and it would be desirable to invite it by questions framed with that object, and circulated with the reports. The instructions formerly given to the Deputy Provincial Surveyors on that head might, from their opportunities, have been expected to have produced more fruit; and it would be desirable again to call their attention to the subject, and to issue some short and simple instructions how and what to observe. It might even be advisable for the

future to require every Deputy Surveyor, before his appointment, to pass an examination in the rudiments of geology.

With the same object in view, your Committee believe that advantage might be taken of the surveys for railroads, in ascertaining more accurately the topography and levels of the country, which are most essential to a correct view of its geology. At present these surveys form detached facts, difficult of access. Your Committee would combine them for the public use, by requiring every railway company hereafter to be formed to furnish, without charge, to the Geological Survey, a copy of their plans and sections, and all companies now incorporated to furnish similar information, when required, at the expense of the Geological Survey. In order to connect these Surveys together, and as a basis for future operations, your Committee would also recommend, that a permanent mark should be inserted in some public building, or otherwise, at several convenient points throughout the country, from which future levels may be reckoned, and that the correct latitudes and longitudes and relative levels of such points, be ascertained as soon as possible.

The importance of an accurate geological acquaintance with the Country is so universally acknowledged, that it is unnecessary to do more than point out some portions of the evidence, which shew the im- [Questions 32, 33, 85, 89, 107] mediate practical results; but as an apparent misapprehension exists in some quarters as to the objects of such a national undertaking, your Committee may be pardoned for making some additional observations. The discovery of valuable economic materials speaks for itself, although, even here it may be doubted, whether the relative importance of the minerals indicated is always justly appreciated, whether the crystalline limestones of the Laurentian series have not been of more real value, than some discoveries of a far more imposing character. But where the outline of some formation of no very obvious economic use, is accurately traced for many miles, when minute and laborious investigations are carried on of the undulations, contortions and disturbances of other strata, with exact measures of their thickness and dip, and when the greatest attention is paid to the fossils they contain, some people are apt to think that the Geologist might be more usefully employed. They draw a distinction between practical utility and scientific interest. The ultimate object, however, of all science is practical utility; it is only a systematic, instead of a desultory search for valuable facts. The discovery of some useful material at a particular point would be an isolated fact though perhaps of great importance to that locality; but combined with a correct scientific knowledge of the geology of the country, it would be not only available over an extensive region, but would be the contribution of a valuable truth to the whole world. Instances of this intimate connection between science and economics will be found in the evidence. [Questions 34, 35, 55, 92, 93.]

Again different individuals, according to their several pursuits, expect information of a special nature from the Geological department. The agriculturist wishes to have every bed of marl pointed out, and an analysis of every soil; the architect or engineer calls for details of accessible building stone, brick-clay, and hydraulic lime; while the miner wants information of where mineral veins occur, the abundance of the ores, their chemical constituents and the percentage of metal. Now, details of this description for the whole country cannot be expected, especially where it is to such an extent uncleared. The duties of persons engaged in a Provincial Survey is to ascertain and make known with such accuracy and detail as is practicable, the physical structure of the country; to record the localities where any valuable material has been observed, with its probable extent, and the direction in which its recurrence may be expected, and in the case of mineral veins, to describe their character as far as visible, the apparent richness and abundance of the ores, and the indications which the country exhibits of the frequent recurrence of the lodes. They cannot point out every bed of marl or brick-clay, or pause to search out every promise of a mine, or still

more the probability of its being worked to commercial advantage. The practical details must, of necessity, be left to private enterprise to accomplish. No appropriation by Parliament, no staff of geologists, however extensive, would suffice for the whole Province, if more were expected. The public should provide general information for all; the individuals who are to turn it to their private profit, must supply the rest.

In conclusion your Committee beg leave to submit the following summary of their recommendations, with an estimate of the annual expenditure, which would be required to put them in practice.

(1.) The republication of not less than 20,000 copies of the revised reports, with a coloured map. The expense of this is already provided for by the additional appropriation of £2,000 in the estimates of last year.

(2.) The publication of the same number of the annual reports of future years uniformly with the above.

(3.) The periodical publication of 3,000 copies of plates and descriptions of fossils, &c.

(4.) The gratuitous distribution of the two former as follows: 4 copies to each Member of the Legislature, copies to the Governments of all British Colonies, and the East India Company, for distribution by them to public libraries and Scientific institutions, and one copy to every University, College, Literary and scientific Society, Mechanics' Institute, Library Association, Grammar, Normal and Model School, Municipal and Common School Library in this Province, applying for the same, and to the principal learned Societies in the United States and Europe. The gratuitous distribution of the latter to be confined to one copy to each member of the Legislature, the copies to Municipal and Common School Libraries to be omitted, and the number sent to British Colonies and foreign Societies proportionately restricted. The remainder, after keeping some on hand for parties subsequently added to the gratuitous list, to be for sale at cost price.

(5.) The establishment and maintenance of the Museum and Library upon an efficient footing.

(6.) To provide for the supply of Geological and Mineralogical specimens to other Museums.

(7.) The employment of topographical surveyors and their parties, to assist in the Geological Surveys, when judged necessary.

(8.) The employment of two or three additional explorers.

(9.) The employment of a Resident Assistant, as keeper of the Museum, and in the general business of the office.

(10.) The employment of a Second Assistant Geologist, charged more especially with the exploration of mineral localities. The Committee wish it to be understood that in the present state of the country they consider this the least essential addition to the establishment, and unless ample funds are provided, they would not advise it, to the prejudice of any other of their recommendations.

(11.) The encouragement of voluntary assistance by the publication of questions and short instructions how and what to observe and collect.

(12.) Securing the aid of Deputy Provincial Surveyors, and requiring all persons admitted as Surveyors for the future, to pass an examination in the rudiments of Geology.

(13.) The establishment of certain points in different parts of the country, as a basis from which local surveys may be reckoned.

(14.) Requiring all Railway Companies to furnish plans and sections of their surveys.

Estimated annual cost of the Department as compared with the present expenditure.

	Present.	Future.
Salary of Director of Survey.....	£ 555	£ 555
“ of Assistant Geologist.....	333	400
“ of Chemist and Mineralogist.....	300	400
“ of Resident Assistant.....		200
Explorers.....	120	450
Field expenses of two Surveys.....	600	600
Topographical Surveyors and their parties....		750
Publications of fossils, sections, &c., including services of a Palæontologist.....		800
Laboratory.....	100	100
Museum.....		200
Books, Instruments, &c.....		200
Fuel, Messenger, and incidental expenses....	275	345
	£ 2,283	£ 5,000
Assistant more particularly charged with examination of mineral veins and his field expenses		1,000
		£ 6,000

The whole nevertheless, respectfully submitted.

JOHN LANGTON,
Chairman.

COMMITTEE ROOM,
LEGISLATIVE ASSEMBLY,
29th March, 1855.

MINUTES OF EVIDENCE.

ORDER OF REFERENCE.

LEGISLATIVE ASSEMBLY,

TUESDAY, 26th September, 1854.

Resolved,—That a Select Committee be appointed composed of

MR. LANGTON,
HON. MR. MORIN,
HON. MR. ROLPH,
HON. MR. CAMERON,
MR. VALOIS,
MR. RHODES,
MR. FERGUSSON,
MR. BELL, and
MR. TACHE,

to report to the House the best means of making public the valuable information already obtained by the Geological Survey, and of completing it at an early period upon an uniform system, with power to send for persons, papers and records.

Attest,

W. B. LINDSAY,
Clerk of Assembly.

Thursday, 28th September, 1854.

In Committee on the Annexed Order of Reference.

MEMBERS [PRESENT.

MR. LANGTON,
The HON. MR. CAMERON,
MR. RHODES,
MR. BELL, and
MR. TACHE.

Read the Order of Reference.

JOHN LANGTON, Esquire, in the Chair.

The Committee deliberated.

Ordered,—That Professor *Chapman*, of the University College of Toronto, be summoned for Tuesday, the 10th proximo.

Ordered,—That the Chairman be requested to write a letter to Professor *Hall*, of Albany, in the State of New York, requesting his attendance before the Committee on the same day.

After further deliberation, the Committee adjourned to the call of the Chair.

Wednesday, 11th October, 1854.

Committee met.

MEMBERS PRESENT.

JOHN LANGTON, Esquire, in the Chair.

MR. BELL,
MR. RHODES,
MR. FERGUSSON,
MR. VALOIS, and
MR. TACHE.

Professor *James Hall*, of the City of Albany, Examined :—

1. Have you been engaged in conducting any of the State Geological Surveys of the American Union?—*Ans.* I was engaged in conducting a part of the Geological Survey of New York, from its commencement in 1836 to its close in 1843, and since that year I have conducted the investigations in the Palæontology of the entire State, in connexion with the Geology of the fossiliferous rocks.

2. You are the Author of various works on Geology?—*Ans.* I am the Author of several Annual Reports or Reports of Progress in the New York Geological Survey; of a final Report upon the Fourth Geological District of the State of New York; of two volumes upon the Palæontology of the entire State;

besides various papers upon Geological subjects, and contributions to the Geological Reports of the Lake Superior Land District, being the results of my own investigations upon the Silurian and Devonian rocks of that region. I have also contributed the Geological portions to several Reports of Explorations made by the General Government of the United States.

3. Have you had an opportunity of ascertaining what is doing in other States of the Union in this respect?—*Ans.* I have, both from an intercourse with the Geologists of those States, and from having been in several of the States where Geological Surveys are in progress, for the purpose of making personal examinations of the Geology of those States.

4. Are you aware that a Government Geological Survey has been instituted in Canada?—*Ans.* I have been acquainted with this fact from the commencement of the Survey.

5. Have you had an opportunity of ascertaining the progress that has been made on the Canada Survey, and what is your opinion of that progress and the importance of the work?—*Ans.* I have had an opportunity of knowing much of the progress of the Canada Geological Survey from its commencement, and I have a very high opinion of the character and value of the work which has been accomplished, as well as of its importance to the Province, both in its Scientific and Economical relations. To sustain this opinion I may mention that the Reports are sought after with great avidity, not only by scientific men, both Geologists and Chemists, but also by those persons who are giving especial attention to utilitarian objects, or to the Geographical distribution and the application of Economical mineral resources of the country generally; and not only is this true of the people of the Province, but also of the citizens of the United States, many of whom look to the Reports of Progress in the Canada Surveys as furnishing the best and indeed only guide to the distribution, mode of occurrence, and Geological relations of these Economic substances.

6. What in your opinion would be the best manner of placing the information and materials that have been collected on the Canadian Survey before the public?—*Ans.* In reply to this question, several modes might be suggested; but one, which appears to me such as would meet the wants of the public, is the following,—To publish in one or more volumes, an account of the Geology of the Province, which may be a revision and condensation of the Reports of Progress, with such illustrations by Geological Sections, Maps, Fossils, etc., etc., as may be required for the proper elucidation of the subject. Accompanying this volume should be a Geological Map of the Province on a scale sufficiently large to represent all the Geological formations in their entire extent, each formation being distinguished by a different color. This map might also be accompanied with a small Pamphlet, describing briefly the character and extent of the Formations as represented on the Map by different colors. It would add also to the value of the work, if a list of the Economical Products of each formation could accompany these descriptions with reference to the more important localities; referring also to the pages of the Report where more full descriptions of the particular substances are given, together with their Geological relations and Geographical distribution throughout the Province. This Pamphlet or small Volume would be, in fact, an Index to the more complete Report; and if thought proper a much larger number might be published and distributed then of the larger work. It would be very desirable, however, to have Copies of the complete work and the Map so distributed, either by placing it in all Public Libraries, or by other means better known to your Committee, that it would be accessible for reference to every person in the Province. In addition to this means of placing before the public the information already obtained, I would

strongly recommend that the Museum already commenced be advanced as rapidly as consistent with the other duties of the Geologist. The object in this collection should be the formation of a Museum of Economic and Scientific Geology, where specimens of all the Mineral products of the Province should have a place; and where those of Economic interest should be presented in a proper arrangement, not only in their natural state, but also in their wrought or manufactured condition. In separate Rooms should be arranged the scientific collection, or that part of the Museum shewing the Products of the Country in their Geological order or Chronological succession, including the characteristic Minerals and Rocks of each formation, and their mode of occurrence and association, whether of Economic value or otherwise. The stratified rocks would be arranged with their characteristic fossils and all other indications by which they may be studied or recognized in the field. This Museum should be open to the public at certain stated times, who would then have the means of seeing Specimens of the various products of the country, and of comparing Materials of the same kind from different localities, thus availing themselves of all the information to be obtained from these various sources for their own advantage, and for the public benefit. This plan would render available at an early period a great part of the information and materials already collected by the survey. I would also recommend that provision be made for the Annual or Periodical publication of other facts and illustrations not indicated above. These would consist of certain Maps representing portions of the country, requiring more minute details of Geological structure, the occurrence of Mineral veins, etc.; sections of the Strata for the illustration of the Geological position and relations of the different beds and their contained Mineral products, together with descriptions of the same; the results of Chemical analyses of Minerals and other materials, both of Economic and Scientific interest. In the department of Palæontology, an accessory so emphatically necessary to the perfection of a Geological survey, and to the true interpretation of the position and sequence of Strata, there should be published from time to time in successive numbers or decades, descriptions and illustrations of new and remarkable species of Fossils which may have been discovered in the course of the Geological Survey of Canada. I would strongly recommend this mode of publication as the materials accumulate, since by such a course the Canadian survey will receive due credit for such discoveries, and confer a benefit upon science by their speedy publication; whereas by leaving the publication till a later period, the same discoveries may be made and published elsewhere.

7. What appropriation do you think would be sufficient to bring out the result in a creditable manner?—*Ans.* The immediate appropriation necessary for publishing the Volume of Revised Reports and the Geological Map recommended, would depend on the number of copies printed. For two thousand copies of the Volume we may estimate £500. For a Map of beyond this number the cost would be proportionally less, since the cost of composition for the letter press, and the engraving of the Map, would have been incurred for the first number, and included in the estimate.

8. What annual appropriation do you think would place the Survey upon such a footing as to carry it on efficiently?—*Ans.* In order to carry on the Survey efficiently some assistance is necessary in the Topographical department; and to place the working of the Survey on a proper footing, to carry forward the Museum, and to provide for the periodical publication of the results of the investigations in a proper manner, as before indicated, an annual appropriation of not less than £5000 will be necessary.

9. In the publication of the results of the New York Survey, do you give an account of the Economic Materials to be found in the State, separate from the rest of

the Reports?—*Ans.* In the publication of the results of the New York Survey, an account of the Economic Materials was given immediately after the description of the formation to which they respectively belonged, or in which they occurred, usually under a separate head of "ECONOMICAL MATERIALS." To some extent also this information regarding Economical Materials was grouped under the heads of the several Counties of the State; in order that those persons who wished to acquaint themselves only with the materials of economic value within their immediate reach, could have an opportunity of thus obtaining the information. I would not recommend however that the Geologist be required to give a full description of the Geology and economic resources of each County in the Province. It appears to me, that after the condensed Report and Map shall have been published, the details respecting the economical resources, the character of the Soils dependent on the Geology, would form a very appropriate and useful object for the Agricultural Societies of the several districts. This would add new subjects of interest and value for such societies, and should their members find any difficulty in perfecting such Maps or Charts, they could obtain all the necessary information from the Director of the Geological survey and his Assistants.

10. Do you see any advantage in publishing the Economic part separately?—*Ans.* I can perceive no especial advantage in publishing the Economical part of the Report separately, except so far as indicated in my reply to Question 6, and for reasons there given. I do not believe that the simple indication of the occurrence of Economical Materials can have any great value, except in connexion with descriptions of the Geological formations, by which their range and extent are brought out. The distribution of these materials could not be properly explained without an amount of detail, equivalent to a description of the Geological formation to which they belong; and of its range and extent throughout the country. It appears to me therefore, that something like an index, with names of substances, their localities, etc., and references to the Report, would meet all the requirements of a separate publication for the Economical part of the Survey. The hand book to accompany the Geological Map, recommended under a previous answer, would fully meet this want.

11. Is the Geological Survey of the State of New York completed?—*Ans.* The field labor, and the publications of the several departments of the Geological Survey of New York, have been completed; with the exception of that part relating to the Palæontology, which is still in progress.

12. What is the area of the State of New York as compared with Canada?—*Ans.* The area of the State of New York is something less than one sixth part of the area of Canada; the State of New York containing less than 50,000 square miles, and Canada above 300,000 square miles.

13. What annual appropriation was made in the State of New York for the purposes of the Geological Survey?—*Ans.* The appropriation for the Geological Survey of New York, including Zoology and Botany, contemplated an annual expenditure of \$20,000. The actual annual expense may have been a little less than this sum.

14. Did that appropriation include the expenses of publication, and what were the number of copies published?—*Ans.* The sum mentioned included no part of the expenses of publication; the Reports of Progress being printed by order of the Legislature and paid for from a different fund. The number of copies of these Reports varied in different years from 5,000 to 10,000, and I have an impression that in one year they amounted to 20,000 or 30,000. The number of copies published of each volume of the Final Reports has been 3,000.

15. What has been the whole cost hitherto?—*Ans.* The whole cost hitherto, including the expenses of Exploration, publication of Annual Reports, and of the Final Reports, together with the Museum, has been about \$500,000.

16. During how many years was the Survey in progress?—*Ans.* The Survey was in progress in all its Departments from 1836 to 1843, since which time the departments of Agriculture and Palæontology have been continued. The former of these was finished during the present year; the latter is still incomplete.

17. What staff had you in New York during the progress of the Survey?—*Ans.* The State was divided into four districts, to each of which was assigned a principal Geologist and an Assistant; in the whole, four principal Geologists and four Assistants; one Mineralogist and an Assistant, for the entire State; one Palæontologist for the entire State; one Zoologist and an Assistant or draughtsman; one Botanist; making a total of fourteen persons. The department of Agriculture was not organised till 1843.

18. Would you recommend a similar plan of dividing the Survey into different sections under different persons to be pursued in our case?—*Ans.* I would not recommend, by any means, a similar plan of subdivision into districts, to be under the direction of different persons. The disadvantages are numerous, and as the result has shown in New York, the Geological portion is far from having the proper unity of plan and object. The importance of adopting some uniform Nomenclature created the necessity of a compromise after some of the rocks and groups had been described in the Annual Reports under different names; and in this compromise we were compelled to admit the existence of a system of rocks which the world is gradually repudiating. There is a further disadvantage in such a plan; some of the formations extend over two or more of the districts, and therefore it happens that the descriptions of these are repeated two or three times in different Reports. The chief objection, however, to such a subdivision I conceive to be the impossibility of having any unity of design in the execution of the work; either in the preliminary explorations, or in the publication of the Reports; while the expense is very much enhanced. Whatever advantages may attend the plan, I regard them as far from being commensurate with the evils.

19. What advantages do you think would result from continuing the system we have pursued?—*Ans.* The advantages which will result from continuing the present system of your Survey are very numerous; a few points only will be sufficient for the present object. By this system you secure a uniform plan of operations in the field, each portion receiving its due share of consideration; and from being under the direction of one mind much time and expense is saved in the exploration and examination of the rocks, since the same formation is traced throughout its whole extent, and described together, saving a great repetition, and also enabling far better descriptions to be given of each formation as a whole, than can be obtained by several observers working independently of each other. This plan enables the Director of the Survey to compare the results, over the entire Province, and decide what portions are deserving of especial investigation; and finally, the results, when published, will be more clear and concise, and present the evidence of unity of plan and purpose. It may be observed, also, that following the system adopted in New York, you would require for your greater area *six times* the number of persons employed in New York, if a similar area were apportioned to each person, forming therefore a Staff of about Fifty persons. By such a plan it is easy to be perceived that the cost would be greatly increased over the present expenditure.

20. Will you state the different departments into which your Survey was divided?—*Ans.* The Departments recognised, each of which was independent of the other, were, Geology, Mineralogy and Chemistry, Palæontology, Zoology, Botany, and ultimately Agriculture. The department of Geology recognized four independant Officers, or one to each of the four Districts.

21. Do you think any great advantage arose from the Zoological Department?—*Ans.* I am not aware of any advantages, in an economical point of view, derived from the Zoological Department. For the purposes of science, and for teaching, it has made the subjects of this Department available; and has given to all, the means of learning the natural history of all animals inhabiting the State of New York.

22. Do you think any great advantage arose from the Botanical Department?—*Ans.* I do not know of any economical advantages derived from the Botanical Department. The plants of the State of New York were before pretty well known, still this work will facilitate the study of Botany by its elaborate descriptions and illustrations; copies of this work, with all the others, being distributed to the Academies and Colleges as well as among the people generally, making it accessible to all.

23. Where there any important results from the Agricultural Department?—*Ans.* In reference to this question it might be well for me to express no opinion. The opinion of some leading practical Agriculturist in New York would be more valuable than my own.

24. What may have been the probable expense of these three Departments, together with the additional cost of publication arising from them?—*Ans.* From the best means of estimating within my reach at the present time, (from the number of volumes, and recollecting the approximate number of plates in each,) I should say that the whole expense of these departments has been between \$225,000 and \$250,000; not less than the former and probably not exceeding the latter sum; about half the cost of the survey.

25. Do you think it would be convenient and practicable to publish the Geological Maps of Canada upon a scale and on a system uniform with those of the State of New York?—*Ans.* The greater extent of Canada would render it inconvenient if not impracticable to publish a Geological map upon the same scale as the State Geological Map of New York already published. But since the Geological formations in New York and the adjoining States are uninterrupted and continuous into Canada; it is very desirable to have Geological Maps of this Province and of those of the States adjoining it published upon the same scale, and upon a uniform system of coloring and nomenclature for the different Geological formations. I conceive also that it would be very desirable to adopt, as far as practicable, the system of colors used in the maps of the Geological Survey of Great Britain. The advantages of such a course will, I think, be obvious.

26. Are you aware of any Geological Maps being published in the other States adjoining Canada, and are you aware of any Geological Surveys in progress or in contemplation in the United States?—*Ans.* A Geological Map of New Hampshire has been published, and a Geological Map of the Lake Superior Land District, which includes a part of the southern Peninsula of Michigan. Of the other States adjoining Canada no separate Geological Maps have been published, so far as I am aware. The State of Vermont has a Geological Survey in progress, but I believe no Map has been published. I have had in preparation a Geological Map of the United States east of the Rocky Mountains, originally intended to accompany the Palæontology of New York, for the purpose of showing the geographi-

cal extent and distribution of the Palæozoic rocks in the United States. This map is nearly completed and will probably be published within the ensuing year. A Geological Survey of the State of Wisconsin was authorised by the Legislature nearly two years since, and is now in progress. A Survey of Illinois has been in progress for more than two years. In Missouri a Geological Survey has been in progress for two years. The Legislatures of Kentucky and Tennessee during their last Sessions passed laws authorising Geological Surveys which are now in progress. Similar surveys are contemplated in other States, and will doubtless go into operation within one or two years.

27. What is the Scale of the New York map?—*Ans.* The scale of the Geological Map of New York is about twelve miles to the inch.

28. About what scale would you recommend as sufficient to display the Geological structure of Canada?—*Ans.* I would recommend a map of twenty-five or thirty miles to the inch.

29. Would you recommend the illustrations of our Geology to be published at once in numbers as they can be got ready, or would you delay the publication till our Survey has been more nearly completed, so that it could be arranged in a more systematic manner?—*Ans.* I would recommend that the illustrations of the Geology of Canada be published in numbers or parts, as rapidly as the materials can be prepared; and by no means to wait the completion of the examinations. I may add that this course does not prevent the final arrangement of these materials thus published, as a whole; and all the illustrations such as Maps, Profiles, etc., which constitute a large part of expense, will be used in any final arrangement for publications, whenever the work is completed. By adopting this course more time is given to engravers, and the work is better done than if a large amount be pressed forward at one time.

30. What plan was pursued in the State of New York in this respect?—*Ans.* The plan has been to wait the completion of the examinations, in order to produce the work in uniform large volumes.

31. What do you consider the several advantages of the two methods?—*Ans.* The advantage of publishing at once any new facts, or results, is that the information as soon as obtained is made available for the advancement of the subjects to which it belongs. The country and the author obtain immediate credit for the investigations. The advantage of the other method is that by a large accumulation of materials before publication, a more general or systematic classification may be adopted before the facts are presented to the public. In those departments of science already extensively known and where few new facts of interest or importance are anticipated, this plan is to be recommended. But on the other hand, in a subject like Geology, in which new facts and conclusions are likely to result, this mode is attended with great disadvantages to the author, who by being compelled to wait a long time for the accumulation of materials for a large volume, may thus lose to himself, and to the country which employs him, the credit and advantages to which these discoveries are entitled; since they may find their way to the public through other channels; and the original discoverer may at last appear in the position of producing a work which is not original. One great advantage arising from the plan of publishing in numbers or parts, according to the present system of the British Geological Survey, is that the total expense of the work is extended over a longer period of time, and will never demand any immediate large appropriation of money, as is required by the other plan. At the same time a better character of work is likely to be secured in the engravings; since by having a longer time it can be accomplished by fewer hands, and therefore the services of well trained and experienced Artists can be secured for the whole.

When also the fact is regarded, that the results will be placed at once before the public, and that the Canadian survey will always receive the credit for such original discoveries, which might be lost by delaying till the completion of the work, it appears to me that no other arguments are necessary.

32. Are there any great practical and economic advantages to be expected from Geological Surveys, such as those in Canada and New York?—*Ans.* I conceive that there are immense practical advantages to be derived from such Geological surveys. The determination of economic materials in the sequence of rocks and the delineation of their geographical distribution immediately puts the inhabitants of a country in possession of a knowledge of their mineral resources, and enables them to decide where they can best establish those manufacturing or other industrial occupations which will render such resources available for the practical purposes of life. It would be easy to cite numerous instances of this kind.

33. Can you illustrate this by facts within your knowledge in the State of New York or elsewhere?—*Ans.* The Survey in New York has resulted in tracing out the limits of formations having magnetic iron ores, both in the Northern and Southern parts of the State, and in the former, a much larger area containing these ores, as well as a much greater extent of the individual beds than before known, have been indicated. The inexhaustible character of these beds of Ore has likewise been demonstrated. It has shown the limits of the formations containing the red Iron Ores, known as oolitic or fossiliferous Iron Ores; and indicated the line of country along which they may be sought with success. Advantage has been taken of this information to open the beds of Ore at numerous points for the supply of smelting establishments, not only for the immediate neighbourhood, but these Ores have been sent by Canal and Railway to others at a distance of one or two hundred miles. The source of the productive Brine springs has been shown, and the limits of the geological formation in which they have their origin; and it has been proved to be entirely distinct from another formation, with which it had previously been confounded, and in which unprofitable borings for salt water had been made. The limits of the Gypsum formation in the upper part of the Onondaga salt groupe, which was not previously understood have been pointed out, to the great Agricultural and Commercial advantage of the Country along its range. The several positions of those formations containing flagging stones, building stones, hydraulic limestones, &c., &c., have been indicated; and much capital has since been embarked in enterprises for the development and manufacture of these materials. Some of them, as flagging and building stones, have been carried beyond the limits of the State, into Ohio and Illinois; and flagging stones from Northern New York and from the Hudson River, and from the Hudson River valley, more than one hundred miles from the sea, are now extensively supplied to the cities along the Atlantic coast. If necessary, particular instances might be cited where quarries of Slate, Building Stones, and other materials, have been opened expressly from indications furnished in the reports of progress of the Surveys of New York and of Pennsylvania. The same is well known to be true of Canada; and the knowledge of Economic Materials, derived from Reports of the Geological Survey of the Province, has been frequently applied in the selection of Slate Quarries, Limestone and other Building Materials, as well as serpentine, Soapstone, Iron Ores, &c. One of the greatest practical advantages resulting in New York I conceive to have been the proof that no valuable or workable Coal exists within the State. This fact, though of a negative character, has for ever set at rest all explorations for coal, while it has been ascertained, that during fifty years previous to the commencement of the survey not less than One Million of Dollars had been expended in abortive search for Fossil Fuel, where a well informed Geologist would have at once pronounced the undertaking useless, and certain to prove a failure.

34. Have there been any important scientific results from the New York Survey in the establishment of new Geological facts?—*Ans.* One very important scientific result arising from the New York Geological Survey has been the clearness and certainty of the sequence established from the oldest fossiliferous rock to the base of the coal formation. The survey also proved that valuable brine springs exist without great beds of rock salt; and that both salt and Gypsum are products of the Silurian period, or of the older stratified rocks; while previously it had been believed that they belonged exclusively to the New Red Sandstone, or to more modern Geological formations. Before this time it was supposed that the Gypsum and brine springs of New York were indeed of the New Red Sandstone formation; and it was consequently supposed that coal might be found beneath these rocks as in Europe. Borings to discover it were recommended. The evidence from fossil characters soon proved however the futility of such an expectation. Thus in this instance *mineral evidence* set the public wrong, and *fossil evidence* corrected the error. Again the occurrence of the rock known as the Oneida conglomerate was, from its mechanical structure, believed to be identical with the Millstone grit of England, which underlies the coal; and examinations for coal were accordingly recommended and I believe to some extent made. From the Fossils in the beds above and below this rock it has been proved to belong to the older Silurian beds. Thus in this case also Mineral evidence misled the public, and Fossil evidence corrected the error. In the first lessons in Geology which I received, it was taught that the Trenton limestone was identical with the Metalliferous or Carboniferous Limestone of England. And from this belief, with the almost immediate succession of the Oneida conglomerate just mentioned, the presence of coal was inferred, another error similar to the former which has been corrected by the subsequent study of Fossils. It will thus be seen that every scientific result has equally important bearings upon questions of economic interest.

35. Do you consider a sound basis of scientific investigation very important in leading to practical results?—*Ans.* I would answer most emphatically in the affirmative; I conceive that no practical or economical results of great value are likely to arise, except those based upon Scientific investigations. A search for ores, or any other economic product of the earth, including the metalliferous veins, can only be rationally made through a knowledge of the Geological structure of the Country. So true is this, that but for the application of Geological science, these discoveries would be, as they were centuries since, the result of accident or experiment; and Mineral researches and Mining would be placed under the dominion of the empiric. There can be no systematic mining without Geological knowledge, nor without an intimate knowledge of the particular geological formation in which the mineral or ore is sought, and its relations to the surrounding formations. In many cases a knowledge of the fossil organic remains of the formation is of still greater importance than a knowledge of its Mineral characters. One of the more prominent examples of this kind, which occurs to me at this time, is that of the great lead-bearing formation of the States of Wisconsin, Illinois, and Iowa. For many years a serious misapprehension existed in regard to the true position of the lead-bearing rock; and only so lately as 1850 was it determined by a proper examination of its organic remains, that instead of being in the Niagara group as formerly supposed, it belongs to a much lower series of rocks, viz: a Lower Silurian Limestone. This erroneous impression gave rise to fruitless searches for Lead ore in the Niagara limestone, which this late information will discourage. There are at this time multitudes of practical miners who know at once, by the occurrence of certain Fossils, the presence of the Lead-bearing rock, and who would never think of searching for Lead ore in any rock where these Fossils do not exist. This is perhaps one of the most striking instances that can be mentioned, though it is by no means an isolated one; since all Economical products of the

Fossiliferous rocks can be traced in the same manner. Miners of coal and of other products recognize the surrounding Strata, and determine their proximity to the productive bed, by the presence of certain fossils well known to them at sight.

36. Do you consider from your knowledge of the Geological structure of Canada that we shall be rich in Mineral products?—*Ans.* From a knowledge of the great Geological features of Canada, derived chiefly from the Reports of Mr. Logan, as well as from some cursory observations of my own, I infer that the Country is rich in all those Mineral products (with the exception probably of coal) which lie at the foundation of modern progress and civilization. Without enumeration, I need only refer to the list of Economic Materials given in the Geological Report of 1849–50, and to the display of mineral products in the Canadian department of the Grand Industrial Exhibition of London in 1851. I might mention, however, the immense area of the Geological formation composing the Laurentine mountains on the north of the St. Lawrence, having a length of one thousand miles by a breadth of one hundred miles, in which occur deposits of magnetic Iron ore the most extensive and valuable in the known world. This Ore, so famous in Sweden for the manufacture of steel, is associated in the same formation with specular Iron ore, Galena, Plumbago, indications of Corundum, and other mineral products. Succeeding this, you have a large area of Copper bearing rocks of the Lake Superior region, in which both Copper and Silver occur. You have also some forty or fifty thousand square miles of country on the south of the St. Lawrence composed of Metamorphic rocks of a later age. Ten thousand square miles of this area have been shown to contain Gold, and the entire formation abounds in Magnetic and Specular Iron ores, Chromic Iron, Copper ore, Serpentine, Marble, Soapstone, Roofing slates, and many other economic products. In the other formations comprising half the entire area of Canada, are abundance of Limestones and other building stones, Clays, Ochres, Bog iron ores, Asphalt, Gypsum, &c., &c.

37. How do we stand in this respect as compared with the neighbouring States?—*Ans.* In this respect Canada stands before any one of the United States, except those containing coal; but taking all the States upon her borders together, the comparison in every thing except coal is very nearly equal, if we compare equal areas of country.

38. Has Phosphate of lime been advantageously used in the States for agricultural purposes?—*Ans.* Phosphate of lime has been advantageously used in some parts of the United States for agricultural purposes, and its use is increasing. A vein of this Mineral, of an impure description, was discovered in the northern part of New-York during the Geological survey; and it has since been used to a considerable extent, and one or more cargoes of it have been shipped to Europe, though it was ultimately found to contain too little of the Phosphate to be worth the expense of transportation.

39. Is there any such difference in the Geological features of America and Europe as to raise any doubt whether persons practically acquainted with the latter only, would be safe guides on this Continent?—*Ans.* There are differences of great importance in the Geological features of America and Europe, but not such as would preclude those *practically* acquainted with the latter from being safe guides in the former. It would be far more likely that those persons who are *theoretically* acquainted only with European geology, and with little or no practical knowledge of the same, would prove unsafe guides on this Continent. The means of ascertaining the general Geological features of this Continent from published works, leave no excuse, except from incapacity, for not understanding the important differences of the two countries. I should say however that any well informed and judicious European Geologist, coming to this country for scientific purposes, would immediately avail

himself of the means of becoming acquainted with American geology. One thing however is certain, that no European geologist could come to this country, and publish results of his examinations of our Mineral products and our Geology, without being correctly appreciated by the native Geologists, both in regard to his knowledge of American geology and his knowledge of Geology in general.

40. Are you aware whether any preparations have been made in the State of New York or in other States, to collect Geological specimens for the Paris Exhibition?—*Ans.* No preparation has been made in New York, nor, so far as I am aware, in any of the states by authority of their respective governments, to collect Geological or Mineral specimens for the Exhibition in Paris for 1855.

41. Do you consider that a good collection of this kind sent from Canada would operate advantageously for this Province?—*Ans.* I am decidedly of opinion that a proper collection of this kind sent from Canada would be of essential service in making known to Europeans the Mineral resources of the country. Such a collection would attract more attention there, and the results would be more positive and immediate, than would follow any other mode of presenting this information. It is certainly surprising, that States like New York, New Jersey and Pennsylvania, and others, possessing immense Mineral resources, should not have taken means to procure a collection of Mineral productions, to be sent to Paris under the superintendence of some competent Geologist, or Mineralogist, who could at the same time give reliable information relating to the mode of occurrence and Geological position of these materials.

42. Do you think such a collection would be valued in France if presented to any of the Public Institutions?—*Ans.* I am certain that such a collection would be highly valued in France; and if placed in the School of Mines, or any other Institution of learning, would be made the basis of teaching the Geological structure and resources of Canada, and would receive especial attention in their course of instruction. I might in this connexion mention that there does not exist in the United States any considerable collection showing the Mineral resources of any one of the States arranged with reference to its Economic relations; or a Museum of Economic Geology, or a collection adapted to the teaching of Metallurgy and Mining, such as Mr. Logan is endeavouring to establish in Canada. It is to be hoped that such a great necessity will soon be supplied through the liberality of some of our State Governments. In the meantime every lover of Science, and every one desirous for the advancement of his country, should feel proud of the advances in this direction made by Canada, and more proud of the liberal feeling which still prompts to the continuance and perfection of a work so well begun.

[Witness withdrew.]

Adjourned till 11 o'clock, A. M., To-morrow.

Committee met.

Thursday, 12th October, 1854.

MEMBERS PRESENT.

JOHN LANGTON, Esquire, in the Chair.

MR. BELL,

MR. TACHE,

MR. FERGUSSON,

MR. VALOIS, AND

MR. RHODES.

Professor *E. J. Chapman*, of the University College, Toronto, Examined:—

43. Are you Professor of Geology and Mineralogy in "University College," Toronto?—*Ans.* I am.

44. Have you ever been practically engaged in any Geological Surveys?—*Ans.* Yes, in several: principally for Railway and Water Companies. I have also taken part in Mining surveys; and I may mention, as lending more weight to my evidence on this occasion, that I am the author of several works on Mineralogy, and of a considerable number of published papers on Mineralogy, Mineral Chemistry, and Geology, many of which have been translated into foreign scientific Journals. For three years, likewise, I was a Professor in University College, London.

45. Are you in any way acquainted with the Geological Survey going on in the United Kingdom?—*Ans.* I am well acquainted with most of its details: Professor Ramsay, who, under Sir Henry de la Beche, is Director of this survey, was a colleague of mine in University College, London.

46. In what manner do they proceed?—*Ans.* They go over the ground with the assistance of the maps of the Ordnance survey, and lay down the results of their observations on these maps. The Geological survey maps are thus nothing more than the Ordnance survey maps colored geologically. The Ordnance maps are upon the scale of an inch to the mile, shewing every stream and bye-road, every barn indeed, with the greatest accuracy. The Geological surveyors therefore, have not to attend in any way to Topographical details; an advantage not possessed by the Surveyors in this Province. Besides Maps, the Geological survey of Great Britain issues colored sections, to show the positions of the rocks beneath the surface, plates and descriptions of fossils, and other publications.

47. Have you had an opportunity of ascertaining the progress that has been made in the Geological survey of this Province; and what is your opinion of that progress?—*Ans.* I have devoted several days to a very careful examination of the work already performed, and the materials collected under Mr. Logan's direction; and I can only express my wonder that so much should have been done; considering more especially the small means hitherto at Mr. Logan's disposal, the want of Topographical maps, and other difficulties incidental to a new country.

48. What, in your opinion, would be the best manner of placing the information and material already collected on the Provincial survey before the public?—*Ans.* I would propose five things, with this view:—First, the publication of a Geological map of the Province on a convenient scale for general reference, accompanied by a short Pamphlet descriptive of the run of the various formations, &c., with a list of the Economic products peculiar to each of these. Secondly, the publication, from time to time, of detailed maps of portions of the Province on a larger scale,

wherever the Geological features of the district may render this advisable. Thirdly, the re-issuing in a condensed and revised form, of the reports already published. Fourthly, the publication at convenient intervals—say at the rate of about one in the year—of a series of nine or ten plates of new or highly characteristic fossils brought to light by the Survey, with descriptive letter press. And lastly, the effectual establishment of a Museum open to the public on stated days ; devoting one portion of this Museum, according to Mr. Logan's present arrangements, entirely to economic materials with practical illustrations of the uses to which they may be applied, so far at least as this can be effected; and a second portion to a collection of Fossils, Minerals, &c., exhibiting the practice and science of the survey, (see Mr. Logan's Report for 1852, page 54 *et seq.*)

49. Would the publication of the results of the Canada survey be of special utility to you in imparting to your Pupils a correct knowledge of the Mineral resources of the Province?—*Ans.* It would greatly assist me in doing so, and be of the most essential service to my classes. I have much felt the want of a convenient Map ; several of Mr. Logan's valuable, Reports moreover, are out of print, and I have been quite unable to obtain copies of them.

50. In what manner would you recommend that the Revised Reports should be published, and what system of distribution would you recommend?—*Ans.* I should recommend the re-publication of these Reports in the form of a single volume of convenient size, in which the Economic portion should be kept, as far as possible, distinct from the other parts. I would suggest that a large number, from 10,000 to 20,000 copies at least, should be struck off, and sold at a price not more than sufficient to cover the cost of distribution. A certain number might also be distributed gratuitously among the Schools, Mechanics' Institutes, and other similar establishments throughout the Province ; copies should also be sent to Public Libraries, &c., in the United States and Europe.

51. What would be the probable expense of such publication?—*Ans.* On this point I am not, perhaps, a very good authority. I should judge that the cost for paper, printing, and binding, of twenty thousand copies would be about two thousand pounds ; but an estimate might readily be obtained from any printer.

52. What annual appropriation do you think would be sufficient to publish the Plates and Illustrations, what number would you recommend, and how would you distribute them?—*Ans.* On these points I can only speak generally. I have calculated with Mr. Hall and Mr. Logan that about five hundred pounds would pay for the designing and engraving figures for ten plates, the printing of two thousand copies of these, for an equal number of copies of letter-press, and for the services of a Palæontologist in drawing up the descriptions of the plates and figures. A certain number of copies should be reserved for presentation to Public Libraries and Colleges throughout the Province ; others should be presented to similar Institutions in the United States and Europe : and the remainder might be sold at a moderate price per copy. This estimate does not, of course, include the publication of maps. A similar sum per annum would probably be required for this latter purpose.

53. Do you not think that it is very important that increased assistance should be given to Mr. Logan in the Topographical department, in arranging the Museum and in office-work generally, so that more of his time might be devoted to Scientific inquiries?—*Ans.* I think so, most assuredly. There is ample work for several Topographical surveyors ;—and additional assistance will certainly be required for the Museum, if a sufficient grant be allotted to Mr. Logan to enable him to put it into working order.

54. The results to be expected from a Geological Survey being two-fold; the establishment of new Scientific truths, and the discovery of facts and materials of Economic application, can you state to the Committee some of the advantages in both of these branches, which have been already derived from the Survey, and may be expected from its future extension?—*Ans.* With regard to Economic discoveries I may state generally, that the Survey has brought to light the existence of beds of workable Peat, before, I believe, unknown in Canada, or at least undescribed; of Slate of excellent quality, of Limestone bands, where Limestone was supposed to be absent, and of Lithographic stone, Serpentine, Soapstone, White brick clay, and other valuable materials, previously altogether unknown or undiscovered, along the localities indicated by the Survey; it should also be remembered in an inquiry of this kind, that *positive* discoveries are not the only facts of importance to be made known, *negative* results being in many instances almost equally valuable. Of this latter class, the proof of the non-existence of Coal over the greater part if not the whole of Canada, is entirely due to the Survey; whose labours have thus put a stop to much useless expenditure of money in futile researches after that mineral. Looking at the Survey again, in a scientific point of view, we find it elaborating many facts of the highest interest, some of which, I do not hesitate to say may take rank with anything made known of late years by European Science. The discovery of Phosphate of Lime as the chief component of certain shells, is a striking case in point. It was long considered as a settled fact that the Chemical composition of the bones and teeth of vertebrated animals differed entirely from that of the shells and hard parts of the lower classes of the Animal kingdom: consisting in the former essentially of phosphate, and in the latter, of carbonate of lime. This fancied difference has been broken down so far as regards certain brachiopods, by the chemical researches of the survey; a discovery which will, no doubt, lead to important deductions. Another very interesting discovery is that of the crustacean tracks on the Potsdam sandstone. The celebrated discussion, to which this has given rise in England, has attracted the attention of scientific men, all over Europe, to the results of the survey. Several new minerals have likewise been discovered and errors have been rectified in regard to species long known. A great deal of light has also been thrown on the complicated question of the metamorphism of rocks, and from the investigations now being carried on, both by Mr. Logan and Mr. Hunt, much more may be shortly expected. There can be no doubt also, that when the complete investigation of our Canadian rocks is accomplished, so far as to justify minute comparison with rocks of the same age in the United States and Europe, many important generalizations will be arrived at, leading in the end to a revised grouping and nomenclature. Finally, it should be borne in mind, that the chief attention of the survey has been hitherto bestowed on economic questions, the scientific investigation of the geology of the Province having been made in a great degree subservient to these. As the survey progresses therefore, its science will be necessarily more fully developed.

55. Can you give instances from your own experience in such surveys of the practical importance of results which at first sight might appear to be exclusively of scientific interest? *Ans.* Many instances of this kind are well known to Geologists; some have come under my own observation; when a railway crosses a stream in England, the law compels the Company to make the waterway sufficiently large to prevent the land around from being flooded during times of heavy rain, or from the melting of the snow. It is very frequently inconvenient to the Engineer to make the waterways larger than is absolutely necessary; and the usual method of procedure is to measure the nearest existing waterways, ascertaining at the same time from persons living near the spot, if these be of sufficient size to admit at all times the flow of water through them. When engaged some years ago in this kind of work, I was surprised to find the waterways over a small stream

quite insufficient to prevent flooding, when from another stream in the same locality with smaller waterways, no flooding took place; the physical aspect of the country exhibited no cause for the difference in question, but rather tending the other way. On examining the district geologically, however, the problem was explained at once. The hills and higher ground along the one stream were capped with stiff impermeable clay; along the other with gravel. All the rain which fell upon the clay, apart from that taken up by vegetation, ran off into the stream; whilst the greater part of the rain fall upon the gravel was absorbed by the porous nature of the soil. Now, had a Geological survey of such a district been made before the erection of bridges, it would have shown that the waterways over the one stream must have been very much larger than those over the other, if flooding were to be avoided.

Another case, much of the same kind, came under my notice more lately. Whilst prosecuting some Geological inquiries in Hertfordshire, a miller inquired of me why the stream on which his mill was situated, after having been at one time sufficient to drive eight pairs of stones, had gradually become unable to drive more than three pairs; thus greatly deteriorating the value of his property. The surrounding country was clay overlying porous chalk. On examining into the matter, I found that an extended system of drainage by means of the so-called "dumb wells" had come into operation in the district during the preceding three or four years, and had thus gradually affected the water power of the stream. These dumb wells are pits dug through the clay into the absorbent chalk, and afterwards filled up with rounded stones or other matters admitting the free passage of water. Drains being led into these, the greater part of the rain-fall is carried into them, and so down into the underlying porous rock. Whenever therefore a Geological investigation of a district points out the existence of permeable beds lying at an accessible depth beneath stiff clay lands, and good surface drainings is not readily obtainable, recourse may be had to the method just described.

The study of organic remains, again, is sometimes thought by persons unacquainted with the whole bearings of the question, to have little or no connexion with the practical applications of Geology; but this is altogether an erroneous conclusion. Fossils or organic remains have a two-fold value; first, in revealing to us the history of past creations, and many of the physical changes which our Planet has gone through; and, secondly, in enabling us to determine the relative positions of rock groups; each group, within certain limits, holding its own peculiar forms. Now it is well known that certain economic products are confined over wide areas, either wholly or principally, to certain rocks. To fix the exact positions of these rocks therefore in the entire series of strata, becomes a problem of the highest importance, and one, it may be safely affirmed, that in nine cases out of ten, can only be solved by the study of organic remains. In North America for instance, we have many bands of rock stretching far and wide across the continent. One of these is remarkable for its richness in brine springs and gypsum beds; and by the fossil forms in the bands above and below this, it can be ascertained at points far distant from one another, if we be above or below, near to or distant from, the salt and gypsum yielding rock; whereas if mineral characters alone were attended to, no reliance could be put on any decisions of the kind. In like manner, the position of the Mountain limestone so rich in many countries in veins of lead ore, of the coal-bearing rocks, again, and of all the other rocks in the series, however closely resembling one another in structure and mineral composition, can be determined with perfect confidence if sufficient Palæontological data be afforded. We thus see that a study apparently only of scientific value, and one worked out in the first instance by scientific researches, has become of the highest importance in a purely practical point of view. In England, as in all other countries indeed, many striking examples

may be found of what the study of organic remains has effected for practical science. In rocks far beneath the coal measures, as well as in others far above them, I have seen old shafts, for instance, which must have swallowed up thousands of pounds, still remaining as memorials of futile researches after coal, before Geology was prosecuted as a science.

56. Do you think it would be advantageous to this Province to send a geological collection to the Paris Exhibition?—*Ans.* I think it most desirable that a collection of this kind should be sent. Anything, serving to attract the attention of the scientific and commercial world towards Canada, must necessarily be beneficial to the Province; and I know of no course more likely to win that attention, than the one proposed.

57. You think then, that we have the means of forming a collection, which would be looked upon as valuable in Europe?—*Ans.* There can be no doubt about it. The interest excited by the collection sent to the London Industrial Exhibition affords most ample proof. I would suggest the expediency of placing the collection entirely under Mr. Logan's charge; Mr. Logan's name being, I know, as much respected in French scientific circles, as in those of London. A collection left to shift for itself, or placed in inefficient hands, would, I am quite sure, be deprived of more than half its value as a means of awakening attention towards the Province, and shewing its mineral resources.

58. Do you think that any advantages would arise, by the Provincial Geologist being in communication with private individuals in different parts of the Province, who take an interest in the science; and can you suggest the best means of establishing such a general intercourse?—*Ans.* Mr. Logan is, I believe, already more or less acquainted with every Geological Amateur in the Province, and always ready to receive and publicly acknowledge any information relating to rocks and their contents. He has also printed in one of his Reports a series of questions concerning these matters, adapted to the understanding of working men, and addressed to all the Province. These questions—shewing what to look for in any locality—might perhaps be advantageously re-printed in prominent type, on the covers of the publications to be henceforward issued. In the course of a few years, likewise, as Geology becomes more cultivated in the Province, an annual gathering of all interested in the science, might be brought about at Montreal or, wherever the Museum were situated. At these meetings, papers might be read, and discussions entered into. The time, however, I think has scarcely yet arrived, for a plan of this kind to be adopted with success.

59. Have you any other suggestions to make to the Committee on the subject of the survey?—*Ans.* I believe that my remarks, in answer to the questions already put to me, comprise all that I have to say upon the subject. I would beg leave, however, again to express my sense of the utility of the Survey, in regard both to its future progress, and to what it has already accomplished. Looking, for example, to Great Britain, and to France also,—countries in which the study of Geology is so much cultivated,—we find although numerous Geological investigations had been carried on by private individuals and companies long prior to the organization of the Government Surveys, yet, that these latter have made known many important applications of the Science to practical purposes, and shewn the existence of economic materials previously undetected. In a new Country like this, therefore, we may legitimately expect that many Scientific and practical developments of no ordinary value will result, from an efficient continuation of the present work.

[Witness withdrew.]

Ordered,—That Mr. Russell, of the Crown Land Department, be summoned for To-morrow.

Adjourned till 11 o'clock To-morrow.

Friday, 13th October, 1854.

Committee met.

Members present.

JOHN LANGTON, Esquire, in the Chair.

MR. BELL,
MR. TACHE,
MR. FERGUSSON,
MR. VALOIS, and
MR. RHODES.

Alex. Russell, Esquire, of Quebec, examined :—

60. You are in the Crown Lands Department?—*Ans.* I am Senior Surveyor and Draughtsman for Upper Canada.

61. Are you acquainted with the maps which Mr. Logan has made in connection with the Geological Survey?—*Ans.* I am well acquainted with them. Mr. Logan lent them to the Department, and we made copies of them.

62. Have they been of much use?—*Ans.* The Department has derived great advantage from these maps, not only in my own branch but also in the timber branch. In the unsurveyed parts of the Province they are often the only reliable information we have, and in the surveyed townships they frequently point out what errors exist. Errors are very numerous in the old Surveys, in consequence of the work having been done in a hurried manner, and also from local attraction, as the magnetic bearing was the only means used in these Surveys.

63. Have any of these errors been in consequence corrected?—It is not allowable by law to alter any original survey, performed under the authority of the Government, even if errors are detected in it; but it is very important to know what they are, and much benefit has been derived from Mr. Logan's maps in this respect.

64. Can you point out any other beneficial result from the Geological Survey?—*Ans.* In addition to the important topographical details contained in Mr. Logan's maps, which are of essential service in the organization of the waste lands of the Crown, forming, indeed, the basis for the projection of their subdivision into townships and farm lots, his reports convey much valuable information respecting the agricultural capabilities of the country, its timber, economic materials and water powers, aiding the Government greatly in deciding where new surveys should be made, and guiding the intending settler to the most favorable localities for farming, lumbering or mining. Mr. Logan's thorough practical knowledge of economical geology and mineralogy enables him to develop the resources of the country in a manner and to an extent which none of our provincial land surveyors can,—for instance,—his examinations and reports on the mineral regions on Lakes Huron and Superior, by which the Department was guided in granting the mining locations. I would also beg leave to refer to the great benefit the province derived from Mr. Logan's laborious exertions in making so extensive a collection of Canadian minerals for the Great Exhibition at London, and to his valuable services there, in bringing them under the notice of the capitalists and manufacturers of Europe, which his high standing among geologists, enabled him to do most effectually.

65. What is your opinion of the accuracy of Mr. Logan's topographical surveys?—
Ans. Mr. Logan made a survey of the River Mattawan, a tributary of the Ottawa, and afterwards a regular survey of the same district was made by order of the Department. The two surveys differed by about two chains only in a distance of thirty eight miles,—and in his survey from the St. Lawrence to the Bay of Chaleurs, by the Chat and Cascapedia Rivers, a total distance of a hundred and eleven miles, the difference between his measurements and that ascertained by the latitudes and longitudes of the extreme points, determined by Captain Bayfield, was less than a quarter of a mile. From these instances I entertain a high opinion of Mr. Logan's accuracy as a topographical surveyor.

[Witness withdrew.]

Adjourned till 11 o'clock, to-morrow.

W. E. Logan, Esquire, of Montreal, examined :—

66. How long is it since you commenced the Canadian geological survey?—
Ans. I was applied to in the spring of 1842, by Lord Stanley, then Secretary of state for the Colonies, to know whether I would undertake a geological survey of the Province, and having agreed to do so, I came out and spent about four months in making a preliminary examination, in order to arrange a plan of work. Unfulfilled professional engagements required my presence in England, and I went back in December. For this preliminary work no charge was made to the Government; and the survey may therefore be said to have commenced when I returned to America on the 1st May 1843, or upwards of eleven years ago.

67. Can you give a short statement of what you have done up to this time?—
Ans. It will be observed by a reference to the Reports of Geological Progress published, that the districts examined are as follows :

The Canadian coast and islands of Lake Superior, and two rivers on the north shore for distances of forty and sixty miles up. Here there has been shewn to exist an important copper region.

The Canadian coast and islands on the north shore of Lake Huron with distances of from twenty to seventy miles up four of its principal tributaries. Along the coast the copper-bearing rocks have been shewn to continue to some distance eastward of LaCloche.

The coast of Lake Huron from the mouth of the Severn round by Matchedash Bay, and Cabots Head to Lake St. Clair; that of Lake Erie from the vicinity of Chatham to the exit, and the upper part of Lake Ontario; with most of the country included in the perimeter formed by these coasts and a line from Toronto to Lake Simcoe. In this have been shewn great ranges of valuable building stone, of gypsum, and hydraulic and common limestone, with extended areas of white and red brick clay, bog iron ore, asphalt and mineral oil; while the structure, proved by the ascertained distribution of the formations, shews that there can be no workable coal beds in a part of the country, where even practised observers, without due caution, would be liable to mistakes that might lead to great loss of capital.

The country in a general line between Lake Simcoe and Kingston along the junction of the fossiliferous and unfossiliferous rocks; in the former of which are shewn the existence of a great range of valuable building stone, as well as hydraulic and common limestone, with lithographic stone; and in the latter enormous deposits of magnetic iron ore with whetstones, plumbago, crystalline lime-

stone and other materials; while the drift displays great areas of white and red brick clays, in some places covered by extensive tracts of excellent peat and shell marl.

The country between the St. Lawrence and the Ottawa, south of a line from the vicinity of Kingston to Pembroke, comprising a surface of about 10,000 square miles, where in addition to great areas of peat and shell marl, and clay fitted for common bricks and pottery, with bog iron ore and ochre, great ranges of building stone, hydraulic and common lime stone, and white sandstone fitted for the purpose of glass making, in the fossiliferous rocks; and magnetic and specular ores of iron, lead ore, some copper ore, plumbago, phosphate of lime, great and extensive beds of crystalline limestone, sometimes giving good marble, barytes and traces of corundum have been found in the unfossiliferous.

The Ottawa from its mouth near Montreal to the head of Lake Temiscaming, a distance of 400 miles, with many of its tributaries on the south bank for distances of from twenty to forty miles up. The economic materials in this are similar to those in the previous area and in equal abundance.

The north side of the St. Lawrence from Montreal to Cape Tourmente, as far back as the junction of the fossiliferous and unfossiliferous rocks, comprising an area of 3000 square miles, in which have been found clay fit for common bricks and pottery in great quantity, accessible in almost every part; bog iron ore in large abundance, a profusion of iron and manganese, ochres of various beautiful tints, tripoli or infusorial earth, refractory sandstone admirably adapted for furnace hearths, white sandstone fit for glass-making, ranges of excellent building stone extending the whole distance, marble; and limestone fit for burning.

The south side of the St. Lawrence and the Eastern Townships from St. Regis to Etchemin River, a surface of about 15,000 square miles, a large portion of which is occupied by a mineral region of great importance, found to hold inexhaustible supplies of roofing slate and of beautifully variegated calcareous, and magnesian marbles, the latter resulting from a band of serpentine which has been traced for 135 miles, soapstone in great abundance, dolomite, magnesite, chromic iron, whetstones, extensive intrusive masses of most beautiful granite, magnetic iron ore, occasional indications of silver-bearing lead ore, copper ore, and gold, while in the less mineralized part are good arenaceous and calcareous building stone, flagstone, white sandstone for glass-making, common brick and pottery clay, bog iron ore, peat, shell marl, and other materials.

The country between the Etchemin River, and Temiscouata portage road, in which many of the same materials as in the previous area will be found, but cannot yet be pointed out in a connected manner, the exploration having been only partial.

The coast of the Gaspé Peninsula from the Metis road by Cape Gaspé and Isle Percée to the mouth of the Matapedia River, a distance of about 800 miles, with several sections across the Peninsula from the St. Lawrence to Bay Chaleurs; the chief object of the exploration of this district was to determine the northern limit of the great eastern coal field of North America, spread out in the sister colonies; and as the carboniferous area lies unconformably on the inferior rocks, to ascertain whether any outlying patches might exist in the Peninsula. None such, however, have yet been discovered.

A large and valuable collection of specimens has been made to illustrate the economic materials, the minerals, rocks and fossils of the districts examined. This is preserved at the office of the Survey; and now that a suitable building has been placed by the Government at the disposal of the Survey, a commencement has been made to a classification and arrangement of the materials into two divisions, one to display the character and application of the useful materials, and the other the science of the whole subject.

The true bearing of geological facts, as parts of a whole, being unintelligible without the exhibition of their relative geographical positions, and so large a portion of Canada being still unsurveyed topographically, it has been necessary to measure accurately extensive lines of exploration, and the maps resulting have proved of great value to the Crown Land Office. From this collateral work is derived a large part of what is known of the interior of the Gaspé Peninsula, where six streams have been measured; the Matane, the Chat, the St. Ann, the St. John, the Bonaventure and Great Cascadepia. It has shewn the courses of the Kamanistiquia and Michipicoten rivers on Lake Superior; of the Thessalon, the Missisagau, the Spanish and the French rivers, on Lake Huron; in addition to 150 miles of the Ottawa and the whole length of the Mattawa. From it has resulted the improved delineation of the forms and distribution of a great chain of lakes in the rear of Kingston, and last year the course of the Muscoco from Lake Huron to its source; of the Petewave from its source to its mouth; of the Bonnechere from its junction with the Ottawa to one of its sources; of the York branch of the Madawaska, with a sketch of the relations of various streams, from the tributary just mentioned to Balsam lake, the whole distance in these explorations and admeasurements being 500 miles.

Chemical analyses have been made of all the metallic ores, and such other useful minerals as required it, the number of which has been very great, and in addition of upwards of fifty valuable mineral springs, of a great collection of soils from both divisions of the Province, and of new mineral species.

68. What means have been placed by the Government at your disposal?—*Ans.* £1500 in the first instance, then £2000 per annum for five years from March 1845; £2000 per annum for five years, from July 1850; and £1000 for fitting up the Museum.

69. Have you found this appropriation sufficient to enable you to proceed as rapidly as you would have desired?—*Ans.* When the survey was proposed to me by the Secretary of State for the Colonies, the sum of £1500 had been voted for the purposes of the inquiry. Though well aware that this would be totally inadequate, having no mercenary object in view, I undertook the task, determined to make the money go as far as possible; and at the end of about two years work, I found the survey upwards of £800 in my debt. I was then asked by the Government for an estimate of what would be required to carry on the examination efficiently. The estimated sum I rendered was £2000 *sterling*, to gradually pay arrears and continue the exploration and chemical analyses; but through inadvertence, the sum introduced into the Act establishing the survey for five years was £2000 *currency*, and at the expiration of these five years the Act was renewed for five years more with the same provision. The result of this substitution of currency for sterling has been, that the chief part of the difference has gradually left my pocket, in carrying into effect exploration and chemical analyses only; and now that so essential an adjunct has been made as a Museum for the illustration of the useful applications, of which the materials collected are capable, and an exhibition of the general science of the subject, without an additional grant, the pressure upon me would probably increase. In the Report of Progress for 1851-2, pages 54 to 56, to which I beg to call the Committee's attention, the expediency of an especial appropriation for this purpose has been alluded to, and the Legislature has sanctioned the application of £1000, for putting the house and rooms of the Museum into a suitable condition; but a part of this being expended upon heating apparatus, precautions against fire and other necessary arrangements, it has been found impossible to carry the interior fittings for the display of specimens quite so far as the materials collected require. Cases for a room to show the applications of geology to agriculture are still wanting, and for the further extension of some of the other branches of the subject. I have been under the necessity of

supplying at my own expense nearly all the scientific books indispensable for the proper prosecution of the survey, (now a respectable nucleus of a scientific library) and all the more costly instruments required both for topographical surveying and chemical analyses. A room has been fitted with cases for the reception of the books; but without additional provision, the funds to defray the cost must come from my Exchequer instead of that of the Government. In connexion with expenditure, I may here state, that a considerable collection of Canadian economic minerals having been made for the London Industrial Exhibition of 1851, I was naturally desirous that it should be placed in the best manner before the public, and requested of the Government leave of absence in order to attend to it on the other side of the Atlantic, offering, provided my salary were not stopped, to defray all my own expenses; for although I felt strong hopes that a favorable impression would be produced by the collection, I was unwilling to put the Province to more expense than I could help before success was achieved. Before the close of the Exhibition I returned to Canada to carry on the work of the survey, and again went to Britain for a short time the subsequent winter, to make a proper distribution of the materials that could easily be replaced, and to secure and bring back such as could not, or on which some labor had been bestowed, to put them into a useful or attractive form; and my time on both occasions may most emphatically be said to have been devoted to the interests of the survey. Living in the most economical manner, my expenses including passage money amounted to £450, which is about thrice what they would have been for the time in Canada. It is true that I consider this amply repaid by the complete success of the collection, and by the expression of approbation, which I had an opportunity of eliciting from men both of practice and of science, as to the progress that had been made in the survey, and as to the results. The best proofs I can give of this approbation are what was said of the Canada minerals by the Jury of the class to which they belonged, a copy of which I beg to hand to the Committee in the original French, and the honor conferred upon me for this and previous work, in being elected a Fellow of the Royal Society. It may be unknown to many, that only a limited number of members (fifteen I believe) is annually elected; and that the candidates for admission are usually three or four times the amount. Many candidates have been for years before the Society without success. Sir Roderick I. Murchison, than whom no one can be a more eminent judge of what deserves commendation in geological work, proposed me, seconded I believe by Sir H. T. Delabeche, the Director General of the Geological Survey of the United Kingdom, and though my name as a candidate had been before the Society only just about the time absolutely required by their rules, I received the votes of seventeen out of eighteen of the number constituting the Council, to many of whom I was not *personally* known, the only candidate who obtained all the votes being Mr. Hind, the astronomer, so well known as the discoverer of many new planets. I esteem the honor the more, as I believe I am the first native Canadian who has been elected a member, or at any rate the first native Canadian who has been elected for work done in Canada. I may thus sincerely say that I feel amply remunerated, but still the expense incurred renders me less capable to meet the deficiencies of the annual appropriation, the amount of which does not enable me to proceed so rapidly as I should have desired.

Perhaps while I am touching on the pressure of the survey on my own means, I may be allowed to say that just after the survey had been established for five years, at the rate of £2000 per annum, an application was made to me on the part of the East India Company, to know whether I would undertake an examination of their territory for coal. This branch of geology is that which I best understand. The field of research was new, and India is a country attracting much more European attention than this. I felt perfectly certain that the investigation would lead to a very extended reputation. The salary offered me was more than double what

I have here; an efficient staff was to be provided with all kinds of those aids which the Indian Government could so readily afford. But influenced by a rooted attachment to this country, and feeling that perhaps some favor had been extended to me by the community in the present investigation because I am a Canadian, I did not accept the offer.

I must not omit to state to the Committee, that while the deficiency of the Legislative provision for the survey presses upon me, the present increased value of all the necessaries of life does so severely on those associated with me in the investigation.

70. What are the principal difficulties you have met with?—*Ans.* The principal difficulties I have encountered, independently of those unavoidably incident to travelling in canoes up shallow rivers, and on foot through the forest, are those arising from the want of a good topographical map of the country. Accurate topography is the foundation of accurate geology. Unless you know the geographical position of every rock exposure that comes before you, you cannot tell the general relations of the whole, and you cannot make the physical structure of a district intelligible to yourself or to others. Without geographical position, the dip and strike of a rock are worth nothing, and the occurrence of a valuable mineral in two localities distant from one another are just two isolated unrelated facts; while their topographical place being known, their dip and strike may immediately point to the probability, and guide to the search and discovery, of the same substance in a hundred places between. It thus becomes necessary in unsurveyed parts of the country to measure correctly, as I have already stated, long lines of exploration. But even in those parts which are settled, neighbouring townships having been surveyed separately and independently, and often not very correctly, it is next to impossible in putting them together to get them to fit. Lots, or portions of lots, that are in juxta position on the old maps given in to the Crown Land Office, are not so in the field; and in many of the old surveys, lines in one and the same township, such as the township of Grenville for example, and others in the same neighbourhood, lines that on the paper are represented as straight, go staggering through the bush in zig-zags that would surprise an Indian hunter. In laying down work on such maps as these, it will be immediately seen, that if you have a useful mineral in two distant localities, such a mineral, for example, as serpentine, soapstone, slate, or such like, between which localities the observed structure of the country tells you the mineral mass should run in a straight line, and you should draw such a line from the one to the other on your paper, you might represent the mineral as occurring in lots where it was absent, and leave it out of those where it was present. Or supposing you followed the bed along its strike or direction from point to point, and then placed it on the lots in which it occurred, the result would be, that the course of your mineral would appear to have a multitude of what in this country are termed *jogs*. The geological inference to be drawn from the appearance of such on your paper would be, that the mineral band you were representing had been broken or dislocated by what are termed *faults*. The general bearing of your band would be incorrect, and might mislead you if you were depending on your result for further search; and if a map were published with these jogs, it would deceive geologists and mineral surveyors at a distance in respect to the general condition of the country's structure, making them think it was a disturbed one, and proper for the search of metalliferous veins, when it might have no such veins in it. Such a map would be more deceiving than one, on which the railroads should be laid down on the right lots in the old Crown Land plans of which I speak. No one would be deceived by the jogs in such a case, for the very nature and object of a railroad would proclaim to every one, that it could not have been so located unless the engineer had been insane. The incorrectness of some of the topographical plans, and the fact that we do not know which are right and which are wrong, makes it necessary for us even in surveyed parts, to count and register our paces

over every road and line we go, taking the bearings by prismatic compass, and registering in its proper place every rock seen, with its dip and strike, and a short description of its character, and its economic and fossil contents, if it have any. If the measurement is on a road, a note is made of the position where it crosses lot or concession lines, where it is coincident with or divergent from them; a surveyor's post is hailed by us as land is by a mariner; it represents a fixed point on the map, and enables us to limit our errors, or to detect those of the surveyor, and gives us a fresh starting point. When discrepancies are small, we give the credit of accuracy to the surveyor; but it often happens that no difference of short and long in the paces is sufficient to account for them, and the township plan is found wrong. Working in this way, Mr. Richardson, an excellent and most diligent explorer, last year paced 1000 miles in the Ottawa country, between Pembroke and Vaudreuil, keeping a register of every step; and by means of this pedestrian measurement, and township plans, he has been able to complete a map of the whole area on the scale of an inch to a mile, in which many discrepancies in neighbouring townships have been reconciled, and on which is placed, with sufficient accuracy, every rock exposure he saw. There is a part of the area, however, in and about Hawkesbury, which defies this mode of proceeding, and would require a more accurate species of measurement to set it right. It will be easily understood, that this geographical work must unavoidably impede the rapidity of geological examination; and the necessity of so much measurement to fix the position of rock exposures, forces us, in order to make even a moderate progress, to examine fewer of them, or to give to each a shorter time than we would like, and thus, perhaps, to overlook some of its characteristics.

As Professor Chapman has informed you, the corps employed by the Government in the United Kingdom, to work out the geology of the British Isles, are spared all such geographical measurements. The Ordnance topographical maps, on which they lay down the geology, represent all the natural and artificial features of the country with such minute detail and accuracy, that let them find a rock exposure where you will, they never have to measure over a few yards to fix it; indeed, it is often represented on the map, and they have then only to give it its conventional color. I beg to exhibit to the Committee a couple of the sheets of the Government geological survey of the United Kingdom; they represent a part of the coal field of South Wales, on which it will be perceived that almost every coal seam is laid down in all its windings from undulations, and almost every dislocation or fault, cutting the measures transversely. A knowledge of the position of these faults, or troubles as they are called in some parts of Great Britain, from the manner in which they perplex the collier, is a matter of vast importance in the economics of coal working. Accompanying the surface maps are five vertical sections, on the scale of six inches to a mile, shewing the manner in which the coal seams lie over one another and undulate across the coal field, one of them to the depth of six hundred fathoms below high water mark; and several columnar sections on the scale of forty feet to an inch, shewing the coal seams in their proportional thicknesses and proportional distances above one another, with a detail by symbols and description of all the ground, — sandstone, shale, iron ore, and fire-clay between them; one of the columns exhibits the details of 8,250 feet in succession. Although this and part of two adjoining sheets, which I have not here, are my own work (adopted, after careful verification, without the change of a line, by the government survey of the United Kingdom,) I would not have the Committee for a moment suppose that such work can be done in this country for a century to come. This work represents the details of a coal field, and a large portion of what is shewn on the surface is ascertained from under ground workings; from the accumulation of the drift over the coal crops, they could not in many cases be otherwise ascertained and shewn. The profusion of facts which can therefore

be accumulated by a patient investigator in a coal field, in which there have been extended crop excavations, renders it possible, if only the necessary pains and trouble be taken, to represent an amount of detail that must not be expected in other portions of the map. Independent of this, the present condition of the surface of Canada, and of its topography, would render it impossible to give the geology of the country with the detail of even that part of the British Isles, where there is no coal. Though the portion of the South Wales coal field, contributed by me to the British geological survey, does not exceed four hundred or five hundred square miles, it employed all the time I could spare from other occupations for seven years to put it together. As the reward of my patient labor, I have the gratification of knowing, that it has produced the model on which all the coal fields, that have been examined on the British survey, have been mapped; and although in 1851, thirteen years had elapsed since I presented the work, and other works of a similar character had been performed subsequently, I had the further gratification of hearing Professor Ramsay, who directs the survey of Great Britain, the most skilful field geologist known, say of my performance that it was unrivalled in its time, and had not been surpassed since. It is not through vanity that I state this, for the character of the work is well known on the other side of the Atlantic, but because on an occasion like the present, it is not improper to state what may in some degree be considered a part of the history of geology; and because I conceive it cannot be disagreeable for Canadians to know, that a Canadian geologist has executed a small portion of the best work of the British survey. The character of the work will be seen in what has been said of it in a correspondence between the Colonial Office and various eminent geologists, on the occasion of my appointment to the Canada Survey, the existence of which correspondence I ascertained only after I came to this Country, and a copy of which I have handed to the Chairman.

71. Are you acquainted with the map now being prepared by Mr. Bouchette, and do you think such a map would be of great use to you?—*Ans.* I have seen all the parts of the topographical map in the course of being constructed by Mr. Bouchette. It is a very beautiful map on the scale of six miles to an inch, and it is intended to comprehend both sections of the Province. In the part compiled it represents every lot in the townships, but not those in the seignories. Its value of course will depend on its accuracy. Mr. Bouchette has been so good as to allow me to employ a draughtsman to copy a part of it for the purposes of the geological survey, with the understanding of course that it is not in any way to be published. I have not yet had an opportunity of placing any work on it, but I can see that in the Eastern Townships several of the errors in previous maps have been corrected. That part which represents Gaspé is largely made up of topographical results, ascertained on the geological explorations of Mr. Murray and myself, of which, in whatever part of the Province they may be, Mr. Bouchette and others have been freely admitted to avail themselves. As it is a compilation, it would be too much to expect that it is correct in all particulars, but from Mr. Bouchette's opportunities it ought to be a great improvement upon former maps, and a good foundation for still further corrections. It is only by each map, that comes out in succession before the public, exhausting a portion of previous errors, that a really good one will be obtained at last. It is to be regretted that Mr. Bouchette's map is on too small a scale to give the lots in the Seignories. I have also seen in progress a map by Mr. Divine on the scale of four miles to an inch; this is of Upper Canada. This scale would be better suited for my purpose, and I do not think it would be too large, if the whole Province were represented on that scale in the form of an atlas. Perhaps I may be permitted to say that the law, which obliges the applicants for railroads to exhibit on a map correctly the boundaries of the various properties, the road is to pass through, will afford the means of collecting a great amount of information, that may be made available in

reconciling the discrepancies of neighbouring townships, which have been separately surveyed, and fitting them together. If a competent person were employed for the purpose of reducing the railroad plans to a uniform scale, and carrying out the corrections they suggest, it might produce a very valuable result.

72. What additional assistance would you desire to relieve you from the labor of topographical surveying?—*Ans.* It appears to me that two topographical surveyors, one for Lower and one for Upper Canada, yet not necessarily confined to work each in one of the divisions only, would be such as the circumstances of the case require; these should be young men, who can stand hard work, and would consider reputation a part of their reward. As their topography would have a geological object, it would be necessary for them to gradually acquire a knowledge of geology, for which they would have ample opportunity; and I am persuaded this would vastly help them afterwards, in their professional career. As they acquire the necessary knowledge, they might be employed to make geological examinations if necessary. Of course the topographers would require temporary assistance in the field from chain bearers, canoe men and such like.

73. Much of your time must necessarily be taken up with office work and in arranging the Museum; would you be materially relieved by additional assistance in this department?—*Ans.* Each one on the survey has so much to do connected with his own individual department, that all the general office work falls upon me. I keep all the accounts, and for that purpose a set of books by double entry, in which I enter no gross sums, with a reference to accounts, but everything in detail for easy and immediate reference if required, and I render an account to the Government with the same detail on the face of it; so that any one, who chooses, either publicly or privately, to look at the account, can see at once how every penny has been spent. I used at first to make, with my own hands, four manuscript copies of the annual Report of Progress, often reaching more than one hundred printed pages—one copy for the Government, one for the House of Assembly, one for the Legislative Council and one for the printer; but of late I have been forced to employ an amanuensis for part. The fittings of the Museum are scarcely yet completed; when they are I *must* employ additional aid, if it should cost me my whole salary. The accumulated materials of eleven years are to be classified and arranged.

74. What staff altogether would you think sufficient to put the survey upon the most efficient footing?—*Ans.* The present staff consists of five persons,—a directing and an assistant Geologist, a Chemist and Mineralogist, an Explorer and a Messenger. Taking all things into consideration, it appears to me that, to place the survey upon such an efficient footing as the Province could well afford, it would be necessary to add the two Topographers that have been mentioned, and the temporary aid they would require; to have an assistant in the museum, and the occasional services of an accountant, and two or three additional explorers, such as Mr. Ricardson already mentioned, with the temporary employment of miners to obtain by blasting specimens of economic materials, and of artizans to put them into useful forms. Mr. Richardson, before he came to me, had been a farmer and a village schoolmaster. His pay was at first £6 a month, but he gradually became so useful that it was augmented to £10, and in consequence of the late increased price in all the necessaries of life, I shall consider it just to augment it still further. He can construct a very good map of what he surveys, as that of the Ottawa country, between Pembroke and Vaudreuil, to which allusion has already been made, and which I now beg to submit to the inspection of the Committee, will testify. Although he may not know by name all the fossils that mark our rocks, he recognizes with facility the most characteristic forms, and knows the formations they belong to; and availing himself of their value in determining the equivalency of exposures distant from one

another, he can follow out our deposits with considerable precision, shew their geographical distribution, and determine their thickness. He is well acquainted with all the useful minerals the various formations hold; he is most careful in registering the localities in which he finds them, and I can place implicit reliance on his fidelity. A considerable part of the useful materials, in the last published Report of Progress on the north side of the St. Lawrence, was ascertained by him; he collected a large part of the economic minerals contributed by the Survey to the London Exhibition, and he is now employed in making a similar collection, as far as the season will allow, for Paris. It is an additional number of such men that would be required in the geological branch of the survey at present. A good mason, stone-cutter, slater, miner, or any artizan connected with the working of minerals, having plain common sense and strict fidelity, with just such an amount of education as would enable him to register in a memorandum book the facts that might come before him, by attention to a few geological rules, which of course would have to be taught him, would soon become an explorer of value.

75. What would be the total annual cost of such an establishment?—*Ans.* Exclusive of all publication, the annual cost would be not less than £4000.

76. Do you think any material advantage might be derived from voluntary assistants?—*Ans.* There can be no doubt of it. In localities, in their own neighbourhood, I have received valuable information from various persons, to whom I have been careful on all occasions to render public thanks. Among others who have thus favored me are Mr. Abraham, Dr. Wilson, the Rev. Mr. Bell, Mr. Billings and Mr. Sheriff Dickson. An excellent vein of geological knowledge seems to run up the Ottawa.

77. Do you think that you might derive much aid even from persons who are not strictly scientific men?—*Ans.* I am scarcely ever a day in the field in the settled parts of the country without getting a considerable amount of information from farmers and common labourers, particularly among such as are not haunted by the notion, that all our researches have the precious metals for their object. By a reference to the Report of Geological Progress presented to the Legislature this session, it will be perceived at page 142 how this immediately freezes up the fountains of communication. The settlers on the Ottawa, it appears to me, have got beyond the chance of such an epidemic, perhaps through the influence of some of the gentlemen I have named, and the *Ottawa Citizen*, which occasionally gives them a good sound geological leader. I have been informed, however, that when my friend Dr. Wilson first began his mineralogical researches, and used to carry home large blocks of stone to his premises, some of his neighbours imagined that, if he were not searching for gold, no other motive could reasonably justify his proceedings, and he might have suffered severely in parochial estimation, had not one, more sagacious than the rest, explained the matter to his own satisfaction, and that of the community, by announcing that of these stones the doctor made medicine. On the Ottawa more than any where else the settlers have appeared to appreciate what we were about, and have shown a readiness to give information and assistance. Last summer I was engaged in tracing out the crystalline limestone, interstratified with the gneiss of the Laurentian series, in various townships on the north of the Ottawa, from Abercrombie to Grenville. After following a wide band of the rock from the mouth of the Calumet for five or six miles, and explaining as I went the character of the stone to the inhabitants, who in general did not seem to know it, I came to the chantier of Mr. McHardy. He had been a tradesman in Montreal, and having ascertained by experiment that the valley was underlaid by limestone, he was prepared to give me a good deal of information about its distribution. He informed me that this band joined one which

ran irregularly parallel with it, and formed the bottom of another valley to the eastward. This I had traced for several miles, but had not come to the junction, nor had I suspected it. Making search through the bush some days afterwards, in consequence of his information, I found his opinion to be just, and it led me to a better knowledge of the structure of the district, and prepared me for what was to be expected further on. Mr. McHardy had tried what he considered the best part of the stone, because the hardest and least affected by the weather, and although he had made lime from it, it was not of a satisfactory quality, being too sandy. I shewed him that instead of taking the best he had taken the worst stone, the quartz and feldspar in it, which produced what he called the sand, being just the portion which prevented disintegration by the weather. The best stone, I shewed him, was that which fell into grains somewhat like salt, and by means of my acid, that the salt-like granular soil was almost purely calcareous, and I informed him that he had only to dig through this, which would not be very thick, and he would find excellent limestone below. Mr. McHardy informed me of several exposures of the rock between the valleys, and while clambering about a wooded knoll above a road in search of one of them, I was joined by a respectable looking smart old settler, who very civilly, in an accent that let me know at once he was from the north of Scotland, asked me what I was about; on my informing him, and explaining to him the external appearance of the rock, and shewing him the effect of acid on it, he told me that, if I would come up to his place in Harrington, he would shew me miles of it; that it surrounded several lakes in his neighbourhood, and that having a small birch bark canoe, which was easily transported from one lake to another, we could visit them all. I told him I would take him at his word, and pay him for his trouble. Carrying with me a small stock of provisions, I went up a few days afterwards, to the residence of my highland friend. He is probably some distant relation of the Duke of Argyll, for his name is William Campbell. He emigrated to the country many years ago from the Isle of Skye, where he pursued the calling of a fisherman, and he has been gradually followed by a whole clan of his relations, for each of whom in succession, as for several of his sons who are all grown up to manhood, he has selected a lot of land in his own neighbourhood. Mr. Campbell first indicated to me one or two exposures of limestone on his own farm; but I soon made him understand from these and others on his neighbours lots, as well as the run of the stratification, that his farm, which is an excellent one, was underlaid by the rock from one end to the other, and it was found that on every lot he had chosen for his relations there was more or less of it, indeed on almost every cultivated lot of the settlement; and it was not difficult to convince Mr. Campbell that the soil was dependent on the limestone for its good quality. Mr. Campbell accompanied me for upwards of a week before he had exhausted all the localities, in which he had at one time or another seen the rock within a range of eight miles around his house, the greatest extent being on the lakes he had mentioned, where he had ascertained every exposure on various fishing excursions, to which at the proper season he has recourse for the purpose of supplying his family with provision for the winter. Mr. Campbell seemed so taken with our investigation, that he proposed to me to send him a compass, a hammer and a small bottle of acid, in order that he might extend his researches. These I sent him, and he subsequently brought me information to Montreal of the existence of the rock in several lots in Wentworth and elsewhere with specimens.

Several years ago I suggested to the Commissioner of Crown Lands, that the Provincial Surveyors in running lines should be requested to collect small specimens from the fixed rocks they might meet with, marking by a number on the map, the place where they occur, and attaching the same number to the specimen. If this were extensively and perseveringly carried out, a vast amount of information might be obtained, without much trouble, of the Geographical distribution of

various rocks. The package containing the specimens, should not be opened after receipt, except by some person able and prepared to enter immediately in a book, kept for the purpose, a correct description of the specimens, prefixed by the numbers attached to them; for unless this is attended to, the labels or numbers may become detached from the specimens before a proper entry is made, and the value of the information lost. There being I believe, no mineralogist in the Crown Land Office, the packages should be sent unopened to the Geological Survey Office. If required they could be return to the Crown Land Office after entry, but it is probable they would better serve the purposes of comparison in the former. Some information has been obtained by me from Canada West by this plan, but I do not recollect of any from Canada East. I believe that specimens have been sent in to the Crown Land Office by several surveyors in Canada East, but they have never reached my hands; the intention in that branch of the department seems to be to make a considerable collection, and then send them. But as the packages have all been opened, and very probably handled by several persons, when the specimens come to me, I shall be under the apprehension that some of the labels may have been misplaced, and a doubt will attach to the whole of them and destroy their value. Without its exact geographical position a specimen is of little or no use geologically, and in regard to a collection of them I would not trust the memory of even the person who gathered them, unless he could shew marks on his map and corresponding marks on his specimens, made at the time they were broken from the parent rock.

78. Could you suggest any means of organising such voluntary assistance?—

Ans. When the survey commenced, a set of questions was framed and widely distributed, in reply to which a considerable amount of facts was obtained, extremely useful in suggesting to me a plan of operations. These questions were of the simplest kind, and so put as to be intelligible to the nonmonest workman. If the information now collected on the survey were more extensively disseminated, it is probable that a greater amount of interest would be excited on the subject. Those in the country who instruct in Geology would, instead of taking their illustrations from Europe, take them from Canada. Those who learn would see at home what now reaches their minds, vaguely as existing in other countries, and the number of those disposed to geological enquiry, would be increased from thus having a foundation, on which to build with the materials of observation placed within their reach. Perhaps a repetition of the questions already put forth, or a set framed to draw information on points obscure or deficient in the survey, might then be expedient, and probably a great number of additional facts might thus be ascertained from voluntary assistants. After a time, but it can scarcely be for a few years yet, a sufficient number of geological enquirers may rise up, to render it advantageous to have an annual meeting, as they have in the United States, at some convenient time and fit place, where there is a collection of materials for reference in a Museum or Mechanics' Institute, in order that they may compare their facts, discoveries and opinions. I am persuaded when we are prepared to do this effectually, the whole subject will receive a great impulse in the country, and a vast accumulation of valuable matter be the result.

79. What system would you recommend of publishing the information we have?

Ans.—I would recommend the publication first of a map geologically colored, with symbols or lettering to indicate the localities of some of the important economic materials; accompanied by a catalogue, such as I prepared in 1850, for the purpose of promoting a collection of native specimens for the London Exhibition. The scale of the map might be from twenty to twenty-five miles to an inch.—Next a condensation of the various annual reports. This like them should consist of two parts, one devoted to a geological description of the formations, illu-

trated by a few plates of their most characteristic fossils; and another to the economic materials which the formations yield. Any one, who has read the annual reports carefully, will know that the plan on which they are given comprehends, first a short description of the geographical features of the area examined; then a description of its geological formations and their geographical distribution. This part has always been so given, that any one who would take the trouble (a considerable amount of trouble I will allow) could by a proper use of colors on any good topographical map of the country, make for himself a very passable geological one, and I understand some one or two have really done it. A third part of the annual reports was devoted to the economic materials, and in this part, besides a more detailed account of their localities, there was, when occasion required, a description of their applications, and sometimes of the traffic in them. In the annual reports some of the formations have been described several times over. One general description of each will be sufficient, in the condensed report. It will be unnecessary to give much description of geographical distribution, as that will be represented on the map, but local or abnormal peculiarities, as far as they are known, should be described. This may require a general revision of the specimens boxed up in the Museum at present, not in a minutely critical manner, but so as, by a comprehensive comparison of different parts, to seize important features.

In addition to the publication of the map and condensed report, as soon as they could be prepared, there should come from the survey every now and then, plates and descriptive letter-press, say at the rate of ten plates per annum, illustrative of those new forms in natural history, which may be discovered in the prosecution of the investigation, or of such specimens of organic remains, as may give a better and more perfect idea of the aspect and structure of the animals to which they relate, than have previously appeared. Organic remains are now so indisputably considered the only true means of determining the sequence of strata, and a knowledge of this sequence is so indispensable to the success of the scientific and therefore *practical* miner, that it becomes the duty of any one entrusted with the direction of a geological survey to urge upon the Government, which countenances it, the propriety of placing before the public whatever increment he can find of such essential evidence. The interesting nature of this part of the subject attracts the attention of a great number of enlightened minds on both sides of the Atlantic, and the publication of Canadian discoveries in it would serve to keep the eyes of such men steadily fixed upon our geological results, both practical and scientific. We should also have the means of publishing maps on a larger scale than the general map, giving more detail of parts that may be considered worthy of it, from the intricacy of their structure, or the abundance of economic materials, together with illustrative vertical sections, as well as maps of rivers or lines of Country explored for the first time.

80. What number of the revised reports would you advise to be published and how would you distribute them? *Ans.* I do not think that between 10,000 and 20,000 copies would be too many, and they might be distributed among Members of the Legislature, Universities and Colleges, Mechanics' Institutes, Literary and Scientific Societies, Local Libraries, Grammar, Normal and Model Schools, Municipalities, Judges, Editors of newspapers, Scientific Societies in the United States, in Great Britain and on the continent of Europe, and the East India Company for distribution in the different Presidencies.

81. What would be the probable expense?—*Ans.* The evidence of a printer and publisher would be better than mine on this point, and the cost would much depend on the style in which the work was printed and covered; but I should suppose £2000 for the map and revised report.

82. What number of copies would you recommend of the plates and illustrations?—*Ans.* About 2000.

83. What would be the annual expense?—*Ans.* For descriptions and drawings, engraving and letter-press not less than £500; and as much for sections and maps of exploration and detail.

84. Do you think we should publish at once what we have, or would you wait till we are nearer completing the survey?—*Ans.* It would in my opinion be far preferable to publish at once. By so doing the credit belonging to the publication would be secured to Canada, whereas by delay, the credit may be lost by the same things being discovered and published by others. By early publication too we should obtain the benefit of discussion, leading perhaps to further discoveries.

85. Would there have been any practical advantage if the maps had been sooner published, and the reports and other information more extensively distributed? *Ans.* From the great demand there has always been for the annual reports, particularly by gentlemen from the United States, I am persuaded that a more extensive distribution would have led to a more early working of some of our economic materials. Within the last two years I have been repeatedly called upon by a gentleman of the name of Forsyth from Pittsburgh, who has made most minute enquiry in regard to all the beds of every description of iron ore that are known in the Province. I supplied him with copies of all the late reports, but it is in the earlier ones, of which no copies are to be had, that the beds which appeared to interest him most, are mentioned, hence his repeated visits to get *viva voce* what he could not find in print. He informed me that his attention was first attracted to our iron ore by accidentally meeting with one of our reports on board of a steamboat in the course of his travels, and I find that he and several partners have lately established themselves at Bytown, and made arrangements to work the great bed of magnetic iron ore in Hull. A few months ago I received a letter from the firm (Forsyth & Co.), strangers to me except in so far as their enquiries have made them known, and after several additional enquiries they say. "We cannot close our letter without expressing our warmest thanks for the kind manner in which you have afforded us information, relative to the mineral wealth of Canada; and hope that our present enterprise is but the pioneer to others. Ours, we must say, has been entirely brought about by yourself." A greater distribution of the reports might have carried copies to the hands of persons similarly disposed in respect to other materials in other parts of the Province. Some time since, Mr. Samuel Keefer, C. E., called at the office of the survey, and requested permission to examine the map, on which we had represented the various formations of the Province; after poring over it some time he exclaimed, "Now I see where I am to get my materials;" on asking an explanation he informed me he meant the building materials required for the purposes of the railroad from Kingston to Toronto. By this I judge that if the map had been published sooner, it might have been of service to railroad engineers. Mr. Gzowski, in one of the reports of the St. Lawrence and Atlantic railroad company, gave public thanks to the survey for the information afforded him in respect to building materials.

86. Can you mention any instances, which have come to your knowledge, of mistakes made in consequence of ignorance of the results you have already obtained, in consequence of their not being published at all, or insufficiently distributed?—*Ans.* On arriving at the seat of Government, then at Kingston, after my first examination of the Gaspé coast, and before any report could possibly have been

published, I found that an Act had just been passed establishing the Gaspé Coal and Fishing Company. In conversation I expressed the opinion, that there was no coal where the company intended to sink for it. This reaching the ears of a gentleman interested in the adventure, he requested me to give him in writing, for the benefit of the company, the reasons for my opinion. The reasons resolved themselves into this, that the bituminous shales, in which the coal was expected, came almost visibly from beneath certain rocks, which had been ascertained by their fossils to be of more ancient date than the Carboniferous, and that the shales themselves holding *graptolites*, fossils never found so high in the series as the coal; it would be contrary to experience to find coal in them. The company which was an English one, having very probably submitted my letter to competent judges of the evidence, instead of paying a large sum of money down, (several thousands of pounds) for a property supposed to contain coal, which was the arrangement contemplated, got the conditions altered to the effect that they should pay down the money when the coal was found. Miners were subsequently sent out, but I have not heard of the discovery of the coal. The Act making this association a Coal Company was a mistake arising from our results at the time not having been published at all.

In the spring of this year a communication, with somewhat of a learned air, was made to the Owen Sound *Lever* by a Collier, perhaps a practical one, to the effect that he had been informed by different persons, that a geologist had reported to the Government that there was no coal in Upper Canada; but that he had a fragment of bituminous shale from Collingwood, and if the geologist was acquainted with the vegetable origin of coal, and if he knew that naphtha was proved to be a part of it, he would ask him, if the bitumen in the shale did not come from coal, where did it come from? Knowing that the present theory of the origin of coal—growth in situ and submergence—is founded on my own discoveries, I felt that my light, some how or other, had got hid under a bushel. Mortified at this, I might have come down on the practical Collier with a graptolite, a fossil which abounds in the Collingwood shale, and as stated before is never found associated with coal, being of much more ancient date. But I observed that in one part of his communication he said, that if the geologist, who is said to have made such a report to the Government, has grounded his opinion upon the out-cropping and order of certain strata, together with their direction, dip and other indications, and provided he did not overlook the bituminous shale, then he would have been probably following the right track to arrive at a just conclusion. The first *ifs* looked rather bellicose, but the last were peace makers; there was some appearance of good common sense in them; I therefore merely asked myself how it came about, that the practical Collier, before running the risk of mistaking the whole case, did not really ascertain what the geologist had said in regard to this bituminous shale. By consulting our reports he would have found that we had given these particulars and others in regard to it, for a range of 1000 miles through the country. On reflection, however, it occurred to me that the practical collier was not so much to blame after all. Where could he or any of the inhabitants of Owens Sound ferret out a copy of these reports? His is a case shewing insufficient distribution of them. I am persuaded from what he has written, that if he met with the reports, he would read them and understand them. If he should come to Montreal, I hope he will pay a visit to our museum; by shewing him the geological model, which now stands on the table of the Committee, he would without one word of explanation, thoroughly understand, that the bituminous shales in Collingwood are a great depth beneath the coal of Michigan, and I would have an opportunity of telling him that if he took a fragment of the shale, with a graptolite upon it, to the other side of the Atlantic, and shewed it to my friend Sir Roderick I. Murchison, whom I think he cites, Sir Roderick would at

once tell him, without knowing anything about Collingwood or the dip and strike of the shales, "There is no coal under this." If the case were such, that the collier could truly say the dip of the nearest coal and that of the shale were in such relation, that the coal appeared to run under the shale, he would be told, "Then there must be some dislocation or some undulation between them, or they must both be turned upside down by a plait or fold in the stratification." If however he could prove to the satisfaction of a jury of the first geologists of Europe, that the graptolite shale was visibly above the coal, and that they were *not* turned upside down, to do which he would have to submit to the ordeal of a cross examination, and experience a difficulty that would probably surprise him, then it would be a new fact in Natural History, and he would be immortalized as its discoverer. By means of the Provincial and American press the Collier's letter obtained a wide circulation, and the question of coal in Canada West was beginning to be agitated in so serious a manner, as might have led to futile but expensive borings in the bituminous shale, and affected the value of property in its vicinity, had I not fortunately, in the beginning of the year, communicated to the Toronto Institute a paper on the Physical Structure of the Western District of Upper Canada, with a geological map of nearly two thirds of the Upper Province. These comprehended the whole subject, and the publication of them in August last in the Journal of the Institute has, I should think, settled the question in the minds of all sensible men, even in that of a correspondent of the Agriculturist, who would appear, by some theory of a universal north-east strike and south-east slope, to suppose it probable the coal of Illinois might run through Canada West. I beg to submit a copy of the map to the Committee, who will see from the distribution of the formations, that looking only to the upper end of Lake Erie, such a theory would carry the Carboniferous rocks of Michigan with the upper part of the Devonian on their back, some 6000 feet beneath the Carboniferous of Appalachia, with the upper part of the Devonian lying under them, where it ought to be, while the lower part of the Devonian would run between. If it were only to save the community from the influence of such—shall I say *half* learned writers, whose assertions uttered in an authoritative tone might produce mischief, it would be proper that a map should be published. What people wish they readily believe, and are thus easily deluded into costly experiments. They are sometimes, not very well pleased when you undeceive them. I was rather gruffly informed by a magistrate at Isle Percé, to whom I was explaining the reason why he was unlikely to have coal on his property, that if I had come there to prove he had no coal, he would rather I had kept away; he would rather think himself rich than know himself poor. Without the evidences of a careful investigation before their eyes, what is to prevent any designing person, who may have just such a mixture of modesty and morality in his composition, as would induce him to act on this weakness of humanity, from deluding the inhabitants of Quebec as to the probability of coal in this neighbourhood. You have the same graptolitic shales close at hand, and even small lumps of indurated bitumen, and yet the true Carboniferous area, beneath which they descend, is spread out in New Brunswick.

87. Do parties frequently apply to you for information?—*Ans.* Nearly one half my time during the day is employed in giving information to applicants. I have therefore to do most of my work at night, and seldom get away from the office until midnight and sometimes one and two o'clock in the morning.

88. Can you mention any instances of new facts established by your survey of a scientific character?—*Ans.* The Laurentian series of rocks constitutes a mountainous region from Labrador to the Arctic Ocean. The first fossiliferous rocks on the south side of it belong to the Lower Silurian series. This series, we have shewn, is wanting on the north, the first fossiliferous rocks there met with being of the Up-

per Silurian age. The inference is that the north side was above water during the Lower Silurian period, while the south was beneath it, and the Laurentian series, for many thousands of miles, would thus appear to have been the limit of a Lower Silurian Sea—a great fact in palæozoic geography.

The want of conformity in what I have called the eastern area of Canada, between the Lower and Upper Silurian rocks, and between the Devonian and the Carboniferous, with the fact that the successive disturbances in them all run in lines having parallel directions, has enabled us to shew, that a uniform set of forces producing the undulations have been in operation, from the time of the first traces of organic existence on the face of the globe, until the termination of the Carboniferous era,—a great fact in geological dynamics. A paper on these subjects was read by me before the British Association at Ipswich in 1851, and it was considered of sufficient importance to obtain the recommendation of the geological committee, that it should be printed in full in the reports of the Association, the papers in general being printed in abstract only.

We have ascertained that certain fossil and recent shells, instead of carbonate, are composed of phosphate of lime, by which has been broken down a heretofore supposed distinction between the skeletons of vertebrate and invertebrate animals. Professor Agassiz and other naturalists appear to think that very important results will flow from the discovery.

The age of the gold-bearing rocks in North America has heretofore been considered anterior to the fossiliferous, but our investigations from Gaspé to Vermont shew them to belong to the Silurian epoch.

Many mineral species have been analysed and several new ones discovered by Mr. Hunt, and his results have all been adopted by Dana, acknowledged in Europe and America to be one of the first authorities, and by all the various European mineralogists.

89. Can you mention some cases of practical advantages resulting from the survey?

—*Ans.* Limestone is almost an indispensable necessary of life. Those whose houses stand on the rock and who know it, never having experienced the want of it, can scarcely appreciate the inconvenience of those far removed from it. It has often given me great satisfaction to surprise a settler by shewing him, that he might have as much of it at his own door for six pence, as has for years in succession cost him, all circumstances taken into consideration, ten times the money, getting it from a distance. Almost every settler seems to know the calcareous character of the blue fossiliferous limestone, but very few that of the white crystalline rock of the Laurentian series. A respectable farmer in one of the townships on the north side of the Ottawa above Bytown with whom I met, seemed to have made the blue limestone his peculiar study. He was able to tell me of every visible patch of it within miles of his dwelling, and he gave me a great amount of valuable information in regard to its distribution. He had been able to find no patch of it, however, sufficiently near his residence to satisfy him. A limestone quarry on his own land appeared to be the height of his ambition; and after expatiating on his regrets, he finished by saying:—"Now, if you will find limestone near this, I'll give you five dollars," "Why, my good friend," I replied, "you are standing on limestone." He would scarcely believe me until I told him what effect acid would have on the stone, and then put it to the test. He expressed the greatest wonder that he should have been many years almost daily walking over what he was in search of without knowing it, and much resembled a man who has been for some time looking for his spectacles, when a friend informs him they are on his face.

The Honorable Mr. Morin has property in the rear of Abercrombie. He often asked me when we were likely to go out into that neighborhood, as the whole settlement in Morin and the rear of Abercrombie and Mille Isles were in the habit of making a good deal of potash, and much felt the want of limestone. In his visits to the locality, he had often, he said, searched the country round trying every rock

with acid, but without success. Mr. Hunt and myself went to the place last year, and on the second day of our exploration we discovered a wide band of the crystalline limestone and traced it for four or five miles in Mille Isles and Morin. We found that one of the settlers in Morin had accidentally discovered, by burning in a log heap, that it made excellent lime, and he was encouraged to build a very good limekiln on it. Confident of success he quarried into what appeared to him the same description of rock close behind his kiln, which he loaded with the fragments. After permitting it to burn for the usual time, he was much surprised to find in his kiln, instead of lime a half-melted slag-like mass all adhering together. He asked me for an explanation. I shewed him that behind his kiln the limestone came up to a certain line, and that it was succeeded by feldspar. He had passed over the limestone and chosen the feldspar for his lime burning experiment. He could not see the difference; both were white, and both were crystalline; but I exhibited to him by the use of a knife, that one was much harder than the other, and by the application of an acid that their properties were very different. The inhabitants of this settlement have been in the habit of sending to the front of Abercrombie for a very inferior lime, and in preference to St. Anne-des-Plaines and St. Lin for a better quality. These places are from twenty-five to thirty miles from the settlement, and I was informed by one of the inhabitants, that the burning of lime in the settlement would occasion a saving of four or five dollars yearly to every man in the place. There is much good soil on the top of the hills and much hard wood, and hence the potash.

In searching for the limestone we found that a large part of the mountains, whose slopes hold the good soil, is composed of what has been called *hypersthene* rock, from the occurrence in it of a mineral of that name. The rock, however, as ascertained by the analyses of Mr. Hunt, consists largely of lime feldspar, and hence the good quality of the soil. The beautiful mineral *labradorite* is one of these lime feldspars, and *andesine* is another. The former, when first discovered, used to be sold on account of its beauty, for its weight in gold, and applied to the purposes of jewellery. Now, ornaments cut in it are worth no more than the value of the labor expended on them. We have found it in abundance in the rock. The granular soils, from the crystalline limestones, are well known to be fruitful. On such a soil I have seen a field of oats every stalk of which was upwards of five, and a large number six feet high, with good grain at the head. The valleys underlaid by the rock have always constituted, in my mind, the main hope for the Laurentian country in an agricultural point of view; but the discovery of important ranges, largely composed of lime feldspars, greatly extends the prospect of advantage. These rocks have been met with in several localities, from Abercrombie to the Sault-à-la-Puce in Chateau Richer; and as the Laurentian series in which they occur reaches from Labrador to Lake Huron, they are a subject of real importance to both sections of the Province.

From Harrington to the front of Grenville the inhabitants have for years been accustomed to ride over the crystalline limestones, which we have pointed out to them, to get lime from the fossiliferous beds on the bank of the Ottawa, the roads running on the other kind the whole way, a distance of some twelve to fifteen miles. The same thing occurs in the western part of Chatham and Wentworth. In the east of Chatham and about Lachute, they have by some accident found out the character of the rock. Mr. Lane of Lachute, however, informed me that it is not a very great many years since the discovery was made—some twenty or thirty. Before it, the inhabitants sent to the bank of the Ottawa to the fossiliferous rock.

The practical advantages arising from the survey are only beginning to be felt. A great many substances have been pointed out that can be made available for domestic use, as the catalogue of them that has been published; and the specimens sent to the London Industrial Exhibition, very well shew. Discoveries usually lie dormant for some time after they are made. You may write about them, but can-

not always get people to read, particularly if you circumscribe the distribution of what is written; and it often requires some accidental circumstance to bring them into operation. It is several years since we indicated that roofing slates existed in the Eastern Townships, and specimens of them were sent to the London Exhibition from several parts; but it was only after the conflagration which destroyed so large a part of Montreal, that the Corporation interdicting shingle-covered roofs, the slates mentioned by the survey occurred to the recollection of Major Lachlan. He addressed a communication to the Montreal Gazette on the subject. This attracted the attention of Mr. Scobell and induced him to make arrangements for opening a quarry on one of the lots pointed out. He subsequently tempted Mr. Hubert, an advocate in Montreal, to join him, and a number of houses were covered with the slate. The advocate prudently considering that he understood law better than stone, thought it advisable to sell the quarry at a large profit; and those who purchased it had at one time during the summer sixty men at work in it, who were wholly unable to supply the demand. The proprietors I am informed could easily have sold £20,000 worth of slates if they had been ready. I understand a branch railroad is nearly completed from the quarry to join the St. Lawrence and Atlantic at Richmond, only a few miles distant. The moment it was observed by the farmers in the neighbourhood that here was a stone that might be turned into bread, every one began to search his own lot and try the schists that presented themselves. The result is that many find they have the same material, and many more will continue to find it. An example is worth twenty reports. Few read but every one can see, and this example became for the vicinity, and in regard to this one material, what I wish to make the economic department of the museum for the whole public and all our materials. If a railroad should be carried up the Chaudière Valley the example will spread its effects there, as the slate will there be obtained in equal abundance. Several of the specimens of slate sent to the London Exhibition were from that valley. Soapstone is a material pointed out as existing in abundance. There are many establishments in the States whose business is devoted to the manufacture of it alone, and the Canadian localities are coming into operation. From what we have reported of peat and from the dearness of domestic fuel, a person in Montreal has commenced preparing and selling it for house use, at \$5 per cord of 128 cubic feet unpressed, and \$12½ for the same bulk pressed. He tells me that braziers and blacksmiths have been using some of it to their satisfaction, and I am aware that some enquiry has been making about it for the smelting of iron. It is used for such a purpose in France and other countries. It is known that 40,000 people are employed in France in the preparation of peat in various ways.

90. Do you think a fuller and more complete survey would produce similar results for the future?—*Ans.* There can be no doubt of it. In a geological survey of a new country, at first you obtain only a general sketch, as it were, of the subject, which you must fill up afterwards by degrees, and the more you enter into detail the greater will be your results. What you first point out will furnish the means of farther discoveries. The working of the first useful materials ascertained is almost certain to disclose facts that will point to the existence of others, and as you find different parts of the country fruitful in results, it may become advisable to extend researches in them. The very clearing of extensive tracts of forest, by producing a greater number of rock exposures, will occasionally render it expedient to go over them in greater detail than at first.

91. Can you give any instances of wasted capital for want of full geological knowledge?—*Ans.* The waste of capital in useless researches for coal in various countries is notorious. Sir Roderick I. Murchison has said that it would be sufficient to effect a geological examination of the whole surface of the globe. Professor Hall has men-

tioned American instances, and Professors Forbes and Ramsay, of the Government Geological Survey of Great Britain, give numerous ones in the British Isles. Professor Forbes states that considerable funds were expended uselessly in a western district of England. The adventurers, ignorant of geology, had set to work in dark Silurian shales. Their mineral aspect resembled that of certain coal shales with which they were familiar. Had they possessed even a moderate knowledge of fossils, they would have abandoned their costly and profitless experiment at the beginning; for the strata were marked by graptolites, extinct zoophytes, (*the Collingwood case*), which range no higher than the lowest fossiliferous group of rocks, and the presence of which indicated the character of the strata beyond question. The fossils did not escape the attention of the miners, but, unable to distinguish differences, they mistook them for coal plants, and were confirmed by them in their error. As the Professor states, they might have bored through the centre of the earth without attaining the treasure they were in search of; their only chance of reaching it was by penetrating to the antipodes. Mr. Murray, in our first report, mentions a Canadian case,—“Many of the settlers,” he says, “in the country underlaid by this formation,” (the bituminous shales of the Hudson River group,) “seem to be strongly impressed with the opinion that it contains coal. In some instances I found them unwilling to listen to any reasons, which might interfere with their prepossession; and while a few, possessed of indications satisfactory to themselves, carefully conceal from general knowledge all information of the localities of their supposed buried treasure, through the apprehension, I was informed, that the Government would claim a right to all minerals discovered, others have proceeded more boldly to work, and have bored a considerable depth in search of the material. At Weston, on the Humber, I found that a company of adventurers had been partially formed, boring rods provided, an old miner employed, who, I believe, was a speculator in the concern, and the rock penetrated to a depth of 150 feet. Having, when two-thirds of the distance down, passed through a band of shale of darker color than usual, it was pronounced to be coal, and the work was continued in confident expectation of a large seam, until a deficiency of funds more than a want of hope caused the suspension of the operations.” A bore hole was sunk at the upper end of St. Helen’s Island in similar shales, with the same object. Another, I understand, was tried near St. Andrew’s, in still lower rocks. It appears to me not improbable, that if the value of all the labor wasted in the Province in the mere transport of lime from great distances to spots, where it might have been procured with facility in the vicinity, could be computed with accuracy, it would amount to a much greater sum than has been devoted to the geological survey.

92. Can you give any illustration of the manner, in which a sound scientific basis leads to practical economical results?—*Ans.* A considerable portion of the science of geology is devoted to tracing out the distribution of the various formations, that come from beneath one another and spread over the surface of a country, the mode of representing these being by colors on a map. What is this, in an economic point of view, but a classification of its surface into parts, each of which will give useful materials peculiar to itself? So much is this the case that Dr. Buckland, in his *Bridgewater Treatise* has shewn that a geological map of England is a map also of the distribution of its manufactures. Such a map will point out the limits to be observed in searching in new localities for materials that are known, and make every man’s discovery of any useful material, not previously known, available to his neighbours in a hundred new places. For example, I was informed not an hour ago, by Dr. Taché, that Mr. Gauvreau, of Québec, has made from some of the strata on which the city stands a very good cement. It will immediately be seen by those acquainted with the geology of the country, that this is a discovery not for Québec alone, but for hundreds of places between this and Missisquoi Bay, and for hundreds of places along the south side of the St. Lawrence below this. Accidentally meeting Mr. Lloyd of

Quebec, yesterday, who has property in the Township of Inverness, I believe, he said that he was very desirous of finding limestone in the neighbourhood of his mills, but that he believed I was of opinion it was not likely to be met with there, at any rate he knew I had made a rather careful search, and found none that satisfied me. I informed him that the reason of my careful search was that it ought to be there, and very probably was there, though covered up by drift or forest, as the rocks of the vicinity were equivalent to those associated with limestones at Point Levy, which, as I showed him on the map, would be carried by undulations through that part of the country. He told me that he had recently heard that it existed on the lot of one of the settlers in the neighborhood, and after my explanation he was disposed to credit it.

Copper ore has been pointed out and traced some distance in Inverness. The lode occupies a position in the Lower Silurian series of rocks (the top of the Hudson River group). In the report of progress for 1847-8, I stated that it was worthy of trial. Let us suppose that a successful mine were established on it. The result would give importance not merely to the ground in which the lode is immediately visible, but to all that belt of the Lower Silurian series in which the ore occurs, wherever the belt might run, provided the rock were in all cases in the same condition in respect to metamorphism; and the many cupriferous traces it contains in various parts, which otherwise would scarcely justify more than a passing notice, would become worthy of more serious attention. The general distribution of the rock could be made out from the map, and researches for the ore would thus be greatly facilitated.

93. Have you in your survey had as your principal object the establishment of new scientific facts, or has your attention been more directed to discovering and pointing out economic advantages?—*Ans.* The object of the survey is to ascertain the mineral resources of the Country, and this is kept steadily in view. Whatever new scientific facts have resulted from it, have come out in the course of what I conceive to be economic researches carried on in a scientific way. Take the scientific facts given in reply to Question 88. The fact in Geological dynamics is a result of the examination that was necessary to ascertain the Northern limit of the coal field of New Brunswick, a most important economic investigation in so far as Canada is concerned. The double discordance discovered in the investigation rendered it possible, that outlying patches of the coal formation might lie unconformably on the Devonian, the Upper Silurian or the Lower Silurian of the Gaspé Peninsula; hence the propriety of the transverse explorations between the St. Lawrence and Bay Chaleur, of which two were completely across and several partially so. These have much narrowed the chance of coal there, but they have not quite exhausted it. They have, however, so much narrowed it, that it was considered proper to postpone further examination there, until other parts of the Country had received their share. The area of Canada is so large and the explorers so few, that we could not satisfy public expectation if we dwelt a very long time on one district.

The fact in Palæozoic Geography is a result of our economic researches up the Ottawa; combined with previous observations on the northern country by various persons. Our main object was to ascertain where the fossiliferous rocks began to dip northward, in order to determine what chance of coal there was in that direction. The Lower Silurian series was found wanting, hence the scientific inference. The probability of coal, however, if any exists in that direction, was out of the limits of the province. But though the coal was a negative quantity, other materials of an economic character were ascertained to exist.

The obliteration of the mineral distinction between vertebrate and invertebrate skeletons, results from economic researches for phosphate of lime, and the

discovery may become of economic importance, not only to Canada but to other countries. In communicating it to the Director of the Geological Survey of Great Britain, I drew his attention to the fact that, if these phosphatic shells were found in any part of what are called the *Lingula beds* of his lowest series of fossiliferous rocks, in the same abundance that calcareous shells are in the calcareous rocks, the farmers of England would have to thank Canada for pointing out another source of this mineral manure.

Mr. Hunt's valuable contributions to the London Philosophical Magazine and other scientific journals of repute on the Metamorphism of rocks, which I should have mentioned in connexion with Question 88, are the result of chemical analyses made to compare the constituents of European roofing slates with those of Canada in reference to probable durability, and of other analyses with a more scientific end, that of determining whether shale, caught as it were in the act of Metamorphosis through contact with trap, and becoming what he has called *parophite*, from its resemblance to serpentine, really contained the same chemical constituents in both cases. He found that it did so. But while the economic analyses became related to a scientific result, the scientific analyses pointed to one that might become of economic value. The shale was found to contain so much potash, that it would not be surprising if in some cases such schists might turn out profitably available for this substance.

The analyses of new mineral species, while they directly regard a scientific results, must always have also an economic bearing. You cannot tell whether a new substance is to be profitably available or not, until you have ascertained its properties? The analyses of mineral species led to our knowledge of the lime feldspars of so much agricultural importance to the Laurentian Country.

Thus economics lead to science and science to economics. The physical structure of the area examined is of course especially attended to, as it is by means of it that the range or distribution of useful materials, both discovered and to be discovered, can be made intelligible. A strict attention to fossils is essential in ascertaining the physical structure. I have been told that some persons, observing how carefully attentive I endeavour to be to this evidence of sequence, have ignorantly supposed the means to be the end, and while erroneously giving me credit as an authority upon fossils, have fancied economics to be sacrificed to them. In their fossil darkness they have mistaken my rush-light for a sun. I am not a naturalist. I do not describe fossils, but use them. They are geological friends who direct me in the way to what is valuable. If you wish information from a friend, it is not necessary that you go to him, impressed with the idea that he is a collection of bones peculiarly arranged, of muscles, arteries, nerves and skin, but you merely recognise his face, remember his name, and interrogate him to the necessary end. So it is with fossils. To get the necessary information from them you must be able to recognise their aspect, and in order to state your authority you must give their names. Some tell of Coal; they are cosmopolites; while some give local intelligence of Gypsum, or Salt or Building Stone, and so on. One of them whose family name is *Cythere*, but who is not yet specifically baptized, helped us last year to trace out upwards of fifty miles of hydraulic limestone.

My whole connexion with Geology is of a practical character. I am by profession a Miner and a Metallurgist and for many years, was one of the active managing partners in an establishment in Wales, where we annually melted 60,000 tons of copper ore, and excavated 60,000 tons of coal. It was my constant occupation to superintend and direct the minutest details of every branch of the business. A due regard to my own interests forced me into the practice of Geology, and it was more particularly to the economic bearings of the Science that my attention was devoted.

94. What do you think should be the object of a Provincial Survey in an economic point of view? And what kind of information should be expected from it?

—*Ans.* The economic object of a Provincial Geological Survey in my opinion should be to indicate in a comprehensive way, and in as short a time as possible, the mineral resources of the Country, and the character and composition of its rocks, as leading to a knowledge of the origin and constitution of its soils. But the true mineral riches of a Country do not consist of its gold and its silver, but of those more common materials, which possessing little or no value as they lie in the earth, are yet capable of supporting a large amount of labor in receiving the forms, in which they become applicable to the wants of man. Where these are in fortunate combinations they may sometimes originate exports, but they can scarcely fail in any Country to be largely required for domestic use and afford employment to a great number of its inhabitants. Coal and iron are two of the materials, the presence or absence of which should be immediately ascertained. Limestone should be brought as near as possible to every man's door, and among the various substances capable of employing native industry, to which researches should be directed are common and refractory clays, building stones, slates, mineral manures, combustible materials, grinding materials, mineral paints, and a multitude of other things too numerous to be mentioned. Wherever these materials are found they are usually in quantities that are large and certain, and all that relates to them is easily calculated; and they would therefore constitute a safe foundation for Manufactures. Metalliferous veins are of course to be carefully attended to in a Geological Survey, but from their very nature, without considerable preliminary expense no approximation to true results can be formed. I have given a description of the nature of a mineral vein in the report of 1849, on the North shore of Lake Huron, page 29, and if the Committee will do me the favor to refer to it, they will see with what caution mineral veins should be approached in a new country. In old mining countries analogies guide the miner to an opinion in new lodes in a known mineral district; but it would be dangerous to place too much confidence on these analogies, a thousand miles distant, in regard to results that in the nature of things are unavoidably attended with great uncertainty. All that can therefore safely be done in regard to mineral veins is to state their existence and describe their character where they are visible, leaving it to private enterprise to ascertain the expensive facts necessary to lead the way to a sound opinion in respect to quantitative returns. Even a moderately effective examination with this regard in any one locality would sweep away more than the whole funds at the disposal of the Survey for a season's exploration. It is not to be expected that the Geological survey of a country is to discover every economic mineral that exists in it. For centuries after the very best that could be made is finished, new materials will be brought to light; but one great duty of those who conduct such a survey, and perhaps it is the most essential, is to ascertain physical structure to the fullest extent the means placed at their disposal will allow, and to represent it. This is a work, the benefit of which will be felt for all future time, for as stated already, by this you arrive at a classification of the surface into parts, which, each in respect to a certain set of materials, limit the distribution both of what is known and what is to be known, facilitate discoveries, and make available to a multitude of his co-inhabitants, whatever mineral product the intelligence or good fortune of any and every individual may enable him to bring before the world. Even in an old country like the United Kingdom, where so great a number of her mineral products has been so long known, that we might despair of additions, it has but recently, it may be said, been thought wise by the people, that this classification should be accurately and minutely carried out, and new discoveries have been the consequence; its expediency therefore cannot be doubted in a new country at the beginning of its career, when there is so much to learn and so much to be made known respecting its mineral resources.

95. Do you think it would be advisable to send a Geological Collection to the Paris Exhibition?—*Ans.* I certainly think it would be a very beneficial thing to send a Collection of Canadian Economic Minerals to Paris.

96. Do you think any great benefit resulted from our contributions to the London Exhibition?—*Ans.* In my opinion the London Exhibition was one of the most splendid and successful advertisements for Canada in regard to Minerals and every thing else that could have been contrived. She then became known to thousands upon thousands of just such people as she in various ways wants, who might otherwise never have dreamt of her resources.

97. Could you collect materials in the interval, which would do credit to the Province?—*Ans.* I could, with great exertion, make a Collection that would very much resemble that sent to London, the masses, perhaps, not quite so large, and not so many pieces or specimens from each place.

98. Would you expect to get much aid, in collecting specimens, from others?—*Ans.* I should be very happy to receive aid from others, but I must not calculate too much upon it.

99. Would not some pecuniary aid be required for the purpose?—*Ans.* The London Collection cost about £150 in travelling expenses, assistance from labourers and freight to Montreal. Wages are now double, labourers do scarcely more than half-work, and the rivers will soon be frozen up.

100. Do you think it would also be advisable to send a Collection to the Sydenham Crystal Palace?—*Ans.* As the Exhibition at the Sydenham Palace is a permanent one, it could be made the means of a constant reference to the productions of Canada, and a Collection of them there could not fail to be of advantage.

101. Have you had any proofs hitherto of the estimation in which your labors in this country are held by foreigners?—*Ans.* Mr. DeVerneuil, in a paper communicated some years ago to the Geological Society of France, of which he was then President, *Sur le parallélisme, des dépôts paléozoïque de l'Amérique Septentrionale avec ceux de l'Europe*, in remarking on the extraordinary thickness of the Carboniferous rocks of Nova Scotia (14000 feet) given in our First Report of Progress, observes: *C'est à M. Logan, directeur des travaux Géologiques, qui s'exécutent dans le Canada par ordre du Gouvernement, et l'un des observateurs les plus exacts et les plus consciencieux, que l'on doit la connaissance de ce fait si intéressant. Ses mesures ont été prises sur des couches légèrement relevées, et qui affleurent sur les côtes de la mer, en sorte qu'elles offrent un grand degré de certitude.* In the same paper, in his remarks on the palæozoic fossils, he says on the *Orthis Verneuilii*: *C'est avec un sentiment de plaisir que nous avons reconnu cette belle espèce des couches siluriennes inférieures de la Russie dans les magnifiques collections de M. Logan à Montreal. Ce savant distingué l'avait trouvé à Jessop's Rapids, sur la Rivière Ottawa, dans des couches du même âge que celles de Trenton.* What he calls a magnificent collection was a very small part of that belonging to the Province, the result of two seasons work.

Mr. Taylor in his Statistics of Coal (to be found in the library of the House of Assembly,) a work which has been most favorably criticised by the Edinburgh Review, and of which I understand a second edition is in preparation, quotes freely from the Reports of the Canada Survey in several places. In speaking of my Joggins section he says: "This section is one of the most remarkable ever accomplished, and may be quoted as a model of close investigation, and extraordinary accuracy, in developing an enormous series of beds. It comprises the vast group of coal measures which are displayed along the cliffs locally named the Joggins, of the sea shore at Chignecto Bay. The locality so singularly favorable for taking the strict admeasurement, and constructing an exact section of the vertical thickness of the coal formation, has been frequently alluded to by geologists

and travellers; it remained for Mr. Logan to demonstrate by a laborious survey, the true thickness of the whole group in northern Nova Scotia. His section is subdivided," &c., &c., &c. Mr. Murray is also quoted by Mr. Taylor.

Mr. Horner, when President of the Geological Society of London, some years ago in his anniversary address, occupied several pages with a minute analysis of my Joggins section.

Sir Charles Lyell, and Mr. J. Dawson of Pictou, in a joint paper to the Geological Society of London last year, touching some of the phenomena of part of the same ground, requested me to allow certain results deducible from my section to be incorporated with their remarks.

Mr. Dawson, who is an excellent Geologist, and has contributed many valuable papers on Nova Scotia to the London Geological Society, on the receipt of the Canada Report for 1851-2, writes to me, "You are certainly making an admirable Survey, better I think than any in the United States."

In an article in the Quarterly Review for October 1851, on Lyell, the Beauharnois footprints are alluded to, with a passing compliment on the caution and experience of the chief of the Geological Survey of Canada.

In an article on The Future of Geology in the Westminster Review for July 1852 it is said, "The Colonies and dependencies of Great Britain are not without their explorers. In Canada there is a state Survey far advanced under the direction of Mr. Logan, the scientific results of which already rank with any produced from European Institutions of the same kind."

Mr. Hunt's communications to Silliman's Journal on points connected with the Survey of Canada, have been twice copied, (a rare occurrence) without solicitation into the London Philosophical Magazine, conducted by Sir D. Brewster and others. Mr. Hunt has sent other articles at different times to this Magazine. His analyses of mineral species and his various results with regard to them have been adopted, as already said, by Dana, one of the first if not the first Mineralogist of the day, and he is quoted in the works of French and German authors, among the former of whom MM. Gerhardt and Laurent in their *comptes-rendus*, I believe, compliment him very highly.

The Reports of the Survey generally, and Mr. Hunt's communications to Silliman's Journal and the American Association on Canadian Geology are largely quoted by Sir J. Richardson, in his Arctic Expedition, lately published.

102. What annual grant do you think would be sufficient to carry out all the objects, which you have recommended to the Committee, in an efficient manner?—*Ans.* Not less than £500.

[*Witness withdrew.*]

The Reverend *Andrew Bell*, of L'Orignal, examined:—

103. Are you familiar with the science of Geology?—*Ans.* I have paid considerable attention to it, for a number of years, and am tolerably acquainted with it; and in the course of my visits to different parts of the Province, in the way of professional duty, during the last 25 years and upwards, I have improved these opportunities so as to make myself intimately acquainted with the Geology of Western Canada especially.

104. Are you well acquainted with Mr. Logan's Reports, and with the progress of his Survey?—*Ans.* I am well acquainted with these reports, having, from time to time as they were published, obtained a complete set of them, and having given them a careful and thorough perusal at the time of their publication, as well as subsequently, when I had occasion to refer to them. And I am also well acquainted with the progress of the Survey, not merely from the reports, but from having frequently in different parts of the Province, particularly in Canada

West, met with, and heard of, the different parties employed, and thus knowing the progress which had been made, which my own acquaintance with the Geology of Canada, enabled me both to understand and appreciate.

105. What is your opinion of the accuracy and extent of the information hitherto obtained?—*Ans.* Comparing these reports with the Geology of the country so far as I am acquainted with it, I have always found the information contained in them to be exceedingly accurate; and considering the vast extent of territory to be gone over, as contrasted with the means at Mr. Logan's disposal, the amount of information obtained in regard to the whole, has been very great.

106. What is your opinion of the importance of the results in a scientific point of view?—*Ans.* Besides bringing out to view the relative age of the rocks of Canada, and their place in the Geologic scale, as well as their Geographical distribution, and thus filling up what had previously been almost a blank in the Geological Map of the world, the Survey has shed a great deal of light on the whole structure of this country, and the various movements and changes which have from time to time taken place; and amongst the many fossils brought to light, affording the means of a deeply interesting comparison with those of other countries in which the same formations occur, a number of new ones have been found of much scientific interest, all going to shed light on the former condition of things in this part of the Globe. Further, the scientific acquaintance, which has been obtained with the structure of the country, can be made available in more easily tracing out materials of economic value. And, moreover, when some of the formations occurring in this Province, have been traced through to the neighbouring Provinces and States, and connected there with some, concerning which doubts may have been entertained, the whole are thus more clearly and satisfactorily understood. And the Provincial collection of fossils and minerals made during the Geological Survey, when once properly arranged, will form a noble contribution towards the advancement of science.

107. What is your opinion of the practical advantages which have as yet been derived from the Survey?—*Ans.* The Survey has shown very fully in what ranges of country various minerals of economic value are to be found, as well as where they are not to be found,—and, to a very great extent already, where they *actually are found*.—In the case not only of the more common materials employed in building, such as limestone of the best descriptions, brick clay, roofing slate, hydraulic cement &c., (and this is often a matter of no little importance to architects and engineers,) but of the metallic ores, marbles, gypsum, &c., &c. the Survey has already brought to light facts sufficient to show that the mineral wealth of Canada is enormous, affording materials for the useful and profitable application of labour, skill and capital, to an almost unbounded extent, and of course all tending towards the future and progressive prosperity of the Province. The *discoveries* of the Geological Survey have already ministered largely to the wealth and prosperity of the Province; as for instance in the case of the roofing slates in the township of Kingsey, C. E., as well as in other instances. But as I believe Mr. Logan is prepared to bring forward a number of instances of this kind, I need not trespass on his peculiar domain. I may however be indulged in a few remarks in regard to two matters of great importance—iron and coal. In regard to iron, although less sought after than the more precious metals, it is nevertheless known that we have in various parts of the Province immense masses of iron of first rate excellence, the same in fact, as that which is imported from Russia and Sweden, for the manufacture of all the finest cutlery and all the steel used in Britain, and as this is a matter of national importance, it is well worth the consideration of the Legislature whether such encouragement could not be given to

the manufacture of native iron, as not only to furnish a home supply for the prodigious demand for railway purposes, but also to create even a foreign trade in the best sorts, furnishing to Britain at all events that supply, which has been heretofore furnished by Russia and Sweden. Further, in consequence of the occurrence of three different sets of black shales or slates, the Utica, the Niagara, and the Marcellus, among our stratified and fossiliferous rocks in different parts of the Province, and the outcrops of these extending in the direction of their strike, to great distances through the country, it has been hastily but erroneously assumed by many, that coal existed in Canada, and every now and then, when some one came upon the outcrop of some of these black shales, a hue and cry was raised that coal had been actually found. Now, one great practical good that our Geological Survey has done, is, that it has furnished materials which, dispassionately considered, will disabuse every mind, capable of national conviction of this error. The position of the coal formation in the Geologic scale has been well and accurately ascertained by observation and experience in all other countries where it occurs, and has been universally found to be above the Devonian or old red sandstone formation, and that again to be above the Silurian. Now, our Geological Survey has shown most conclusively, from the contained fossils of our rocks, which furnish an unerring index to the several formations, that all our stratified and fossiliferous rocks in the Western part of Canada, which are remarkably undisturbed, are Silurian,—and that in the extreme Eastern part of the Province, where they approach the New Brunswick coal field, they do not rise above the Devonian. Further, when the stratified rocks of Western Canada are followed into the neighbouring States in the direction of their dip, they are clearly seen to run under the Devonian rocks of Southern New York, and Northern Pennsylvania and Ohio, as well as Michigan to the Westward, and these again in their turn are seen to run under the coal formation, which thus occurs in that part of the Geologic scale where a well informed Geologist would naturally expect to find it. The results of our Geological Survey are such as should, at once and forever, settle all doubts in regard to this matter. It has been most indisputably proved that there is no coal in Canada, we may be all sorry that it is so, but being so, the knowledge of that fact, which our Geological Survey has established, may prevent many from ruining themselves by expending large sums of money in mining for coal where it will never be found. It has been well attested by men eminently qualified to judge, that, previously to the Geological examination of Britain and the State of New York, more money was lost in fruitlessly mining for coal where none existed, than would have paid many times over for the Geological Survey of these countries. If then, this needless expenditure be saved to Canada, it will be found in the end, that, in regard to this one matter, the Geological Survey has been practically a gain to the country. Moreover, in order to give a correct display upon a Map of the Geographical distribution of the various rocks and useful minerals, the Geological corps have found it necessary to Survey Geographically or rather topographically, as well as Geologically, and thus they have very largely contributed the materials for the construction of a more correct Map of Canada than has ever yet been published.

108. What do you think are the prospects for the future of the benefits, both scientific and economic, to be expected from it?—*Ans.* When it is considered how vast a territory the Survey has been spread over, in order to satisfy the public mind with a general view of the Geological structure and mineral products of the country, it will be easily understood that, when further time and increased means have enabled the Geological corps to make a more thorough examination of every part of the Province in detail, the past advantages and success of the Survey will be an earnest of the future, both in a scientific and economic point of view. Struc-

tural difficulties at various points will be better understood,—a better collection of fossils and minerals will be made, and new ones may be discovered; all tending to increase the light of Geological science,—many more localities abounding in minerals of economic value will be explored and brought under public notice, and a more correct and complete Map of the Province furnished. It is of the utmost importance, then, that increased means should be placed at Mr. Logan's disposal to enable him to attain these ends as fully and as speedily as possible.

109. What manner would you recommend of publishing the information hitherto obtained?—*Ans.* Nothing could be more excellent of their kind than the Annual Reports of Progress already published, and where persons have been fortunate enough to obtain and preserve complete sets of them, they will find in them, as a whole, a very satisfactory display of the information hitherto obtained, although the information on various points is necessarily very much scattered through the several Reports from year to year. But unfortunately the number of these Reports heretofore published has been very limited, and those of any one year have seldom fallen into the same hands as those of any former year, while of the first one, which was one of the very best of them, and in its general description of the Geology of the whole Province, contained the key to the whole, so very few were printed that it is quite impossible to obtain it now. And where single Reports are in the hands of different individuals, however excellent they may be as Reports of Progress for a particular year, they necessarily give to the individuals possessing them but a very limited and unconnected view of the Geology of the Province as a whole. To meet the felt and growing want for fuller information, it has been sometimes proposed to republish the whole of these Annual Reports, just as they stand in one volume; and it may be mentioned, that such is the appreciation of their value in the State of New York that it has even been proposed to republish them there. Instead of this, however, I would rather recommend that, in anticipation of the complete and final Report which Mr. Logan contemplates at the close of the Survey, there should be published as soon as possible a general Report of moderate extent, compiled and condensed from the whole of the Annual Reports up to the present time. This Report need not of course be so bulky as the whole of the Annual Reports taken together, and when the whole of the information scattered throughout these, in regard to each particular rock and each particular useful mineral, is brought together under one head, a much more connected and satisfactory view of the Geology of the Province would be given. I would also recommend that it should be accompanied by a coloured Geological Map of the Province, of convenient size, and a few sections. It should also contain woodcuts of all the most characteristic fossils of the several groups of rocks, and a few of the most common chrySTALLINE forms of minerals. And finally, I would recommend that such a number of copies should be published as to make it accessible to all, who wish to make themselves acquainted with the Geology of the Province.

110. What number of the revised Reports would you advise to be published?—*Ans.* From what I know of the interest awakened by the Annual Reports, and the growing desire throughout the Province to see them: I would advise that not less than ten thousand (10,000) copies in each language should be published. The more the better; in fact you could hardly err in publishing too many.

111. How would you recommend them to be distributed?—*Ans.* Over and above the general and promiscuous distribution of them in all the Counties, Cities, and Towns of the Province through their Representatives in Parliament, as at present, I would recommend that all Colleges, Academies, County Grammar Schools, Mechanics' Institutes, Literary and Scientific Societies, Public Institutions of every

description, all Public Libraries in Towns, Counties, and Townships, Municipal Councils, &c., &c., should be liberally supplied with them.

112. Would you advise that they should all be given gratuitously, or that some portion should be sold at the cost of printing?—*Ans.* The distribution indicated in my former answer might be gratuitous. But I think that at least a portion might be sold at the cost of printing; and I feel certain that they would be most cheerfully purchased at that rate, by very many who had not otherwise an opportunity of obtaining copies for their own use.

113. Do you think any great advantage would result from a large distribution of them?—*Ans.* I think it would be unquestionably of great advantage to distribute them largely. There is as yet no other way in which a knowledge of the Geology of Canada can be obtained by general readers; and it is of no small importance that the public mind should be well informed in regard to a matter so intimately connected with the prosperity of the Province. On the part of many, there is still no small amount of ignorance and prejudice, in regard to this matter, which may be dispelled by a wider diffusion of sound and correct information with a work, such as is contemplated in the hands of our people throughout the country,—the coloured Map and sections giving them some idea of the particular rock formation of their immediate neighbourhood and its connection with others, and the engravings of fossils and chrySTALLINE forms, enabling them to recognize these in the rocks around them, and to identify them thereby; there is no doubt but that a deeper interest will be felt in Geology, and consequently observers and explorers will be multiplied, and interesting and important informations in regard to fossils and minerals may be supplied from many a nook and corner, that in such a widely extended country (and much of it still under forest,) might otherwise remain unnoticed. Besides, a wide distribution of this Report might in many cases, bring it under the notice of persons in other countries, possessed of wealth or skill, who might be attracted by the resources of the country and become valuable settlers, assisting by their wealth or their skill in developing these resources.

114. Do you think from your own experience that there is a growing taste for Geological studies, and an appreciation of the advantages to be gained from them?—*Ans.* Yes. Nothing is plainer to me from my own experience, than the fact that there is a gradual breaking down of the prejudices which have been entertained in regard to Geology; and amongst the whole circle of my friends and acquaintances throughout the Province, I have marked a growing desire for information in regard to it, as well as a growing conviction, that there is a definite and orderly arrangement of the rocks, and that it is only in certain rocks that certain useful minerals are to be obtained,—in short that it is science, that points the way. This is especially the case among the young men of the generation fast coming into public life; I see it in the increased love there is for Geological reading generally; I see it in the incipient collections of fossils and minerals, I occasionally meet with through the country, and I see it in the frequent visits I receive for the purpose of seeing and studying my own collection. And this leads me to remark that were, the means furnished for the Provincial collection of fossils and minerals already made during the Geological Survey being properly exhibited in the museum, this would have the happiest effects in not only assisting and cherishing the study of scientific Geology, but also in convincing even the most casual observer as to the actual resources of the Province. And while the Survey is going on and there is an opportunity for collecting extensively, I would recommend that, as a means of extensively cherishing this taste, provision should be made for furnishing to each of the Colleges as complete a collection of fossils and minerals as possible. This has been done in some of the neighbouring States, and

the advantages of it to the young men attending the Institutions, and through them to the country at large, is sufficiently obvious. I understood that, in addition to the usual Reports of Progress, it is in contemplation, hereafter, to publish annually a set of plates of the latest discovered and most striking fossils, with letter press descriptions : and I would most cordially recommend the proposed plan to the favourable consideration of the Committee, as an additional means of fostering the love of Geological study, and exciting a spirit of scientific investigation.

115. What number of the illustrative plates would you recommend to be published, and how would you distribute them?—*Ans.* I would distribute them on the same plan as the condensed general Report on the Geology of the Province ; but not altogether to the same extent. For instance, the gratuitous distribution might extend to Colleges, Academies, County Grammar Schools, Mechanics institutes, Literary and Scientific Societies, and all the principal public Libraries, and the remainder might be sold at cost. In this way, as I suppose there would not be the same extensive demand for these as for the general Reports, perhaps two or three thousand copies would be enough.

116. Do you think any advantage would arise from the Geological Survey being in communication with private observers in different parts of the Province, and what means of effecting this would you recommend?—*Ans.* I think there can be no doubt as to the advantage. There is already a considerable number of well accomplished Geologists in the Province, with most, if not all, of whom Mr. Logan is already in communication. What seems to be wanted is some systematic arrangement in order more fully to secure the bringing together of all information obtained, in a more regular way into one common focus and to bring about opportunities for intercourse and discussion. For these ends I would recommend the formation of a Geological Society, similar to those in Britain and the neighbouring States. A considerable portion of its business might be done in the way of correspondence ; but there ought to be a yearly meeting of members from all parts of the Province, and, upon the same plan as the meetings of the British Association for the advancement of Science at the different principal cities in rotation, or, (what would be an excellent plan,) at the same time and place as the meeting of the Legislature, and it ought to be aided by a Legislative grant.

[*Witness withdrew.*]

The Reverend Professor *Horan*, of Quebec, examined :

117. Are you Professor of Geology and Mineralogy in the Seminary of Quebec?—*Ans.* I have occupied that position for some years.

118. Are you acquainted with the reports of the Provincial Geological Survey?—*Ans.* I am, and my impression is that their importance entitles them to the attention of all persons desirous of obtaining a knowledge of the Geology of Canada.

119. Do you think the Survey has had important results in a scientific point of view?—*Ans.* In my opinion the Survey has had extremely important results in a scientific point of view. By the labors of the commission the age of the rocks of Canada has been made known ;—it has been proved that they are all older than the carboniferous,—thus putting an end to fruitless searches after coal. These rocks have now been traced over a very large portion of the Province, and facts have been elicited tending to establish the existence of a shore to a Lower Silurian Sea of vast extent. Then the presence of phosphate of lime in the remains of *Lingula*, is a new fact never before revealed, and which does away entirely with former

distinctions between the skeletons of vertebrate and invertebrate animals. Several new minerals have been discovered, analysed and described; These results with very many others are highly interesting, important to Geological science, and cannot fail to reflect credit on the Province.

120. Do you think the Survey has made known facts of general utility?—*Ans.* By reference to a catalogue of the economic materials and deposits of Canada, published by the Provincial Geologist, and appended to the report of progress for 1850-51, it will be easily perceived that the Survey has proved beneficial in an economic point of view. Previous to the publication of the Reports it was impossible to know anything of the mineral riches, &c., of the country. At the present moment there are, if I mistake not, before the House two Bills to incorporate Companies formed to work Slate quarries in the Eastern townships; Now, previous to the Survey. The existence, or at least the value of these quarries was utterly unknown, the existence of soap-stone, ochres, &c., has been published, and in some localities lime has been shown to be at the door of many who heretofore sent to great distances to obtain it.

121. Has the information obtained by the Survey been of use to you as a teacher of Geology?—*Ans.* In teaching Geology the information obtained by the Survey has been of very great use by furnishing on many points illustrations, without which it is next to impossible to impart a knowledge of the science. Heretofore teachers have been forced to seek those illustrations in European works, &c.; a mode of instruction which must always take from the interest and utility of the study. I must state, however, that as yet we are debarred from the principal benefits resulting from the Geological Survey, and we must remain so until such time as the collections are put in order and laid open to inspection.

222. Do you think it important that the information contained in the Reports should be republished in a revised form; and what kind of revision and rearrangement would you recommend?—*Ans.* To me it would seem advisable that the information contained in the Reports, with whatever other matter might prove interesting should be condensed and republished, together with a Geological Map of the Province. This Map should be so drawn up and coloured as to convey at a glance a knowledge of the different formations and localities of the most important economic materials, represented by symbols in the ordinary way without this Map. I should think it next to impossible to give of the mineral productions of the country, such a view, as any one, wishing to enter on a speculation ought reasonably to desire. Moreover, as the nature of the soil generally depends on the accompanying rocks, another advantage to be derived from a Geological Map would be to give a knowledge of the agricultural capabilities of any given tract of country, and thus throw much light upon the principles of an enlightened culture. The condensed Reports ought to be divided into two parts, the one giving a description of the formations, illustrated by a few plates of the principal characteristic fossils; the other devoted to their economic materials. It would appear to me that it is very important that the republication should begin at once: and as there are many new scientific facts, which have been brought to light by the labors of the Commission, facts which may possibly be made known by others if the publication be delayed, the work should be brought out in parts as soon as ready, so that the credit may be given where it is due, and the Province may derive honor for its efforts in favor of science and industry.

123. Do you think that any great advantage would arise from publishing the economic materials or sections of the country in a separate form?—*Ans.* I do not think that any benefit would be derived from publishing them in a separate form as an enlarged and correct view of the value of economic materials could not be

thus conveyed, and no enlightened person will be inclined, whilst seeking to be come acquainted with the economic portion, to overlook that which appertains to the scientific part of Geology, since this alone can furnish him with a safe guide to conduct him in his researches.

124. Do you think that a good index both of places and materials would be a useful addition to the republished Reports?—*Ans.* A good and complete index both of places and materials would certainly enhance the value of the publication, and increase its usefulness. It would give the means of seeing at a glance the contents of the work, and would also save much time in cases of reference.

125. What extent of demand for such a publication do you think there would be within the Province?—*Ans.* I should think that 10 or 12,000 copies would be as small a number as could be printed. It might perhaps be desirable to publish a much larger number, for although they may not be required within the Province, such a work will eagerly be sought after in foreign countries.

126. Do you not think scientific investigations should go hand in hand with, and are a necessary foundation for practical economic information?—*Ans.* Such is the universally received opinion throughout all the countries of Europe, and the efforts now making in England and France in this direction show, that these countries are fully alive to the importance of science in its relations to practice. Science and practice are mutual aids; and practice, when unaccompanied by science, is mere empiricism, and is a fruitfull source of error. It is only by science with practice that a country can improve its resources. Thus, for example, by a Geological Survey, the structure of a country is made known, a guide is given to conduct the engineer in his labors, new sources of mineral and agricultural wealth are developed, and (a very important point not to be obtained without scientific investigation) a wrong expenditure of capital is prevented. How many thousands of pounds might have been saved, what a vast amount of expense and labor might have been avoided, had the men who, for example, searched for coal in England and in the neighboring State of New York, combined scientific with practical knowledge.

127. Do you think that in the future operations of the Survey it would be advantageous to enlarge the personel of the Department?—*Ans.* On this point I cannot say much, not being acquainted with the present organization of the Department. It would seem to me a false economy to refuse the Chief of the Department any thing which might contribute to render the working of his Department more effective. I may here remark that if, as mentioned in my answer to question 122, we have been hitherto prevented from receiving all the benefit, which would arise from a study of the collection now in process of formation, it has been entirely due to the want of a sufficient number of competent persons to arrange and classify the specimens, and thus form a museum where the public might find amusement combined with instruction.

128. Do you think it would be advantageous to send a Geological and Mineralogical collection to the Paris Exhibition?—*Ans.* Such a step would be decidedly advantageous, for it would be the means of making our mineral resources better known, provided proper and competent persons were selected and sent to explain it. On this selection, in my opinion, depend entirely the good results we ought to expect in sending such a collection.

(Witness withdrew.)

The Honorable *William Badgley*, of the City of Montreal, Examined:

129. Can you give the Committee any information with respect to the Geological Department of the Province?—*Ans.* I know little, personally, of the Department, except that Mr. Logan appears to be indefatigable in collecting information for it, and at all times affording most patient and kind attention and assistance to enquirers in Geological pursuits. As to the service itself, I have always considered it of primary importance, that the country should be informed of the mineral wealth which it possesses, and that the localities in which that wealth is deposited, should be fully made known. Several instances have come under my own observation, in which the Reports published by Mr. Logan have led to, as well as facilitated the establishment of mineral manufactures in this Province. For instance, the Slate formation in Kingsey, which is under manufacture, was originally obtained by a reference to those Reports, and affords not only an extensive home supply, but may be made to furnish an article of export. The quarry at this establishment has an opened face of slate, of over 300 feet in length, by two ledges, steps of over 20 feet each, from which the slate is taken and prepared for market; and a tram road of about five miles in length, connecting the quarry with the Portland Railroad, will shortly be in operation, at a cost of construction of £8,000 currency. The Townships in the neighbourhood of Kingsey shew similar slate deposits and serpentine, and a variety of marble for building, and other economical purposes, are opened out from time to time. Application was not long ago made, to load back to Barbadoes from Portland, with Kingsey slate, by a large vessel which had landed a cargo of sugar, but the home consumption required all the slates that could be made at the time. Steatite or soap stone, which is largely manufactured in the United States into furnaces, tanks, cisterns, stoves, coffins, and a variety of other purposes requiring a material capable of resisting heat without decomposition, and impervious to moisture, has also been pointed out by the Reports, and enterprise has been directed to its manufacture. A variety of other minerals and deposits are constantly exposed by the effect of Mr. Logan's survey, and would, no doubt, be greatly increased in number, if the Reports could be re-published for extensive circulation at a small expense. Frequent applications have been made to me for copies of the Reports, but they were not to be procured. I will only add, that parties from the United States have been induced to purchase mineral rights in this Province from their discovery in the perusal of the Reports.

(*Witness withdrew.*)

Mr. *John Lovell*, of the City of Montreal, Examined.

130. Do you print the Sessional printing of the House of Assembly?—*Ans.* I do.

131. Have you printed Mr. Logan's Reports of the Geological Survey?—*Ans.* Yes,—I have always printed them from the commencement.

132. Is there much demand for them beyond the quantity which is ordered by the House?—*Ans.* Yes,—I have had applications for them constantly, and have generally, in addition to the number ordered by the House, printed an extra 50 copies for myself, which I have distributed gratuitously, and also 250 copies for Mr. Logan, which were charged to his private account.

133. If a revised and condensed edition of former Reports were published, do you think there would be much demand for them on the part of the public at large?—*Ans.* I have no doubt of it whatever. I could have disposed of several hundred copies of each Report if I had printed them for myself. I do not doubt

that, if these Reports were advertised for sale, a large number might be sold. Gentlemen from the United States are continually applying to me for copies, and I have in several instances, through the kindness of Mr. Logan and others, been able to furnish applicants with a complete set.

134. What number of copies do you think would be required for general distribution?—*Ans.* If it is intended to make a general circulation of the work, I should say at least 10,000.

[*Witness withdrew.*]

Count *de Rottermund* of Quebec; Examined:—

135. Are you acquainted with Mr. Logan's Reports?—I have read several of Mr. Logan's Reports, printed by order of the Legislative Assembly, under the name of Geological Survey of Canada.

136. From your acquaintance with them, what is your opinion of their accuracy and importance?—*Ans.* My opinion of their accuracy is the same as might be entertained by any other person who has the pleasure of knowing Mr. Logan, that is to say, that that scientific gentleman could only have described what he was enabled to see or know. With respect to the importance of what is published by his Department, it is, or may be useful as general information in certain cases, especially that part of it which is signed by Mr. Logan and Mr. Murray.

137. Are there any theoretical conclusions expressed in them, from which you dissent?—*Ans.* I am of a different opinion as to the formation, position and importance of the mines, the information about them, and descriptions, especially of the auriferous mines, published from 1847 to 1854. These descriptions, are, in my opinion, very prejudicial to the interests of the Country. They are deficient in positive information which, from the repeated observations made in every year for a long time past, and mentioned in each of the Annual Reports, should have been produced, a description more in accordance with what the importance of the mines requires, both as regards the position of the so called mineral sediments, if they be sediments, and the cause why that metal should be so capriciously scattered over so considerable an extent of country; if it is so scattered, and if it is in lodes or veins, its position should have been traced. But to say every year, since 1847, only that there is none worth speaking of, hardly visible with the help of the microscope; and in other parts of his Report that there are 10,000 square miles of auriferous land, requires a more detailed explanation, as to the nature of that description of mines, than a mere enumeration and summary of the ideas of authors, with regard to parts of the country of small importance as regards auriferous land. This method of publication is only calculated to throw discredit and ridicule on the subject, as even the words prove which Mr. Logan makes use of in the Reports of 1854, "gold-hunters;" for instance.

138. Do you consider the facts stated in them, with respect to Mineral Deposits, to be correct, as far as they have come under your observation?—*Ans.* My opinion is different with respect to the position, formation and importance of auriferous mines.

139. Do you think there are imperfections in the Reports, from omissions to describe what is to be found, or do you think that any section of the country is improperly described, so as to lead to the supposition that it does contain what does not exist there, or does not contain what has been or may be found there?—*Ans.* I do not think, that that could have happened as a voluntary omission;

knowing privately the means which Mr. Logan had at his disposal; that is to say, the Geological Department with the organization as it exists. He has described, in his Reports, almost all the Territory of the two Canadas. Moreover, he has been on several Commissions of Navigation, Exhibitions, &c., and taking into account that the whole works of exploration last only four months in the year, including bad weather, there is rather cause for surprise, that the short time at his disposal should have allowed him to pass so much in review; still more that he should have found means to make even a slightly superficial examination. It is impossible, with an organization such as at present exists, to expect any other kind of Report.

140. Do you think that it would be of advantage to the country, to publish, in a corrected form, the information already obtained by re-publishing the substance of Mr. Logan's Reports, together with maps, sections and other illustrations?—*Ans.* Whatever may be my personal opinion, or that of any other man of science, I believe that the works which Mr. Logan is desirous of publishing as his own, are worthy of publication; and particularly, with respect to maps, they would be highly useful to the country and to science.

141. Can you name any particular part of the country which would be injuriously affected by the publication of the Reports?—*Ans.* I believe that the opinion so often repeated, particularly with reference to the mines of Lower Canada, may prejudice Foreign Capitalists, and so destroy confidence in the working of the mines of Canada, and expose the people of the country who undertake to work them, to great and protracted struggles, without protection or assistance of any kind. On the contrary, they may have to contend against vague information, published under the sanction of Government; for this kind of description by no means gives information, which may aid in opening the works of the Mines, but creates sufficient excitement, to entail ruin by the great confidence which it inspires or by the premature discouragement consequent upon failure.

142. Can you name any particular facts or conclusions in the Reports, the publication of which, would have an injurious tendency?—*Ans.* I am not sufficiently acquainted with the wealth of Upper Canada, but as to Lower Canada, I am convinced that these Reports are injurious to the mining interests. Lime, marble and other workings of rocks, known as ordinary quarries will sustain no detriment nor receive any marked encouragement; but the publication on the subject of the auriferous soils, of platinum, of copper, of the chromate of iron, &c., as they are described in this Report, cannot in any way facilitate the prosecution of the works; on the contrary, it takes away all confidence from those who are in the habit of employing their Capital in mines; for the first impression produced by a pretended investigation, ending in disappointment, strikes for many years with a kind of ostracisme, and consequently the interests of the Country suffer to a great extent as, well as the credit of the Companies, and that of private individuals: instances of this are the copper mines of Leeds and gold mines at various places. But at the same time, I must observe that I am very far from blaming the author of the report, as I know, that being quite alone, he could not devote the whole of his time to his Geological labours, properly so called, and at the same time to the mines, to the navigation of the Lakes, Exhibitions, and a thousand other occupations to which he has been appointed.

143. Were you directed to those parts of the Country where you are engaged in mining operations, from information gathered through Mr. Logan's Report?—*Ans.* As long since as the year 1844, I gave my opinion of the richness of the mineral ores to be found in the Country; and in 1845, before Mr. Logan visited the

various auriferous mines of Canada, and before the discovery of gold and the diggings in California and Australia, I induced the Honorable Judge Caron, late Speaker of the Legislative Council and several others, to search for gold in the District of Quebec. Then came my Report published in the *Annales des mines, etc., de France*, which was reviewed by the Commissions of whom were Mr. Elie de Beaumont, Senator and Director of mines, &c., and other eminent Chief Engineers. That Report confirmed by specimens of the whole formation which I carried with me to Europe, proves that the opinions of Mr. Logan as laid down in his Report, were of no service to me in the selection and acquisition of the auriferous lands for the St. Lawrence Company.

144. Do you think that a good Geological Survey is an essential preliminary, or a material aid, towards a successful search for minerals?—*Ans.* It is an undoubted fact that a good Geological exploration is very useful in the search after minerals.

145. Do you think that the study of fossils, and the publication of Reports and engravings connected with them, is necessary, in the examination of the country for mining purposes?—*Ans.* The search for fossils and their publication, although not one of the fundamental principles which guide us in a search for minerals, might, after a long series of researches and comparisons, lead to some more direct advantage.

146. Do you think that a continuation of the Geological Survey, would have a beneficial effect in an economic point of view?—*Ans.* Every species of investigation can be of advantage to the country, and particularly a well organized Geological Survey.

147. Would you recommend an increased grant for this purpose?—*Ans.* Countries like Canada, require a department entirely devoted to Geology and mines, organized on an extensive scale and permanent footing, for if the department of the mines is well conducted, it will form, from the various raw products, a very considerable revenue for the Province, bring in a large emigration of labourers, capitalists and mechanics, and furnish new occupation for the youth of the country, who aim at being useful. For there are, in it, innumerable resources of wealth which are not improved and turned to account, and which might bear competition with those of our neighbours, and hold a very important place in comparison with theirs. Accordingly every grant of money applied to this purpose must be useful to the country.

148. Do you think the Department of Scientific Geology, and the Department of practical Mining should be kept distinct?—*Ans.* The Department of Geology and that of the Mines, ought to be, as in other countries, conducted by a Council, and not by a single individual, for it is difficult for one person to possess all necessary qualifications to enable him to judge of scientific and practical undertakings, with which he has no personal acquaintance.

149. What annual grant do you think would place a Mining Department on an efficient footing?—*Ans.* The persons whose business it will be to organize this department, will be able to furnish particular information which I cannot give, in the short interval you have allowed me to answer so many various questions.

150. What extent and what kind of information do you think, private individuals should be entitled to claim from the Mining Department, supposing one to be established, or from the general Geological Survey?—*Ans.* Every individual ought, without distinction, to be able to procure a Map of any part of the country

which he is desirous of having, with the formation, direction, and character of the rocks and minerals, and the analysis thereof, with their use and advantage, on the payment of a certain sum to cover the expenses of this kind of publication. Moreover, before offering the Crown Lands for sale, the Government ought to cause them to be examined, and if there are mines, to sell them as such, with their products, forming lots suitable for the working of the mines or for agricultural purposes. By this means, not only would the Government receive a great revenue, but at the same time many capitalists would find an immense advantage in making complete purchases, rather than to be liable to considerable expense in acquiring portions of land from various individuals, to be obliged to pay enormous prices, in order not to be cut short in following the direction of a vein, and to find themselves ruined at last by the excessive expenses.

151. Are you acquainted with the Chemical Reports of the Survey, and what is your opinion of their value?—*Ans.* Some years ago, I particularly examined the Chemical works presented to Mr. Logan by his Assistant for the years 1847 and 1848, and published in 1849. I even made some remarks on the worthlessness of his analysis, and having received an answer more polemical than scientific, I did not think proper again to notice works which are undeserving of any serious attention.

152. Do you think a Chemical Department is essential in a Geological Survey?—*Ans.* Chemistry is most essential in the Department of Mines, as to Geology alone, uncombined with any other pursuit, Chemistry is superfluous, for the Geologist is supposed to have sufficient general information, when he wishes, to describe the nature of rocks. As to the direction, the age or epoch of deposits, the nature of the fossils, for these he does not want chemistry. We judge of fossils, by the impress of their surfaces, and not by their chemical composition, while in the Department of the Mines it is important to know, not only the direction of the vein, the direction of the rocks containing the mineral, its quantity and the method of working it, but also the composition and proportion of all substances, whether metallic or not, the natural state of such matter, and of all that is found in combination with the mineral, to be worked.

153. Would you recommend the Geological Mining and Chemical Departments to be kept separate, or would you have all the Departments of the Survey under one general management?—*Ans.* The Department of Chemistry cannot be separated from that of the Mines; the Council of Directors of Mines and of Geology ought to be integral, for Geology and the Mines, although distinct and separate objects of study, ought to minister to each other. These three Departments ought to be united and placed under the direction of a Council, in order to ensure unity of action in all operations which require exact knowledge, and not superficial ideas, the gleaning, of cyclopaedias.

154. Can you suggest any alterations in the system hitherto pursued, or any addition to the present staff, which would in your opinion be of advantage?—*Ans.* In the present Department I see no officers, but those who are required for Geological pursuits, such are Mr. Logan and his Assistant, Mr. Murray. As regards a knowledge of Mines, such as the Country would require, as being of the highest importance to render the works undertaken, scientifically and practically, useful to the Country in the aggregate, I see no one.

155. Do you think it would be advisable to make a Geological and Mineralogical collection to send to the Paris Exhibition, and what means would you recommend for forming such a collection?—*Ans.* Canada having received from

France numerous gifts at various times, it seems to me incumbent on the Province, on many accounts, to exert itself to the utmost, to contribute liberally to the General Exhibition. Having no scientific works of note to present, it ought to feel more than common interest in making the most of all its natural products, particularly those of the Mines. In support of the opinion which I now submit to the Honorable the Committee of the Legislative Assembly, I shall communicate to them an extract from a letter which I have received, written by order of His Imperial Highness Prince Napoleon, who is likewise President of the General Exhibition.

“ His Imperial Highness regrets extremely that his departure, now near at hand, does not permit him to attend throughout the several departments to which it belongs, to the repairing of the losses which Canadians has to deplore. He hopes that you will rightly appreciate all the cases and subjects of consideration necessarily imposed upon him by the preparations for such a voyage. In any other circumstances the Prince would have been happy to give to the Government of Canada a proof of his readiness and anxious desire to do something to merit its esteem. His Imperial Highness requests that you will be the bearer of this assurance, and believe, &c., &c., &c.”

His Imperial Majesty and the Institute of France, are moreover desirous of contributing their aid by various presents of works useful to the Country.

I consider then that the House has a most favorable opportunity of testifying its sentiments towards the Country which has behaved so generously to Canada. With reference to the collection of Minerals, my advice would be to require the Geological Department to furnish all that it can, indicating the place where each specimen was found, accompanying all by a Geographical Map if no Geological Chart can as yet be had, and enriching the collection by the acquisition of all the specimens which the several Mining Companies can furnish respectively.

[*Witness withdrew.*]

The Committee adjourned to the call of the Chair.

Samuel Sleeper, Esquire, of Stanstead, C. E., Examined:—

156. I believe you are connected with the Quebec and St. Francis Mining Company?—*Ans.* I am a Stockholder in the Quebec and St. Francis Mining Company.

157. Are you acquainted with Mr. Logan's Reports of his Survey?—*Ans.* I have read Mr. Logan's Reports with care, but have not seen that number relating to the Survey of 1853.

158. What is your opinion of the value of those Reports?—*Ans.* I consider those Reports of great value, inasmuch as they indicate to the Mining Engineer, the localities in which he may hope for success in his search for valuable metalliferous deposits.

159. Do you think them of sufficient value to justify their being republished for general distribution?—*Ans.* Those Reports appear to me of sufficient importance to justify their being republished. At the same time, in order to prepare them for general distribution, it would be advisable to have them revised and condensed under the supervision of Mr. Logan.

160. Do you think that a Geological Chart as far its details are as yet known, should be published at the same time?—*Ans.* It would be of great service to the scientific enquirer, as well as to the general reader, if a colored Geological Chart say 24 in.) were appended to the volume of republished Reports.

161. With what part of the country are you best acquainted?—*Ans.* My explorations for minerals have been mainly in the County of Megantic, and I have some knowledge of the Counties of Sherbrooke and Stanstead, and the valley of the River St. Maurice and of the Chaudière.

162. Do you think the study of Geology useful in Mining operations?—*Ans.* The study of Geology is of great value to the Mining Engineer, as it is now well known that certain metalliferous deposits, sufficiently extensive to be valuable, can be found only in certain geological formations.

163. Have you yourself derived any advantage in your Mining operations from the Geological Reports?—*Ans.* I have derived little or no advantage from Mr. Logan's Reports, as I had previously obtained the necessary information from other sources.

164. Do you think there are any serious omissions or any erroneous views theoretical or practical in Mr. Logan's Reports on your section of the Country?—*Ans.* There are omissions in Mr. Logan's Reports, but these have arisen from a hurried survey, for which he cannot be held accountable, as the Country under his investigation is too extensive to admit of minute examination within the time he has been engaged. I cannot venture an opinion as to the correctness or incorrectness of his theoretical views, but whether they are based on his own opinions, or on the opinions of others, they appear to me to be of little value to the practical miner.

165. Do you think it would be advantageous to institute a more detailed survey?—*Ans.* The advantages of a more detailed survey appear to me evident, from the fact, that it would be but completing a work, which has been systematically commenced.

166. How long have you been acquainted with the County of Megantic, and from your knowledge of that part of the Country what do you think would be the expense of obtaining an effective knowledge of the Geology of that County alone?—*Ans.* My exploration of Megantic has been carried on during the greater part of three years; but having been principally engaged in searching for and tracing out deposits of ores, I am not prepared to make an estimate of the expense of obtaining an effective knowledge of the Geology of that County.

167. Do you think there is anything in Mr. Logan's Reports which would render their publication detrimental to the interests of the Country?—*Ans.* Mr. Logan's Reports, however deficient they may be, from causes above stated, are very beneficial to the Country, and they will probably be more highly valued in future than they are at present.

168. What is your opinion of the importance of the Mineral products of Canada?—*Ans.* The Mineral wealth of Canada is in my opinion very great, and it will doubtless well repay the capitalist and the skilled laborer whenever their energies shall be properly directed to its development.

169. Do you think that there has been much done hitherto towards rendering our Mineral wealth productive?—*Ans.* Very little has as yet been done to render our Mineral wealth productive. This is owing to the difficulties which are always experienced in a new Country where mining is not understood. Losses,

through needless expenditure, are incurred before mines can be brought into profitable operation, and this operates as a serious check to men of capital and enterprise.

170. Can you mention any of our Mineral products which are now being successfully worked or which are likely to be worked soon?—*Ans.* Iron ore appears to be almost the only mineral which has been successfully worked. Some of the ochres have been brought into use. Several copper mines have been opened, and probably within a few years there will be in successful operation mines of copper, lead, zinc, and perhaps silver and gold. These are found at present most extensive on the North Shore of Lakes Superior and Huron, between Bytown and Kingston, in the County of Megantic, and in the valley of the Chaudière.

171. Can you give the Committee any other information connected with the subject of their enquiries?—*Ans.* Other information, which I might feel disposed to lay before the Committee, has been acquired in connexion with a private Company, and its communication, at present, in a detailed form, might be held to be prejudicial to our interests.

[*Witness withdrew.*]

—
Wednesday, 10th November, 1854.

MEMBERS PRESENT :

JOHN LANGTON, Esquire, (Chairman.)

MR. BELL,
MR. RHODES,
MR. VALOIS,
MR. FERGUSSON.

The Chairman laid before the Committee an account from Mr. *De Rotterdam* for payment as a witness before the Committee amounting to £76—but it was not thought necessary to take any action in the matter.

On motion of Mr. *Bell* seconded by Mr. *Valois*, it was

Ordered,—That it being impossible for the Committee to Report to the House for some weeks, in consequence of the great length of the evidence (which is not yet completed,) the Chairman be instructed in the mean time to communicate with the Inspector General and inform him of the increased grant which the Committee are prepared to recommend.

That the following sums appear to be required annually, beyond the present appropriation of.....£2,000 0 0

For the publication of Fossils, Plates, Sections, &c.....	£500	0	0
To maintain the Museum and Library on an efficient footing.	250	0	0
For a resident Assistant in the Mineral business of the Department.....	200	0	0
For a Topographical Surveyor and his party during part of the year in each section of the Province.....	700	0	0
Additional Explorers.—Increase to some of the existing salaries, and Contingencies.....	350	0	0

—
Making in all an annual appropriation of £4,000 0 0

Ordered.—That the Chairman communicate with L. Agassiz, Esquire, of Cambridge, State of New Haven, for information on the subject and the reference to the Committee.

The Committee adjourned to the call of the Chair.

T. S. Hunt, Esquire, of the Geological Commission of Canada, Examined.

1. What important scientific results have been developed by the Canadian Geological Survey?—*Ans.* I may in the first place allude to the investigations of the altered or metamorphic rocks, which are found in Lower Canada on the South side of the St. Lawrence. These rocks are a prolongation of the Green Mountains, and form the north eastern extremity of the Great Appallachian Chain, itself the most important Geographical and Geological feature of Eastern North America. These crystalline rocks, which are economically of great consequence from their mines of iron, chrome, lead, copper, and gold, and their beds of fine marbles, serpentines, soapstones, slates, &c., had been regarded by the American Geologists as primary strata, that is to say, more ancient than those oldest secondary rocks, in which are found the first vestiges of organic life. Although some few had ventured the opinion that they were really more recent strata in an altered state, the facts in support of such a novel proposition had not been brought forward, and the opinion of their primary character was still generally received.

It was reserved for Mr. Logan in his researches in the Eastern Townships of Canada in 1847 and 1848, to show that the Geology of that region furnished the key to a correct understanding of the age and Geological structure of the whole Appallachian Chain, and to demonstrate by a most minute and laborious investigation, that these so called primary rocks were really no other than the Silurian strata of the St. Lawrence valley in an altered condition. He has traced the gradual changes by which these fossiliferous sandstones and shales become the gneissoid, micaceous, and chloritic strata of the Green Mountains. In the course of this investigation, the results of the chemical examination of the unaltered strata were brought to bear upon the great question, and we were enabled to shew that the chromium, the titanium, and the iron, whose compounds in a crystalline form were regarded as characteristic of some of these altered rocks, exist already in an amorphous condition in the unaltered strata.

As one result of this investigation may also be mentioned the determination of the true nature and origin of the serpentine of this formation. Serpentine is a magnesian mineral, which the highest authorities in the science have hitherto regarded as in all cases of igneous origin, and an intrusive rock like trap or granite. We have shown that in the Appallachian Chain, it is really a stratified rock of aqueous origin, and have actually assigned its true place in the Silurian strata. Our researches have moreover shown that the magnesia, which enters into the composition of the serpentine and its associated dolomites and talcose slates, was not introduced subsequently to the decomposition of the rock, as is supposed in the theory of von Buch, hitherto generally adopted, but that it formed a part of the original sedimentary deposit. This conclusion I regard as an important step towards a more simple and rational theory of mineral metamorphism, than the one hitherto received.

The establishment of the metamorphic nature and the true age of the crystalline rocks of Eastern North America, from the Gulf of the St. Lawrence to the Gulf of Mexico, is the more important from the grand exemplification which it affords of the metamorphic theory. Hitherto, although the existence of such changes was considered probable, the cases in which the fact of alteration had been proved were but few, and confined to limited areas. Portions of the Alps of Savoy and Switzerland, and the marbles of Carrara in Italy, had been shown to be altered secondary strata, but most Geologists have hitherto been unwilling to accept the bold generalizations of Lyell, and extend a similar view to wide spread areas. The results of our Survey, which have shown the truth of this view as applied to a great portion of the Western Continent, have now placed the theory on an assured basis.

Another interesting investigation has been that of the Laurentides. This mountainous region, stretching from the Gulf west to Lake Huron, is composed of the oldest known rocks, not only of North America, but of the Globe. On this continent, they are so far as yet known confined to British America, except a prolongation into northern New York, and perhaps some exposures west of the Mississippi, while in the old world they have been recognized only in Scandinavia, Finland and northern Russia, and perhaps in the north of Scotland. These rocks have never hitherto been carefully investigated, and a partial examination in the state of New York, had led an American Geologist to regard them as of igneous origin, and to look upon the crystalline limestones and hypersthene rocks, with their associated iron ores, as alike intrusive. The researches of our Survey have shown that these antique portions of the earth's crust are, not less than the rocks of the Eastern Townships, metamorphic sedimentary deposits, and indicate the existence at the remote epoch of their formation, of Physical and Chemical conditions similar to those, which have accompanied all the succeeding Geological periods.

Mineralogically, the investigation of the so-called hypersthene rocks of this formation, with their peculiar calcareous triclinic feldspars, is of eminent scientific interest, while the fact, that the famous iron mines of Sweden, Russia, and those of Lake Champlain in the United States, belong to this series of rocks, gives them a great economic importance. The immense deposits of iron ore at Marmora, Madoc, South Sherbrooke, South Crosby, McNab, Hall, and elsewhere in the same region are contained in this formation. It is interesting as illustrating the connection between the geology and the agricultural capabilities of a district, to observe that wherever in the region of these Laurentian rocks the calcareous feldspars, above alluded to, are met with, their decay gives a fertile soil, strongly contrasting with the barrenness of those districts, where the more silicious portions of the formation prevail.

2. What results of economic importance have been obtained by the Canadian Survey?—*Ans.* The economic results of the geological exploration in developing the resources of the Province in iron, copper, peat, marbles, building stones, slates, and similar materials have probably been already pointed out to you. The value of such an exploration is often more directly felt, when employed in indicating supplies of those common materials which are the necessities of every day life, than when pointing out mines of precious ore, or quarries of costly marble. I have been struck with this when in several districts among the Laurentian rocks, I have been enabled to point out the existence of beds of limestone. Settlements in these hills have, for a reason above alluded to, generally followed the lines of the hypersthene rocks, which are associated with a white crystalline marble, yielding excellent lime, but so unlike in appearance to

the blue Silurian limestone of the flat Country, that those people who have built their houses upon it, often go many leagues to bring lime for the manufacture of potash, and for mortar. I had occasion some time since, while examining the townships of Rawdon and Chertsey, where the inhabitants brought all their lime from the vicinity of L'Industrie, to point out the existence of immense beds of fine crystalline limestone running through these townships, and affording a source of profit to these hardy settlers hitherto unsuspected.

In speaking of the economic results of the Survey, the examinations of our mineral waters must not be forgotten. From their medicinal value mineral springs often become centres of attraction and of population; Bath and Harrowgate in England, the famous watering places of Germany, and those of Virginia and Saratoga in the United States among others, owe their importance to mineral springs. Canada abounds in mineral waters of almost every kind, and their investigation has occupied much of my time during several years. The Annual Report of Progress of the Geological Survey for 1853, contains a list of fifty-six springs, with references to the pages of that, and of previous reports, in which the analyses may be found. The number of mineral waters, whose composition is thus made known, is greater than that of all the others yet described in America, and the published results will show that, probably nowhere but in France and Germany, have the examinations been made with the same degree of minuteness as in Canada. A great proportion of the waters have been analyzed quantitatively.

Among the most remarkable of our mineral springs thus made known, are those which contain large portions of iodine and bromine salts, and others holding in solution salts of the rare bases baryta and strontia, which had hitherto been detected only in a few springs in Germany. We may also mention the numerous alkaline waters, remarkable for the great proportion of carbonate of soda which they contain, along with silicate, phosphate and borate of soda, or borax. This rare salt hitherto unknown in the waters of North America has been found in several springs in Lower Canada. The waters of Tuscarora, Chippawa, and St. Davids in Upper Canada, remarkable for containing large quantities of free sulphuric acid, with sulphuretted hydrogen and sulphates of alumina iron, and lime, may also be mentioned, and the sulphur spring of Charlotteville, near Simcoe C. W., surpassing in the amount of sulphuretted hydrogen the famous Harrowgate waters, is also worthy of especial notice, for it is destined at some future time to become an important watering-place. The results of these analyses have made known to the medical profession the Chemical composition of all these various waters, and will enable the enlightened physician to prescribe them with discrimination in the various forms of disease.

The study of these different springs has at the same time been made with especial reference of their geological position, and many curious and important relations between their soluble mineral contents, and the composition of the sedimentary rocks, have been shown, throwing light at the same time upon the theory of the formation of mineral waters, and the chemistry of the strata through which they flow.

3. How are the results of the Survey regarded in other Countries?—*Ans.* The results of the Survey so far as made public in the Annual Reports of Progress, are cited as authoritative throughout the scientific world. M. DeVerneuil has from time to time given abstracts of our most important results to the Geological Society of France, while the English Geologists, and especially those connected with the Geological Survey of Great Britain, have shown in many ways, both publicly and privately, their high appreciation of the results of the Canadian

Survey. Mr. Hall, whose opinion is law in American Geology, has probably already told you the light in which the Survey is regarded by the Geologists of the United States. I may mention moreover that the occasional memoirs upon subjects connected with Canadian Geology and Mineralogy prepared by Mr. Logan and myself, and published in the London Philosophical Magazine, and the American Journal of Science, are always re-published in Germany, frequently in full in the *Centralblatt* at Leipzig, and in the *Jahresbericht*, or Annual Report of the Progress of Chemistry, Mineralogy and Geology, edited by Liebig and Ropp at Giessen.

I may cite, in this connection, from an article on Silurian Geology in the London Quarterly Review for October, 1854, evidently from the pen of an accomplished Geologist, the following notice of the labors of the Canadian Survey. After alluding to the geological investigations in the United States, the writer says.

“In the mean time our own Transatlantic Government have not been neglectful of the good work of science. In Canada especially, there has been proceeding for some years, one of the most extensive and important Geological Surveys now going on in the world. The enthusiasm and disinterestedness of a thoroughly qualified and judicious observer, Mr. Logan, whose name will ever stand high in the roll of the votaries of his favorite science, have conferred upon this great work, a wide-spread fame.”

Up to the present time, the results of the Survey have not been in that accessible form which could be wished, and the difficulty of searching them out from the Annual Reports, without the aid of a Geological map of the Province, is such that even those interested in the science are awaiting the publication of our results in a more available form.

4. What do you regard as the best mode of re-publishing the matter embodied in the different reports?—I am told that it has been proposed to publish, in a condensed form, the results embodied in all the Annual Reports up to this date, illustrated by sections, and by figures of the most characteristic fossils, and accompanied by a geological map of the Province. I regard such a plan as the best that can be adopted, both for the information of the scientific world abroad, and for the use of those who may wish to study the geology of their own vicinity. I conceive that in the latter way many may be incited to pursue the science as *amateurs* with profit to themselves, and may at the same time greatly advance our knowledge of the resources of the Country.

Letter from L. Agassiz, Esquire, of Cambridge, New Haven, to the Chairman of the Committee, dated 22nd, November, 1854.

CAMBRIDGE, November 22nd, 1854.

DEAR SIR,—It is a rare privilege for a scientific man, to have an opportunity of presenting his views upon matters connected with his investigations, to men holding a position of trust in public affairs. But it would be quite unnecessary for me to go to Quebec, in order to answer fully your letter, as I have long been acquainted with the valuable results of Mr. Logan's investigations in the Geological Survey of Canada, the high scientific value of which, is fully appreciated wherever Geology is cultivated. I may therefore rely upon this acquaintance with the state of your Survey, to answer your questions.

I do not wonder that in Canada, as everywhere, the people complain of the scantiness of practical results from such Surveys. This arises partly from a want of appreciation of the necessities of the case, and partly also from the limited scope, and the inadequate means placed at the disposal of the Surveyors. The subject is so wide, and requires such diversified knowledge, that it is hardly fair to expect from a single individual, at best aided by a few assistants, the completion in a few years of all the investigations necessarily connected with the Geological Survey of such extensive lands as the Canadas. To cover the whole ground, a Geological Survey of this kind, ought to be conducted by several heads, superintending different departments of investigation, since it is necessary to obtain first a general knowledge of the Geological character of the country, and next to carry out, upon the information thus obtained, the special investigations essential to practical operations. Allow me a comparison to explain more fully my meaning. Topographic Surveys, to be satisfactory, ought to be founded upon astronomical observations, but who would therefore expect that astronomers should leave their telescopes, go into the field, chain in hand, and draw maps. Mining operations bear to Geology the same relations, that geodesic operations bear to astronomy. All that may fairly be expected of a Geologist is to prepare a Geological map of the Province he surveys, and thus to obtain the information, without which the mineral resources of a country cannot be satisfactorily ascertained. But to derive practical advantages from such surveys, they must be carried out upon a more extensive plan, with special surveys of such tracts as are promising for profitable operations.

Now your Survey is so far advanced as to afford ample preliminary information, and the safest way to gratify the claims of your people for the final advantages to be derived from it, would be by adding to it a mining department.—Should you succeed in obtaining a sufficient appropriation from your Legislature thus to enlarge the Geological Survey, and, at the same time to publish in a systematic manner, the results already obtained, it is my opinion that special care should be taken to preserve all and every information collected by Mr. Logan. It is not generally understood how valuable such general Geological information is, in developing the resources of a country by pointing out the general physical features of the land, the nature of the subsoil, the range of the different kinds of rocks, the position of ores and mineral veins, the extent of coal-fields, &c., &c., all of which have a direct bearing upon agriculture and mining, though perhaps the connection is not immediately noticed. There is one point in particular, the utility of which is least understood, and yet of paramount importance in the eye of a Geologist,—the illustration of fossil remains, without a careful investigation of which, the Geologist himself is in most cases unable to determine with precision the succession and relative age of Geological formations in remote districts. Now the knowledge required for such studies upon fossils is rarely possessed by Geologists, who are at the same time sufficiently acquainted with their special department to carry on satisfactorily a Geological Survey, and it is generally found necessary to appoint a palæontologist besides a Geologist in the completion of such a survey. In the present state of our science, few men combine the necessary requirements for the double task. The training for each requires indeed special abilities, and even when in rare cases, the same man might be equal to the execution of the whole, the work would be too extensive to be performed in a single lifetime. That the work may be done *well*, the Geologist ought to have a topographic assistant and the palæontologist be supplied with a skilful artist. The task of the Geologist should be limited to the preparation of the map, the description of the rocks, their natural relations, &c., &c. The palæontologist should be exclusively occupied in comparing, describing and figuring the fossils, which

cannot be done without a knowledge of Zoology and comparative anatomy, sciences which are entirely unnecessary to the Geologist.

The mining engineer should make special Surveys of the mineral lands, sufficiently minute to be subservient to mining operations, which a general Geological survey never can be, though these special surveys cannot even be begun successfully, before the general Survey is sufficiently advanced. Finally the chemist should be confined to analyzing rocks, ores, minerals, waters, soils, &c., &c.,

Even with such a division of labor, the heads of the different departments would be found to have their hands full. They would even require numerous assistants, if the work is expected to proceed rapidly. If you enquire into the composition of the corps to which the Geological Surveys of France and England have been intrusted, you will perceive that the combined efforts of many of the best men of the age have been deemed necessary to bring the undertaking to a satisfactory conclusion.

There is one point more to which I would call your attention. I know from the reports of visitors competent to judge of such matters, that the value of the large collections brought together by the energy of Mr. Logan, is greatly impaired, and that the collections are rendered almost inaccessible to those who would derive great benefit from their examination, by being heaped together, as they are, without systematic arrangement.*

A Geological Museum scientifically arranged would not only be a source of invaluable information; but also an ornament to your city, and, if founded, would set an example worthy of being followed throughout the whole continent North and South of the St. Lawrence.

I thank you for the good opinion you entertain of the value of my views. If a voice from the other side of the Atlantic, now almost Americanised, can have any special weight with your population for being French, allow me to add to my signature, the only title which, in the estimation of a Frenchman can give authority to the opinion of a scientific man, and to which on an occasion like this, I may be pardoned for alluding.

L. AGASSIZ,
Membre de l'Académie des sciences,
de l'Institut de France.

J. Langton, Esquire.
Quebec.

* That portion of the collection which is accessible to the public is systematically arranged as far as circumstances permit, but a very large portion of it, from want of room, of cases for displaying it and of time for arrangement, is still in packing cases in the vaults and sheds of the building,—*Chairman of Committee.*

QUEBEC :

PRINTED BY LOVELL AND LAMOUREUX,

MOUNTAIN STREET.

BURSAR'S RETURN.

Of the University and Colleges at Toronto, and of Upper Canada
College, for the year 1853.

SUBMITTED to the Honorable the Legislative Assembly for their
information, in terms of the 47th Section of 16th Victoria,
chap. 89.

By Command,

P. J. O. CHAUVEAU,

Provincial Secretary.

SECRETARY'S OFFICE,

Quebec, 22nd Sept., 1854.

UNIVERSITY AND COLLEGES AT TORONTO.

STATEMENT of the number of Acres which have been sold from the period of the original endorsement to the 31st December, 1853,—shewing the total amount of Sales, amount received, and amount due; also, the average price, per Acre.

Original Endowment—Number of Acres.	Acres sold.	Acres unsold.	Total Amount of Sales.		Amount received.		Amount unpaid.		Average price per Acre.	
			£	s. d.	£	s. d.	£	s. d.	£	s. d.
Deed dated 3rd January, 1828.—Acres.....										
Add difference on exchange of Land with Government, 1853.....	175	68,125	211,396	11 3	155,779	11 5	55,616	19 10	1	6 9
	226,132	68,125	211,396	11 3	155,779	11 5	55,616	19 10	1	6 9

UNIVERSITY AND COLLEGES AT TORONTO.

STATEMENT of Capital invested and the Amount expended from the 1st January, 1828, to the 31st December, 1853.

To Capital invested in Loan to Upper Canada College, and cancelled by Act 12 Vic, ch. 82.....	£	s.	d.
To Capital invested as shewn in Return to Parliament, to 31st December, 1851.....	40,731	0	3
To Capital invested in 1852, as shewn in Annual Account transmitted to Government.....	98,509	7	2
To do 1853, do.....	14,668	3	0
To do do.....	12,911	0	0
To Amount expended as shewn in Return to Parliament, and Annual Accounts transmitted to Government.....	£		
Total Amount invested or expended to 31st December, 1853.....	161,819	10	5
	139,053	14	6
Total Amount invested or expended to 31st December, 1853.....	£	300,873	4 11

BURSAR'S OFFICE,
Toronto, 31st December, 1853.

DAVID BUCHAN,
Bursar.

No. 1.—UNIVERSITY AND COLLEGES AT TORONTO.

STATEMENT of Receipts and Expenditure by the Bursar on Account of the "Permanent Fund" for the year ended 31st December, 1853.

Dr.		Cr.	
£	s. d.	£	s. d.
To balance on hand 31st December, 1852.....	6529 6 7		
To cash received on account of Lands sold.....	16472 4 9		
To cash received re-payment on account of Microscopic specimens for the Museum.....	0 5 0		
		12509 18 9	
		1 1 0	
		69 1 6	
		11 13 11	
		37 10 10	
		16 0 0	
		2 16 2	
		10 0 11	
		148 4 4	
		142 1 11	
		22 4 6	
		164 6 5	
		47 10 0	
		3 12 6	
		£12873 12 0	
		10128 4 4	
		£23001 16 4	

DAVID BUCHAN,
Bursar.

BURSAR'S OFFICE,
Toronto, 31st December, 1853.

No. 2.—UNIVERSITY AND COLLEGES AT TORONTO.

STATEMENT of Receipts and Expenditure by the Bursar on account of the "Income Fund," for the year ended 31st Dec., 1853.

Dr	£ s. d.	TO WHOM PAID.	SERVICE.	£	d	£ s. d.	£ s. d.
To cash received for interest on Purchase Money	8023 19 5	The Rev. J. McCaul, L.L.D.	Professor of Classical Literature, 12 months' salary	450	0	0	
To cash received for interest on Provincial and other Debentures	3003 6 7	H. H. Croft, D.C.L.	12 months' salary as President	250	0	0	
To cash received for interest on Loans on Real Estate	1326 13 6	The Rev. J. Beaven, D.D.	House rent	60	0	0	760 0 0
To cash received for interest on Promissory Notes	169 1 4	George Ruckland	Professor of Chemistry, 12 months' salary	450	0	0	
To cash received for interest on Bank balances	103 2 7	Daniel Wilson, L.L.D.	1 months and 22 days' salary as Vice-Chancellor	31	0	7	
To cash received for rents of leased lands	3886 15 1	E. J. Chapman	House rent	60	0	0	541 0 7
To cash received for Fees on transfers of lands	175 12 9	J. M. Herschfelder	Professor of Metaphysics, 12 months' salary	450	0	0	
To cash received for Dividends on Bank stock	37 5 0	Alex. McDonald, for the late Rev. Robert Murray	1 months and 22 days as Dean in Arts	7	15	2	
To cash received for Anatomical Fees.	35 12 6	W. C. Gwynne, M.D.	House rent	60	0	0	517 15 2
To cash received for trespass on Port Hope Estate	1 15 0	John King, M.D.	Professor of Agriculture, 12 months' salary	250	0	0	
To amount charged Upper Canada College, being its proportion of Joint Management, for the year ended 31st December, 1853, and included in expense of the Bursar's Office.	324 16 0	W. R. Beaumont, M.D.	Professor of Natural Philosophy, 9 months' salary, from 31st March	262	0	0	
		George Kerrick, M.D.	Do. of History, English Literature, 6 months and 33 days' salary, from 28th May	206	12	11	
		W. B. Nicol, M.D.	Professor of Natural History, 6 months and 37 days' salary, from 24th May	206	12	11	
		Lucius O'Brien, M.D.	Professor of Mineralogy and Geology, 6 months and 33 days' do., from 26th do.	206	12	11	
		J. H. Richardson, M.D.	Professor of Modern Languages, 6 months and 33 days' do., from 26th do.	206	12	11	
		Skeffington Connor, L.L.D.	Lecturer on Oriental Literature, 12 months' salary	150	0	0	
			Librarian, 12 months' salary	150	0	0	
			Professor of Mathematics, 3 months' salary, to 31st March	150	0	0	
			Professor of Anatomy, &c., 6 months' salary to 30th June	112	10	0	
			Compensation on resigning Professorship	162	10	0	
			Professor of Theory and Practice of Medicine, 6 months' salary to 31st June	325	6	0	
			1 months' salary, as Clinical Lecturer	125	0	0	
			Compensation on resigning Professorship	306	5	0	
			Professor of Principles and Practice of Surgery, 6 months' salary to 30th June,	125	0	0	
			1 months' salary, as Clinical Lecturer	28	2	6	
			Compensation on resigning Professorship	7	15	2	
			Professor of Midwifery, 6 months' salary to 30th June	323	9	10	
			Compensation on resigning Professorship	125	0	0	
			Professor of Materia Medica, 6 months' salary to 30th June	250	0	0	
			Compensation on resigning Professorship	375	0	0	
			Professor of Medical Jurisprudence, 6 months' salary to 30th June	125	0	0	
			Compensation on resigning Professorship	250	0	0	
			Professor of Practical Anatomy, 6 months' salary to 30th June	175	0	0	
			Compensation on resigning Professorship	350	0	0	
			Professor of Law, 6 months' salary to 30th June	125	0	0	
			1 months and 22 days' salary to 22nd April, as Dean in Law	7	15	2	
			Compensation on resigning Professorship	267	4	10	
				400	0	0	2481 5 0

Dr	£ s. d.	TO WHOM PAID.	SERVICE.	£	d	£ s. d.	£ s. d.
To cash received for interest on Purchase Money	14 8 6	Patrick Freeland	Secretary of Senate, 13 attendances at Meetings of Senate	...	...	...	14 8 6
To cash received for interest on Provincial and other Debentures	48 0 0	L. W. Smith, D.C.L.	Secretary of Convocation, allowance, 16 months services as Secretary	...	...	...	48 0 0
To cash received for interest on Loans on Real Estate	19 10 0	John Storey	Salary as temporary Clerk, University College	...	...	...	19 10 0
To cash received for interest on Promissory Notes	75 0 0	Daniel Orris	12 months' salary as Baidel and Steward	...	...	...	75 0 0
To cash received for interest on Bank balances	89 0 0	James Coady	12 months' wages as Attendant on Medical Profession, and Professor of Natural History	...	...	...	89 0 0
To cash received for rents of leased lands	52 0 0	James Patterson	12 months' wages as Attendant on Professor of Natural Philosophy	...	...	...	52 0 0
To cash received for Fees on transfers of lands	40 0 0	Christopher Drew	do. do. bell-ringer, general attendant	...	...	...	40 0 0
To cash received for Dividends on Bank stock	40 0 0	Doodles King	do. do. general servant	...	...	...	40 0 0
To cash received for Anatomical Fees.	40 0 0	Thomas Nelson	do. do. Porter Medical Faculty and out-door servant, U. C.	...	...	...	40 0 0
To cash received for trespass on Port Hope Estate	40 0 0	Peter Miller	do. do. gate-keeper, College Avenue	...	...	...	40 0 0
To amount charged Upper Canada College, being its proportion of Joint Management, for the year ended 31st December, 1853, and included in expense of the Bursar's Office.	16 0 0	Abraham Ellis	do. do. gate-keeper, College Avenue	...	...	...	16 0 0
		Mark Fitzpatrick	Scholarships.	...	...	...	423 0 0
		J. Brown	Allowance as University Scholar	30	0	0	
		R. Bayley	Do. do.	30	0	0	
		C. McGregor	Do. do.	30	0	0	
		E. A. Reykert	Do. do.	45	0	0	
		C. E. English	Do. do.	45	0	0	
		N. Kingsmill	Do. do.	33	6	8	
		N. Walker	Do. do.	35	0	0	
		E. McCrombie	Do. do.	20	0	0	
		W. Linklater	Do. do.	30	0	0	
		C. Kennedy	Do. do.	11	13	4	
		W. H. Boulton	Do. do.	11	13	4	
		J. G. Matheson	Do. do.	10	0	0	
		W. J. Francis	Do. do.	10	0	0	
		N. Burns	Do. do.	8	6	8	
		J. Ross	Do. do.	6	13	4	
		R. Matheson	Do. do.	6	13	4	
		C. McCrombie	Do. do.	21	13	4	
		Henry Rowsell	For Medals imported by him, and books purchased from him for Prizes	...	...	...	385 0 0
		Henry Rowsell	Stationery and Printing	...	...	...	207 7 9
		J. K. Roche	Inspecting and Surveying Lands.	...	...	...	267 0 9
		R. B. Deinson	For inspecting, surveying and valuing lands	245	16	5	
		Charles Robertson	do. do.	46	16	0	
		J. A. Snowe	do. do.	9	0	0	
		S. S. McDonnell and others	do. do.	6	11	3	
		Chauncy Johnson, Alex. Char-	do. do.	2	3	4	
		teris, George Bullock and others.	Taxes.	...	...	...	310 6 0
		Skeffington Connor, L.L.D.	For taxes on University lands in the Counties of Prescott, Russell, Kent, Essex, &c.	...	...	...	110 9 8
		Provincial Insurance Co, British American Co, Western Co, and other.	For law expenses during the year 1853, part of which is returned in Fees on transfers of lands	...	...	...	196 15 8
			Law Costs.	...	...	...	86 6 10
			Insurance.	...	...	...	9119 17 7
			For Insurance on Buildings, Library, Museum, Chemical and Philosophical Apparatus, &c	...	...	...	...
			Carried over	...	...	...	...

No. 2.—INCOME FUND—(Continued.)

TO WHOM PAID.		SERVICE.	£	s.	d.	£	s.	d.	£	s.	d.
To amount brought over			9119	17	7						
Joseph Leslie	...	Amount brought over	...	...	...			
Joseph Leslie	...	Postage	...	...	...			
Joseph Beckett & Co	...	Medical School.	66	7	8						
James Coady and others	...	For sundries furnished the Medical Department	65	4	2						
Alfred Laing	...	For sundry incidental expenses, including allowance for particular services, &c.	7	10	0						
George Herrick, M.D.	...	Lying-in Hospital.	159	1	10						
W. Daunton	...	For one quarter's allowance paid through him	25	0	0						
Professor Buckland	...	Sundry small accounts paid through him, under Order in Council	40	0	0						
John Ritchey	...	University Grounds.	129	5	8						
Thomas Young	...	For wages to labourers and improvements to grounds paid through him, as Superintendent of University grounds	13	18	4						
Cumberland & Thomas	...	For repairs to fences, side-walks, &c.	385	0	0						
Peter Balfour	...	Architect.	10	0	0						
Ross, Mitchell & Co.	...	For amount of award by Messrs. Cumberland & Thomas, for Mr. Young's services, as Architect drawing plans of University buildings, paid by Order of His Excellency in Council	773	12	5						
William Thomas	...	Hamilton Property.	295	17	3						
John Ritchey	...	For alterations and improvements on buildings in Hamilton	25	12	0						
Charles Vale, McBean & Wetherow, and Alex. Hamilton.	...	For plate-glass for windows, imported through them	210	17	6						
John Ritchey	...	For designs, valuation and Superintendance	8	15	2						
John Ritchey	...	Repairs to Buildings.	32	9	10						
Charles Vale	...	For repairs to University buildings and Medical School, prior to removal	65	1	0						
John Ritchey	...	Do.	6	10	3						
John Ritchey	...	For repairs to University College, Parliament buildings	97	0	2						
Charles Vale	...	Do.	23	5	1						
John Crean	...	Do.	15	10	2						
Toronto Water Works Co.	...	For altering, repairing and refitting the Museum	3	10	10						
Francis Nesbitt	...	For repairs to University College	...	...	...			
H. Searle	...	For repairs to University of Toronto and Library	...	...	...			
Charles Vale	...	Expenses of Removal.	...	...	...			
Charles Vale	...	For work done consequent on removal of the University and Colleges to Parliament buildings	38	3	7						
Francis Nesbitt	...	Do.	50	0	0						
John Harper	...	For cartage of Library, Furniture, &c.	43	10	0						
Michael Fahey	...	Sundry small accounts, cleaning, &c.	20	1	3						
Daniel Orris and others	...	...	1095	1	8						
To amount brought over			302	19	7						
Total			151	14	10						

TO WHOM PAID.		SERVICE.	£	s.	d.	£	s.	d.	£	s.	d.
To amount brought over			1432	15	10						
Geo. B. Wylie	...	Furniture.	38	8	6						
Alfred Patrick	...	For Carpets furnished for the University of Toronto	13	7	6						
Waterhouse & Farnham	...	Do.	11	7	6						
Jacques & Hay	...	Do.	8	2	0						
C. B. Wylie	...	University College	59	1	1						
Waterhouse & Farnham	...	Do.	16	5	0						
Beeby & Kyles	...	Do.	47	3	6						
H. Piper & Bros.	...	Do.	24	2	0						
J. R. Macgregor & Co.	...	Do.	6	11	3						
Jacques & Hay	...	Do.	5	15	8						
Ridout, Bros. & Co.	...	Do.	6	3	4						
J. W. Miller, D. Orris and others.	...	Do.	6	15	10						
John Ritchey	...	Do.	59	6	5						
David Buchan	...	Chairman of the Endowment Board or Bursar's Office.	231	4	1						
Allan Cameron	...	Chairman of the Endowment Board or Bursar's Office, 12 months salary	400	0	0						
M. Drummond	...	Bursar of the Endowment Board, 8 months' salary, at £400 per annum	266	13	4						
James Nation	...	Cashier Bursar's Office, 4 months' salary, at £300 per annum	100	0	0						
Edward W. Nation	...	Book-keeper, 7½ months' salary, at £200 per annum	125	0	0						
Joseph Frankish	...	½ months' salary, at £250	93	15	0						
William Morrow	...	Clerk, 12 months' salary	218	15	0						
George Ridout	...	Do. extra, 12 months' salary	150	0	0						
Henry Rowsell	...	Assistant Book-keeper (extra), 15 months' salary	117	7	6						
Ridout, Bros. & Co.	...	Messenger, 12 months' salary	120	0	0						
Jacques & Hay	...	12 months' rent of Office	60	0	0						
G. B. Wylie	...	For Stationery, Books, form of Deeds, Contracts of Sale, &c., including Joint Account, a proportion of which is charged to Upper Canada College	1432	15	10						
John Ellis	...	Do.	60	0	0						
James Stewart	...	For Stationery, Books, form of Deeds, Contracts of Sale, &c., including Joint Account, a proportion of which is charged to Upper Canada College	6	11	11						
Archd. Taylor	...	For Furniture for the Office	12	13	9						
John Ritchey	...	Do.	14	6	5						
Ridout, Bros. & Co., and others.	...	For Bursar's Seal and Office Letter Seal, engraving do.	25	10	0						
J. J. Hayes, M.D.	...	For fuel for the Office, wood	9	0	0						
G. P. Ridout, M.P.P.	...	Do.	...	...	...			
T. P. Roberts	...	For repairs to do.	...	...	...			
J. W. Brent	...	Contingent expenses, including light for office and other trifling disbursements for the year ending 31st December, 1853	38	5	0						
J. McMerrick	...	Member of the Endowment Board, 29 attendances	16	5	0						
Proprietors Globe, Patriot, Leader, Colonist, and other newspapers.	...	Do.	50	0	0						
Arbitrators on claim of Auditors, proportion of Fee	...	Do.	25	0	0						
Advertising during the year 1853	...	Do.	25	0	0						
Carried over	...	...	7	10	0						
Total			210	0	0						
Total			68	16	6						
Total			£13701	11	4						

INCOME FUND—(Continued.)

	TO WHOM PAID.	SERVICE.	£ s. d.	£ s. d.	£ s. d.
To amount brought over			17093 19 9		13701 11 4
	J. F. Roche	Amount brought over			
	James Stewart	Miscellaneous—(Continued.)			
	G. M. Jarvis	Agency on sale of Port Hope lots, allowed him		187 11 11	43 5 0
	James Berry	Fuel wood for the University and Medical School			
	Consumers Gas Company, Toronto	Do. coal for the University College		40 0 0	
	Water Works, W.L. Han, Morrow and others.	Amount returned him, left in deposit, 19 December, 1849, for the purchase of N. 4, 5-7 Norwich			227 11 11
		For Gas and Water rent, including other trifling incidental expenses, travelling expenses to Hamilton, collecting rents, attendance on the Senate Caput Medical Board, Professor of Law, &c.			10 0 0
		Balance on hand 31st December, 1853, and carried to the credit of Surplus Income Fund for 1853			75 10 2
			17093 19 9		14056 18 5
					3037 1 4
					17093 19 9

DAVID BUCHAN,
Bursar.

Bursar's Office,
Toronto, 31st December, 1853.

No. 3.—UNIVERSITY AND COLLEGES AT TORONTO.

STATEMENT of Receipts and Expenditure by the Bursar on account of the "Appropriation Fund," for the year ending 31st December, 1853.

DR.

	£	s.	d.		£	s.	d.
To Balance on hand 31st December, 1852, being residue of £350, appropriated by Statute of Senate, for the improvement of Port Hope and Port Stanley properties	609	7	1	John Langton.....			
	609	7	1	For improvements made on Port Hope property ..			37 8 0
				Balance on hand 31st December, 1853.....	571	19	1
					£	609	7 1

DAVID BUCHAN,

Bursar.

Bursar's Office,

Toronto, 31st December, 1853.

No. 4.—UNIVERSITY AND COLLEGES AT TORONTO.

STATEMENT of Receipts and Appropriation by the Bursar of Moneys received in "Deposit," for the year ended 31st Dec., 1853.

DR.

	£	s.	d.		£	s.	d.
To Balance on hand in Deposit, 31st December, 1852.....	737	12	7	By amount of Deposits placed to account.....			622 18 0
To Cash received in Deposit, for the purchase of Lands, 31st December, 1853	991	8	10	By balance on hand and in Deposit 31st December, 1853.....			1105 18 6
					£	1728	16 5

DAVID BUCHAN, Bursar.

Bursar's Office,

Toronto, 31st Dec., 1853.

No. 5.
UNIVERSITY AND COLLEGES AT TORONTO.

Dr.

Summary of the foregoing Accounts.

Cr.

	£	s.	d.		£	s.	d.
To Balance on hand, 31st December, 1852, as shown in annual accounts transmitted to Government	7876	6	3	By Cash invested in Loans on Real Estate—			
To Cash received on account of Lands Sold, &c., as contained in Statement No. 1	16472	9	9	Books for the Library and Specimens for the Museum, as contained in Statement No. 1			12873
To Cash received for Interest on Purchase Money, Provincial and other Debentures, Loans on Real Estate, Promissory Notes, Bank Balances, &c., &c.	12632	3	5	By Cash expended in Salaries to Professors of the University of Toronto, Medicine and Law on resigning their Professorships			7556
To Cash received for Rents of Leased Lands	3886	15	1	to Buildings, Insurance, Scholarships, Law Expenses, Taxes, Inspecting and Surveying Lands, Architect, Furniture, Expense of Removal, &c., &c.			3089
To Cash received for Fees on transfer of Lands	575	1	3	By Cash expended in Salaries, Endowment Board Office and Bursar's Office, attendance of Members of the Endowment Board, Stationery, Office Rent, Fuel, &c., &c.			1790
Dividend on Bank Stock, Proportion of Joint Management charged Upper Canada College, &c., &c., as contained in Statement No. 2	991	3	10	By Cash expended on account of the Medical School, University Grounds, for Medals and Prizes, Stationery and Printing, Auditing Accounts, &c., &c., as contained in detailed Statement No. 2, of Expenditure on account of the Income Fund			1620
To Cash received in Deposit for the purchase of Lands				By Cash expended in improvements on Port Hope Estate, as detailed in Statement No. 3			37
				By Cash Deposits appropriated on Lands purchased by Tenants and others, during the year 1853, as shewn in Statement No. 4			622
				By Balance on hand and deposited in the Bank of Upper Canada, as shewn by Bank Pass-book and Quarterly Statement sent to Government	£		27590
							14843
					£		42433

DAVID BUCHAN,
Bursar.

Bursar's Office,
Toronto, 31st December, 1854.

UPPER CANADA COLLEGE.

STATEMENT of the number of Acres of Land which have been sold from the period of the original Endowment to the 31st December, 1853,—shewing the total number of sales, the amount received and amount due; also, the average price per acre.

Original Endowment. Number of Acres.	Acres Sold.	Acres Unsold.	Total Amount of Sales.	Amount Received	Amount Unpaid.
			£ s. d.	£ s. d.	£ s. d.
Deed dated November 16, 1852	20,000				
July 16, 1834	1,080				
May 16, 1835	42,188				
	63,268				
Add—Difference on Exchange of Land with Government in 1846.....	589				
	63,857	34,355	28,594 19 2	17,963 7 7	10,631 11 7
	63,857	34,355	28,594 19 2	17,963 7 7	10,631 11 7

Upper Canada College was also endowed with Block D, in the City of Toronto, containing 5½ acres, divided into Building Lots. Also Block A, in the said City of Toronto, called Russell Square, containing 9 acres, which Block is the site of the College Buildings.

Block D, is divided into 46 Lots,
 40 Lots sold,
 6 Lots unsold.

Total amount of sales. Amount received. Amount unpaid.
 £6308 15s. 0d. £2716 7s. 2d. £3592 7s. 10d.

Bursar's Office,
 Toronto, 31st December, 1853.

DAVID BUCHAN,
 Bursar.

UPPER CANADA COLLEGE.

STATEMENT of Capital Invested and the amount Expended on account of the College, from the commencement to the 31st December, 1853.

						£	s.	d.
To Capital invested, as shewn in return to Government, to 31st December, 1848	...	...	...	...	...	20396	4	6
To do do do do do do do do do do	do	do	do	do	do	1000	0	0
To do do do do do do do do do do	do	do	do	do	do	501	3	9
To do do do do do do do do do do	do	do	do	do	do	900	0	0
To do do do do do do do do do do	do	do	do	do	do	2400	0	0
To amount expended to 31st December, 1853, as shewn in annual accounts transmitted to Government, including a sum of £40,731 0s. 3d., borrowed from King's College and cancelled by Act 12 Vic. cap. 82	...	...	...	...	...	25197	8	3
						104291	7	5
						129488	15	8

DAVID BUCHAN,
Bursar.

Bursar's Office,
Toronto, 31st December, 1853.

No. 1.—UPPER CANADA COLLEGE.

STATEMENT of Receipts and Expenditure by the Bursar on account of the 'Permanent Fund' for the year ended 31st December, 1853.

Dr.

Cr.

To Balance on hand, 31st December, 1853	£	s.	d.	To whom Paid.	SERVICE.	£	s.	d.
To Cash received on account of Lands sold	1395	0	0	Skeffington Connor, L.L.D., Solicitor.	For amount paid through him and invested in Loan on Real Estate	2400	0	0
	2590	11	8		Balance on hand, 31st December, 1853	1585	11	8
	3985	11	8			3985	11	8

DAVID BUCHAN,
Bursar.

Bursar's Office,
Toronto, 31st December, 1853.

No. 2.—UPPER CANADA COLLEGE.

DR.—STATEMENT of Receipts and Expenditure by the Bursar on account of the "Income Fund," for the year ended 31st Dec., 1853.—Cr.

	£	s.	d.	TO WHOM PAID.	SERVICE.	£	s.	d.	£	s.	d.
To cash received for interest on Purchase Money	1528	17	5	F. W. Barron	Principal, 12 months' salary	556	0	0	571	10	4
To cash received for interest on Loans on Real Estate	119	3	2	Rev. H. Scadding	Allowance to 22nd April, 1853, as Secretary of College Council	15	10	4	334	0	0
To cash received for interest on Provincial Debentures	105	0	0	Rev. G. Maynard	First Classical Master, 12 months' salary	334	0	0	334	0	0
To cash received for interest on Promissory Notes	12	17	3	Rev. W. Stennett	Second Classical Master, 12 months' salary	250	0	0	250	0	0
To cash received for interest on Bank Balances	23	13	0	William Wedd	Third Classical Master, 12 months' salary	277	15	4	200	0	0
To cash received for Rents on Leased Lots	486	5	5	G. P. De La Hays	French Master, 12 months' salary	100	0	0	138	17	8
To cash received for interest, Fees for Tuition and Board	2189	12	0	C. Thompson	First English Master, 12 months' salary	111	2	0	100	0	0
To cash received for interest on old arrears and interest thereon	240	2	8	J. Dodd	Second English Master, 12 months' salary	111	2	0	56	0	0
To cash received on Transpass and permission to surrender certain leased and purchased lots	26	5	0	J. G. Howard	Commercial Drawing Master, 12 months' salary	56	0	0	50	0	0
To cash received for annual allowance by Government	300	0	0	E. C. Bull	Ornamental Drawing Master, 12 months' salary	50	0	0	50	0	0
To cash received for inspecting lands returned	1111	2	2	A. Maul	Instrumental Music Master, 12 months' salary	50	0	0	50	0	0
	3	5	0	J. D. Humphrey	Vocal Music Master, 12 months' salary	2801	5	4	168	15	0
				David Alderice	Porter, 12 months' salary	50	0	0	50	0	0
				W. Patterson	General Servant, 12 months wages	43	10	0	62	19	9
				C. Duckett	Indoor do. 12 do.	17	0	0	15	0	0
				Mrs. Duckett	Cook resident School House	15	0	0	6	1	8
				W. Driver	Out-door Servant, 6 months wages	6	1	8	7	8	4
				Jos. Round	Do. do. 2 months and 13 days do.	7	8	4	129	9	5
				M. Madden	Do. do. 2 months and 12 days do.	50	0	0	63	19	2
					Resident School House.	32	15	0	12	5	1
				J. Wickson	For Meal furnished for Boarding House	45	5	0	78	0	0
				J. Webb	For Bread do.	110	0	0	24	19	9
				R. Davis & Co	For Groceries do.	20	0	0	15	0	0
				J. Lee	For Milk do.	20	0	0	5	0	0
				Mrs. Johnson	For Washing do.	7	10	0	7	10	0
				Mrs. Grant	Do. do.	7	10	0	7	10	0
				F. W. Barron	Petty expenses for Vegetables, &c., paid through him	5	0	0	80	0	0
				Consumers Gas Company	Amount of their Account	21	19	9	79	16	9
				P. Mess	First Exhibitors	20	0	0	159	3	7
				D. O'Brien	Do. do.	15	0	0	3766	1	10
				D. Samson	Do. do.	15	0	0			
				M. Overfield	Do. do.	20	0	0			
				F. Draper	Second Exhibitors	5	0	0			
				E. Stanger	Do. do.	7	10	0			
				C. Bagley	Do. do.	7	10	0			
				Henry Russell	Prizes.	5	0	0			
					For Amount of his Account	21	19	9			
					Law Costs.						
				Steehington Connor, L.L.D.	For Law Costs paid, returned in Fees on transfers of land, &c.						
Carried over					Carried over						

No. 4.—UPPER CANADA COLLEGE.—SUMMARY OF THE FOREGOING ACCOUNTS.

		Dr.		Cr.	
		£	s. d.	£	s. d.
To Balance on hand 31st December, 1852, as shewn in annual account transmitted to Government		1471	0 0		
To Cash received on account of Sales of Land, as contained in Statement No. 1		2590	11 8		
To Cash received for Interest on Purchase Money, Loans on Real Estate, Provincial Debentures, &c.		1789	10 10		
To Cash received for Rent of Leased Lands		466	5 5		
do Tuition, Board (Fees), including old Arrears paid up, and Interest thereon		2429	14 8		
To Cash received for Annual Allowance by Government		1111	2 2		
do Trespass and permission to surrender certain Leased and Purchased Lots, and Fees on transfer of Lands, as contained in Statement No. 2		328	13 0		
To Cash received in Deposit for the Purchase of Land, as contained in Statement No. 3		119	10 0		
		£10306	7 9		
By Cash invested in Loans on Real Estate, as contained in Statement No. 1				2400	0 0
By Cash paid Salaries to Principal and Masters, including Wages to Servants, &c., &c.				2970	0 4
By Cash paid Expense of Resident Boarding House				476	2 2
do Repairs to Masters' Houses and College Buildings				623	8 11
do Law Costs, Insurance, Taxes, Fuel, Stationery, &c.				453	12 3
By Cash paid Exhibitors for Prizes, Auditing Accounts, Members of the Endowment Board, Compensation to the Rev. Mr. Stennet, Furniture, &c., &c., as detailed in Statement No. 2				437	6 9
By Amount credited University and College for proportion of Expense of Joint Management, as contained in Statement No. 2				324	16 0
By Amount of Deposits appropriated on Lands purchased by tenants and others, during the year 1853, and shewn in Statement No. 3				102	10 0
				£7787	16 5
By Balance on hand and deposited in Bank of Upper Canada, as shewn by Bank Pass-book and Quarterly Statement sent Government				2518	11 4
				£10306	7 9

DAVID BUCHAN,
Bursar.

Bursar's Office,
Toronto, 31st December, 1853.

STATEMENTS

Submitted to the Legislative Assembly for their information, in terms of the 47th section of the University Amendment Act.

By command,

E. A. MEREDITH,
Assistant Secretary.

Secretary's Office,
Quebec, 5th March, 1855.

UNIVERSITY AND COLLEGES AT TORONTO.

MEMORANDUM BY THE BURSAR.

It has occurred to the Bursar in preparing the accounts for the year 1854, required by the 47th section of the Act 16 Victoria, chapter 89, that it would be well to add to them estimates of income for the current year. Such estimates have, therefore, been carefully prepared, and it is believed they will furnish a very close approximation to the truth. There is hereunto appended that which relates to the University and Colleges at Toronto.

Similar estimates were prepared by order of the late Board of Endowment at different times, for the information of the Senate of the University of Toronto, as it existed under the Act 12 Victoria, chapter 82. By a reference to these and the one now given, it appears that the progressive increase of Income since 1850 has been as follows:—

Estimate Income for 1850.....	£7572	4	10
“ 1851.....	8117	4	7
“ 1852.....	9732	0	0
“ 1853.....	11839	10	0

No estimate was made for 1854, because, in consequence of changes in 1853, nothing material had been done to produce an increase. The present estimate for 1855 is £13,060.

These estimates were not based in so far as Interest and Rents were concerned, upon what was expected to be received, but upon the Interest or Rent falling due within the year named, irrespective altogether of arrears. Hence the actual receipts of Income for any one of the past years above named were in excess of the estimate for that year, thus:—

The Receipts for 1850 were	£8657	0	8
“ 1851 “	11327	16	5
“ 1852 “	16710	16	10
“ 1853 “	17093	19	9
“ 1854 “	13660	10	5

The three last sums, however, are each subject to a deduction of from £300 to £400, owing to cross entries for return of expenditure, as, for example, Upper Canada College share of Joint Management, and other smaller items.

This difference between the Estimates and Receipts is caused by the very heavy arrears which had accumulated, and the almost incessant efforts which have been made to collect these arrears.

The sale of University Endowment during the year, reached 12430½ acres, at an aggregate price of £34,098 4s. 4d.; leaving still to sell between 55,000 and 56,000 acres.

The value of the yearly sales on University and Upper Canada College account taken together, is £53,164 9s. 4d., to which may be added the price of the Hamilton property, which was sold by auction in June, for £11,215; although the transaction was not concluded by the execution of the contracts till after the close of the year.

The amount of money received in the office during the year for both Institutions, reached £46,609 3s. 3d. The payments and investments amounted to £52,159 4s. 7d.

DAVID BUCHAN,
Bursar.

Bursar's Office,
Toronto, 23rd February, 1855.

UNIVERSITY AND COLLEGES AT TORONTO.

ESTIMATE of Income for 1855.

	£	s.	d.	£	s.	d.
Interest on Balances of Purchase Money, General Sales.....	3744	0	0			
do do do Hamilton Property.....	540	0	0			
do do do Ridout Property.....	129	0	0			
do do do Garrison Reserve.....	137	0	0			
do do do Port Hope.....	515	0	0			
do do do Bay Street.....	94	0	0			
do Provincial and other Debentures.....	4680	0	0			
do Loans on Real Estate.....	1279	0	0			
do Bank Balances.....	250	0	0			
do Promissory Notes.....	25	0	0			
do Balance at Credit of Permanent Fund and ready for Investment.....	150	0	0			
				11543	0	0
Bank Stock Dividend.....	30	0	0			
Rents on Lensed Lots.....	1337	0	0			
Fees on Transfers of Land.....	150	0	0			
				1517	0	0
				£	13060	0 0

DAVID BUCHAN,
Bursar.

Bursar's Office,
Toronto, 1st January, 1855.

UNIVERSITY AND COLLEGES AT TORONTO.

STATEMENT of the Number of Acres of Land which have been sold from the period of the original Endowment to the 31st Dec., 1854, shewing the total amount of Sales, amount received, and amount due, also the average price per Acre.

ORIGINAL ENDOWMENT, NUMBER OF ACRES.	ACRES SOLD.	ACRES UNSOLD.	AMOUNT OF SALES.	AMOUNT RECEIVED.	AMOUNT UNPAID.	REMARKS.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	
Patent dated 3rd January, 1828—225,957.						
Add difference in Exchange of Land with Government, per Statement 1853—175,255,132.....	128,007	68,125	211,396 11	3155,779 11	555,616 19 10	
Add difference in Exchanges of Land with Government, 1854 —350,226,482.						
Acres Sold in 1854, and Price.....	R. P. 12,430 1.30	R. P. 12,430 1.30	34,098 4 4	20,492 13 5	13,605 10 11	
	R. P. 170,437 1.30	R. P. 55,694 2.10	245,494 15 7	176,272 4 10	69,222 10 9	Average price per Acre, 28½g.

DAVID BUCHAN,
Bursar.

BURSAR'S OFFICE,
Toronto, 1st January, 1855.

UNIVERSITY AND COLLEGES AT TORONTO.

STATEMENT of Capital invested, and the Amount expended, from the 1st January, 1828, to 31st December, 1854.

	£	s.	d.	£	s.	d.
Capital invested to 31st December, 1853, as shewn in Annual Statement transmitted to Government.....	161,819	10	5			
Capital invested in 1854, as shewn in Account No. 1, Permanent Fund.....	29,124	12	3			
				190,944	2	8
Amount expended to 31st December, 1853, as shewn in Annual Statement transmitted to Government.....	139,053	14	6			
Amount expended, as shewn in Account No. 2, Income Fund, to 31st December, 1854.....	10,291	11	9			
				149,345	6	3
Total Amount invested or expended to 31st December, 1854.....				£ 340,289	8	11

DAVID BUCHAN,
Bursar.

BURSAR'S OFFICE,
Toronto, 1st January, 1855.

UNIVERSITY AND COLLEGES AT TORONTO.

No. 2.—The Bursar's statement of Cash received and expended on account of the Income Fund, for the year ended the 31st December, 1854, shewing the total amount of Receipts and Expenditure on account of the University and Colleges at Toronto generally, and also amounts expended on account of University of Toronto and University College separately.

Receipts.	£ s. d.	To whom paid.	Service.	Expenditure.	
				University.	University College.
Cash received on account of				£	s. d.
Interest on Purchase money.....	5260 16 6	David Buchan.	Bursar— 12 months' salary.....	400	0 0
Do on Debentures.....	2661 15 2	Alan Cameron.....	Cashier or Chief Clerk— 9 months' salary, at £300.....	225	0 0
Do on Promissory Notes. 100 8 8			do at £400.....	100	0 0
Do on Mortgages.....	1172 11 0		Arrears difference of salary for 13 months, between £300 and £400 per annum, as per Order in Council communicated 29th September, 1854.....	108	6 8
Do on Bank Balances....	505 18 8	Matthew Drummond....	Book-keeper— 12 months' salary.....	483	6 8
Insurance repaid (Interest on).....	0 0 9	James Nation.....	Assistant Clerk— 12 months' salary.....	250	0 0
Rents of Leased Lots.....	3102 15 6	Joseph Frankish.....	Assistant Book-keeper (Extra)— 3 months' salary, at £120.....	30	0 0
Fees on Transfers of Land..	216 7 9		do at £150.....	112	10 0
Dividends on Bank Stock ..	17 10 0	Edward Nation.....	Extra services, continuation of Books of Commission of En- quiry.....	52	15 8
Bonus on do ..	7 10 0		Extra Clerk— 5 months salary, to 31st May, 1854, at 7s. 6d. per diem....	48	7 6
Carried over.....	£ 18245 14 0		Carried over.....	£ 1476 9 5	

No. 2.—Income Fund.—(Continued.)

Receipts.	To whom paid.	Service.	Expenditure.		
			University.	University College.	
Amount brought forward			£	s.	d.
Amount charged Upper Canada College, being its proportion of Expense of Management, for the year 1854	William Morrow	Bursars Office.—(Continued.) Amount brought forward.	1476	9	5
Law costs repaid	George Ridout	Messenger— 12 months' salary.	60	0	0
Postage do	Thomas McLearn & Co.	15 months' Rent of Office.	75	0	0
Taxes do	Henry Rowsell	Stationery, Books, &c.	76	0	10
	Jacques & Hay	do	1	15	0
	Angus Dallas	Furniture	2	17	6
	H. Piper & Bros.	do	2	12	3
	Bethley & Kay	do	0	15	0
	George B. Wylie	do	1	2	4
	W. Blight	Furniture, Carpets, etc.	5	17	0
	James Stewart	Do	0	7	6
	Archibald Taylor	Fuel (Wood)	25	15	0
	George Hetherington	Do (Coal)	17	10	0
	John Craig	Cutting Wood			
	H. Piper & Bros.	Repairs	2	8	9
	Robert Carroll	Do	2	9	8
	John Ritchey	Do	1	11	3
	Wm. Morrow and others.	Do	20	19	10
	Joseph Prethman	Cleaning Office and Well.	8	1	11
	Hicks	Do	1	15	0
	David Buchan	Do	2	15	0
	William Morrow	Travelling Expenses to Hamilton.	1	18	2
	John Ellis	Paid labour of 2 men clearing away Trees	1	15	0
	Thos. Miller and others.	Bursars' Seal	2	7	0
	Ridout Bros.	Express charges, Telegraph, &c.	1	2	4
	Fulton Michie & Co.	Hardware	0	6	11
		Candles for Office	1	9	7
			27	9	6
			12	11	11

Morphy Bros.	Repairing Clock.	0	7	6
Joseph Lesslie	Postage	7	18	7
Thompson & Co.	Advertising	4	0	9
		21	5	10
				1814 17 11
Rev. J. McCaul, L. L. D.	Salaries of Professors and others. Professor of Classical Literature— 12 months Salary	450	0	0
	12 do do as President	250	0	0
	House Rent	60	0	0
		760	0	0
H. B. Croft, D. C. L.	Professor of Chemistry— 12 months Salary	450	0	0
	House Rent	60	0	0
		510	0	0
The Rev. J. Beaven, D.D.	Professor of Metaphysics— 12 months Salary	450	0	0
	House Rent	60	0	0
		510	0	0
George Buckland	Professor of Agriculture— 12 months Salary	250	0	0
J. B. Cherriman, M. A.	Professor of Natural Philosophy— 3 months Salary at £350	87	10	0
	3 do additional do at £100	25	0	0
	9 do Salary at £450	337	10	0
		450	0	0
Daniel Wilson, L. L. D.	Professor of History, and English Literature— 3 months Salary at £350	87	10	0
	3 do additional do at £100	25	0	0
	9 do Salary at £450	337	10	0
		450	0	0
Rev. Wm. Hincks, F.L.L.	Professor of Natural History— 3 months Salary at £350	87	10	0
	3 do additional do at £100	25	0	0
	9 do Salary at £450	337	10	0
		450	0	0
E. J. Chapman	Professor of Mineralogy & Geology— 3 months Salary at £350	87	10	0
	3 do additional do at £100	25	0	0
	9 do Salary at £450	337	10	0
		450	0	0
	Carried forward	£3830	0	0
		1814	17	11

Carried forward....£ 13660 10 5

No. 2.—Income Fund.—(Continued.)

Receipts.	To whom paid.	Service.	£ s. d.	Expenditure.		
				University.	£ s. d.	University College.
Amount brought forward.....			13660 10 5			
	J. Forneri, L. L. D.....	<i>Salaries of Professors and others.</i> —(Continued) Amount brought forward..... Professor of Modern Languages— 3 months Salary at £350..... 3 do additional do at £100..... 9 do Salary at £450.....	3880 0 0	1814 17 11		
	J. M. Herschfelder.....	Lecturer on Oriental Literature— 12 months Salary.....	150 0 0			
	The Rev. Alex. Lorimer.....	Librarian— 6 months and 20 days Salary at £150.....	88 6 8			
	John Storey.....	Temporary Librarian— 3 months and 71 days Salary at £150.....	66 13 4			
	A. M. Clarke.....	Assistant Librarian— 3 months Allowance to 30th Sep tember, 1853.....	2 6 2			
	T. P. Roberts.....	Assistant Librarian— 3 months Salary to 30th Sep- tember, 1853.....	2 6 2			
	J. A. Preston.....	Assistant Librarian— 3 months Salary to 30th Sep- tember, 1853.....	2 6 2			
	W. L. B. Hamlin.....	Temporary Clerk Uny. College— 21 days Salary to 11th March, 1854.....	4 10 0			
	George Hallowell.....	Temporary Clerk Uny. College— Salary from 10th June, 1854.....	75 0 0			
	William Newton.....	Messenger to Senate— Salary from 18th May, 1854.....	15 12 0		15 12 0	
	Daniel Orris.....	Beadle and Steward— 6 months Salary to 30 June, 1854 6 do do to 31st Dec. do.	37 10 0 50 0 0			

	James Cody.....	3 do do as Beidel to Senate, from 6th Sept. to 6th Dec., 1854 Attendant on Professor of Natural History— 6 months Wages at £80..... 6 months do at 100.....	10 0 0 40 0 0 50 0 0	97 10 0	10 0 0
	James Patterson.....	Attendant on Professor of Natural Philosophy— 6 months Salary at £52..... 6 months do at 65.....	26 0 0 32 10 0	90 0 0	
	Christopher Drew.....	Attendant on Professor of Chemistry— 6 months Salary at £40..... 6 months do at 65.....	20 0 0 32 10 0	58 10 0	
	Doodles King.....	Bell Ringer and Genl. Attendant— 6 months Salary at £40..... 6 months do at 65.....	20 0 0 32 10 0	52 10 0	
	Peter Miller.....	Out-door Servant— 6 months Salary at £40..... 6 months do at 60.....	20 0 0 30 0 0	52 10 0	
	Thomas Nelson.....	General Servant— 6 months Salary at £40..... 6 months do at 60.....	20 0 0 30 0 0	50 0 0	
	Abraham Ellis.....	Temporary Wood Cutter— 5 months Salary to 31st May, 1854, at £42 per annum.....		16 13 4	
	Thomas Nelson, Jr.....	Temporary Wood Cutter— 1 month's Wages.....		4 3 4	
	Mark Fitzpatrick.....	Allowance as per Order in Council of 16th June, 1854, 16 months at £40.....	32 0 0		
	Robert McKeown.....	Gratuity as per same O. C.....	25 0 0		
	Skeffington Connor, L.L.D. Oliver Movatt Rev. J. McCaul, L.L.D. " Arthur Wickson, M.A.	<i>Examiner's Fees.</i> Examiner..... Do..... Do..... Do.....	20 0 0 20 0 0 20 0 0 20 0 0	5210 17 2	5128 5 2
Carried forward.....		Carried forward.....	80 0 0	7025 15 1	25 12 0
£13660 10 5					5128 5 2

No. 2.—Income Fund.—(Continued.)

Receipts.	To whom paid.	Service.	£ s. d.		£ s. d.		Expenditure.	
			1860	10 5	1855	15 1	University.	University College.
Amount brought forward..			13660	10 5	481 13 4	7385 15 1	385 12 0	5128 6 2
	W. McCabe.	Scholarships—(Continued)						
	F. McNaughton	Amount brought forward.						
	J. H. Young	.....	10	0 0	10	0 0		
	A. McNab	.....	10	0 0	10	0 0		
	James Rierdon	Taxes.					521 13 4	521 13 4
	Asst. A. Bunham	Port Hope Property, 4, 1 Hope, for 1855.	51	0 0				
	W. W. Street.	Northumberland and Durham.	14	1 11				
	Edward Latty	Nysour, N. Dorchester and Delaware	19	2 6				
	C. Eustis	Oro	3	10 7				
	John Reid	Waterloo	1	17 10				
		4 in 1st Con. Hope, Bro ft. for 1854.	57	15 0				
	S. Connor, L.L.D.	Law Costs.					147 7 10	
	Becher & Co.	Solicitors Costs	131	10 9				
	Alan Cameron	Comm. Fees on Affidavits.	9	19 0				
		.....	9	1 0			150 10 9	
	Peter Balfour.	Hamilton Property.	303	2 0				
	H. & R. Young.	Repairs, improving property	30	0 0				
	Wm. McMaster	Do	73	8 0				
	W. Thomas, Architect.	Impoing plate glass for windows	51	10 0				
	Wakefield & Coate	Superintending improvements and valuing property	10	0 0			468 0 0	
		Commission on sale of property						
	John K. Roche	Inspecting Land.						
	Edward W. Nafion.	Inspecting Lands in various Townships	64	0 0				
	Thomas Alchin.	Do 1 and in Scarborough (cab hire)	0	10 3				
		Do. in Wilmot.	9	10 0				74 0 3

Henry Rowsell	His account for stationery	235	17 9					125 6 2	110 11 7
Thomas McLearn & Co.	do	8	1 9					8 1 9	5 5 0
A. M. de la Tour	do	5	5 0						
	.....							249 4 6	
Provincial Insurance Co.	Insurance.	18	15 0						
Western do	.....	24	7 6						
British American do	.....	47	3 0						
Royal	.....	5	5 0					95 10 6	
Henry Rowsell	Medals and Prizes.								
John Ellis.	Gold and Silver Medals purchased by him	111	1 9						
Henry Rowsell	Engraving Medals	13	17 3						
	Prizes purchased from him	62	0 0					186 19 0	186 19 0
Ridout Brothers	Furniture.								
J. W. Skelton.	Furnished Unty, and Unty. College	12	7 10						
W. Orris	do	5	10 0					5 5 5	7 2 5
J. W. Miller	do	3	11 9					3 11 9	
H. Piper & Bros	do	2	0 0					2 0 0	
Jacques & Hay	do	19	9 11					15 2 9	4 7 2
G. B. Wyllie	do	155	3 9					103 7 6	51 16 3
Parke's Bros.	do	14	8 11					14 8 11	
J. B. Cheirnan	do	2	6 0						2 6 0
Cheney & Co.	do	2	12 6						2 12 6
Betley & Kay.	do	5	0 0						5 0 0
Patrick O'Neil	do	15	2 6					15 2 6	6 15 0
	.....	6	15 0						
	.....							244 8 2	
George Brown	Printing and Advertising.								
Thompson & Co.	Advertising in "Globe"	10	8 10						8 16 6
Proprietor of Mirror	Do	11	17 6						7 12 2
James Beatty	Do "Colonist"	2	2 1					0 4 7	1 17 6
Wesleyan Book Room	Do "Mirror"	3	13 2					0 4 2	3 9 0
Old Countryman	Do "Leader"	1	8 9						1 3 9
Wakefield & Coate.	Do	1	9 2						1 9 2
W. L. Mackenzie.	Do	2	7 6						
Henry Rowsell	Do "Message"	5	8 10						1 11 10
J. M. Ferris	Printing per Agreement	108	5 10					97 13 0	10 12 10
P. O. Neil	Advertising	1	5 0						6 9 4
	.....	6	9 4						
	.....							9523 9 5	1494 5 7
	Carried forward	154	11 0						3862 3 2
								

No. 2.—Income Fund.—(Continued.)

18 Victoriae.

Appendix (M.)

A. 1855.

Receipts.	To whom paid.	Service.	£ s. d.		Expenditure.		
			£	s. d.	University.	University College.	
Amount brought forward.			154	11 0	9523	9 5 7	8862 3 2
	C. W. P. L'Armitage.	Amount brought forward.	6	15 0	5	5 0	1 10 0
	Josiah Blackwood	Printing and advertising—(Contd.)	3	7 3	2	12 8	0 14 7
	H. Jones Rutlan	Advertising	4	2 7	2	9 6	1 3 4
	Montreal Herald	Do	6	7 0	4	0 0	2 7 0
	J. Rowlands	Do	3	5 0	2	6 8	1 2 0
	John Hogg	Do	3	5 0	2	5 0	0 10 0
	Richard J. Oliver	Do	3	5 0	2	15 0	6 3 8
	H. P. Hope	Do	4	4 4	2	15 0	1 9 4
	Catholic Citizen	Do	0	18 0	2	15 0	8 0 0
	Gazette Office.	Do	8	0 0	204	7 6	203 7 0
	British Canadian	Do	175	12 6	6	12 6	4 9 9
	James Stewart	Wood	82	14 6	208	7 0	2 2 9
	Thomas Saulter	Coal			6	12 6	2 2 9
	Joseph Lesslie	Postage and Box			69	1 4	
	The Receiver General.	Interest on Debentures.					
		Interest accrued on Debentures purchased from Government					
	Daniel Orris.	Miscellaneous Disbursements.	33	12 6	33	12 6	5 12 6
		Services to Senate and Refreshments supplied by him	5	12 6			
		Cleaning University College, &c.	0	8 9			
		Recording Minutes of Caput, &c.	8	5 0	39	18 9	8 5 0
	Doodes King	Services to Senate and Convocation.	1	7 6			1 7 6
		Washing Towels for Professors			9	12 6	

18 Victoriae.

Appendix (M.)

A. 1855.

James Cody	Washing Towels for Professors	0	5 0			0	5 0
Peter Miller	Sharpening Saws	2	17 6				2 17 6
Thomas Nelson	Services to Convocation	0	10 0	3	7 6	0	10 0
	Do	0	15 0			0	15 0
James Patterson	Washing Towels for Professors	1	1 3	1	16 3	1	5 0
	Do	1	15 0				0 10 0
	Do	0	15 0				0 10 0
Christopher Drew	Services to Convocation	0	2 6			0	2 6
	Do	6	7 6				6 7 6
William Graham	Do to Professors, Cleaning and Washing Towels	3	5 0				3 5 0
Angus Dallas	In charge of Parliament Buildings	9	15 0	5	1 0	5	1 0
Joseph Beckett & Co.	For Candles, &c.	3	10 3	3	10 3	0	10 3
Ridout, Brothers	For Paper Basket and Brooms	70	1 5				63 18 3
Bryce, McMurrick & Co.	Sundries, Chemical and Natural History Department	3	16 9				0 18 2
	In Agricultural do						
	Freight on Package for Department of Natural History	8	4 4				
Cheney, Rice & Co., and Miller	Do Mineralogy and Geology	14	10 0				
John Ritchey	Express Charges	10	10 11				
Estate of J. Craig	Paid for Repairs	41	2 6				
Charles Vale	Do	0	15 0				
J. Beckett & Co.	Do	2	2 6				
H. Piper, Bros	Do	1	0 7				
R. Howard	Do	6	18 11				
J. Rierson	Do	2	18 9				
H. Northcoate	Copying Address to the Governor General	1	0 0				
W. P. Newton	Two Plans	2	0 0				
	Copying Address to the Governor General for Senate	1	0 8				
Toronto Water Co.	Water Rent	25	0 0				
Consumers' Gas Co.	Gas	2	6 3				
William Brown	Sweeping Flues	27	6 3				
Telegraph Company	Telegraphs and Cab Hire	2	6 10				
James Burug	Removing Snow	1	7 2				
	Carried forward	0	11 3				
		10285	2 10	1598	9	45781	17 7

Carried forward... £ 18860 0 0

No. 2.—Income Fund.—(Continued.)

Receipts.	To whom paid.	Service.	£ s. d.		£ s. d.		Expenditure.						
			£	s.	d.	£	s.	d.	University	University College.			
Amount brought forward.		Amount brought forward.....	10285	2	10	1598	9	45781	17	7			
		<i>Miscellaneous Disbursements—Cont'd.</i>											
	Mrs. Norris.....	Earthenware				0	5	0					
	Fulton, Michie & Co	Candles and Oil				2	17	6					
	Wm. Stephens	Repairing Fence at Port Hope				2	10	3					
	Permanent Fund	Transfer, Over-payment, 1853				0	15	9					
	Balance on hand, 31st Dec, 1854, and carried to the credit of surplus Income Fund					£10291	11	9					
						3368	18	8					
						£18660	10	5	1598	14	45784	16	1

Bursar's Office, Toronto, 1st January, 1855.

DAVID BUCHAN, Bursar.

No. 2.—UNIVERSITY AND COLLEGES AT TORONTO.

STATEMENT of Receipts and Appropriations by the Bursar of Moneys received in deposit for the year ended the 31st Dec., 1854.

£ s. d.		£ s. d.					
£	s.	d.	£	s.	d.		
Balance on hand 31st Dec, 1853	1105	18	5	Amount of deposits appropriated during the year 1854	1419	13	0
Cash received in deposit for the purchase of Lands during the year 1854	1268	1	1	Do returned to Depositors	105	14	6
				Balance on hand in Deposit 31st Dec., 1854	848	12	0
					£2878	19	6

Bursar's Office, Toronto, 1st January, 1855.

DAVID BUCHAN, Bursar.

No. 4.—UNIVERSITY AND COLLEGES AT TORONTO.
STATEMENT of Receipts and Expenditure by the Bursar on account of the "Appropriation Fund," for the year ended 31st Dec., 1854.

Receipts.	£	s.	d.	Expenditure.
To Balance in hand 31st Dec., 1854, being the residue of the sum of £860, appropriated by Statute of Senate for the improvement of the Port Hope and Port Stanley Properties	571	19	1	
£	571	19	1	

DAVID BUCHAN, Bursar.

No. 5.—UNIVERSITY AND COLLEGES AT TORONTO.
STATEMENT of Receipts and Expenditure by the Bursar on account of "Surplus Income Fund" for the year ended 31st December, 1854.

Receipts.	£	s.	d.	Expenditure.
Balance on hand 31st December, 1853	3087	1	4	
Balance of Income Fund over and above the expenditure of 1854.....	3368	18	8	
£	6406	0	0	
<i>Statement of Balances.</i>				
Balance, as shewn by quarterly account to the 31st December, 1854, transmitted to Government	10687	10	8	
Balance "Permanent Fund" as shewn by Statement No. 1.....	£ 2360	19	7	
" Deposits, Statement No. 3	848	12	0	
" Appropriation, No. 4	571	19	1	
" Surplus Income, No. 5.....	6406	0	0	
£	10687	10	8	
Balance in hand 31st December, 1854.....				£ 6406 0 0

DAVID BUCHAN, Bursar.

Bursar's Office, Toronto, 1st January, 1855.

UPPER CANADA COLLEGE.

STATEMENT of the number of acres of Land which have been sold from the period of the original Endowment to the 31st December, 1854, shewing the total amount of sales, amount received and amount due, also the average price per acre.

Original Endowment—Number of Acres.	Acres sold.	Acres unsold.	Amount of sales.	Amount received.	Amount unpaid.	Average price per acre.
			£ s. d.	£ s. d.	£ s. d.	28s. 11d. nearly.
Deed dated 16th November, 1832.....	20,000					
4th July, 1834.....	1,080					
16th May, 1835.....	42,188					
Add difference in exchange of Land with Government in 1849	589	34,355	28,594 19 2	17,963 7 7	10,631 11 7	
As per statement to 31st December, 1853.....	63,857	9,998½	18,621 0 0	5,165 5 4	13,455 14 8	
Acres sold during 1854, and price.....	39,500½	24,856½	£47,215 19 2	23,128 12 11	24,087 6 3	

Upper Canada College was also endowed with Block D, in the City of Toronto, containing 5½ acres, divided into Building Lots; also Block A, in the said City of Toronto, called Russell's Square, containing 9 acres, which Block is the site of the College Buildings.

Block D is divided into..... 46 Lots.

	Acres sold.	Acres unsold.	Amount received.	Amount unpaid.
Sold to 31st December, 1843 40	£6308 15 0		£2716 7 2	£3592 7 10
" " 1854 1—41	445 5 0		89 1 0	356 4 0
5 Lots unsold....	£6754 0 0		£2805 8 2	£3948 11 10

Bursar's Office, Toronto, 1st January, 1855.

DAVID BUCHAN, Bursar.

UPPER CANADA COLLEGE.

STATEMENT of Capital invested and the amount expended on account of the College, from its commencement to the 31st December, 1854.

	£	s.	d.
To amount of Capital invested to 31st December, 1853, as shewn in the annual statement transmitted to Government.....	25197	8	3
To amount of Capital invested in 1854, as shewn in account No. 1, Permanent Fund.....	4968	15	0
Total amount invested to 31st December, 1854.....	£30166	3	3
To amount expended to 31st December, 1853, as shewn in annual account transmitted to Government.....	104291	7	5
To amount expended in 1854, as shewn in account No. 2, Income Fund.....	5849	8	1
Total amount invested and expended to 31st December, 1854.....	£140806	18	9

Bursar's Office, Toronto, 1st January, 1855.

DAVID BUCHAN, Bursar.

UPPER CANADA COLLEGE.
No. 1.—The Bursar's Statement of Cash received and expended on account of the Permanent Fund, for the year ended 31st December, 1854.

Receipts.		To whom paid.		Service.	
£	s. d.	£	s. d.	£	s. d.
To Balance on hand, 31st December, 1853.....	1885 11 8	Receiver General		Paid for Provincial Debentures	2000 0 0
To Cash received on account of Lands sold.....	5254 6 4	Treasurer Mechanics Institute.....		Balance of Loan.....	2968 15 0
				Balance on hand 31st December, 1854 ..	1871 3 0
		£ 6839 18 0		£	6839 18 0

DAVID BUCHAN, Bursar.

Bursar's Office, Toronto, 1st January, 1855.

UPPER CANADA COLLEGE.
No. 2.—The Bursar's Statement of Cash received and expended on account of the Income Fund, for the year ended 31st December, 1854.

To whom Paid.		Service.		£ s. d.	
£	s. d.	£	s. d.	£	s. d.
To Balance on hand, 31st December, 1853.....	839 19 8	F. W. Barron, M. A.	Principal, 12 months salary.....	556	0 0
To cash received for interest on Purchased Money	1128 16 11	Rev. H. Scadding, D. D. ..	1st Classical Master, 12 months salary	334	0 0
To cash received for interest on Loans on Real Estate	279 10 9	Rev. G. Maynard	Mathematical Master, 12 months salary	334	0 0
To cash received for interest on Notes of Hand	7 0 0	Rev. W. Stennet	2nd Classical Master, 12 months salary	62	10 0
To cash received for interest on Bank Balances	91 4 3	William Wedd	3rd Classical Master, 12 months salary, at £250. ..	21	0 0
			Increased £84	250	10 0
		J. P. de la Haye	9 months salary, £384	384	0 0
		M. Barrett	French Master, 12 months salary	277	15 4
			1st English Master, 12 months salary.....	200	0 0

To whom Paid.		Service.		£ s. d.	
£	s. d.	£	s. d.	£	s. d.
To cash received for interest on Debentures	75 0 0	C. J. Thompson	2nd English Master, 12 months salary	188	17 8
To cash received for Rents on Leased Lands	195 15 11	John Dodd	Commercial Master, 12 do do	100	0 0
To cash received for Fees for Teachers of Land	71 13 1	J. G. Howard	Geometrical Drawing Master, 12 do	111	2 0
To cash received for Trespass and permission to surrender certain leased and purchased lands.....	150 0 0	E. C. Bull	Ornamental Drawing Master, 12 do	50	0 0
To cash received for Sales of Timber. Do do	28 5 0	J. W. Humphrey	Vocal Music Master, 12 months do	50	0 0
Do do	5 12 9	A. Macl	Instrumental Music Master, 12 months salary	50	0 0
Do do	0 4 8	David Alderdice	Porter, 12 months wages	70	0 0
Do do	2015 1 0	Wm. Paterson	General Servant, 12 months wages	60	0 0
and Board		C. Duckett	In-door Servant, 12 months wages	39	0 0
		Mrs. Duckett	Resident Cook, 12 months wages	21	0 0
		M. Madden	Out-door Servant, 3 months wages to 31st March ..	9	0 0
		R. Devlin	Out-door Servant, 3½ months wages to 31st July ..	10	10 0
		B. Venall	Out-door Servant, 4 months wages to 31st Dec.....	12	0 0
			Exhibitioners.		
		T. Moss	First Exhibitioner.....	15	0 0
		D. Sampson	Do do	15	0 0
		C. Badgley	Second do	10	0 0
		J. Ridout	Do do	5	0 0
		C. Archibald	Do do	2	10 0
		Professor Parry	Examination in Classics	6	6 8
		Professor Irving	Do Mathematics	6	6 8
		Henry Rowsell	Amount of Account for		
			Prizes.		
		Henry Rowsell	Amount of Account for		
			Books and Stationery.		
		Henry Rowsell	Amount of Sundry Accounts.....	36	19 9
		A. H. Armour	Amount of Account	4	7 11
		M. Shewan & Co	Do	1	0 0
		John Lee	For Milk furnished Boarding House	16	14 5
		John Wickson	For Meat do	92	0 0
		R. Davis & Co	For Groceries do	50	17 1
		T. Webb	For Bread, Flour, &c do	52	12 3
		Mrs. Grant	For Washing do	62	5 6
		Gas Consumers' Co.	TrinSmith Sundries.....	16	7 6
		John McGee	Table Cloths, &c.	5	0 5
		J. M. Jamieson	Refrigerator, &c., paid through him	4	8 11
		F. W. Barron	Petty Cash for Vegetables, &c	7	0 0
		Do do		130	7 6
				487	18 10

Carried forward..... £4883 8 7

Income Fund.—(Continued.)

	To whom Paid.		Service.	£ s. d.	
	£	s. d.		£	s. d.
Balance, 31st December, 1854	966	4 6			
F. W. Barron	.....		Miscellaneous—(Continued.)		
A. & S. Nordheimer	.....		Sundry Petty Expenses	1	0 0
Fulton, Michie & Co	.....		Hire of Piano-forte	9	0 0
Telegraph Co. Cab-hire, &c.	.....		Sundries, per bill	0	17 2
University and Colleges	.....		Proportion of Joint Management, being one-fifth of Expenses, &c., and one-sixth of Bursar's salary, &c.	0	6 7
	£5849	8 1			32 7 3
					387 11 9
				£5849	8 1

Bursar's Office, Toronto, 1st January, 1855.

DAVID BUCHAN, Bursar.

UPPER CANADA COLLEGE.

No. 3.—STATEMENT of Receipts and Appropriation, by the Bursar, of Moneys received in "Deposit," for the Year ended 31st December, 1854.

To Balance on hand, 31st December, 1853	93	0	0	By Amount of Deposits placed to Account or Returned	.....£	399	10	0
To Cash received in "Deposit" for the purchase of Lands	525	14	0	Balance on hand in "Deposit," 31st December, 1854	.....	219	4	0
	£	618	14	0		£	618	14	0

Bursar's Office, Toronto, 1st January, 1855.

DAVID BUCHAN, Bursar.

UPPER CANADA COLLEGE.
No. 4.—SUMMARY of the foregoing Accounts.

	£	s.	d.		£	s.	d.	
To Balance on hand, 31st December, 1853, as shewn in Annual Account transmitted to Government	2518	11	4	By cash invested in Provincial Debentures and Loan to Mechanics Institute, as per Statement, No. 1	4968	15	0	
To cash received on account of Sales of Land, as per Statement No. 1.	5254	6	4	By paid Salaries of Principal and Masters, and Wages to Servants, as per Statement, No. 2	8091	5	0	
Do do Loans on Real Estate				By paid Expenses of Resident Boarding House	437	13	10	
Do do Notes of Hand	1581	11	11	By paid Repairs to Buildings, including partial payment for repairs, made by Order in Council	896	9	5	
Do do Provincial Debentures				By paid Exhibitors, Examiner's Fees, Prizes, Books, and Stationery	181	10	6	
Do do Bank Balances, per Statement No. 2.)				By paid Taxes, Inspecting Lands, Commission, Insurance, Law Costs, Postage, and Advertising	714	1	0	
To cash received for Rents of Leased Lots and for Fees on Transfers of Land	267	9	0	By paid Fuel	163	8	9	
To cash received for Sales of Timber, for Trespass on Lands, and for Costs returned	178	17	9	By paid Interest accrued on Debentures at Purchase, and Interest on Amount sent for purchase of Land, returned	5	0	7	
To cash received for Fees, for Tuition, and for Board	2015	1	0	By paid Miscellaneous Expenses	32	7	3	
To cash received for Postage returned	0	4	3	By paid Deposit placed to account, Sales of Land, or returned, as per Statement, No. 3	899	10	0	
To cash in Deposit for the Purchase of Lands, as per Statement No. 3.	525	14	0	By paid Amount credited University and Colleges, for proportion of Joint Management, as contained in Statement, No. 2	337	11	9	
				By Balance on hand, deposited in Bank of Upper Canada, 31st December, 1854	1124	2	6	
	£	12341	15	7	£	12341	15	7
Balances as per Statement No. 4. Summary	1124	2	6					
Permanent Fund, No. 1								
Deposits, No. 3								
Less								
Income Fund, Dr. No. 2								
	£	1124	2	6				

DAVID BUCHAN, Bursar.

Bursar's Office, Toronto, 1st. January, 1855.

UPPER CANADA COLLEGE.

(Memorandum by the Bursar.)

As has been done in reference to the University and Colleges, the Bursar presents herewith an Estimate of the Income of Upper Canada College for the year 1855.

The sources of Income for that Institution hitherto have been three-fold, 1st. Endowment, 2nd. College Dues, and 3rd. Provincial Grant. In the accompanying Estimate, the amount expected to be derived from each of these sources, is stated separately.

As compared with an Estimate for the year 1853, made for the Council of Upper Canada College, under order of the late Board of Endowment, the present Estimate shows an increase of Income, arising from Endowment, of £1,136 0s. 2d., which, but for the very great recent expenditure for repairs, would have reached about £1,300. The anticipated receipt of College Dues is stated at an increase of only £100 on the Estimate for 1853. The actual receipts for 1852 were £1,953 15s. 10d., for 1853, £2,189 12s. 0d., and for 1854, £2,015 1s. 0d. The Parliamentary Grant is put at the same sum which has always been given.

On reference to Account, No. 2, it will be seen that there is an apparent over-draft of Income to the extent of £966 4s. 6d. This arose from the non-receipt within the year of the usual Parliamentary Grant, owing to the late period at which it was voted.

Allusion has already been made to the large amount lately paid for repairs to the College Buildings as a reason why the Income has not been further increased. The greater proportion of that amount has been paid since the end of the year, under Order in Council, and has entirely absorbed the Cash Balance at the credit of Permanent Fund in the accompanying Accounts.

There were, at the close of the year, between 24,000 and 25,000 acres still for sale, a large proportion of which is in the Township of Seymour.

DAVID BUCHAN, Bursar.

Bursar's Office, Toronto, 23rd Feb., 1855.

UPPER CANADA COLLEGE.

Estimate of Income for 1855.

	£	s.	d.
Interest on Balance of Purchase Money, General Sales.....	1549	0	0
Do do Block D. Property.....	150	6	6
Do Provincial and other Debentures.....	210	0	0
Do Bank Balances.....	50	0	0
Do Loans on Real Estate.....	494	0	0
Rents of Leased Lots.....	123	13	6
Fees on Transfers of Land.....	50	0	0
	<hr/>		
Income arising from Endowment.....	£2627	0	0
College Dues.....	2000	0	0
	<hr/>		
Income from Endowment and College Dues.....	£4627	0	0
Provincial Grant.....	1111	2	2
	<hr/>		
Gross Estimated Income, for 1855, from all sources.....	£5738	2	2

DAVID BUCHAN, Bursar.

Bursars Office, Toronto, 1st January, 1855.

REPORT OF THE COUNCIL

OF

UNIVERSITY COLLEGE, TORONTO,

FOR THE YEAR

1854.

To His Excellency Sir EDMUND W. HEAD, Baronet, Governor General of British
North America, &c., &c.

MAY IT PLEASE YOUR EXCELLENCY,

The Council of University College, Toronto, beg leave to present the following Report relative to that Institution, for the year ending 31st December, 1854:—

I.—BUILDINGS.

The business is at present conducted in the Parliament Buildings, temporary use of which was granted by the Government in August, 1853. They have supplied such excellent accommodation, affording an Examination Hall, Library, Museum, Lecture Rooms, and Offices, that it is with great regret that the Council have learned that it will probably be necessary for them to vacate them during the present year. This regret is increased by the apprehension, which the Council have too much reason to believe well founded, that the progress of the Institution will be materially retarded by this third removal, particularly as even it cannot be regarded as final, no permanent accommodation having yet been provided for the Establishment. On this subject they would respectfully press upon Your Excellency's attention the incalculable importance to the success of the College, of having suitable Buildings erected with the least possible delay. No Institution, particularly one of an Educational character, can reasonably be expected to thrive, if it be not allowed to take root, nor can public confidence be secured, as long as the Establishment is liable to the injurious doubts of its stability, suggested by repeated removals from place to place, which however requisite they may be, in consequence of the want of permanent accommodation, are certainly not rendered necessary by any inadequacy of funds to meet the expenditure on so important an object as suitable Buildings.

II.—LIBRARY.

During the past year and the month of January of the present year, important improvements have been made in the different departments, by the addition of upwards of One thousand volumes. The Council would respectfully suggest an appropriation of funds for the additions during the present year. In the month of June, the present Librarian, the Reverend Alexander Lorimer, was appointed and entered on the duties, which he has since discharged.

III.—MUSEUM.

The only Museum which the Institution at present possesses, is illustrative of Natural History. During the year great progress has been made in the collection, preparation, and classification of specimens in the various branches of Zoology and Botany.

Of Mammalia, there are about fifty specimens, affording examples of most of the orders, and including some rare and highly interesting species, besides skulls, horns, &c.

Of Birds, there are about Five hundred specimens, besides about seventy species of Eggs. In selecting the specimens, particular care has been taken to include representations of all the different tribes.

Of Reptiles, there are upwards of seventy species.

Of Fishes, about twenty species.

In addition to a few Crustacia and Arachnida, there is an extensive and valuable series, illustrative of the received divisions of insects, including many rare and beautiful species. Considerable progress has been made in forming a collection of Mollusca, and there are a few good examples of the leading forms of Zoophytes.

The Botanical collection has been commenced.

The Council respectfully avail themselves of this opportunity to bring under Your Excellency's attention, the importance of establishing a Mineralogical and Geological Museum, of at least sufficient magnitude to illustrate the Lectures of the Professor. They would also suggest the expediency of making an annual appropriation for additions both to it and the Museum of Natural History.

IV.—APPARATUS.

(1.)—*Illustrative of Natural Philosophy.*

The number of Instruments, &c., is about One hundred and eighty; of these thirty-nine are illustrative of Statics, fourteen of Dynamics, fifty of Hydrostatics, ten of Acoustics, thirteen of Heat, twenty of Optics, sixteen of Physical Optics, and sixteen of Geodesy and Astronomy.

(2.)—*Illustrative of Chemistry and Chemical Physics.*

The number of Chemical products is about Twelve hundred, and of Minerals used in the Arts, &c., about Four hundred. This collection includes also a large number of Instruments illustrative of Electricity, Galvanism, Electro-Magnetism, Magneto-Electricity, Thermo-Electricity, Heat, Light, &c., Technology and Metallurgy, &c. Although these collections are both valuable and extensive, yet it is most desirable that additions should be made of newer Instruments, and the Council would respectfully suggest an appropriation of funds for the purpose.

V.—OFFICERS AND SERVANTS.

The following at present constitute the Establishment:—

Visitor.

The Right Honorable Sir EDMUND W. HEAD, Baronet, Governor General of British North America, &c. &c.

President.

Reverend JOHN M'CAUL, L.L.D.

Vice-President.

(Vacant.)

Professors, &c.

- * Reverend JOHN M'CAUL, L.L.D., Professor of Classical Literature, Logic, Rhetoric, and Belles Lettrés.
- * Reverend JAMES BEAVEN, D.D., Professor of Metaphysics and Ethics.
- * H. H. CROFT, D.C.L., Professor of Chemistry and Experimental Philosophy.
- * GEORGE BUCKLAND, Esquire, Professor of Theory, and Practice of Agriculture.
- * J. B. CHERRIMAN, M.A., Professor of Natural Philosophy.
- * DANIEL WILSON, L.L.D., Professor of History and English Literature.
- * Reverend WILLIAM HINCKS, F.L.S., Professor of Natural History.
- * E. J. CHAPMAN, Esquire, Professor of Mineralogy and Geology.
- * JAMES HORNERI, L.L.D., Professor of Modern Languages.
- J. M. HIRSCHFELDER, Esquire, Lecturer on Oriental Literature.

Bursar.

DAVID BUCHAN, Esquire.

Librarian.

Reverend ALEXANDER LORIMER.

Registrar.

(Vacant.)

Bookseller, Printer, and Stationer.

Mr. ROWSELL.

Bedel and Steward.

DANIEL ORRIS.

Attendant on Professor of Mathematics and Natural Philosophy.

JAMES PATTERSON.

Attendant on Professor of Chemistry and Chemical Physics.

CHRISTOPHER DREW.

Attendant on Professor of Natural History.

JAMES CODY.

General Attendant.

DOODES KING.

Porters.

THOMAS NELSON and PETER MILLER.

The Council would respectfully call the attention of Your Excellency to the Office of Vice-President, which still remains vacant.

VI.—STUDENTS.

Total number attending Lectures at the close of the year 1854.

Matriculated, 28; Martriculants, 2;

Occasional, 80; Total, 110.

VII.—COURSE OF STUDY.

During the Academic year 1853-4, the same Course of Study was pursued in the College, as had been during the three previous years in the University of Toronto, and the Examinations also were conducted without alteration. At the commencement of the present year, however, the course has altered so as to meet the requirements of the Statutes, which were passed by the Senate of the University under the authority of the Provincial Statutes, 16th Vic. cap. 89.

The subjoined Programme will shew the arrangements in the different Departments of Study.

PROGRAMME OF LECTURES.

CLASSICAL LITERATURE, LOGIC, RHETORIC, AND BELLES-LETTRES.						METAPHYSICS AND ETHICS.					
<i>Professor.</i> Reverend JOHN MCCAUL, L.L.D.						<i>Professor.</i> Reverend JAMES BEAVEN, D.D.					
	M.	T.	W.	Th.	F.		M.	T.	W.	Th.	F.
1st Year.....	10	* 12	10	* 12		1st Year.....			2	.....	* 9
2nd do	12	* 10	12	.....	* 2	2nd do	* 2	9	* 2	.....	9
3rd do	11	* 9	11	.....	* 12	3rd do	* 3	11	* 3	11	* 11
4th do		11	* 2	11	* 11	4th do	* 4	* 10	* 4	* 10	10
Logic, 1st year					10						
Rhetoric, 2nd year					10						

* For Candidates for Honors.

PROGRAMME OF LECTURES.—(Continued.)

MATHEMATICS AND NATURAL PHILOSOPHY.						CHEMISTRY AND CHEMICAL PHYSICS.					
<i>Professor.</i> J. B. CHERRILMAN, M.D.						<i>Professor.</i> H. H. CROFT, D.C.L.					
	M.	T.	W.	Th.	F.		M.	T.	W.	Th.	F.
1st Year.....	12					1st Year.....					
2nd do.....	* 2	11	* 12	11		2nd do.....	11	11	11	11	11
3rd do.....	10	* 12	10	* 12		3rd do.....	2		2		2
4th do.....	1*	1*	1*	1*	1	4th do.....					
	11*	2*	11*	2							
HISTORY AND ENGLISH LITERATURE.						NATURAL HISTORY.					
<i>Professor.</i> DANIEL WILSON, L.L.D.						<i>Professor.</i> Reverend WILLIAM HINCKS, F.L.S.					
	M.	T.	W.	Th.	F.		M.	T.	W.	Th.	F.
1st Year.....	11				* 11	1st Year.....	1		1		
2nd do.....	† 3	3	† 3		† 3	2nd do.....					
3rd do.....	† 3	2	* 1	3	† 3	3rd do.....	10	10	10	10	10
4th do.....	12		12	* 12		4th do.....					
	† 3	1	† 3		* 1						
	† 3	1	† 3	1	† 3						
MODERN LANGUAGES.						MINERALOGY AND GEOLOGY.					
<i>Professor.</i> JAMES HORNERI, L.L.D.						<i>Professor.</i> E. J. CHAPMAN, Esquire.					
	M.	T.	W.	Th.	F.		M.	T.	W.	Th.	F.
1st Year.....		2	11	10	2	1st Year.....		1		1	
2nd do.....	1	* 1		* 2	12	2nd do.....					
3rd do.....		* 12				3rd do.....					
4th do.....	* 3	3		3	1	4th do.....	12	12	12	12	12
	* 2	* 4	1	9							

* For Candidates for Honors.

† Professor Willson's Lectures on the Philosophy of History—on Monday, Wednesday, and Friday, at 3 o'clock.

PROGRAMME OF LECTURES.—(Continued.)

ORIENTAL LITERATURE.

Lecturer.

J. M. HIRSCHFELDER.

	M.	T.	W.	Th.	F.
1st Year.....	9	4	.....	8	.....
2nd do .....	.....	3	.....	4	4
3rd do .....	.....	2	.....	2	3
4th do	10	.....	10	.....	2

Professor Croft Lectures on "Elementary Chemistry," on Tuesday and Thursday, at 2 o'clock.

Professor Croft Lectures on "Practical Chemistry," on three days in the week.

Professor Buckland Lectures on Agriculture, on five days in the week, at 4 o'clock.

In reviewing the progress of the Institution during the past year, whilst the Council cannot but feel satisfaction, that there has been so large an increase of Students in Arts, yet they deem it necessary to express their conviction, that there would have been a greater number in attendance, if the arrangements for carrying out the Provincial Statute of 1853, could have been perfected and announced at an earlier period of the year; and further, that the results of last year, although so far favorable, afford but an imperfect indication of the success which may reasonably be anticipated, when the whole course, which extends over four years, shall have been fully developed.

JOHN M'CAUL,

President.

REPORT OF THE SENATE

OF THE

UNIVERSITY OF TORONTO,

For the Year 1854.

To His Excellency Sir EDMUND WALKER HEAD, Baronet, Governor General of British North America, &c., &c., &c., and Visitor of the University of Toronto.

MAY IT PLEASE YOUR EXCELLENCY,

The Senate of the University of Toronto beg leave respectfully to present the following Report relative to that University, for the year ending the 31st day of December, 1854 :—

I.—PROCEEDINGS OF THE SENATE.

During the year two Sessions of the Senate were held; the first, from the ninth day of March to the thirteenth day of April. The second, from the twenty-fifth day of May to the twenty-fifth day of July. The following are the titles of the Statutes which were then passed.

FIRST SESSION.

- I.—A Statute to regulate proceedings at the Meetings of Senate.
- II.—For the adoption of a Seal.
- III.—Regarding the subordinate Officers and Servants of the University, and their Salaries.
- IV.—Of the degrees of Bachelor of Medicine, and Doctor of Medicine.
- V.—Of the degree of Bachelor of Laws.
- VI.—Of the degrees of Bachelor of Arts and Master of Arts.
- VII.—To increase the Salary of William Wedd, A.M., third Classical Master in Upper Canada College.
- VIII.—Of Scholarships.

SECOND SESSION.

- I.—The requisites for Candidates for Admission to the University.

II.—To increase the Salaries of David Alderdice and William Patterson, servants in Upper Canada College.

III.—To amend Statute No. Six of the first Session.

IV.—To regulate the subjects for examination for the degree of B.A.

V.—Of Optional Departments.

VI.—Of Medals, Prizes, and Certificates of Honor.

VII.—Of Scholarships.

VIII.—Of Scholarships in the Faculty of Arts.

IX.—To make temporary provision for the year 1854.

X.—Of the subjects for examination for the degrees of B.A. in the Greek and Latin Languages.

XI.—Of Examiners and Examinations.

In addition to the discussion and adoption of the above mentioned Statutes, much time and attention were devoted to the Upper Canada College.

II.—EXAMINATIONS.

The first Annual Examination under the Provincial Statute 16th Vic. cap. 89, was held in the month of November.

EXAMINERS.

LAW..... { S. CONNOR, L.L.D.
O. MOWAT, Esquire.

MEDICINE.

Practical Anatomy.—J. H. RICHARDSON, M.D., M.R.C.S., England.

Medicine.—J. T. SMALL, M.D. M.R.C.S., England.

Anatomy and Physiology.—W. T. AIKINS, M.D.

Surgery.—W. R. BEAUMONT, M.D., M.R.C.S., England.

Therapeutics, Pharmacology, and Botany.—W. B. NICOL, M.D.

Chemistry.— { H. H. CROFT, D.C.L., M.C.S.
Reverend W. ORMISTON, B.A.

Obstetrics and Medical Jurisprudence.—JOSEPH WORKMAN, M.D.

Elements of Natural History.—The Reverend WILLIAM HINCKS, F.L.S.

ARTS.

Classics.— { The Reverend J. M'CAUL, L.L.D.
The Reverend A. WICKSON, M.A.

Mathematics.— { J. B. CHERRIMAN, M.A.
The Reverend G. P. YOUNG, M.A.

English Language, History, and Geography.— { DANIEL WILSON, L.L.D.
T. J. ROBERTSON, Esquire.

French Language and Literature.—F. MANTOVANI, L.L.D.

Elements of Chemistry.— { H. H. CROFT, D.C.L., F.C.S.
The Reverend W. ORMISTON, B.A.

AGRICULTURE.

English { DANIEL WILSON, L.L.D.
T. J. ROBERTSON, Esquire.

Arithmetic and Mensuration.— { J. B. CHERRIMAN, M.A.
 { The Reverend G. P. YOUNG, M.A.
Elements of Natural History.—The Reverend W. HINCKS, F.L.S.

RESULTS OF EXAMINATION.

LAW AND MEDICINE.—MATRICULATION.

	LAW.	MEDICINE.
Class 1.....	{ Blake, D. E. { Fitzgerald, E.	{ Francis, W.
Class 2.....	Wells, R. M. ....	.....
Class 3.....	{ McCaughey, J. { Hodjins, T. ....	.....

ARTS.—THIRD YEAR.

—	CIVIL POLITY AND HISTORY.		MODERN LANGUAGES.		
	CIVIL POLITY.	HISTORY.	ENGLISH LANGUAGE AND LITERATURE.	FRENCH LANGUAGE AND LITERATURE.	HISTORY.
Class 1..	Sanderson, J. E.	Sanderson, J. E.	Cattanach, A. ....	.....	Cattanach, A.
do 2..	.....	.....	.....	.....	.....
do 3..	.....	.....	.....	Cattanach, A. ....	.....

ARTS.—FIRST YEAR.

—	MODERN LANGUAGES.		
	ENGLISH LANGUAGE AND LITERATURE.	FRENCH LANGUAGE AND LITERATURE.	HISTORY.
Class 1.....	Ross, J.	Ross, J.	Ross, J.

ARTS.—MATRICULATION.

	GREEK AND LATIN CLASSICS.	MATHEMATICS.	ENGLISH.	HISTORY AND / GEOGRAPHY.
Class 1 ..	Under Regulations of 1851, Moss, T. Under Regulations of 1854, 1.—Ratray, W. J. 2.—Mulligan, G. K.	Under Regulations of 1851, Moss, T. Under Regulations of 1854, 1.—Barnhart, C. E. 2.—McCabe, W.	1.—Young, F. H. 2.— { Moss, T. McNaughton, T. 4.—Mulligan, G. K. 5.—Ratray, W. J. 6.—Milroy, W.	Under Regulations of 1851, Moss, T. Under Regulations of 1854, 1.—Ratray, W. J. 2.—Mulligan, G. K.
Class 2. {	.....	.....	1.—McCabe, W 2.—Barnhart, C. E. . . .	.....
Class 3 . . .	1.—Young, F. B. 2.—McCabe, W. 3.—Wilson, J. 4.—Paul, C. D. 5.—Milroy, W. 6.—McNaughton, T. 7.—Barnhart, C. E.	1.—McNaughton, T. 2.— { Mulligan, G. K. Young, F. H. 4.—Paul, C. D. 5.—Wilson, J. 6.—Ratray, W. J. 7.—Milroy, W.	1.—Paul, C. D. 2.—Wilson, J.	1.—McNaughton, J. 2.—McCabe, W. 3.—Young, F. H. 4.—Wilson, J. 5.—Barnhart, C. E. 6.—Paul, C. D. 7.—Milroy, W.

AGRICULTURE.—MATRICULATION.

Class 1	McNabb, A.
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The Examination of those Students who had Matriculated in the University of Toronto, before the passing of the Act 16 Vic. cap. 89, was held by the Professors of University Collège in the preceding month.

III.—CONVOCATION.

The first Meeting of the Senate for Matriculation and admission to Degrees, was held on the twenty-fourth day of November last. The subjoined details of the proceedings afford a gratifying indication of the prospects of the University.

The number of Matriculants, and of those admitted *eundem statum*, was thirty-five, viz. :—

MATRICULANTS.—16.

Law	Blake, D. E.	Arts	Mulligan, G. K.
do	Fitzgerald, E.	do	McCabe, W.
do	Wells, R. M.	do	McNaughton, T.
do	Hodgins, T.	do	Young, F. H.
Medicine	Francis, W.	do	Milroy, W.
Arts	Moss, T.	do	Paul, C. D.
do	Ratray, W. J.	do	Wilson, J.
do	Barnhart, C. E.	Agriculture	McNabb, A.

SECOND YEAR.—FIVE.

Burns, N.
Francis, W.
Kennedy, G.

Oliver, W.
Ross, J.

THIRD YEAR.—FIVE.

Boulby, W. B.
Hodjins, T.
Matheson, R.

Matheson, T.
McDermid, P.

FOURTH YEAR.—NINE.

Cattanach, A.
Hume, R.
Kingsmill, U.
Linklater, W.
MacNabb, A.

Crombie, M. M.
Sanderson, J. E.
Tassie, W.
Walker, U.

CANDIDATES ADMITTED TO DEGREES.

The Number was Eighteen.

TO THE DEGREE OF M.A.—3.

Light, R. U., B.A.
Clark, A. M., B.A.

Morris, J. H., B.A.

TO THE DEGREE OF B.C.L.—1.

Boyd, J., M.A.

TO THE DEGREE OF B.A.—14.

Brown, J.
Marling, S. A.
Bayley, R.
Oille, L. S.
Blake, D. E.
Wells, R. M.
Jones, C.

McKeown, J.
Boulton, J. F.
Thom, J.
Trew, U. M.
Macgregor, C. J.
Crombie, E.
English, C.

THE NUMBER OF SCHOLARSHIPS AWARDED, WAS 13.

Law.—Two.

Blake, D. E.

Fitzgerald, E.

Medicine.—One.

Francis, W.

*Arts.—Nine.**Civil Polity and History.*

Sanderson, J. E.

Modern Languages.

Ross, J.

Classics.

Under Regulations of 1851—

Moss, T.

Under Regulations of 1854—

Ratray, W. J.,

Mulligan, G. K.

Mathematics.

Under Regulations of 1851—

Moss, T.

Under Regulations of 1854—

Barnhart, C. E.

McCabe, W.

General Proficiency.

McNaughton, T.

Young, F. H.

Agriculture.—One.

MacNabb, A.

IV.—OFFICERS AND SERVANTS.

Visitor:

Sir EDMUND WALKER HEAD, Baronet.

Chancellor:

The Honorable WILLIAM HUME BLAKE, A.B.

Vice-Chancellor.

The Reverend JOHN MCCAUL, L.L.D.

Members of Senate.

The Honorable WILLIAM HENRY DRAPER, C.B.

The Honorable ADAM FERGUSSON, M.L.C.

JOSEPH C. MORRISON, M.P.P.

JOHN LANGTON, M.A., M.P.P.

DAVID CHRISTIE, Esquire, M.P.P.

WILLIAM A. LOGAN, Esquire, F.R.S.

FREDERICK W. CUMBERLAND, Esquire.

JAMES J. HAYES, M.D.

The Reverend JOHN TAYLOR, M.D.

The Reverend ADAM LILLIE, D.D.

The Honorable C. WIDMER, M.D., President, Medical Board.

The Honorable ROBERT BALDWIN, Treasurer, Law Society.

The Reverend E. RYERSON, D.D., Chief Superintendent of Schools.

The Principal of Queen's College.

The Reverend S. S. NELLES, M.A., Princial, Victoria College.

The very Reverend A. McDONNELL, President, Regiopolis College.

The Reverend M. WILLIS, D.D., Professor of Divinity, Knox's College.

F. W. BARRON, M.A., Principal, Upper Canada College.

The Reverend P. Gaudet, Superior, Bytown College.

JOSEH WORKMAN, M.D., President, Toronto School of Medicine.

Bursar.

DAVID BUCHAN, Esquire.

Registrar.

PATRICK FREELAND Esquire.

Bedel.

DANIEL ORRIS.

Messenger.

WILLIAM P. NEWTON.

In conclusion, the Senate beg leave to recall to the attention of Your Excellency in Council, their Report of the twenty-fifth of March, 1854, relative to the erection of University buildings, and the establishment of a University Library. No steps have been taken hitherto, so far as the Senate are aware, to give effect to these recommendations, and they are anxious, therefore, to bring the matter again under the notice of the Government, because the subject appears to them to be of paramount importance. Other Institutions, without public support, without endowment of any kind, have struggled, and been enabled to accomplish this most necessary object, by appealing to private benevolence, and already they have come to be regarded as permanent institutions; whilst this National University, with its magnificent endowment, which ought to stand out pre-eminent amongst the Educational Institutions of the country, occupies a position calculated to bring it into public contempt, without a permanent establishment of any kind, and dependent on public charity for the means of carrying on its necessary business. The Senate feel that they cannot press this point too strongly upon the attention of Your Excellency in Council, because they believe that the present state of things is calculated not only to impair the utility of the Institution, but to endanger its existence.

The hope and anxious desire of the Senate is, that the University of Toronto may take root and become the means of diffusing the blessings of liberal Education throughout the Province; and their constant and earnest endeavors, which have been attended, they humbly venture to hope, with some success, have been directed to that end, but they must beg leave to repeat, respectfully, but very earnestly, that the immediate erection of suitable buildings is a matter of pressing necessity, without which all their efforts must prove unavailing.

The Senate do not presume to question the policy of the Statute, recently passed, (16 Vic. cap. 161.) by which the Executive Government is empowered to take possession of a valuable portion of the property of this Institution, without its consent, with a view to the erection thereon of Houses of Parliament, and for other public purposes. But without impugning the policy of that Act, or questioning the principle upon which it proceeds, the Senate humbly conceive that the Legislature did not intend to authorize the Executive Government to take possession of that portion of the property of the University, which had been already appropriated to Collegiate purposes, and upon which the buildings of the University had been already erected, at great expense. Apart from the general reasoning

upon the subject, (upon which they do not wish to dwell at present, but which appears to them, nevertheless, to be of great force,) the Senate venture to assert with considerable confidence, that the conclusion at which they have arrived is clearly deducible, not only from the language of the enactment in question, which expressly confines the power of the Government to such portions of the property, "as are not required for Collegiate purposes," but also, from the fifty-seventh Section of the University Amendment Act, (16 Vic. cap. 89,) from which it is quite clear that the Legislature had no intention of depriving the University of the buildings already erected for the purposes of the Institution.

Upon the other subject to which allusion has been made, the Senate hope, that they may be allowed to repeat here the suggestion of their previous Report, namely, that the establishment of an extensive Library, in connection with the University of Toronto, would be productive of great public benefit. It is much to be regretted, in the opinion of the Senate, that no effectual progress has been made hitherto, in that direction. Our best public Libraries, if indeed we can be said to have any thing which deserves that name, are utterly insignificant, and will not bear a comparison with the ordinary private collections of older countries. Such a state of things has, obviously, a strong tendency to check mental growth, because it opposes an almost insuperable barrier to any thing like high literary attainment. Under the Institutions which it is our privilege to enjoy, this Province has attained great material prosperity, but she must ultimately fail to attain true greatness, unless something like a proportionate development of the moral and intellectual faculties of her people can be secured. The Senate feel that they would but ill discharge their duty, did they fail to press upon the attention of Your Excellency, a measure which seems to them so indispensable to the accomplishment of that important end, and they earnestly pray that Your Excellency will be pleased to authorize them to lay the foundation of a Provincial Library, in connection with the University of Toronto, and that all available means may be directed to that object, until a collection shall have been made worthy of this National Institution, and commensurate with the wants of the Province.

The Senate, therefore, humbly pray, that Your Excellency in Council, may be pleased to put them in possession of the University buildings, and of such portions of the grounds adjacent thereto, as may be necessary for Collegiate purposes, and that Your Excellency in Council will be further pleased to direct the immediate erection thereon of proper buildings wherein the meetings of the Senate may be held, the University degrees conferred, the examinations for such degrees conducted, and the Offices of the Registrar, and other officers and servants of the University may be held, and especially wherein there may be a Library and Museum, commensurate with the magnificence of the University Endowment, and with the purposes for which it was designed.

WILLIAM HUME BLAKE,

Chancellor.

SENATE CHAMBER,
28th April, 1855.

Countersigned.

P. FREELAND,

Registrar.

RETURN

To AN ADDRESS of the Legislative Assembly, to His Excellency the Governor General, dated the 13th ultimo, praying His Excellency to cause to be laid before the House, "copies of the By-laws or Statutes which have been presented to His Excellency by the Toronto University, and which have received his sanction, together with a statement of the number and amount of the scholarships, the establishment of which His Excellency has sanctioned, of the names and residences of the persons upon whom they have been conferred; of the number of matriculated and other students in University College Toronto, their names, residences, and dates of matriculation, and the amount charged each student for the several courses of lectures, and the sums actually received for the current year, or terms ending this year.

By command,

GEO. ET. CARTIER,
Secretary.

Secretary's Office,
Quebec, 17th April, 1855.

(Copy.)

Statutes enacted by the Senate of the University of Toronto, at the Session holden on the ninth day of March 1854, and following days :

CHAPTER I.

OF THE RULES FOR THE PROCEEDINGS AT MEETINGS OF THE SENATE.

By the Senate of the University of Toronto, be it enacted :

1. That the following shall be the rules relative to the proceedings of the Senate; which rules shall be observed, unless majority of the whole Senate shall decide, for some sufficient cause, that it is necessary, or expedient, to dispense with any portion of them.

2. The meetings of the Senate shall be held in the Senate chamber of the University.

3. The Senate shall meet annually on the Thursday next after the twentieth of May, and shall continue in Session by adjournment.

4. Special meetings may be called by the chancellor; or in his absence, by the Vice-Chancellor.

5. The Summonses for the Session, and for special meetings, shall be sent through the Post Office, to each member, at least ten days before the day of meeting; and those for special meetings shall contain the order of business.

6. No business shall be proceeded with, unless there be a quorum present within twenty minutes after the appointed hour; except on the first day of the Session.

7. No business shall be introduced at any special meeting in addition to that specified in the Summons.

8. The Summons shall be issued by the Secretary, under the direction of the Chancellor or Vice-Chancellor.

9. At least one day's notice must be given of every motion, except for the suspension of a rule.

10. No Statute shall be introduced without at least one day's notice; nor shall it be passed at the same meeting at which it has been first read; but it shall be read a second time at another meeting on another day.

11. The order of proceeding, except at special meetings, shall be:

1st. The Secretary to read the proceedings of the last meeting.

2nd. Letters received since last meeting to be read.

3rd. Notices of intention to introduce Statutes, or motions relative to the general business of the Senate, to be given.

4th. Reports of Committees to be read according to priority of appointment.

5th. Business remaining since last meeting to be taken up.

6th. Drafts of Statutes to be discussed.

12. No member shall speak more than once on any subject, except the introducer of the subject under discussion, who shall be entitled to reply once. Every member, however, shall have the right to explain himself, having first obtained the leave of the Senate, and subject to the direction of the Chair.

13. No member shall speak on any subject which has not been committed to writing, and moved and seconded; or which he does not intend to make the subject of a motion.

14. No motions prefaced by a written preamble shall be received by the Senate.

15. Every member, whilst speaking, shall address the presiding Officer; and the members shall not interrupt the proceedings by conversation, while the Senate is sitting.

16. When the question has been entirely put by the presiding Officer, no member shall speak on the subject before voting.

17. Any member may require the Yeas and Nays to be entered; but no member shall be permitted to enter the grounds of his dissent.

18. In all unprovided cases, resort shall be had to the rules, usages, and forms of the Legislative Council of Canada.

(Signed,)

WM. HUME BLAKE.

Chancellor.

Passed, 10th March, 1854.

CHAPTER II.

FOR THE ADOPTION OF A SEAL.

By the Senate of the University of Toronto, be it enacted:

That the seal heretofore used by the University of Toronto, shall be adopted and used as the seal of this University.

The Seal shall be kept in such place of deposit, and under such charge, as the Chancellor shall from time to time direct; and shall not be affixed to any instrument except in the presence of the Chancellor, or in the event of his absence from Toronto, of the Vice-Chancellor, who shall attest such sealing by his signature.

(Signed,)

WM. HUME BLAKE,

Chancellor.

Passed, 14th March, 1854.

CHAPTER III.

REGARDING THE SUBORDINATE OFFICES AND SERVANTS, OF THE UNIVERSITY, AND THEIR SALARIES.

By the Senate of the University of Toronto, be it enacted :

1. That the following offices shall be and are hereby established, viz: those of Registrar, of Bedel, and of Messenger.

2. The Registrar shall be appointed by the vote of a majority of the whole Senate, and shall be removable at pleasure by a like vote.

3. The duty of the Registrar shall be to take charge of the records, and papers of the University; and to keep the same properly arranged for convenient reference, in such place in the University Buildings as shall be appointed by the Chancellor; to keep regular entries, in a form to be approved by the Chancellor, or in his absence the Vice-Chancellor, of the names of all persons who shall be candidates for matriculation, degrees, or Scholarships prizes, and certificates: of all examiners who shall be from time to time appointed; of all persons who shall present themselves for any examination, and of all such particulars connected with each examination as the Chancellor, or in his absence, the Vice-Chancellor shall direct; to conduct all necessary correspondence, under the supervision of the Chancellor, or in his absence the Vice-Chancellor, and to keep proper records thereof; also to attend all meetings of the senate, and keep regular minutes of all the proceedings thereat, to prepare all Statutes, resolutions, reports, or other papers, which the Senate may direct, and all copies that may be required of any such documents or papers; to prepare and countersign all official documents, to keep all accounts of the University in such books, and in such manner as shall be directed by the Senate, and generally to discharge such other duties as may be assigned to him by the Senate; or when the Senate is not in Session, by the Chancellor, or in his absence, by the Vice-Chancellor.

4. The Registrar before entering upon the duties of his office shall make and subscribe before the Chancellor or Vice-Chancellor, a declaration to the following effect, viz :

I (A. B.) do solemnly declare that I will, to the best of my ability, faithfully discharge the duties of Registrar of the University of Toronto, according to the Statutes of the said University, and the directions to be given to me under authority thereof, and that I will not directly or indirectly publish or make known any of the proceedings, affairs, or business of the Institution, unless under the authority of the Senate, or upon any requisition of the Visitor, or under compulsion of legal proceedings.

5. The Bedel and Messenger shall be appointed by the Chancellor, and shall hold their offices during his pleasure.

6. They shall discharge such duties as are usually discharged by persons holding such offices in similar Institutions, and generally shall act under the direction of the Senate, the Chancellor, or the Vice-Chancellor.

7. The salary of the Registrar shall for the present be at the rate of £150 per annum.

8. The Bedel shall be provided with residence and fuel, and his salary shall be a sum not exceeding £75 per annum.

9. The Messenger shall receive £25 per annum.

(Signed,)

WM. HUME BLALE,

Chancellor.

Passed, 14th March, 1854.

CHAPTER IV.

OF THE DEGREES OF BACHELOR OF MEDICINE AND DOCTOR OF MEDICINE.

By the Senate of the University of Toronto, be it enacted :

1. The following shall be the requisites for admission to the Degree of Bachelor of Medicine, viz :

1. Having passed the Matriculation examination.
2. Having completed the 21st year of his age.
3. Having pursued medical studies for the period of at least four years, and having regularly attended lectures in the following branches of Medical education for the respective periods hereinafter set forth, viz :

Anatomy.....	Two courses of 6 months.	
Physiology.....	do.	do.
Practical Anatomy.....	do.	do.
Theory and Practice of Medicine.....	do.	do.
Principles and practice of Surgery.....	do.	do.
Midwifery and Diseases of women and children.....	do.	do.
Therapeutics and Pharmacology ...	do.	do.
Chemistry.....	do.	do.
Botany.....	One course of 6 months.	
Practical Chemistry.....	do.	do.
Medical Jurisprudence.....	do.	do.

4. Having attended for at least 12 months the practice of some general hospital having not less than fifty beds, and having attended during 6 months clinical lectures on Medicine and Surgery.

5. Having pursued some part of the prescribed course of studies for the period of 12 months, under the direct superintendence of some licensed Medical practitioner and producing a certificate of such study.

6. Having passed in the University an examination in all the subjects specified in Article 3.

N. B.—Certificates of all the requisites, excepting 2 and 6, must be deposited with the Registrar at least 14 days before the first day of the examination appointed for candidates for the degree of Bachelor of Medicine. Candidates will be also required to deposit at the same time certificates of good conduct.

2. The following shall be the requisite for admission to the degree of Doctor of Medicine, viz :

Having been admitted to the degree of Bachelor of Medicine.

(Signed,) WM. HUME BLAKE,
Chancellor.

Passed, April the 3rd, 1854.

CHAPTER V.

OF THE DEGREE OF BACHELOR OF LAWS.

By the Senate of the University of Toronto, Be it enacted :

1. Students intending to proceed to the degree of Bachelor of Laws, may enter their name with the Registrar of the University, as Students simultaneously in the Faculties of Arts and of Law, in which case they must at the time of such entry, produce satisfactory certificates of good conduct, and that they have attained the full age of sixteen years.

They must pass the Matriculation examination required for Students in the Faculty of Arts, and must also pass four annual examinations in the prescribed subjects in the faculties of Law and of Arts, and after the expiration of one year from proceeding to the Degree of Bachelor of Arts, they must pass an examination in the subjects appointed for the Degree of Bachelor of Laws.

The following subjects of examination shall be distributed over the course of five years, in addition to all other prescribed subjects, viz :

CONSTITUTIONAL AND LEGAL HISTORY.

EQUITY.

JURISPRUDENCE AND CIVIC LAW.

LAW OF REAL PROPERTY.

COMMON LAW.

There shall be ten Law Scholarships of thirty pounds per annum each, open to competition to students entering in the two faculties of Arts and Law, pursuant to the Statute, two of which shall be given at the Matriculation Examination, and two at the Examination in each succeeding year. Additional subjects of examination shall be prescribed to candidates for Scholarships. A Medal, or a prize of Books, shall be given in the first, second, fourth, and fifth subjects, at the fifth year's examination, to the highest honors' men.

Candidates for the Degree of Bachelor of Laws, who have previously taken the Degree of B. A., shall be arranged in classes, according to the proficiency manifested at the examination for that Degree ; a medal shall be awarded to that candidate who shall be placed " first " in the 1st class ; and certificates of honor shall be given to all who shall be placed in the 1st class.

2. Students who do not intend to proceed to the Degree of B. A., may enter their names with the Registrar of the University as Students in the Faculty of Laws ; in which case they must at the time of such entry produce satisfactory certificates of good conduct, and that they have attained the age of 18 years.

They must pass, as a matriculation examination, the same examination that is required of Students in the Faculty of Arts at the end of the second year.

They must also pass the three annual examinations in the subjects prescribed for such Students.

(Signed,)

WILLIAM HUME BLAKE,

Chancellor.

Passed April the 5th, 1854.

CHAPTER VI.

OF THE DEGREE OF BACHELOR OF ARTS AND MASTER OF ARTS.

By the Senate of the University of Toronto : be it enacted,—1. Candidates for admission to the Degree of Bachelor of Arts shall be required to produce satisfactory certificates of good conduct ; of having completed the fourteenth year of their age ; and of the qualifications hereinafter specified, viz :

Having passed an examination in the subjects prescribed for candidates for matriculation, being of the standing of four years from matriculation ; and having passed in each of these years, an examination in the subjects prescribed for each such year of the course appointed for under-graduates in the faculty of Arts.

2. Candidates for admission to the Degree of Master of Arts shall be required to produce certificates.

1st. That they have been admitted to the Degree of B. A.

2nd. That they are of the standing of one year from admission to the Degree of B. A., and have passed the appointed examination in the subjects pres-

cribed for Candidates for admission to the Degree of M. A., or that they are of the standing of three years from admission to the Degree of B. A., and have performed the exercises prescribed for Candidates for admission to the Degree of M. A.

(Signed,)

WILLIAM HUME BLAKE,
Chancellor.

Passed April 5th, 1854.

CHAPTER VII.

FOR INCREASING THE SALARY OF WILLIAM WEDD, A. M., AND THIRD CLASSICAL MASTER OF UPPER CANADA COLLEGE.

By the Senate of the University of Toronto.

Whereas by the memorial of William Wedd, A. M. and Third Master of Upper Canada College, it is submitted, that the price of all the necessaries of life are greatly increased in Toronto; That the memorialist receives only a salary of two hundred and fifty pounds per annum, while the First and second Classical masters receive a salary of Three hundred and thirty pounds per annum; and that his duties are as onerous, and occupy as large a portion of his time and attention, as those of the other Classical Masters.

And whereas the Principal of Upper Canada College has reported that the statements of the Memorial are well founded,

It is therefore enacted by the Chancellor, Vice-Chancellor, and Senate of the University of Toronto,

That the Salary of the Third Classical Master of Upper Canada College shall, henceforth, be at the same rate as those of the First and Second Classical Masters, and that the Statute take effect from the first day January, 1854.

(Signed,)

WILLIAM HUME BLAKE,
Chancellor.

Passed, April the 8th, 1854.

CHAPTER VIII.

OF SCHOLARSHIPS.

By the Senate of the University of Toronto: Be it enacted,

That sixty scholarships of the value of thirty pounds each, be established for the encouragement and assistance of under Graduates in the Faculty of Arts: ten in the Faculty of Medicine; and five each in the Departments of Civil Engineering and Agriculture, in addition to the ten in the Faculty of Law, which have been already established by Statute passed by the Senate.

(Signed,)

WM. HUME BLAKE,
Chancellor.

Passed, 8th April, 1854.

SESSION SECOND.

STATUTE No. 1.

On Matriculation.

By the Senate of the University of Toronto: Be it enacted,

That the following shall be the requisites for Candidates for admission.

- 1st. To submit certificates at least fourteen days before the examination begins, of having completed the fourteenth year of their age, and of good conduct.
- 2nd. To pass an examination in the following subjects, that is to say:

Greek and Latin Languages.

Homer, <i>Iliad</i> , B. I.,	Cæsar, <i>de bello Gallileo</i> , B. C.V. and VI.,
Xenophon, <i>Anabasis</i> , B. I.,	Virgil, <i>Æneid</i> , B. II.
Or Lucian, <i>Viter and Charon</i> ,	or Ovid, <i>Tasti</i> , B. I.
Translation from English into Latin prose.	

Additional for honors and Scholarships.

Homer, <i>Iliad</i> , B. VI.,	Horace, <i>Odes</i> , B. I.,
Homer, <i>Clysses</i> , B. IX.,	Virgil, <i>Æneid</i> , B. I. and III.,
Xenophon, <i>Anabasis</i> , B. b. II. and III.	or Ovid, <i>Tasti</i> , B. II. and III.
Or Lucian, <i>Menippus and Simon</i> ,	
Translation from English into Latin verse.	

MATHEMATICS.

Algebra and Arithmetick.

Ordinary rules of Arithmetic, Vulgar and Decimal Fractions, Extraction of the Square Root,
First four Rules of Algebra.

GEOMETRY.

Euclid, B. I.

Additional for Honors and Scholarships.

ALGEBRA.

Proportion and Progression, Simple and quadratic Equations.

GEOMETRY.

Euclid, B. b. II., III., and IV.

Elements of Natural Philosophy.

Explain the composition and resolution of Statical Forces.

Describe the simple machines (Mechanical Powers.)

Define the centre of Gravity.

Give the general laws of motion, and describe the chief experiments by which they may be illustrated.

State the law of the motion of falling bodies.

Hydrostatics, Hydraulics and Pneumatics.

Explain the pressure of liquids and gases, its diffusion and variation, with the depth.

Define specific gravity, and show how the specific gravity of bodies may be ascertained.

Describe and explain the barometer, the siphon, the common pump, and forcing pump, and the air pump.

Acoustics.

Describe the nature of sounds.

Optics..

State the laws of reflection and refraction.

Explain the formation of images by simple lenses.

Astronomy.

Motion of the earth round its axis and round the sun, with applications of these motions to explain the apparent movements of the sun and stars, the length of days, and the change of seasons. Explanation of Eclipses and the Moon's Phases.

Elements of Chemistry.

Properties of matter, aggregation, crystallization.

Chemical affinity, definite equivalents.

Combustion, flame, nature of ordinary fuel.

Chief results of combustion, *i. e.*, the bodies produced.

Heat, natural and artificial sources of ; its effects.

Expansion, solids, liquids, gases. Thermometer conduction ; radiation, capacity, change of form, liquefaction, steam.

The atmosphere, its general nature and condition ; its component parts, oxygen and nitrogen, their properties. Water and Carbonic acid : Proportions of these substances in the air.

Chlorine and Iodine as compared with oxygen ; Water, its general relation to the atmosphere and earth, its natural states and degrees of purity. Sea water, river water, spring water, rain water, pure water, effects of heat and cold on it ; its compound nature, its elements.

Hydrogen, its proportion in water, its chemical and physical properties.

Sulphur, Phosphorus and Carbon generally—Nitric acid, Sulphuric acid, Carbonic acid, Hydrochloric acid ; their properties and uses—Alkalies, earths, oxides generally.

Salts, their nature generally—Sulphates, nitrates, carbonates.

Metals generally, iron, copper lead, tin, zinc, gold, silver, platinum, mercury.

The chief proximate elements of vegetable and animal bodies, their ultimate composition.

MODERN LANGUAGES.

English.

Grammar and Composition.

French.

Grammar and Translation from French into English.

Additional for Honors and Scholarships.

English.

Rendering of English verse into prose.

COMPOSITION.

French.

Fenelon, Dialogues des Morts.
Molière, Les Fourbière de Scapin.

HISTORY AND GEOGRAPHY.

Outlines of English History to the present time.
" Roman " to the death of Nero.
" Grecian " to the death of Alexander.
" Ancient and Modern Geography.

Additional for Honors and Scholarships.

Egyptian History to the death of Cleopatra.
History of Spain and Portugal in the Reign of Ferdinand and Isabella.

WILLIAM HUME BLAKE,
Chancellor.

(Countersigned,)
P. FREELAND,
Registrar.

Passed, 29th May, 1854.

STATUTE No. 2.

For increasing the wages of David Alderdice and William Paterson, servants in Upper Canada College.

By the Senate of the University of Toronto.

Whereas, by the joint memorial of David Alderdice and William Paterson, servants in Upper Canada College, it is submitted that the price of all the necessaries of life is greatly increased in Toronto; and whereas the Principal of Upper Canada College has reported that the statements of the memorial are well founded:

It is therefore enacted by the Chancellor, Vice-Chancellor and Senate of the University of Toronto, that the salary of the said David Alderdice, the Porter, shall henceforth be £70 per annum, and that of William Paterson be £60 per annum, and that this Statute take effect from the first day of January, 1854.

WILLIAM HUME BLAKE,
Chancellor.

(Countersigned,)
P. FREELAND,
Registrar.

Passed, 13th July, 1854.

STATUTE No. 3.

To amend Statute No. VI of Session 1 of the Senate.

By the Senate of the University of Toronto, be it enacted:

I. That in addition to the mode of proceeding to the degree of Bachelor of Arts prescribed to Candidates by section first, chapter six, of the Statutes of the University of Toronto, the following shall be lawful, that is to say:

To produce Certificates of good conduct, of having completed the sixteenth year of their age; and of the qualifications hereinafter specified, that is to say:

Having passed an examination in the subjects prescribed for students of the standing of two years from matriculation, being of the standing of two years from matriculation, and having passed in each of these years an examination in the subjects prescribed for each such year of the course appointed for undergraduates in the faculty of Arts.

WILLIAM HUME BLAKE,
Chancellor.

(Countersigned,)

P. FREELAND,
Registrar.

Passed, 13th July, 1854.

STATUTE NO. 4.

Subjects for examination for Candidates for the degree of Bachelor of Arts.

By the Senate of the University of Toronto, be it enacted.

That the following shall be the subjects for examination for the degree of Bachelor of Arts, that is to say:

FIRST YEAR.

Greek and Latin Languages.

Homer, Iliad one B., Virgil two Bs.

“ Odyssey, one B., Virgil, one, and Ovid one.

Xenophon, one B., Sallust, Catilina.

Lucian, Vit., Auct..

And Piscator.

Translation from English into Latin prose.

Additional for Honors and Scholarships.

Homer, Iliad, one B., Virgil, two Bs.

“ Odyssey, one B., Sallust, Jugurtha.

Xenophon, two Bs.,

Lucian, de Hist.

Conscribenda.

Translation from English into Latin verse.

MATHEMATICS.

Arithmetic, Algebra, (Colenso's Euclid, Simpson et Colenso.)

Plane Trigonometry, as far as the solution of plane triangles (Colenso's.)

Additional for Honors and Scholarships.

Plane Trigonometry (Colenso's)

MODERN LANGUAGES.

English.

Composition.

Orthographical forms of the English language.

History of the English language.

Additional for Honors and Scholarships.

History of English literature, Temp. Chaucer.

French.

Translation from English into French.

Molière, L'Avare.

Voltaire, Alzire.

Additional for Honors and Scholarships.

Montesquieu, le grandeur des Romains.

Molière, Le Tartuffe.

HISTORY.

Ancient History.

British History to Saxon Invasion.

Additional for Honors.

Biography of the ages of Pericles and Augustus.

Ethnological Elements of Ancient History.

MATAPHISICS AND ETHICS.

Logic (Walker's.)—Natural Theology*(Paley's.)

Additional for Honors and Scholarships.

Logic (Whately or Mills.)

Cicero, de Natura Deorum, B. b. I. II.

Cicero, Tusc; disput B. I.

NATURAL SCIENCES.

* Elements of Natural History.

† Elements of Mineralogy and Geology.

ORIENTAL LANGUAGES.

Hebrew.

Grammar from the beginning to the end of irregular verbs (Gesimin's Grammar) Genesis Chapter I, II, III and IV.

Psalms I, II, III, IV and V.

History of the Hebrew Language and Literature.

SECOND YEAR.

Greek and Latin Languages.

Homer, Iliad one B.—Horace, Odes.

“ Odyssey one B.—Cicero, Orat. in Catilinam.

Translation from English into Latin Prose.

* Paterson's Zoology.—Hemfrey's Botany.

† Hitchcock's Geology and Dana's manual of Mineralogy.

Additional for Honors and Scholarships.

Homer, Iliad one B.—Horace, Epodes.

“ Odyssey one B.—Virgil, two Books.

Demosthenes, Philippes Cicero, pro Milone and Phil., II.

Translation from English into Latin Verse.

MATHEMATICS.

Statics Dynauries, Hydrostatics, with previous pars subjects. *

Additional for Honors and Scholarships.

Analytical Conic Section, (Hymer's.)

Newton's Principia, (Evans' Ecl.) See I.

Rudiments of Diff. and Integral Calculus, (De Morgan's.)

Fundamental rules and theories for a single, independent, variable and application to plane curves.

Newton's Principia, Section II and III, with previous subjects.

NATURAL SCIENCES.

Chemistry and Chemical Physics. †

ORIENTAL LANGUAGES.

Hebrew.

Grammar continued to the end of Syntax, (Gesimin's Grammar.)

The History of Joseph, Genesis XXXVIII, to the end of the book.

Psalms VI to XXV; Louth's Lectures on Hebrew Poetry.

MODERN LANGUAGES.

English.

Composition.—Rhetorical Forms.

History of English Literature, *temp Elizabeth*.*French.*

Translation from English into French.

Voltaire, *Zaire*; Molière, *Le Festin de Pierre*,

History of Provençal Literature; (Sismondi Lit, South of Europe, translated by Roscoe.)

History of France, up to Francis 1st. (by Bonnechose.)

German.

Grammar.—Adler's Reader, parts I. II. III and V.

History of German Literature to the 17th Century, (Mengel, translated by C. C. Felton.)

*Additional for Honors and Scholarships.**English.*

Cymbeline (Analysis of.)

Etymology.

*French.*Racine, *Iphigenier*.Lamartine, *Voyages en Orient*, Vol. I.

* Goodwin's Course of Mathematics.

† Town's Elements of Chemistry, Gregory's Manual of Chemistry.—Lardner's handbook of heat and Electricity.

German.

Schiller's Don Carlos.

*History.*English History to the death of Stephen.
Mediæval History.*Additional for Honors.*

Biography and Literature to the death of Stephen.

METAPHYSICS AND ETHICS.

Paley's Evidences.

Cicero, de Officiis and de Amicitia.

Additional for Honors, &c.

Butler's Analogy.

Cicero, de Nat; Deorum III.

Cicero; Tuscul; disput, II to V.

Cicero, Academ I.

RHETORIC.

Campbell's Philosophy of Rhetoric.

Additional for Honors.

Aristotle Rhetoric.—Cicero de Oratore.

CIVIL POLITY.

Elements of Political Philosophy and Economy.

THIRD YEAR.

Greek and Latin.

Sophocles, Œdipus Rex.—Horace, Sat. and Epist.

Herodotus, B. II.—Livy, two B. b.

*Translation from English into Latin prose.

Additional for Honors and Scholarships.

Æschylus, Prometheus.—Sophocles, Œdipus Coloneus.

Plato, apology and Crito.—Cicero, pro Legē Manilia.

Pro Arelia, pro Ligario, and Phil. I.

Terence, Phormio.—Livy, three books.

Translation into Greek, prose and Latin verse.

MATHEMATICS.

Optics, Acoustics, (Goodwin's course of Mathematics.)

Diff. and Integral Calculus, (de Moivre's.)

Analytical Geometry of two and three dimensions.

(Salmon of two.—Hymers', of three.)

Theory of Algebraic Equations. (Hymers'.)

Analytical Statics. (Todhunter.)

Dynamics of a Particle. (Sandeman.)

Analytical Hydrostatics. Miller.

Geometrical Optics. (Griffin.)

MODERN LANGUAGES.

English.

Composition, Logical and Rhetorical Forms.

French.

Cymposition on a given subject.

Racine, *Athalie*.—Lamartine, *voyages en Orient*, Vol. II.

History of French Literature from the Troubadours to the 17th Century, (Sismondi Lit South Europe.)

History of France from Francis I to Louis XVI, (Bonnehose.)

German.

Goethe, *Iphigenia in Taurus*.—Schiller, *Der Neffe als Oukel*.

History of German Literature from 17th to 18th century, (Mengel.)

History of Germany, from time of Charles V, to the peace of Westphalia, (Kohlraus's history of Germany.)

*Translation into German.**Italian.*

Grammar, History of Italian literature from the origin of the language to the 17th century (Sismondi Lit South Europe.)

History of Italy during middle ages (Green, W. Proctor, or Percival.)

George's History of Italy translated from the Italian.

Teatro Scelto Italiano, H. Burbero Benefico.

Tasso, *Gerusalemme*, Cantos I. and II. (analysis of.)

Additional for honors, &c.

English, *Macbeth* (analysis of.)

French, *Rotron*, *Venceslas Bossuet*, *Discours sur l'histoire Universelle*.

German, Schiller's *Maria Stuart*.

HISTORY.

Modern History.

English, from the death of Stephen to the death of Henry VII.

Additional for honors, &c.

Biography and Literature to the death of Henry VII.

NATURAL SCIENCES.

* Natural History—General and Comparative Physiology.

View of the Animal Kingdom—Vegetable Organography and Physiology—view of the Vegetable Kingdom.

Applied Chemistry (Knapp's applied Chemistry.)

ORIENTAL LANGUAGES.

Hebrew.—Psalms XL., CXXXIII., CXXXVII.

Isaiah, Chapters I., V., VII., XIV., and LII.

Chaldec.—Grammar (Text Book, Winner's Grammar.)

Daniel, Chapters II. and III.—History of Chaldee Language and Literature.

METAPHYSICS AND ETHICS.

Locke, Bb. II., III., IV.—Paley's Moral Philosophy.

Additional for Honors and Scholarships.

Mackintosh's dissertation on the progress of Ethical Science, Xenophon, Memorabilia, Cicero, De Finibus, Cicero, Academ II., and De Fato.

CIVIL POLITY.

Political Philosophy (Paley's Political Philosophy.)

FINAL EXAMINATION FOR THE DEGREE OF B. A.

Greek and Latin.

Euripides, Medea, Juvenal, Sat. III., VII., VIII., and X.
Thucydides, B. I., Tacitus, Germania, and Agricola.
Translation from English into Latin prose.

MATHEMATICS.

Astronomy with previous pars subjects.*

MODERN LANGUAGES.

English.

Exercises in principles of Composition, Grammar, and Etymology, based on selected passages.

History of the formation of the English language, and its philological elements, Celtic, Classical, and Germanic or Anglo-Saxon.

Literature from Chaucer to Spenser.

French.

Composition on a given subject.

Corveille, Le Cid.—Molière, Le Medicin malgré lui.

History of French Literature from the 17th century to the present (Literature Française, per G. C. Chouquet.

History of France from Louis XVI. to Louis Phillippe.

German.

Lessing, Nathan Der Weise.—Vieland, Abdenteen, Vol. I.

History of German Literature from the 18th Century to the present time, (Mengal.)

History of Germany from peace of Westphalia to the present time, (Kohlrauss' History of Germany.)

Translation into German.

Italian.

Dante, Inferno, Cantos I. and II. (analysis of.)

Machiavelli, Sopra la Prima Decca de Tito Livio.

History of Italy from the 15th century to the present time.

History of Italian Literature from the 17th century to the present time.

Translation into Italian.

*Goodwin's Course of Mathematics.

*Additional for Honors, &c.**English.*

Critical analysis of one of Shakespear's Historical Plays.

Critical examination in style, rules of Composition and Prosody of a Poem of Spenser, Milton, Cowper or Wordsworth.

French.

Chefs d'Œuvre des Anciens Poetes.

La Bruyère et Theophraste.

Troubadour's et Trouviere's poetry, compared, analysed and turned into French prose, (Sismondi Lit., South Europe.)

French Composition on a given subject.

Oral questions answered in French.

German.

Kotizbue, Vol. XVIII., Edouard in Schottland, (analysis of.)
Klofstock's Messiah, Cantos I. and II.

HISTORY.

Greek Literature and Art from the Battle of Marathen to the end of the Peloponesian War.

Roman Literature and Art from the end of the first Punic War to the death of Augustus.

British Literature and Art from the death of Henry VII. to the death of James I.

NATURAL SCIENCES.

Mineralogy and Geology, including Physical Geograpy.*

Practical Chemistry.†

ORIENTAL LANGUAGES.

Hebrew.

Job, Chapters III., IV., V., VI., VII.—Proverbs, Chapters I, II., III.
Ecclesiastes, Chapters I., XII.

Chaldee.

Daniel, Chapters IV. to end of VII.—Ezra ch. IV., to VII.

Syriac.

Grammar (Phillip's Grammar.)

Translation, Syriac New Testament, the Parables.

History of the Syriac Language and Literature.

Civil Polity.

Political Economy, (Mill's Political Economy.)

Metaphysics and Ethics.

Reid's Intellectual powers, (Sir W. Hamilton's, Ed.)

Stewart's moral and active powers.

* Dane's system of Mineralogy.—De la Beeche's Geological Observer.

† Fresenius.

And be it further enacted that the following shall be the subjects of examination for candidates for medals, that is to say ;

Greek and Latin Languages.

Æschylus, Prometheus,—Lucretius, Bb. V. and VI.
 Sophocles, O'Ddipus, Coloneus,—Plantus, Aululeria.
 Euripides, Medea,—Tercuce, Phormio.
 Aristophanes, Nubes,—Persius, I, II, III, V, and VI.
 Puidais, Olympic Odes.—Juvenal, III, VII, VIII, and X.
 Thucydides, B. I.—Livy, Bb. XXI to XXV.
 Pluto, Apology and Crito,—Tactus, Germanic and Agricola.
 Aristotle, Poetics,—Tacitus, Histories.

“ Rhetoric.

Longinus, de Sublim.

Translation into Latin prose and verse.

Mathematics.

Arithmetic,	Statics, (Todhunter's.
Algebra, (Colenso's),	Dynamics, (Sandamans & Griffin's.
Plain Trigonometry, (Colenso's),	Hydrostatics, (Miller's.)
Spherical, (Hann's),	Geometrical Optics, (Griffin's.)
Anic Sections, (Hymer's),	Acoustics.
Analytical Geometry (Salmond & Hymer's.)	Plain Astronomy, (Hymer's)
Diff. and Int., Culculus, (de Morgan's),	Lunar Theory, (Godfrey's.)
Theory of Algebraic equations, (Hymer's),	Newton's Principia, Sec. I, II,
Differential Equations (Todhunter's),	III, IX and XI, (Evans Ed.)

Metaphysics, Ethics and Civil Polity.

Paley's Natural Theology ; Paley's Evidences ; Butler's Analogy ; Paley's Moral Philosophy ; Paley's Political Philosophy ; Stewart's Moral and active powers ; Mackintosh's dissertation on the progress of Ethical Science ; Mill's Political Economy ; Locke on the Human Understanding ; Brown's Philosophy of the Mind ; Reid's Intellectual powers, (Sir W. Hamilton's Ed.) Xenophon's Memorabilia, Aristotle Miomeachean Ethics ; Aristotle's Metaphysics, Bb. I. and XI, Cicero de natura deorum, Cicero de Finibus ; Cicero, Tuseul Disput ; Cicero de officis and de amicitia ; Cicero, Acodem queresst and de Fato.

NATURAL SCIENCES.

Chemistry and Natural History.
 Mineralogy and Geology.

MODERN LANGUAGES.

English.

Exercises in principles of Composition, Grammar and Etymology, based on Selected passages ; History of the Formation of the English Language and its Philological Elements. Celtic, Classical, and Germanic, or Anglo-Saxon.
 Literature from Chaucer to Spencer.
 Critical analysis of one of Shakespear's Historical plays.
 Critical examinations in style, rules of composition, and prosody of a poem of Spenser, Milton, Cowper or Wordsworth.

French.

Composition on a given subject.
 Corneille, Le Cid—Molière, Le Medecin Malgré lui

History of French Literature from the 17th century to the present (*Litterature Française* per G. Chouquet.) History of France from Louis XVI. to Louis Philippe, *Chefs d'Œuvre des anciens poètes.*

La Bruyère et Theophraste.

Troubadour's et Trouvier's poetry composed, analysed, and turned into French prose (Sismondi Lit South Europe as before.)

Oral questions answered in French.

German.

Lessing, Nathem Der Weise.

Vieland, Abderiten, Vol. I.

History of German Literature from the 18th century to the present (Mengel.)

History of Germany from the peace of Westphalia to the present time (Kohlrauss' history of Germany.)

Translation into German.

Kotzbrie, Vol. XVIII, Edouard in Schottland. (analysis of) Klopstock's *Messiali Cantos I and II.*

Italian.

Dante, *Inferno*, Cantos I and II, (analysis of.)

Machiavelli, *Sopra la Prima Decca di Tito Livio.*

History of Italy from 15th century to the present time.

History of Italian Literature from the 17th century to the present time.

Translation into Italian.

(Signed,)

WM. HUME BLAKE,

Chancellor.

Countersigned,

P. FREELAND,

Registrar.

Passed, 25th July, 1854.

STATUTE No. 5.

OF OPTICAL DEPARTMENTS.

By the Senate of the University of Toronto: Be it enacted;

Candidates for the degree of Bachelor of Arts, who have passed the examinations for Matriculation and at the close of the first year, in the prescribed subjects, shall be permitted at the subsequent examinations to substitute:

For the Greek and Latin Languages.

For the English with the French, or the German or with both languages.

For Mathematics.

For the natural Sciences.

(Signed,)

WM. HUME BLAKE,

Chancellor.

(Countersigned,)

P. FREELAND,

Registrar.

STATUTE No. 6.

OF MEDALS, PRIZES AND CERTIFICATES OF HONOR.

By the Senate of the University of Toronto, Be it enacted ;

Gold medals shall be given as rewards to those students who at the final examination for the degrees of B. C. L., M. B. and B. A., shall have been placed first of the first class of Honors.

In the Faculty of Arts the following shall be the Departments for proficiency in which such medals shall be given.

1. Greek and Latin Languages.
2. Mathematics (pure and mixed.)
3. Modern Languages.
4. Chemistry with Natural History.
5. Chemistry with Mineralogy and Geology.
6. Metaphysics, Ethics and Civil Polity.

2. Silver Medals shall be given as rewards to those Students who at the final examination for the degrees of B. C. L., M. B., and B. A. shall have been placed in any position in the first class below first.

3. Prizes of Books of the value of five pounds shall be given as rewards to those students who at any examination shall have been placed first in the third class in any department.

4. Prizes of Books of the value of four pounds each shall be given to those students of each year who shall have been placed first of the first class in any of the following departments, namely :

Composition in English prose and verse.

„	French	„	„
„	German	„	„
„	Greek	„	„
„	Latin	„	„

And a prize of books of the value of ten pounds shall be given to those candidates for the degree of Bachelor of Arts who shall have been placed first of the first class in any of the above named departments

5. Certificates of Honor shall be given to those students who shall have been placed in the first class in any department.

The Certificates of Honor and labels of the Prize Books shall have the signatures of the Chancellor, or in his absence of the Vice-Chancellor and the Registrar of the University.

(Signed,)

WM HUME BLAKE,

Chancellor.

Countersigned,

P. FREELAND,
Registrar.

STATUTE No. 7.

Of Scholarships

By the Senate of the University of Toronto, be it enacted ;

That the number scholarships which have been established for the encouragement and assistance of the students of the University is ninety. Of these ten are to be awarded for proficiency in the Faculty of Laws, ten in the Faculty of Medicine, sixty in the Faculty of Arts, five in Civil Engineering, and five in Agriculture.

2. The Scholars shall be elected after public examination, and the proficiency manifested at it shall be the sole qualification for election.

3. No candidate shall be elected a scholar in any department unless he shall have been placed in the first class of honors, but this rule shall not apply to scholarships for general proficiency.

4. Each scholarship is tenable for one year only, but the scholars of each year shall be eligible for the scholarships of the succeeding years.

5. The value of each scholarship is thirty pounds per annum, payable quarterly.

6. No student can hold two scholarships at the same time.

(Signed,)

WM. HUME BLAKE,

Chancellor.

Countersigned,

P. FREELAND,

Registrar.

Passed, 25th July, 1854.

STATUTE No. 8.

Of Scholarships in the Faculty of Arts.

By the Senate of the University of Toronto, be it enacted :

The number of scholarships proposed for competition in the Faculty of Arts is seventy. Of these ten are for the assistance and encouragement of students in Civil Engineering and Agriculture, being five in each department.

Of the remaining sixty, fifteen shall be proposed for competition at matriculation, and fifteen at the close of each of the first three years of the undergraduate course.

Of the fifteen proposed for competition at matriculation, four shall be for general proficiency in the subjects for all students, and four in Greek and Latin classes with History and Geography, four in Mathematics, one in Chemistry and Natural Philosophy, and two in English and French with History and Geography.

Of the fifteen proposed for competition at the end of the first year, four shall be for general proficiency in the subjects for all students, three in Greek and Latin classes with History, three in Mathematics, one in Natural Sciences, two in English and French with History, one in Oriental Literature, and one in Logic and Ethics.

Of the fifteen proposed for competition at the end of the second year, two shall be for general proficiency in the subjects for all candidates, three in Greek and Latin with History, three in Mathematics, two in Natural Sciences, two in Modern Languages with History, one in Oriental Literature, one in Metaphysics and Ethics, and one in Elements of Civil Polity with History and Rhetoric.

Of the fifteen proposed for competition at the end of the third year, two shall be for general proficiency, &c., three in Greek and Latin with History, three in Mathematics, two in Natural Sciences, two in Modern Languages with History, one in Oriental Literature, one in Metaphysics and Ethics, and one in Civil Polity with History.

(Signed,)

WM. HUME BLAKE,

Chancellor.

Countersigned,

P. FREELAND,

Registrar.

Passed, 25th July, 1854.

STATUTE No. 9.

Of Temporary Provision for the year 1854.

By the Senate of the University of Toronto, Be it enacted,—

1. That an examination of candidates for matriculation, degrees, honors, scholarships and prizes shall be held during October, beginning in the twelfth day of the month.

2. That all candidates shall be admissible to the above named examination who possess the qualifications required by the Statutes of this University, except such as relate to standing in this University, with reference to which a duly attested certificate of the requisite standing in any other University in Her Majesty's dominions shall be sufficient warrant for admission.

3. That the scholarships to be conferred at the Matriculation examination of the present year shall be eight under the Statutes of the former and fifteen under those of the present University of Toronto.

4. That with reference to the Students of the former University of Toronto the subjects of examination for degrees, honors, scholarships and prizes, and all particulars relating thereto, shall during the year 1854, be regulated by the statutes, rules, ordinances and usages of the University of Toronto which were in force before the passing of the Provincial Statute XVI. Vic. chap. LXXXIX.

That the Professors of University College shall be the examiners of such Students of the former University of Toronto as are now Students of University College in their respective departments in the Faculty of Arts, but that all candidates in the Faculty of Law and Medicine shall be examined by the examiners in those Faculties appointed by the University of Toronto.

That the Chancellor shall be and is hereby authorized to make such other temporary provision for the year 1854 as have been hereinafore specified.

Signed,

WM. HUME BLAKE,

Chancellor.

Countersigned,

P. FREELAND,

Registrar,

Passed, 25th July, 1854.

STATUTE No. 10.

Of the subjects for Examination for the Degree of Bachelor of Arts, in the Greek and Latin Languages.

By the Senate of the University of Toronto, be it enacted :

That the following shall be selected as the subjects of examination in the Greek and Latin Languages for the years 1854 and 1855.

Matriculation.

Homer, Iliad, B. I. Cæsar de bello Gallico, B. V. & VI. Lucian, Vitea and Gleason. Virgil, Æneid, B. II., translation from English into Latin prose.

Additional for Honors and Scholarships.

Homer, Iliad B. VI.,—Horace, Odes B. I.

Do., Odyessy B. IX.,—Virgil, Æneid B. b. L. and III.

Lucien, Menippus and Timon.

Translation from English into Latin Verse.

First Year.

Homer, *Iliad* B. IX.,—Virgil, *Æneid* B. VI.
 Do., *Odyssey* B. I.,—Ovid, *Fasti* B. I.,—Sallust, *Catalines*.
 Translation from English into Latin Prose.

Additional for Honors and Scholarships.

Homer, *Iliad* B. X.
 Do., *Odyssey* B. X.,—Virgil, *Æneid* B. b. VII. and VIII.
 Xenophon, *Anabasis* B. b. II. and III.,—Sallust, *Inguthra*.
 Translation from English into Latin Prose.

Second Year.

Homer, *Iliad* B. XIII.,—Horace, *Odes*.
 Do., *Odyssey* B. II.,—Cicero, *orat. in*.
 Demosthenes, *Olynthiacs*,—*Catalines*,
 Translation from English into Latin Prose.

Additional for Honors and Scholarships.

Homer, *Iliad* B. XVIII.,—Horace, *Epodes*.
 Do., *Odyssey* B. XII.,—Virgil, *Georgics* B. b. I. and II.
 Demosthenes, *Philippics*,—Cicero, *pro Milone* and *Phil. II*.
 Translation from English into Latin Verse.

Third Year.

Sophocles, *Œdipus Rex*,—Horace, *Satires and Epistles*.
 Herodotus, B. II.,—Livy, B. b. XXI. and XXII.
 Translation from English into Latin Prose.

Additional for Honors and Scholarships.

Æschylus, *Prometheus*.
 Sophocles, *Œdipus Coloneus*.
 Pluto, *Apology and Crito*.
 Cicero, *pro Lege Manilia*, *pro Archia*, *pro Lignus*, and *Phil I*.
 Terence, *Phormio*.
 Livy, B. b. XXIII., XXIV. and XXV.
 Translation into Greek Prose and Latin Verse.

Final Examination for Degree of Bachelor of Arts.

Euripides, *Medea*,—Juvenal, *Sat III.*, VII., VIII. and X.
 Thuydides, B. I.,—Tacitus, *Germanic and Agricola*.
 Translation from English into Latin Prose.

Final Examination for Candidates for Honors.

Æschylus, *Prometheus*,—Lucretius, B. V. and VI.
 Sophocles, *Œdipus Coloneus*,—Plantus, *Anlularia*.
 Euripides, *Medea*,—Terence, *Phormio*.
 Aristophanes, *Nubes*,—Persius, I., II., III., V. and VI.
 Puidar, *Olympic Odes*,—Juvenal, III., VII., VIII. and X.
 Thuydides, B. I.,—Livy, B. b. XXI. to XXV.
 Plato, *Apology and Crito*,—Tacitus, *Germanic and Agricola*.
 Aristotle, *Poetics*.
 Do., *Rhetoric*,—Tacitus, *Historics*.

Longmus, de Sublimitate.

Translation into Greek and Latin Prose and Verse.

(Signed,)

WM. HUME BLAKE,
Chancellor.

(Countersigned,)

P. FREELAND, Registrar.

Passed, 25th July, 1854.

STATUTE No. XI.

OF EXAMINERS AND EXAMINATIONS.

By the Senate of the University of Toronto,

Be it enacted, that the following should be examiners in the following Departments, if their services should be required, that is to say:

I. Greek and Latin Languages, with ancient History and Geography and Composition.—The President of University College, and the Principal of Victoria College.

II. Mathematics and natural Philosophy.—Professor Cherriman, and Professor Young.

III. English Language History, Geography and Composition.—Professor Wilson, and T. J. Robertson, Esquire.

IV. French Language.

V. Chemistry.—Professor Croft.

VI. Natural History.—The Reverend Professor Hincks.

VII. Medicine Surgery, Anatomy Philosophy, Materia Medica, Pharmacy, Medical Jurisprudence, Obstetrics, &c.—Drs. Aikins, Beaumont, King, Richardson, Small, and Workman, Revd. W. Ormiston.

VIII. Law and Civil Polity.—Dr. Connor, and O. Mowat, Esquire.

And be it further enacted, that the remuneration of each Examiner for his services as such, for each annual examination, shall be twenty pounds.

That the Chancellor shall be and is hereby authorised to prescribe the mode of conducting the examinations and all the details relative thereto.

(Signed,)

WM. HUME BLAKE,
Chancellor.

(Countersigned,)

P. FREELAND,
Registrar.

Passed, 25th July, 1854.

I hereby certify that hereunto annexed are true copies of all the Statutes of the Senate of the University of Toronto, which have received the approval of his Excellency the Visitor.

JOHN McCAUL,
V. C.

(Countersigned,)

P. FREELAND,
Registrar.

University of Toronto,
30th March, 1855.

STATEMENT of the number and amount of Scholarships in the University of Toronto, sanctioned by His Excellency the Visitor.

Number of Scholarships.	For what established.	Annual value of each.
Law	Ten	Thirty pounds.
Medicine	Ten	Thirty pounds.
Arts	Sixty	Thirty pounds.
Civil Engineering	Five	Thirty pounds.
Agriculture	Five	Thirty pounds.

Established by Statutes numbers five and eight, passed in the first session of the Senate.

P. FREELAND,
Registrar.

University of Toronto,
31st March, 1855.

STATEMENT of the names and residences of persons upon whom Scholarships have been conferred in the University of Toronto.

Name.	Place of abode.	County.
Barnhart, C. E.	Streetsville	Peel.
Blake, D. E.	Toronto, City	York.
Fitzgerald, E.	Toronto, City	York.
Francis, W.	Toronto, City	York.
McCabe, W.	Pictou	Prince Edward.
McNaughton, T.	Hope, Township	Durham.
McNabb, A.	Hamilton	Wentworth.
Moss, T.	Toronto, City	York.
Mulligan, G. K.	Toronto, City	York.
Rattray, W. J.	Toronto, City	York.
Ross, J.	Red River Settlement.	
Sanderson, J. E.	Chinguacoucy	Peel.
Young, F. H.	Athol	Prince Edward.

P. FREELAND,
Registrar.

University of Toronto,
31st March, 1855.

Matriculants and Occasional Students.

	Names.	Residences.	Courses of Lecture.								Fees Paid. £ s. d.						
			Classical Literature.	Metaphysics and Ethics.	Logic.	Chemistry and Ex. Philosophy.	Mathematics and Nat. Philosophy.	History and English Literature.	Natural History.	Minerology and Geology.		Modern Languages.	Oriental Literature.				
{	Agnew, J. N.	Reach, Township	*	*	*	*	*	*	*	*	*	*	*				
}	Foote	Not known	*	*	*	*	*	*	*	*	*	*	*				
1	Aikman, C.	Not known.															1 5 0
2	Bingham, G.	Hamilton				*	*	*	*	*	*	*	*				2 10 0
3	Blount, J.	Toronto				*	*	*	*	*	*	*	*		*		1 5 0
4	Bowers, S. S.	Not known.				*	*	*	*	*	*	*	*				2 10 0
5	Boyle	Toronto				*	*	*	*	*	*	*	*				1 0 0
6	Castlemain, W.	Toronto				*	*	*	*	*	*	*	*				1 5 0
7	Campbell, D. W.	Nelson				*	*	*	*	*	*	*	*				1 5 0
8	Campbell, J.	Not known.				*	*	*	*	*	*	*	*				1 5 0
9	Comerford, C.	County of York.				*	*	*	*	*	*	*	*				1 5 0
10	Clarke, D.	Not known.				*	*	*	*	*	*	*	*				2 10 0
11	Curry, R. C.	Picton				*	*	*	*	*	*	*	*				2 10 0
12	Dickson, J.	Toronto				*	*	*	*	*	*	*	*				1 5 0
13	Donald, W.	St. Catharines				*	*	*	*	*	*	*	*				3 15 0
14	Duncan, P.	Carlton Place.				*	*	*	*	*	*	*	*				2 10 0
15	Eadie, J.	Hamilton				*	*	*	*	*	*	*	*				0 15 0
16	Emery, R.	Toronto				*	*	*	*	*	*	*	*				2 10 0
17	Ferguson, J.	Toronto				*	*	*	*	*	*	*	*				1 5 0
18	Fenwick, J.	Toronto				*	*	*	*	*	*	*	*				2 10 0
19	Fletcher, D.	Toronto				*	*	*	*	*	*	*	*				0 15 0
20	Fletcher, W.	Tilbury, East.				*	*	*	*	*	*	*	*				2 0 0
21	Ford, A. E.	Woodstock.				*	*	*	*	*	*	*	*				2 10 0
22	Forest, W.	Toronto				*	*	*	*	*	*	*	*				1 15 0
23	Fotheringham, J.	Blanchard				*	*	*	*	*	*	*	*				3 5 0
24	Franklin, W. B.	Portland				*	*	*	*	*	*	*	*				1 5 0
25	Frazer, D.	Red River Settlement	*	*	*	*	*	*	*	*	*	*	*				2 0 0
26	Frazer, A.	Esquimaux	*	*	*	*	*	*	*	*	*	*	*				0 15 0

Matriculants Occasional Students.—(Continued.)

Names.	Residences.	Courses of Lecture.										Fees Paid.				
		Classical Literature.	Metaphysics and Ethics.	Logic.	Chemistry and Ex. Philosophy.	Mathematics and Nat. Philosophy.	History and English Literature.	Natural History.	Mineralogy and Geology.	Modern Languages.	(Oriental Literature.	£	s. d.			
27 Ghent, B.	Nelson				*								2	10	0	
28 Ghent, S. H.	Wellington Square													2	0	0
29 Genley, Rev. J.	Toronto				*				*					2	0	0
30 Gowan, W.	Jarvis				*						*			1	5	0
31 Greenfield	St. Polycarpe				*									0	15	0
32 Gray, J. G.	Woodstock				*									2	10	0
33 Gustine, E. W.	Vienna				*									2	10	0
34 Hanran, J.	Gwillimbury, West				*						*			1	5	0
35 Harper, Rev. E. B.	Toronto				*						*			7	5	0
36 Hickey, R. J.	Williamsburg				*						*			1	5	0
37 Irwin, C. K.	Oshawa				*						*			2	10	0
38 Lavel, Rev. C.	Toronto				*						*			6	0	0
39 Lensk, R.	Toronto				*						*			0	15	0
40 Lenon, J.	Toronto				*						*			1	5	0
41 Lillie, Rev. A.	Toronto				*						*			0	10	0
42 Lockhead, W.	Osgoode				*						*			1	5	0
43 Lovejoy, W.	Hamilton				*						*			1	5	0
44 Martins, C.	Not known				*						*			1	5	0
45 McKay, J.	Zorra				*						*			1	5	0
46 Macmillan, J.	Inverness, Lower Canada				*						*			1	15	0
47 Matheson, H.	Toronto				*					*				0	15	0
48 McCuaig, F.	Toronto				*					*				0	15	0
49 McDermaid, A.	Osgoode				*					*				1	5	0
50 McDonald, A.	Toronto				*					*				1	5	0
51 McKinnon, N.	Peterboro				*					*				0	15	0
52 McLeod, H.	Zorra				*					*				1	5	0
53 McTaggart, R.	Belview				*					*				1	5	0
54 McVicar, D.	Chatham	*			*					*				1	5	0
55 Millican, W.	Galt	*			*					*				1	5	0

Matriculants Occasional Students.—(Continued.)

Names.	Residences.	Courses of Lecture.										Fees Paid.			
		Classical Literature.	Metaphysics and Ethics.	Logic.	Chemistry and Ex. Philosophy.	Mathematics and Nat. Philosophy.	History and Eng. Lit.	Natural History.	Minerology and Geology.	Modern Languages.	Oriental Literature.	£	s. d.		
56 Mitchell, J.	Indiana, Grand River												1	5	0
57 Mullin, J. T.	St. George												2	10	0
58 O'Reilly, W. T.	Toronto				*								1	5	0
59 Patterson, N.	Not known				*								1	5	0
60 Park, A. J.	Toronto				*								1	5	0
61 Pennycook	Not known				*								1	5	0
62 Pickering	Not known				*								1	5	0
63 Powell, T.	Toronto				*								1	0	0
64 Price, E.	Norfolk				*								1	5	0
65 Reid, Rev. W.	Toronto				*								1	5	0
66 Ross, D.	Toronto				*								0	10	0
67 Secord, S.	Toronto	*			*								4	0	0
68 Scarth, A.	Hamilton		*		*								1	5	0
69 Scott, A. F.	Toronto		*		*								1	5	0
70 Shannon, G.	Toronto				*								0	15	0
71 Sinclair, W.	Oxford				*								1	5	0
72 Stewart, A.	Toronto				*								0	15	0
73 Stinson, J.	Toronto				*								1	5	0
74 Small, Dr. J.	Dumfries				*								0	15	0
75 Tafford, C. D.	Toronto				*								2	10	0
76 Thom, J.	Paris				*								2	10	0
77 Thomson, R. C.	Scarboro'				*								2	10	0
78 Tyner, W. T.	Toronto				*								1	5	0
79 Walker, D.	Toronto				*								0	15	0
80 Wabath, J.	Woodhouse				*								0	10	0
81 White, J.	Brantford				*								1	5	0
82 Young, A.	Toronto				*								2	10	0
English, C.	Portneuf				*								1	15	0
Varden, W. H.	Toronto				*								1	15	0
	Pickering				*								1	15	0

} Omitted

Table of Fees.

Matriculated Students and Matriculants—	£2	10s.	for the	Academical	year.
Occasional Students—For 1 Course of Lectures, of 6 or 5 in each week,	£1	5	0		
Do	do	do	4 or 3	do	0 15 0
Do	do	do	2 or 1	do	0 10 0
For 3 Courses of Lectures.....					2 10 0
For any number of Courses above 3.....					4 0 0

There are separate fees for Oriental Literature, including Hebrew, Syriac, Chaldee, and Arabic. They vary from £1 5s. to £6, per Academic year.

Notes to preceding returns.

† This mark indicates those Students who hold University Scholarships. By a resolution of the College Council, they are exempted from fees, except for Oriental Literature.

{ } Matriculants.

* The Courses of Lecture attended by each Student are marked thus, *.

JOHN McCAUL,
President.

Q U E B E C :

PRINTED BY LOVELL AND LAMOUREUX, MOUNTAIN STREET.

1855.

RETURN

From the Clerk of the Crown in Chancery, shewing the number of votes polled in each County, &c., for each Candidate,—also the Total Population of each of the said Divisions, and the names and designations of the several Returning Officers.

RETURN, from the Clerk of the Crown in Chancery, shewing from the Records of the last Elections, the number of votes polled in each County, Riding, Township, Parish, City, Town, and other Division for each Candidate, with the total number polled respectively in the same, also the total population of each of the said Divisions and Subdivisions, and the name and designation of the several Returning Officers—as called for by an Address of the Honorable the Legislative Assembly, on the fourteenth of September instant, 1854.

ELECTORAL DIVISIONS.	RETURNING OFFICERS AT LAST ELECTIONS.	SUBDIVISIONS.	VOTES POLLED AT LAST ELECTIONS.	POPULATION FROM CENSUS OF 1851-2.
County of Argenteuil	Daniel De Hertel, Esq., Registrar, Returning Officer <i>ex officio</i> .	Parishes of St. Placide	For Mr. Bellingham, 120	1290
		St. Hermas	0	120
County of Bagot	Timothée Brodeur, Esquire, Special Returning Officer, appointed by Commission	St. Andrews	76	88
		St. Jérusalem	149	181
		Township of Grenville	14	229
		Chatham	29	184
		Gore	105	284
			179	3167
			1	996
			588	401
			Total Votes 1437	Total Population 11442
			No contestation.	
County of Beauce	Richard A. Fortier, Esq., Registrar, Returning Officer <i>ex officio</i> .	Parishes of St. Elzéar	For Mr. Ross, 264	2305
		St. Marie	0	264
		St. Joseph	452	452
		St. Frédéric	2	25
		St. François	100	100
		St. George	172	267
		Township of Limière	48	178
		Marlow	32	63
		Aylmer	53	74
		Lambton	137	169
		Forsyth	35	55
		Tring	67	124
			571	194
			Total Votes 1756	Total Population 16097
		County of Beauharnois	Owen Lynch, Esq., Special Returning Officer appointed by Commission.	Parishes of St. Clément	For Mr. Leblanc, 264	8212
St. Louis	140			3845
St. Timothée	167			3231
	571			373
	Total Votes 624	Total Population 11288		

County of Bellechasse	Pantaleon Forges, Esquire, Registrar, Returning officer, <i>ex officio</i> .		No contestation.			
		Parishes and Settlements of St. Ignace of Isle du Pads.	For Mr. Dostaler, 49	1084		
		Parishes of Berthier	326	4082		
		Lanorzie	27	2011		
		Lavaltrie	92	1367		
		St. Norbert	74	875		
		St. Othbert	126	2767		
		Township of Brandon	204	1933		
		St. Gabriel	49	...		
		Township of Brandon	111	274		
		Parish of St. Barthelemi	144	260		
			1061	1626		
			Total Votes 532	Total Population 25390		
		County of Bonaventure	Jos. Guillaume LeBel, Registrar, Returning Officer <i>ex officio</i> .		For Mr. Meagher, 184	1809
					78	826
	89			1107		
	12			1693		
	42			1031		
	67			1274		
	169			1349		
	77			855		
	16			569		
	46			505		
	15			326		
	695			10844		
	Total Votes 309			Total Population 10844		
County of Brant (E. Riding)	Jos. Smith, Esq., Sheriff, Returning Officer, <i>ex officio</i> .			Village of Paris	For Mr. Christie, 49	1890
				Township of South Dumfries	106	4297
		Onondaga	80	1858		
		East Brantford	88	6410		
			268	150		
			269	537		
			60	238		
			72	64		
			86	127		
			44	144		
			67	144		
			269	144		
			131	73		
			Total Votes 309	Total Population 23605		
		County of Brant (W. Riding)	Thos. S. Shenston, Esq., Registrar, Returning Officer <i>ex officio</i> .	Township of Burford	For Mr. Biggar, 125	4433
Oakland	58			840		
W. Brantford	77			3877		
Town of Brantford	109			3877		
	339	131				
	131	73				
	Total Votes 573	Total Population 23605				

RETURN shewing the number of votes polled in each County, &c.—(Continued.)

ELECTORAL DIVISIONS.	RETURNING OFFICERS AT LAST ELECTIONS.	SUBDIVISIONS.	VOTES POLLED AT LAST ELECTIONS.			POPULATION FROM CENSUS OF 1851-2.
			For Mr. Crawford.	Mr. Sherwood.	Total.	
Town of Brockville.....	Robert Edmondson, Esquire, Special Returning Officer, appointed by Commission.		389	383	772	8454
Town of Bytown.....	Isaac Smith, Esquire, Special Returning Officer, appointed by Commission.		105	213	378	7760
County of Carleton.....	Simon Fraser, Esq., Sheriff, Returning Officer <i>ex officio</i> .	Townships of Fitzroy Goulburn North Gower Gloucester Huntley March Marlborough Osgood Torbolton Nepena	For Mr. Malloch. 32 155 41 99 35 33 8 157 560	Mr. Powell. 122 78 102 54 49 64 23 75 567	Total. 154 238 143 153 84 97 81 232 1127	Total Population 23203
County of Chambly.....	Jos. F. Allard, Esquire, Special Returning Officer, appointed by Commission.	Parishes of Boucherville Longueuil St. Bruno Chambly	For Mr. Jodoin. 112 186 65 40 403	Mr. Darche. 115 68 82 155 430	Total. 227 254 197 223 833	Total Population 12922
County of Champlain.....	Ferdinand Filteau, Esquire, Registrar, Returning Officer <i>ex officio</i> .	Parishes of Ste. Anne Batiscan St. Genevieve Champlain Cap de la Magdelaine St. Maurice	For Mr. Marchildon. 28 44 92 125 4 6	Mr. Rousseau. 0 27 65 2 20 267	Total. 226 71 159 128 76 286	Total Population 1618

County of Chateauguay.....	Dov K. Lighthall, Esquire, Registrar, Returning Officer, <i>ex officio</i> .	Parishes of Ste. Philomene Chateauguay Settlements and Parishes of Russelltown St. Jean Chrysostome St. Martin St. Urbain St. Melchic	For Mr. DeWitt. 92 183 539	Mr. Primeau. 114 81 290	Total. 206 264 1233	Total Population 1971 2360 13815
Chicotimi and Tadoussac Counties.	Ovide Bossé, Esq., Registrar, Returning Officer <i>ex officio</i> .	Townships and Settlements of Harvey Tremblay Chicotimi Lafertiere Tadoussac Bergerouac Portneuf Escommins Sault au Cochon Isle Jereny Postes du Roi St. Alphonse St. Alexis	For Mr. Morin. 38 203 608 70 25 31 87 592 282 1935	Total. 88 208 608 70 25 31 87 592 282 1935	Total. 3499 1046	Total Population 3499 1046
Town of Cornwall.....	Geo. C. Wood, Esq., Special Returning Officer, appointed by Commission.		For Dr. Macdonald. 238	Mr. Dixon. 104	Total. 342	Total Population 1046
County of Compton.....	Wm. Ritchie, Esq., Registrar, Returning Officer <i>ex officio</i> .	Townships of Bury Westbury Hampton Marston	For Mr. Pope. 105	Mr. Sanborn. 82	Total. 187	Total Population 758 115

RETURN shewing the number of votes polled in each County, &c.—(Continued.)

ELECTORAL DIVISIONS.	RETURNING OFFICERS AT LAST ELECTIONS.	SUBDIVISIONS.	VOTES POLLED AT LAST ELECTIONS.	POPULATION FROM CENSUS OF 1851-2.	
City of Compton (Continued.)	.....	Compton.....	For Mr. Pope. Mr. Sanborn. Total.	2718
		Easton.....	49 272 321.....	1500	
		Clifton.....	109 84 193.....	380	
		Hereford.....	19 14 33.....	348	
		Auckland.....	24 11 35.....	14	
		Newport.....	.....	842
		Ditton.....	.....	.....
		(part) Clinton.....	27 16 43.....	.....
		Lingswick.....	28 12 40.....	808	
		Winslow.....	90 18 108.....	457	
Whitton.....	.....	.....	
		Total Votes 910..	Total Population ..	7465	
County of Dundas.....	Alex. McDonell, Esq., Registrar, Returning Officer <i>ex officio</i> .	Townships of Mountain.....	For Mr. Rosa. Mr. Chrysler. Total.	2764	
		Matilda.....	58 116 173.....	4198	
		Winchester.....	165 182 347.....	2565	
		Williamsburg.....	78 102 180.....	4284	
		.....	143 179 322.....	.....
		444 576 1022.....	Total Population .	13811
		No Contestation.
	
	
	
Drummond and Arthabaska Counties.	Edmund Cox, Esq., Registrar, Returning Officer <i>ex officio</i> .	Townships of Upton.....	For Mr. Dorion Mr. Farwell. Total.	2184	
		Durham.....	646 7 653.....	2208	
		Grantham.....	210 27 237.....	1401	
		Wentover.....	91 1 92.....	216	
		Simpson.....	22 0 22.....	87	
		Wickham.....	71 0 71.....	574	
		Kingsley.....	55 16 71.....	2262	
		Madddington.....	180 89 219.....	.....
		Blandford.....	4 1 5.....	392	
		Warwick.....	25 41 66.....	643	
Horton.....	28 178 206.....	89			
Stanford.....	7 2 9.....	1418			
.....	147 73 220.....	.....		

County of Durham, (East Riding)	George C. Ward, Esq., Registrar, Returning Officer <i>ex officio</i> .	Arthabaska.....	165 114 279.....	1470	
		Bulsrode.....	30 3 33.....	307	
		Chester.....	29 127 156.....	931	
		Tingwick.....	2 133 135.....	981	
		Aston.....	15 18 33.....	561	
		1877 805 2682.....	Total Population	15724
	
	
	
	
County of Durham, (West Riding)	Benj. F. Perry, Esq., Special Returning Officer appointed by Commission.	Townships of Cavan.....	For Mr. Burton. Mr. Smith. Total.	4438	
		Manvers.....	255 73 328.....	2568	
		Hope.....	98 24 122.....	5299	
		Town of Port Hope.....	102 186 288.....	2476	
		.....	46 86 132.....	.....
		501 369 870.....	Total Population	14781
	
	
	
	
County of Elgin, (East Riding)	Colin Munro, Esq., Sheriff, Returning Officer <i>ex officio</i> .	Townships of Clarke.....	For Mr. Lowe. Mr. Munro. Total.	6190	
		Darlington.....	216 241 457.....	8005	
		Cartwright.....	168 349 517.....	1766	
		Villages of Bowmanville.....	138 18 156.....	.....
		.....	71 63 124.....	.....
		588 661 1254.....	Total Population	15951
	
	
	
	
County of Elgin, (West Riding)	John McKay, Esq., Registrar, Returning Officer <i>ex officio</i> .	Townships of Bayham.....	For Mr. Southwick Mr. Ermatinger. Total.	5092	
		Malahide.....	192 146 338.....	4050	
		Yarmouth.....	201 194 395.....	5288	
		South Dorchester.....	261 149 410.....	1477	
		98 33 131.....	N. and S. Dorchester	1477
		.....	56 52 108.....	1274
		.....	45 17 62.....	.....
		553 591 1144.....	Total Population	17181
	
	

RETURN of the number of votes polled in each County, &c.—(Continued.)

ELECTORAL DIVISIONS.	RETURNING OFFICERS AT LAST ELECTIONS.	SUBDIVISIONS.	VOTES POLLED AT LAST ELECTIONS.				POPULATION FROM CENSUS OF 1851-2.		
County of Essex.....	Wm. D. Raby, Esq., Sheriff, Returning Officer <i>ex officio</i> .	Townships of Mersca.....	For Col. Prince.....	Mr. Rankin.....	Mr. Peel.....	Total.....	1193		
		Gosfield.....	46.....	74.....	0.....	120.....	1802		
		Colchester.....	77.....	121.....	7.....	208.....	1870		
		Rochester.....	42.....	82.....	2.....	161.....	788		
		Maldstone.....	58.....	51.....	0.....	117.....	1167		
		Malden.....	8.....	62.....	1.....	71.....	1315		
		Anderdon.....	18.....	16.....	1.....	35.....	1199		
		Tilbury West.....	14.....	50.....	0.....	64.....	675		
		Sandwich.....	198.....	277.....	0.....	475.....	4928		
		Town of Amherstburgh.....	30.....	55.....	1.....	86.....	1880		
Village of Windsor.....	26.....	20.....	0.....	46.....	.....			
			597.....	867.....	12 Total Vot.....	1476.....	Total Population 16817		
County of Frontenac.....	Thomas A. Corbett, Esquire, Sheriff, Returning Officer, <i>ex officio</i> .	Townships of Wolfe Island, Bedford.....	For Mr. Smith.....	Mr. Strangé.....	Total.....	28.....	2654		
		Portland.....	3.....	15.....	11.....	.....	1118	
		Loughboro'.....	103.....	66.....	169.....	.....	2388	
		Storrington.....	89.....	48.....	132.....	.....	2003	
		Pittsburgh.....	73.....	69.....	132.....	.....	2130	
		Kingston.....	65.....	117.....	182.....	.....	8258	
		Hinchinbucke.....	201.....	146.....	347.....	.....	5235	
					547.....	454.....	Total Votes 1001.....	364
					No Contestation.			
		County of Gleggary.....	Donald A. Macdonald, Esq., Registrar, Returning Officer, <i>ex officio</i> .					Total.....	4779
				320.....	5154				
				321.....	2156				
Irenville County. (South Riding)	John Patton, Esq., Registrar, Returning Officer, <i>ex officio</i> .					Total.....	.....	
						175.....	.....	
						108.....	.....	
			444.....	308.....	Total Votes 752.....	Total Population 12089			

ELECTORAL DIVISIONS.	RETURNING OFFICERS AT LAST ELECTIONS.	SUBDIVISIONS.	VOTES POLLED AT LAST ELECTIONS.				POPULATION FROM CENSUS OF 1851-2.		
County of Gaspé.....	Peter Winter, Esq., Registrar, Returning Officer, <i>ex officio</i> .	Magdalen Islands, Amherst Harbor.....	For Mr. LeBoutillier.....	Mr. Christie.....	Mr. Winter.....	Total.....	2202		
		House Harbor.....	86.....	2.....	6.....	94.....	.....	
		Fiefs and Seigniories of St. Anne.....	69.....	3.....	0.....	72.....	.....	
		Grand River.....	40.....	2.....	1.....	43.....	.....	
		Pubos.....	8.....	0.....	65.....	73.....	.....	
		Township of Cap Chat.....	27.....	0.....	49.....	76.....	.....	
		Gaspé Bay N.....	12.....	33.....	5.....	50.....	.....	
		Sydenham.....	31.....	5.....	0.....	36.....	.....	
		Fox.....	21.....	1.....	34.....	56.....	.....	
		Cap Rosier.....	50.....	50.....	0.....	100.....	.....	
County of Grey.....	Mr. Tilly, the Election Clerk acted.	Gaspé Bay S.....	13.....	38.....	0.....	51.....	.....	
		York.....	58.....	0.....	0.....	58.....	.....	
		Haldimand.....	18.....	4.....	19.....	41.....	.....	
		Douglas.....	15.....	25.....	18.....	48.....	.....	
		Malbaité.....	75.....	0.....	163.....	238.....	.....	
		Perceé.....	14.....	8.....	23.....	40.....	.....	
		Newport.....	587.....	166.....	373.....	1076.....	.....	
					587.....	166.....	373.....	Total Population 10904	
		County of Derby.....	George Spaulter, Esq., Sheriff, Returning Officer, <i>ex officio</i> .	Townships of Derby.....	For Mr. Rankin.....	Mr. Blyth.....	Mr. Carney.....	Mr. Jackson.....	Total.....
				Sydenham.....	4.....	1.....	35.....	18.....	57.....
St. Vincent.....	11.....			0.....	126.....	140.....	278.....		
Sullivan.....	8.....			0.....	23.....	44.....	74.....		
Holland.....	0.....			0.....	17.....	25.....	42.....		
Expitrasia.....	0.....			0.....	25.....	16.....	41.....		
Collingwood.....	31.....			0.....	15.....	1.....	47.....		
Beatinok.....	12.....			0.....	9.....	8.....	29.....		
Glennelg.....	0.....			0.....	14.....	74.....	88.....		
Artemesia.....	1.....			0.....	12.....	43.....	66.....		
County of Victoria.....	George Spaulter, Esq., Sheriff, Returning Officer, <i>ex officio</i> .	Osprey.....	46.....	0.....	1.....	0.....	47.....		
		Normanby.....	0.....	0.....	0.....	0.....	0.....		
		Egremont.....	0.....	0.....	11.....	21.....	32.....		
		Proton.....	0.....	0.....	29.....	16.....	45.....		
		Melneton.....	15.....	0.....	0.....	0.....	17.....		
		Indian Resrv.....	.....	.....	.....	.....	.....
					138.....	1.....	316.....	418 T. V. 863.....	Total Population 13217

RETURN shewing the number of votes polled in each County, &c.—(Continued.)

ELECTORAL DIVISIONS.	RETURNING OFFICERS AT LAST ELECTIONS.	SUBDIVISIONS.	VOTES POLLED AT LAST ELECTIONS.			POPULATION FROM CENSUS OF 1851-2.	
County of Haldimand.....	Richard Martin, Esquire, Sheriff, Returning Officer, <i>ex officio.</i>	Townships of Walpole..... Oneida..... Seneca..... Cayuga North..... Cayuga South..... Canborough..... Rainham..... Dunn..... Moulton..... Sherbrooke..... Caledonia.....	For Mr. Mackenzie.....	Mr. McKinnon.....	Total.....	3583	
			61.....	88.....	149.....	2817	
			23.....	27.....	50.....	3636	
			12.....	54.....	66.....	2013	
			30.....	26.....	68.....	825	
			11.....	7.....	18.....	1151	
			74.....	11.....	85.....	1618	
			93.....	11.....	104.....	828	
			14.....	24.....	38.....	1984	
			57.....	39.....	96.....	334	
	11.....	46.....	.....			
	386.....	332.....	Total Votes 718.....	Total Population 18789			
County of Halton.....	Thomas Racey, Esq., Registrar, Returning Officer, <i>ex officio.</i>	Township of Esquing..... Trafalgar..... Niassagaweya..... Nelson.....	For Mr. White.....	Mr. Clishholm.....	Total.....	6225	
			214.....	235.....	449.....	6782	
			202.....	318.....	520.....	2237	
			107.....	58.....	165.....	4078	
			122.....	167.....	289.....	.....
	645.....	778.....	Total Votes 1423.....	Total Population 18322			
City of Hamilton.....	George H. Parke, Esquire, Special Returning Officer, appointed by Commission	.....	For Sir A. N. MacNab, Mr. Buchanan.....	Total.....	14112	
			619.....	324.....	943.....	.....
County of Hastings, (North Riding)	J. W. Dunbar Moodie, Esq., Sheriff, Returning Officer, <i>ex officio.</i>	Township of Marmora..... Tudor..... Madoc..... Elzevir..... Rawdon..... Huntingdon..... Hungerford.....	For Mr. Murney.....	Mr. Benjamin.....	Total.....	635	
			24.....	18.....	42.....	2761	
			131.....	64.....	195.....	3097	
			224.....	74.....	298.....	2548	
			95.....	70.....	165.....	3124	
			44.....	149.....	193.....	.....
				618.....	375.....	Total Votes 893.....	Total Population 12165

County of Hastings, (South Riding)	Wm. H. Ponton, Esquire, Registrar, Returning Officer, <i>ex officio.</i>	Townships of Sidney..... Thurlow..... Tyendinaga..... Village of Trenton..... Town of Belleville.....	For Mr. Wallbridge.....	Mr. Flint.....	Total.....	4574			
			144.....	231.....	375.....	4469			
			180.....	212.....	392.....	6200			
			173.....	156.....	329.....	4569			
			36.....	32.....	68.....	.....		
			155.....	138.....	293.....	.....		
				688.....	769.....	Total Votes 1457.....	Total Population 19812		
			Huron and Bruce, (County)	John MacDonald, Esquire, Sheriff, Returning Officer, <i>ex officio.</i>	Townships of Hry..... Stephen..... McGillivray..... Biddulph..... Uaborné..... McKillop..... Grey..... Ashfield..... Wawanosh..... Colborne..... Hullett..... Morris..... Takesmith..... Stanley..... Goderich..... Town of Goderich..... Township of Huron..... Kiuloss..... Kincaidne..... Bruce..... Greenock..... Brant..... Carrick..... Saugeen..... Elderslie..... Arvan.....	For Mr. Cayley.....	Mr. McQueen.....	Total.....	985
						17.....	11.....	28.....	742
						30.....	10.....	40.....	1718
54.....	39.....	93.....				2081			
59.....	31.....	90.....				1484			
29.....	21.....	50.....				848			
5.....	38.....	43.....				.....		
37.....	39.....	76.....				907			
43.....	17.....	60.....				792			
82.....	36.....	68.....				921			
	28.....	23.....	51.....	955					
	30.....	81.....	111.....	1727					
	91.....	54.....	145.....	2064					
	158.....	54.....	212.....	2715					
	33.....	39.....	72.....	1829					
	22.....	43.....	65.....	236					
	1.....	9.....	10.....	47					
	31.....	8.....	39.....	1149					
	2.....	10.....	12.....	100					
	702.....	563.....	Total Votes 1265.....	Total Population 22035					
County of Huntingdon	Lao. H. Masson, Esq., Special Returning Officer, appointed by commission.	Indian Lands of St. Regis..... Township of Dundee..... Village of Huntingdon..... Township of Godmanchester.....	For Mr. Somerville.....	Mr. Davidson.....	Total.....	1069			
			30.....	84.....	114.....	984			
			42.....	16.....	58.....	679			
			111.....	107.....	218.....	2100			

RETURN shewing the number of votes polled in each County, &c.—(Continued.)

ELECTORAL DIVISIONS.	RETURNING OFFICERS AT LAST ELECTIONS.	SUBDIVISIONS.	VOTES POLLED AT LAST ELECTIONS.	POPULATION FROM CENSUS OF 1851-2.		
City of Hastingdon, — (County)		Townships of Elgin.....	For Mr. Somerville. Mr. Davidson. Total.	1110		
		Hitchinbrooke.....	..... 6	116	
County of Iberville.....	Frs. F. Z. Hamel, Esq., Registrar, Returning Officer <i>ex officio</i> .	Hemmingford.....	..... 155	2657	
		Parish of St. Anicet.....	..... 88	4025	
County of Joliette.....	Gaspard T. Delanandière Esq., Special Returning Officer appointed by Commission.		..... 212	2566	
County of Kent.....	Jno. Mercer, Esq., Sheriff Returning Officer <i>ex officio</i> .	No contestation.	..... 199	1190	
		No contestation.	.....		
County of Kamouraska.....	Jean G. Taché, Esq., Registrar, Returning Officer <i>ex officio</i> .	For Mr. Letellier. Mr. Chapais. Total.	.....	2458	
		Township of Orford.....	Mr. Larwill. McKellai. Waddell. Wood. Total.	1566		
		Howard.....	..... 6	100	
		Camden-Zone.....	..... 46	236	
		Town of Chatham.....	..... 45	96	
		Townships of Harwich.....	..... 36	152	
		Dover East } Dover West }	..... 43	211	
		Raleigh.....	..... 53	111	
		Tilbury East.....	..... 14	150	
		Kenney.....	..... 0	99	
		Chatham.....	..... 17	21	
			..... 28	15	
	..... 267	42 Total V. 1339	17469		
County of Kamouraska.....	Jean G. Taché, Esq., Registrar, Returning Officer <i>ex officio</i> .	For Mr. Letellier. Mr. Chapais. Total.	.....	2458	
		Parish of St. André.....	..... 133	255	
		St. Louis.....	..... 135	218	
		St. Paschal.....	..... 154	298	
		St. Hélie.....	..... 108	372	
			..... 32	214	
		 1797	3962 Total Votes 5759	19875	
			42 Total V. 1339	17469	
		City of Kingston.....	Jas. Durand, Esq., Special Returning Officer appointed by Commission.	For Mr. Bell. Mr. Playfair. Mr. Buell. Total.	399
				Townships of Sherbrooke N. } Dalhousie..... 35	118
				Levant..... 63	196
				Lanark..... 49	262
Ramsey.....	..... 2			13	
Darlington.....	..... 52			98	
Packenham..... 200			32 T. V. 682	10361	
			3962 Total Votes 5759	19875	
County of Lanark, (South Riding.)	Jas. Thompson, Esq., Sheriff, Returning Officer <i>ex officio</i> .			For Mr. Shaw. Mr. Cameron. Total.	3356
				Townships of Montargue..... 87	236
				Elmsley N..... 33	117
				Burgess N..... 32	53
		Bathurst.....	..... 145	272	
		Sherbrooke S.....	..... 7	263	
		Beckwith.....	..... 129	288	
		Drummond.....	..... 63	125	
		Town of Penth.....	..... 15	32	
		Village of Smith's Falls.....	.....		
		 644	Total Votes 1386	16956	
		County of Laprairie.....	Wm. F. Hawley, Esq., Registrar, Returning Officer <i>ex officio</i> .	For Mr. Loranger. Mr. Beaudouin. Total.	4289
Parishes of Laprairie.....	..... 3			324	
	..... 107	178	2480		
	..... 8	190	1951		
	..... 123	57	2123		
	..... 69	159	2697		
	..... 638	489 Total Votes 1117	13550		

ELECTORAL DIVISIONS.	RETURNING OFFICERS AT LAST ELECTIONS.	SUBDIVISIONS.	VOTES POLLED AT LAST ELECTIONS.	POPULATION FROM CENSUS OF 1851-2.		
City of Kingston.....	Jas. Durand, Esq., Special Returning Officer appointed by Commission.	For Mr. Bell. Mr. Playfair. Mr. Buell. Total.	.....	399	
		Townships of Sherbrooke N. } Dalhousie.....	..... 35	118	
		Levant.....	..... 63	196	
		Lanark.....	..... 49	262	
		Ramsey.....	..... 2	13	
		Darlington.....	..... 52	98	
		Packenham..... 200	32 T. V. 682	10361	
			3962 Total Votes 5759	19875	
		County of Lanark, (South Riding.)	Jas. Thompson, Esq., Sheriff, Returning Officer <i>ex officio</i> .	For Mr. Shaw. Mr. Cameron. Total.	3356
				Townships of Montargue..... 87	236
				Elmsley N..... 33	117
				Burgess N..... 32	53
Bathurst.....	..... 145			272	
Sherbrooke S.....	..... 7			263	
Beckwith.....	..... 129			288	
Drummond.....	..... 63			125	
Town of Penth.....	..... 15			32	
Village of Smith's Falls.....	.....				
 644			Total Votes 1386	16956	
County of Laprairie.....	Wm. F. Hawley, Esq., Registrar, Returning Officer <i>ex officio</i> .			For Mr. Loranger. Mr. Beaudouin. Total.	4289
		Parishes of Laprairie..... 3	324		
 107	178	2480			
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RETURN of the number of votes polled in each County, &c.—(Continued.)

ELECTORAL DIVISIONS.	RETURNING OFFICERS AT LAST ELECTIONS.	SUBDIVISIONS.	VOTES POLLED AT LAST ELECTIONS.	POPULATION FROM CENSUS OF 1851-2.
County of Laval.....	Stanislas F. McMahon, Esq., Special Returning Officer, appointed by Commission.	Parishes of St. Martin..... St. Rose..... St. Vincent..... de Paul..... St. Francois de Sales..... St. Raphael.....	For Mr. Labelle, Mr. Belanger, Mr. DeBligny. Total 7 405 0 412..... 229 23 0 252..... 267 0 0 267..... 64 8 0 72..... 25 36 0 61..... 592 472 0 TL. V. 1064 Total Population . 11053	3764 2971 2385 883 950 11053
County of L'Assomption.....	Louis Achambault, Esquire, Registrar, Returning Officer ex officio.	Parishes of St. Sulpice..... Repentigny..... L'Assomption..... St. Roch..... Lachenute..... St. Henri..... St. Luc..... L'Epiphanie.....	For Mr. Papin. Mr. Morin. Total 98 38 131..... 139 36 175..... 263 56 319..... 99 187 286..... 60 15 75..... 89 266 355..... 181 141 322..... 84 63 147..... 998 802 Total Votes 1800 Total Population . 16866	1012 1879 4194 2802 989 3031 2959 16866
Lennox and Addington.....	Hilbert Smith Clapp, Esq., Special Returning Officer, appointed by Commission.	Townships of Adolphustown..... Fredericksb'gh..... Richmond..... Camden..... Ernestown..... Kalader..... Anglessea..... Sheffield..... Amherst Is-land.....	For Mr. Roblin. Mr. Seymour. Total 44 41 85..... 174 186 359..... 260 161 411..... 277 255 532..... 226 292 518..... 113 51 164..... 2 24 26..... 1086 1009 Total Votes 2095 Total Population 28120	718 166 4071 6975 5111 1792 1287 28120

County of Lewis.....	Mrs. Marcel Guay, Esquire, Registrar, Returning Officer ex officio.	.....	No contestation.	.....
Leeds and Grenville Cos. (North Riding)	Adiel Sherwood, Esquire, Sheriff, Returning Officer ex officio.	Townships of Kitley..... Emsley..... Wolford..... Oxford..... South Gower.....	For Dr. Church, Mr. Jones, Mr. Whitmarsh, M. Kelly. Total. 140 42 74 9 265..... 42 8 33 5 88..... 108 7 103 1 219..... 99 198 24 65 386..... 32 36 4 3 75..... 421 291 238 83 1033 Total Population 18585	3525 1442 3259 4496 863 18585
Leeds Co., (South Riding)	David Jones, Esquire, Registrar, Returning Officer ex officio.	Townships of Yonge..... Escotb..... Leeds..... Lansdowne..... South Crosby..... North Crosby..... Bastard..... Burgess.....	For Mr. Tett, Mr. Delong. Total. 83 136 219 (Front of Yonge)..... 66 113 179 (Rear of Escotb)..... 141 82 223 (Front of Leeds and Lansdowne)..... 98 46 144 (Rear of Leeds and Lansdowne)..... 80 72 162..... 61 38 99..... 120 185 205..... 649 672 T. V. 1321 Total Population 16869	3661 1399 2283 2439 1578 1785 3448 276 16869
County of Lincoln.....	Elias S. Adams, Esq., Special Returning Officer, appointed by Commission.	.....	No contestation.	.....
County of L'Islet.....	Joseph D. Iepine, Esquire, Registrar, Returning Officer ex officio.	Parishes of St. Roch..... St. Jean..... L'Islet..... St. Cyrille..... Township of Ashford.....	For Mr. Fournier. Mr. Palletier. Total. 82 174 256..... 388 7 395..... 128 1 129..... 24 3 27..... 28 3 31..... 600 365 Total Votes 965 Total Population 10591	2930 3496 3656 448 61 10591
Town of London.....	Adam Hope, Esquire, Special Returning Officer, appointed by Commission.	.....	For Mr. Wilson. Mr. Dixon. Total. 493 342 835..... Total 745	7035

RETURN of the number of votes polled in each County, &c.—(Continued.)

ELECTORAL DIVISIONS.	RETURNING OFFICERS AT LAST ELECTIONS.	SUBDIVISIONS.	VOTES POLLED AT LAST ELECTIONS.	POPULATION FROM CENSUS OF 1851-2.			
County of Lotbinière.....	Remie S. Noel, Esquire, Registrar, Returning Officer <i>ex officio</i> .	Parishes of St. Sylvestre, St. Arath, St. Giles, St. Antoine, St. Flavien, St. Choix, Lotbinière, St. Jean, Appolinaire.....	For Mr. Laurin. Mr. O'Farrell.	Total.			
			99 1033	1132			
			8 928	236			
			48 5	53			
			80 64	144			
			14 6	20			
			51 78	129			
			177 93	270			
			290 0	290			
			34 68	102			
			801 1575	Total Votes 2376	Total Population 16597		
			County of Lambton.....	James Flintoft, Esq., Sheriff, Returning Officer <i>ex officio</i> .	Townships of Rosanquet, Plymton, Warwick, Sarnia, Moore, Brooke—Enniskillen, Sombra, Dawn, Euphemie.....	For Mr. Brown. Mr. Cameron.	Total.
						45 18	63
						111 83	194
131 88	219						
69 89	158						
111 116	227						
73 17	90						
99 98	758						
41 49	90						
128 56	184						
808 614	Total Votes 1422	Total Population 10815					
County of Maskinongé.....	Chas. E. Gagnon, Esq., Special Returning Officer appointed by Commission.	Parishes of St. Antoine, St. Joseph, Ste. Ursule, St. D'Isaac, St. Paulin, St. Léon.....				For Mr. Turcotte. Mr. Gauvreau.	Total.
						135 194	329
						264 121	385
			107 144	251			
			67 65	132			
			125 22	147			
			180 57	237			
			878 603	Total Votes 1481	Total Population 12727		

County of Megantic.....	John K. Lambly, Esquire, Registrar, Returning Officer <i>ex officio</i> .	Township of Broughton, Halifax, Leeds & Thorford, Somerset, Ireland & Colrain, Javerness, Nelson.....	For Mr. Rhodes. Mr. Clapham. Mr. O'Farrell.	Total.			
			29 25	56			
			173 37	210			
			45 133	178			
			98 107	205			
			91 21	0			
			66 151	0			
			14 27	0			
			516 501	2 T. V. 1019	Total Population 11088		
			County of Middlesex, (East Riding)	James Hamilton, Esq., Sheriff, Returning Officer <i>ex officio</i> .	Township of Dorchester, N. Westminister, Nissouri, West London.....	For Mr. Niles. Mr. Horton.	Total.
						165 65	231
						332 165	487
						95 98	193
						303 401	704
895 720	Total Votes 1615	Total Population 16203					
County of Middlesex, (West Riding)	Heraules Burwell, Esq., Registrar, Returning Officer <i>ex officio</i> .	Township of William, Adelaide, Delaware, Metcalfe, Lobo, Carradoc, Ekfrid, Mosa.....				For Mr. Scatcherd. Ferguson. Keefer. Wilson.	Total.
						60 23	89
						58 36	6
						65 6	5
						42 19	205
						174 0	91
						80 2	101
						69 11	201
			110 48	150			
			658 57	0			
			658 183	22 T. V. 1129	Total Population 16757		
			County of Missisquoi, (East Riding)	Amasa Phelps Hulberts, Esquire, Special Returning Officer, appointed by Commission.	Township of Potton, Sutton, Bromo, Farnham, East part, Bolton.....	For Mr. Ferrea. Col. Guey.	Total.
						156 35	191
						216 112	327
190 64	254						
124 44	168						
136 102	238						
821 357	Total Votes 1178	Total Population 11510					

RETURN shewing the number of votes polled in each County, &c.—(Continued.)

ELECTORAL DIVISIONS.	RETURNING OFFICERS AT LAST ELECTIONS.	SUBDIVISIONS.	VOTES POLLED AT LAST ELECTIONS.						POPULATION FROM CENSUS OF 1851-2.	
			For Mr. Whitney.	Seymour.	Badgley.	Smith.	Total.	{ Included as above in Farnham East.		
County of Missisquoi, (West Riding.)	Richard Dickenson, Esquire, Registrar, Special Returning Officer.	Township of Farnham, W. N. D. des Angles	147	10	0	4	161.	{ Farnham East.		
		St. Armand, W. Part of N. D. des Angles	42	208	0	37	282.		4067	
County of Montcalm	Magloire Granger, Esquire, Special Returning Officer, appointed by Commission.	Parish of Clarenceville.	33	80	0	23	136.	{ In Notre Dame des Anges above.		
		St. Thomas	16	86	0	11	113.	3391		
		St. Armand, East	326	8	0	8	337.			
		St. Thomas	26	1	0	143	169.	1086		
		St. Armand, East	32	0	0	57	89.			
		St. Calixte	47	82	0	0	129.	1557		
			669	470	0	277 TL V.	1416		Total Population	
									11633	
		County of Montmagny	Jos. Marmette, Esquire, Special Returning Officer, appointed by Commission.	Parishes of St. Jacques	8	237	0	136	376.	4759
				St. Alphonse	68	38	0	29	135.	
St. Alexis	129			24	0	8	156.	1433		
St. Esprit	77			92	0	1	170.			
St. Julienne	111			3	15	1	130.	1980		
St. Grégoire	94			4	164	3	265.			
Notre Dame	1			16	55	0	72.	418		
St. Calixte	29			11	36	3	79.			
	512			425	270	176 TL V.	1383	Total Population		
									10400	
County of Montreal	John Boston, Esq., Sheriff, Returning Officer <i>ex officio</i> .	Parishes of St. Thomas	297	110	Mr. Fournier.	407.	4215			
		St. François	6	286	St. François.	292.				
		St. Pierre	47	131	St. Pierre.	178.	3185			
		Cap St. Ignace	233	51	Cap St. Ignace.	284.				
		St. Antoine	48	0	St. Antoine.	48.	2733			
		Berthier	92	79	Berthier.	111.				
			663	657	Total Votes	1320	470			
								1109		
								Total Population		
								11712		
City of Montreal	John Boston, Esq., Sheriff, Returning Officer <i>ex officio</i> .		39	0	Mr. Valois.	39.	1014			
			87	0	St. Valois.	87.				
			48	9	Point aux Trembles.	57.	995			
			109	1	SanitauRécollet.	110.				
			76	1		77.	1239			
			359	11	Total Votes	370				
							2241			
								Total Population		
								6577		

ELECTORAL DIVISIONS.	RETURNING OFFICERS AT LAST ELECTIONS.	SUBDIVISIONS.	VOTES POLLED AT LAST ELECTIONS.						POPULATION FROM CENSUS OF 1851-2.
			For Mr. Laporte.	Mr. Valois.	Total.	For Mr. Cauchon.	Mr. Glackemeyer.	Total.	
Montreal County (Jacques Cartier Riding.)	Guillaume Gamelin Gau-cher, Special Returning Officer, appointed by Commission.	Parishes of Long Point	39	0	39.	39	1014		
		Riv. des Prairies	87	0	87.	87.			
		Montreal	48	9	57.	57.	1028		
		Point aux Trembles	109	1	110.	110.			
		SanitauRécollet	76	1	77.	77.	995		
			359	11	Total Votes	370			
								1239	
								2241	
								Total Population	
								6577	
County of Montmorency	Louis C. LeFrançois, Esquire, Registrar, Returning Officer <i>ex officio</i> .	Parishes of Laval	52	39	91.	91.	399		
		L'Ange Gardien	116	83	199.	199.			
		Chateau Richer	93	102	195.	195.	1250		
		St. Anne	47	65	112.	112.			
		St. Joachim	86	57	143.	143.	1068		
		St. Férol	93	50	143.	143.			
		St. Famille	27	99	126.	126.	667		
		St. François	43	29	72.	72.			
		St. Jean	144	12	156.	156.	521		
		St. Laurent	101	0	101.	101.			
St. Pierre	81	20	101.	101.	1281				
	883	529	Total Votes	1412					
						887			
						Total Population			
						9598			
Town of Niagara	Lawrence W. Mercer, Esq., Special Returning Officer, appointed by Commission.	Parishes of St. Patrice	149	10	159.	159.	1645		
		St. Edouard	100	107	207.	207.			
		St. Remy	2	317	319.	319.	3857		
		St. Cyprien	363	40	403.	403.			
		St. Michel	13	188	201.	201.	4495		
			632	662	Total Votes	1294			
								13641	
								Total Population	
								9598	
		County of Nicolet	Jos. Jutras, Esq., Registrar, Returning Officer <i>ex officio</i> .	Parishes of St. Monique	37	0	251.	251.	2567
Nicolet	81			0	163.	163.			
St. Celestin	58			0	65.	65.	3095		
St. Grégoire	204			0	169.	169.			
	632			662	Total Votes	1294	3449		
								Total Population	
								9598	

RETURN shewing the number of votes polled in each County, &c.—(Continued.)

ELECTORAL DIVISIONS.	RETURNING OFFICERS AT LAST ELECTIONS.	SUBDIVISIONS.	VOTES POLLED AT LAST ELECTIONS.				POPULATION FROM CENSUS OF 1851-2.
City of Nicolet, (Continued.)	Parishes of Bécanour Ste. Geotrude Gentilly St. Pierre Township of Blandford	For Dr. Fortier.	Mr. Rousseau.	Mr. Chaillly.	Total.
			257	0	43	300	3408
			49	11	16	76	1105
			240	0	26	266	2498
146	0	72	218	2675			
27	0	3	30	392			
Total Population			1099	11	798 T. V.	19657	
County of Norfolk	Henry N. A. Rapelji, Esq., Sheriff Returning Officer <i>ex officio</i> .	Town of Simcoe Townships of Woodhouse Townsend Windham Charlotteville Middleton Walsingham Houghton	For Dr. Rolph.	Mr. Ritchie.	Total.	.....
			37	63	100	1452	
			106	99	205	2894	
			260	82	342	4955	
108	131	259	2900				
111	115	226	2780				
53	82	135	1721				
98	88	186	3080				
31	14	45	1509				
Total Population			804	674	1478	21281	
County of Northumberland, (East Riding.)	Henry Ruitan, Esq., Sheriff Returning Officer <i>ex officio</i> .	Townships of Seymour Percy Murray Cramahé Brighton	For Mr. Ross.	Mr. Boucher.	Total.	.....
			55	85	140	2781	
			77	91	168	2605	
			117	92	209	3725	
128	127	255	2993				
201	76	277	3725				
Total Population			578	471	1049	15829	
County of Northumberland, (West Riding.)	Thos. Scott, Esq., Special Returning Officer, appointed by Commission.	Townships of Alnwick Hamilton Heldimand S. Monaghan Town of Cobourg	For Mr. Boulton.	Mr. Smith.	Total.	.....
			34	34	68	886	
			149	212	361	5008	
			159	211	370	4634	
47	30	86	1051				
123	147	270	3871				
Total Population			512	643	1155	15400	

County of Ontario, (North Riding.)	Nelson G. Reynolds, Esq., Sheriff Returning Officer <i>ex officio</i> .	Townships of Rench Seugog Uxbridge Bruck Scott Thorah Mara & Rama	For Mr. McDonnell.	Thompson.	Gibbs.	Gowan.	Gould.	Total.
			1	0	34	125	200	360	4312
			0	0	62	124	186	259	3518
			9	1	98	113	58	279	1028
0	0	3	45	30	78	1146			
55	0	10	5	24	94	1403			
0	0	5	1	15	21	13696			
Total Population			65	1	150	351	451 T. V.	1018	
County of Ontario, (South Riding.)	John H. Perry, Esq., Registrar, Returning Officer <i>ex officio</i> .	Village of Oshawa Townships of Pickering Whitby	For Mr. Farwell.	Mr. Lumsden.	Total.	.....		
			22	61	83	1142			
			137	271	408	6737			
			823	215	538	7996			
Total Population			482	547	1029	15875			
County of Ottawa	James F. Taylor, Esq., Registrar, Returning Officer <i>ex officio</i> .	Townships of Eardly Hull Wakefield Parishes of Ste. Angélique Notre Dame Townships of Buckingham GoreLochaber Lochaber Templeton Waltham Lowe St. André	For Mr. McGoey.	Mr. Cook.	Total.	.....		
			10	35	45	688			
			117	120	237	2811			
			15	22	37	588			
2	164	166	.....					
63	79	142	2204						
92	28	120	295						
0	19	19	1082						
24	55	79	1711						
99	7	106	186						
10	41	51	272						
4	2	6	.....					
4	134	138	.....					
Total Population			440	643	1083	9766			
County of Oxford, (North Riding.)	James Carroll, Esq., Sheriff Returning Officer <i>ex officio</i> .	Townships of Dereham West Oxford East Oxford North Oxford Norwich	No contestation.				Total.	
						223	3644	
			149	72	2	223	1894		
			103	23	6	132	2210		
79	53	0	132	1319					
59	39	1	99	5299					
235	79	14	328	14865					
Total Population			625	216	841	14865			

RETURN shewing the number of votes polled in each County, &c.—(Continued.)

ELECTORAL DIVISIONS.	RETURNING OFFICERS AT LAST ELECTIONS.	SUBDIVISIONS.	VOTES POLLED AT LAST ELECTIONS.			POPULATION FROM CENSUS OF 1851-2.
County of Peel.....	Solomon Brega, Esq., Special Returning Officer, appointed by Commission.	Townships of Caledon.....	For Mr. Wright. 150	Mr. Aikins. 157	Total 307.	3707
		Brompton.....	49	23	72.	7469
County of Perth.....	Rob. Motherwell, Esq., Sheriff Returning Officer <i>ex officio</i> .	Chingacousy.....	265	264	529.	1820
		Toronto Gore.....	46	69	115.	7539
		Albion.....	157	211	368.	4281
			143	141	284.	
	810	865	Total Votes 1675	Total Population . 24816		
County of Peterborough.....	Rob. Motherwell, Esq., Sheriff Returning Officer <i>ex officio</i> .	Townships of Blanchard.....	For Mr. Daly. 42	Mr. Mitchell. 54	Total 96.	2780
		Fullarton.....	28	44	72.	1750
		Hibbert.....	8	14	22.	1191
		Mornington.....	1	1	2.	983
		Stratford.....	49	6	55.	696
		Logan, Elma and Wallace.....	16	6	22.	Logan only
		Downie.....	88	16	104.	Including Gore
		S. E. Hope.....	25	39	64.	2728
		Ellice.....	48	3	51.	1797
		N. E. Hope.....	72	36	108.	1828
	377	219	Total Votes 596	Total Population . 15543		
County of Peterborough.....	Wm. S. Conger, Esq., Sheriff Returning Officer <i>ex officio</i>		No contestation.			
County of Pontiac.....	Edmund Heath, Esq., Special Returning Officer, appointed by Commission.		No contestation.			
County of Portneuf.....	Roger Lelièvre, Esq., Registrar, Returning Officer <i>ex officio</i> .	Parishes of St. Augustin.....	24	0	68	1748
		St. Casimir.....	128	0	2	1093
		Groandines.....	71	0	10	1468
		St. Albans.....				
		Alton.....	4	0	101	105.
		Montauban.....				Alton only
		Deschambault.....	96	0	60	2654

County of Prescott.....	Chs. P. Treadwell, Esquire, Sheriff, Returning Officer <i>ex officio</i> .	Cap Santé.....	310	0	8	318.	3473
County of Prince Edward.....	Jas. MacDonald, Esq., Sheriff Returning Officer <i>ex officio</i> .	Pointe aux Trembles.....	71	0	102	173.	2077
		Teureuls.....	32	0	21	53.	569
		St. Bazile.....	145	0	1	146.	715
		St. Raymond.....					
		Rochemont.....	81	0	60	141.	St. Raymond only, 1701
		Colbert.....					
		St. Catherine.....	193	0	2	195.	
		Township of Gosford (with St. Raymond, see above.)					
			1155	0	420 T. V. 1575	Total Population 17462	
			No contestation.				
County of Quebec.....	Wm. S. Sewell, Esq., Sheriff, Returning Officer <i>ex officio</i> .	For Mr. Stevenson. 72	Mr. McCuaig. 42	Total 114.	1621		
		Ameidasburg.....	172	182	304.	3286	
		Marysburgh.....	151	98	244.	3512	
		Sophinsburg.....	82	94	176.	2784	
		Hollowell.....	152	80	232.	3203	
		Hillier.....	152	51	203.	2963	
		Town of Picton.....	41	39	80.	1569	
			822	531	Total Votes 1363	Total Population 18888	
			For Mr. Alley, 2267; Mr. Blanchet, 2514; Mr. Chabot, 2440.				
			Mr. Stuart, 1188; Mr. Dubord, 1103; Mr. Simard, 1170				42052
	No contestation.						
City of Quebec.....	Chs. N. Montzambert, Esq., Registrar, Returning Officer <i>ex officio</i> .	For Mr. McKee, Mr. McKennon, Mr. Hincks. Total. 2	87	7	46.	1152	
		McNab.....	10	1	60	1513	
		Horton.....	10	2	67	1142	
		Admaston.....	2	6	21	685	
		Bromly and Wilberforce.....	0	8	41	1875	
		Bagot and Blightfield.....	31	0	2	984	
		Pembroke and Stafford.....	5	43	19	914	
		Ross.....	12	9	8	708	
			72	106	225 Tl. V. 403	Total Population 8423	
		County of Renfrew.....	Jas. Morris, Esq., Registrar Returning Officer <i>ex officio</i> .				

RETURN shewing the number of votes polled in each County, &c.—(Continued.)

ELECTORAL DIVISIONS.	RETURNING OFFICERS AT LAST ELECTIONS.	SUBDIVISIONS.	VOTES POLLED AT LAST ELECTIONS.					POPULATION FROM CENSUS OF 1851-2.	
County of Richelieu	Pierre Bémi Chevallier, Esq.	Parishes of St. Ours St. Pierre St. Victoire St. Aimé St. Robert St. Marcel	For Mr. Dorion.	Gouin.	Dufresne.	Guévremont.	Total.	3304	
			428	18	0	0	446	3967	
			76	205	9	214	428	2100	
			4	0	0	48	142	4310	
			0	3	0	138	145	.....
			2	0	0	112	118	.....
			.....	0	0	67	69	.....
			
			510	250	9	579	T. Votes	1348	Total Population 13771
		
County of Rimouski	Louis F. Gagnon, Esq., Registrar, Returning Officer <i>ex officio</i> .	Parishes of St. Jérôme Township of Matane Parishes of St. Fabien St. Cecile St. Germain St. Luce St. Flavie St. Octave Metis Township of MacNider Parish of St. Simon	For Mr. Taché.	Mr. Garon.			Total.	1083	
			79	64			14	111	
			13	4			17	988	
			135	18			153	1391	
			22	149			171	3653	
			215	79			294	1895	
			111	99			210	1634	
			25	145			170	.....
			13	42			55	657	
			12	41			53	200	
12	4			16	1669				
176	12			188	.....			
.....				
813	657	Total Votes	1470	Total Population	18273	.....		
.....				
County of Rouville	Frs. H. Gatiien, Esq., Special Returning Officer, appointed by Commission.	Parishes of Ste. Marie St. Mathias St. Hilaire St. Jean Baptiste St. Césaire L'Ange Gardien St. Paul	For Mr. Poulin.	Mr. Blanchet.			Total.	4028	
			467	3			470	1757	
			83	32			115	1520	
			43	63			106	2182	
			102	78			180	4866	
			39	412			451	1463	
			7	65			72	522	
			13	33			46	.....
			353	43	Total Votes	1440	Total Population	16338
			

County of Russell	James Keays, Esq., Registrar, Returning Officer <i>ex officio</i> .	Townships of Gloucester Osgoode Russell Cumberland Clarence	For Mr. Lyon.	Mr. Stewart.	Mr. Bell.			Total.	3005	
			132	6	88			226	3050	
			123	21	113			257	503	
			45	1	0			46	1659	
			41	9	14			64	508	
			12	6	21			39	
			
			353	43	236			632	Total Population 8725
			
			County of Saguenay	Chs. Duberger, Esq., Registrar, Returning Officer <i>ex officio</i> .	Parishes of St. Louis St. Urbain St. Frs.-Xavier St. Etienne Township of Settrington Parishes of Ste. Agnes St. Irénée St. Fidèle Eboulements Baie St. Paul	For Mr. Huet.	Mr. Laugelais.			Total.	719
193	0					193	729			
27	4028					4055	575			
49	42					91	2653			
1822	0					1822	281			
41	22					63	1278			
1810	0					1810	811			
258	20					248	600			
4433	9					4442	2107			
1	1210					1211	3212			
164	220			384	.....				
.....					
8768	5551	Total Votes	14319	Total Population	12965	.....			
.....					
County of St. Johns	Frs. H. Marchand, Esquire, Special Returning Officer, appointed by Commission.	Parishes of St. Johns St. Luc L'Acadie St. Valentin Lacolle	For Mr. Jobson.	Mr. Bourassa.			Total.	339		
			116	117			233	850		
			26	44			70	3052		
			15	183			198	3483		
			38	201			239		
			47	131			178		
				
			242	676	Total Votes	918	Total Population	7724	
				
			County of St. Hyacinthe	Horses R. St. Germain, Esq., Registrar, Returning Officer <i>ex officio</i> .	Townships of Shawenegan Caxton Parishes of St. Bernabé Three Rivers Township of St. Maurice Parishes of St. Severe St. Anne Pointe du Lac	For Mr. Desautniers.	Mr. Richer.			Total.	283
50	17					67	1490			
63	35					98	801			
47	38					85	.....		
70	3					73	.....		
64	11					75	.....		
30	54					84	.....		
224	68					292	.....		
151	21					172	.....		
699	247	Total Votes				946	Total Population	8299	
.....					
No contestation.										

RETURN shewing the number of votes polled in each County, &c.—(Continued.)

ELECTORAL DIVISIONS.	RETURNING OFFICERS AT LAST ELECTIONS.	SUBDIVISIONS.	VOTES POLLED AT LAST ELECTIONS.	POPULATION FROM CENSUS OF 1851-2.
County of Sheffield.....	Hiram S. Foster, Esq., Registrar, Returning Officer <i>ex officio</i>.	.....	No contestation.	In. Gore of Brompton 2016
Town of Sherbrooke.....	Geo. F. Bowen, Esq., Sheriff, Returning Officer <i>ex officio</i>.	.....	No contestation.	3285
Sherbrooke and Wolfe (Co.)	W. H. Webb, Esquire, Special Returning Officer, appointed by Commission.	Townships of Melbourn, Shipton, Brompton, Windsor, Dudswell and Stoke, Ham & S. Ham, Wotten, Garthly and Stafford, Weedon, Wolfstown.	For Mr. Felton, 46 Mr. Aylmer, 174 Total, 220. No contestation. For Mr. Felton, 204 Mr. Aylmer, 94 Total, 298. No contestation. For Mr. Felton, 24 Mr. Aylmer, 7 Total, 31. No contestation. For Mr. Felton, 14 Mr. Aylmer, 7 Total, 21. No contestation. For Mr. Felton, 2 Mr. Aylmer, 2 Total, 4. No contestation. For Mr. Felton, 17 Mr. Aylmer, 9 Total, 26. No contestation. For Mr. Felton, 64 Mr. Aylmer, 38 Total, 102. No contestation. For Mr. Felton, 59 Mr. Aylmer, 0 Total, 59. No contestation. For Mr. Felton, 64 Mr. Aylmer, 38 Total, 102. No contestation. For Mr. Felton, 12 Mr. Aylmer, 11 Total, 23. No contestation. For Mr. Felton, 506 Mr. Aylmer, 380 Total Votes 886 Total Population 8509	
County of Stanstead.....	Chs. A. Richardson, Esquire, Registrar, Returning Officer <i>ex officio</i> .	Townships of Magog, Hatley, Barnston, Stanstead.	For Mr. Terrill, 23 Mr. McConnell, 0 Total, 23. No contestation. For Mr. Terrill, 16 Mr. McConnell, 0 Total, 16. No contestation. For Mr. Terrill, 57 Mr. McConnell, 0 Total, 57. No contestation. For Mr. Terrill, 207 Mr. McConnell, 0 Total Votes 207. Total Population 754	
County of Soulanges.....	Jos. A. Charlebois, Esquire, Special Returning officer, appointed by Commission.	Parishes of St. Ignace, St. Zotique, St. Clet, St. Polycarpe, St. Joseph, Newton.	For Mr. Masson, 156 Mr. Bastien, 22 Total, 178. No contestation. For Mr. Masson, 160 Mr. Bastien, 1 Total, 161. No contestation. For Mr. Masson, 83 Mr. Bastien, 79 Total, 162. No contestation. For Mr. Masson, 100 Mr. Bastien, 161 Total, 261. No contestation. For Mr. Masson, 1 Mr. Bastien, 18 Total, 19. No contestation. For Mr. Masson, 528 Mr. Bastien, 351 Total Votes, 879 Total Population 9831	

County of Simcoe, (North Riding).	Benjamin W. Smith, Esq., Sheriff, Returning Officer <i>ex officio</i> .	Town of Barrie, Townships of Flos, Medonte, Nottawasaga, Oro, Orillia & Marchedash, Tiny, Tay, Vespra and Sunnidale.	For Mr. Sanson, 56 Mr. Morrison, 45 Total, 101. No contestation. For Mr. Sanson, 33 Mr. Morrison, 31 Total, 64. No contestation. For Mr. Sanson, 42 Mr. Morrison, 63 Total, 105. No contestation. For Mr. Sanson, 35 Mr. Morrison, 79 Total, 114. No contestation. For Mr. Sanson, 75 Mr. Morrison, 143 Total, 218. No contestation. For Mr. Sanson, 53 Mr. Morrison, 15 Total, 68. No contestation. For Mr. Sanson, 83 Mr. Morrison, 2 Total, 85. No contestation. For Mr. Sanson, 28 Mr. Morrison, 74 Total, 102. No contestation. For Mr. Sanson, 405 Mr. Morrison, 452 Total, 857. No contestation.	Total, 1007 545 1116 1887 2027 725 1348 829 Total Population 9484
County of Simcoe, (South Riding).	George Lount, Esq., Registrar, Returning Officer <i>ex officio</i>.	.....	No contestation.	Total Population 8290
County of Stormont.....	Daniel E. McIntyre, Esq., Sheriff, Returning officer <i>ex officio</i> .	Townships of Osnabrock, Finch, Bosborough.	For Mr. Mattice, 160 Mr. Grant, 40 Total, 200. No contestation. For Mr. Mattice, 27 Mr. Grant, 40 Total, 67. No contestation. For Mr. Mattice, 62 Mr. Grant, 64 Total, 126. No contestation. For Mr. Mattice, 249 Mr. Grant, 144 Total Votes 393	Total, 4699 1450 2141 Total Population 8290
County of Temiscouata.....	John Heath, Esq., Registrar, Returning Officer <i>ex officio</i> .	Parishes of Trois Pistoles, St. Eloi, Isle Verte, St. George, St. Arsène, Rivière du Loup, Townships of Whiteworth, Viger.	For Mr. Dionne, 324 Mr. Pouliot, 1 Total, 325. No contestation. For Mr. Dionne, 118 Mr. Pouliot, 2 Total, 120. No contestation. For Mr. Dionne, 295 Mr. Pouliot, 7 Total, 302. No contestation. For Mr. Dionne, 72 Mr. Pouliot, 60 Total, 132. No contestation. For Mr. Dionne, 47 Mr. Pouliot, 99 Total, 146. No contestation. For Mr. Dionne, 11 Mr. Pouliot, 395 Total, 406. No contestation. For Mr. Dionne, 11 Mr. Pouliot, 102 Total, 213. No contestation. For Mr. Dionne, 0 Mr. Pouliot, 4 Total, 4. No contestation. For Mr. Dionne, 878 Mr. Pouliot, 670 Total Votes 1548	Total, 2846 1166 2663 1457 1929 970 415 225 Total Population 11671
County of Terrebonne.....	Jos. Lachaine, Esquire.	Parishes of St. Adèle, St. Sauveur, "Part" St. Jérôme, St. Janvier, Ste. Thérèse.	For Mr. Morin, 63 Mr. Prévost, 0 Total, 63. No contestation. For Mr. Morin, 92 Mr. Prévost, 80 Total, 172. No contestation. For Mr. Morin, 232 Mr. Prévost, 206 Total, 438. No contestation. For Mr. Morin, 91 Mr. Prévost, 111 Total, 202. No contestation. For Mr. Morin, 282 Mr. Prévost, 161 Total, 443. No contestation. For Mr. Morin, 878 Mr. Prévost, 670 Total Votes 1548	Total, 1273 5631 1544 2028 Including Morin and Beresford } Whole

RETURN shewing the number of votes polled in each County, &c.—(Continued.)

ELECTORAL DIVISIONS.	RETURNING OFFICERS AT LAST ELECTIONS.	SUBDIVISIONS.	VOTES POLLED AT LAST ELECTIONS.		POPULATION FROM CENSUS OF 1851-2.
County of Terrebonne, (Continued.)	Jos. Lachaine, Esquire	Parishes of Ste. Anne.....	For Mr. Moirin.....	Mr. Prévost.....	Total.....
		Terrebonne.....	17.....	154.....	171.....
County of Two Mountains	Félix Hyacinthe Lemaire, Esq., Special Returning Officer, appointed by Commission.	.....	21.....	121.....	142.....
		.....	75.....	191.....	266.....
Town of Three Rivers	Isaac Gour Ogdén, Esquire, Sheriff, Returning Officer <i>ex officio</i>.	.....	873.....	1054.....	Total Votes 1897.....
		.....	No contestation.		Total Population 15688.....
City of Toronto	John Bell, Esq., Special Returning Officer, appointed by Commission.	.....	For Mr. Polette, 257; Mr. Dumoulin, 4; Total, 261.....		.....
		.....	For Mr. Sherwood, 985; Mr. Ridout, 331; Mr. Cameron, 1134; Mr. Boves, 1089; Mr. Boulton, 30.....		.....
County of Vaudreuil	Hyacinthe F. Charlebois, Esq., Registrar, Returning Officer <i>ex officio</i> .	Parishes of Isle Perrot.....	For Mr. Mongenais. Mr. Harwood.....	Total.....	.....
		Vaudreuil.....	21.....	16.....	37.....
County of Verchères	Adolphe Mailhot, Esq., Special Returning Officer, appointed by Commission.	Ste. Marthe.....	19.....	273.....	292.....
		Rigaud.....	158.....	20.....	178.....
County of Verchères	Adolphe Mailhot, Esq., Special Returning Officer, appointed by Commission.	Newton.....	263.....	9.....	272.....
		.....	17.....	14.....	31.....
County of Verchères	Adolphe Mailhot, Esq., Special Returning Officer, appointed by Commission.	.....	478.....	332.....	Total Votes 810.....
		.....	82.....	178.....	Total.....
County of Verchères	Adolphe Mailhot, Esq., Special Returning Officer, appointed by Commission.	Verchères.....	97.....	132.....	229.....
		.....	178.....	114.....	292.....
County of Verchères	Adolphe Mailhot, Esq., Special Returning Officer, appointed by Commission.	Belœil.....	169.....	66.....	235.....
		St. Marc.....	100.....	17.....	117.....
County of Verchères	Adolphe Mailhot, Esq., Special Returning Officer, appointed by Commission.	St. Antoine.....	107.....	33.....	140.....
		Contrecoeur.....	135.....	120.....	255.....
County of Verchères	Adolphe Mailhot, Esq., Special Returning Officer, appointed by Commission.	.....	868.....	660.....	Total Votes 1328.....
		.....	.....	.....	Total Population 14393.....

County of Victoria	Chas. Rubidge, Esq., Registrar, Returning Officer <i>ex officio</i> .	Townships of Emily.....	For Mr. Smith.....	Mr. Boyd.....	Total.....
		Eldon.....	95.....	150.....	245.....
County of Waterloo, (North Riding.)	Geo. Davidson, Esq., Sheriff, Returning Officer, <i>ex officio</i> .	Woolwich.....	52.....	29.....	81.....
		Wellesley.....	140.....	129.....	269.....
County of Waterloo, (South Riding.)	David S. Shoemaker, Esq., Registrar, Returning Officer <i>ex officio</i> .	Berlin.....	190.....	25.....	215.....
		.....	25.....	98.....	123.....
County of Waterloo, (South Riding.)	David S. Shoemaker, Esq., Registrar, Returning Officer <i>ex officio</i>.	.....	502.....	431.....	Total Votes 933.....
		.....	128.....	98.....	Total.....
County of Waterloo, (South Riding.)	David S. Shoemaker, Esq., Registrar, Returning Officer <i>ex officio</i>.	.....	101.....	86.....	187.....
		.....	7.....	27.....	34.....
County of Waterloo, (South Riding.)	David S. Shoemaker, Esq., Registrar, Returning Officer <i>ex officio</i>.	.....	73.....	9.....	82.....
		.....	309.....	220.....	Total Votes 529.....
County of Waterloo, (South Riding.)	David S. Shoemaker, Esq., Registrar, Returning Officer <i>ex officio</i>.	.....	117.....	122.....	239.....
		.....	42.....	170.....	212.....
County of Waterloo, (South Riding.)	David S. Shoemaker, Esq., Registrar, Returning Officer <i>ex officio</i>.	.....	140.....	172.....	312.....
		.....	1.....	106.....	107.....
County of Waterloo, (South Riding.)	David S. Shoemaker, Esq., Registrar, Returning Officer <i>ex officio</i>.	.....	69.....	4.....	73.....
		.....	369.....	574.....	Total Votes 943.....
County of Waterloo, (South Riding.)	David S. Shoemaker, Esq., Registrar, Returning Officer <i>ex officio</i>.	.....	113.....	99.....	212.....
		.....	20.....	11.....	31.....
County of Waterloo, (South Riding.)	David S. Shoemaker, Esq., Registrar, Returning Officer <i>ex officio</i>.	.....	51.....	87.....	138.....
		.....	103.....	52.....	155.....
County of Waterloo, (South Riding.)	David S. Shoemaker, Esq., Registrar, Returning Officer <i>ex officio</i>.	.....	37.....	214.....	251.....
		.....	110.....	90.....	200.....
County of Waterloo, (South Riding.)	David S. Shoemaker, Esq., Registrar, Returning Officer <i>ex officio</i>.	.....	109.....	127.....	236.....
		.....	42.....	38.....	80.....
County of Waterloo, (South Riding.)	David S. Shoemaker, Esq., Registrar, Returning Officer <i>ex officio</i>.	.....	79.....	100.....	179.....
		.....	74.....	19.....	93.....
County of Waterloo, (South Riding.)	David S. Shoemaker, Esq., Registrar, Returning Officer <i>ex officio</i>.	.....	788.....	837.....	Total Votes 1575.....
		.....	.....	.....	Total Population 20141.....

RETURN shewing the number of votes polled in each County, &c.—(Continued.)

ELECTORAL DIVISIONS.	RETURNING OFFICERS AT LAST ELECTIONS.	SUBDIVISIONS.	VOTES POLLED AT LAST ELECTIONS.		POPULATION FROM CENSUS OF 1851-2.
County of Wellington, (N. Riding.)	(N. Geo. S. Grange, Esq., Sheriff, Returning Officer <i>ex officio</i> .)	Townships of Pilkington	For Mr. Clark.	Mr. Barvon.	Total.
		Nichol	25	31	56
		Peel	91	45	136
		Arthur	3	1	4
		Maryborough	86	23	109
Garafaxa	0	0	0		
Amaranth	144	9	153		
	28	0	28		
	377	109	486		
	No contestation.				Total Population 12255
County of Wellington, (S. Riding.)	(S. W. H. Peterson, Esq., Registrar, Returning Officer <i>ex officio</i> .)				
County of Wentworth, (N. Riding.)	(N. Edward C. Thomas, Esquire, Sheriff, Returning Officer <i>ex officio</i> .)	Townships of Beverly	For Mr. Miller.	Mr. Spence.	Total.
		E. Flamboro'	136	174	310
		W. Flamboro'	38	174	212
		Dundas	127	57	184
			38	101	139
	389	506	845		
	No contestation.				Total Population 15573
County of Wentworth, (S. Riding.)	(S. Philip Spawm, Esq., Special Returning Officer, appointed by Commissioners)	Townships of Ancaster	For Mr. Freeman.	Mr. Wettenhall.	Mr. Williamson.
Barton	181	36	2	219	
Binbrooke	75	71	2	152	
Glanford	43	22	32	97	
Saltfleet	55	52	4	111	
	57	36	67	160	
	411	217	111	739	
	No contestation.				Total Population 12934
County of Yamaaka	(Jenn O. Arcand, Esq., Registrar, Returning Officer <i>ex officio</i> .)				

County of York, (North Riding.)	(W. B. Jarvis, Esq., Sheriff, Returning Officer <i>ex officio</i> .)	Townships of King	For Mr. Hartman.	Mr. Price.	Mr. Brothers.	Mr. Hunter.	Total.
		Whitechurch	110	229	0	0	339
		East Gwillimbury	241	46	0	0	287
		West Gwillimbury	114	147	0	0	261
		Georgina	35	37	0	0	72
	15	23	0	0	38		
	515	482	0	0	997		
	No contestation.				Total Population 16712		
County of York, (East Riding.)	(David Reesor, Esq., Special Returning Officer, appointed by Commission.)	Townships of Markham	For Mr. Wright.	Mr. Hogan.	Total.		
		Scarborough	218	165	373		
		East York	59	93	152		
		Yorkville	73	91	164		
			51	10	61		
	401	349	750				
	No contestation.				Total Population 22031		
County of York, (West Riding.)	(W. Aug. Baldwin, Esquire, Special Returning Officer, appointed by Commission.)	Townships of York, West	For Mr. Gamble.	Mr. Tyrrell.	Total.		
		Vaughan	110	87	197		
		Etobicoke	152	180	332		
			83	25	108		
			345	242	587		
	No contestation.				Total Population 11206		

N. B.—The blanks in the Population column have been left where the numbers could not be found in the printed Census Rolls, and placed where the division has been marked therein as uninhabited.

has been

FELIX FORTER,
Clerk of the Crown in Chancery.

Office of the Clerk of the Crown in Chancery,
Quebec, 21st September, 1854.

OFFICE OF THE CLERK OF THE CROWN IN CHANCERY,
Quebec, 21st September, 1854.

SIR,—In obedience to the order of the Legislative Assembly, I have prepared, with as much care as I could, the Return called for herewith, but I regret to say that, notwithstanding many diligent searches, I could not make a very exact and correct statement of the population of each County and its divisions; the reason of this is, that the Poll Books in my possession shew a number of Localities which are not to be found in the Census Returns.

I have the honor to be,

Sir,

Your obedient servant,

FELIX FORTIER,
Clerk of the Crown in Chancery.

WM. B. LINDSAY, Esquire,
Clerk, Legislative Assembly, Quebec.

RETURN

To an Address from the Legislative Assembly of the 28th ultimo, for copies of accounts of the Returning Officer of L'Assomption in 1854, and of Leinster in 1851, and also of correspondence.

By Command,

(Signed,)

GEO. E. CARTIER,

Secretary.

Secretary's Office,

Quebec, 10th April, 1855.

L'ASSOMPTION, 24th December, 1851.

SIR,—I have the honor herewith to transmit to you the statement of my fees, charges and disbursements in my capacity of Returning Officer at the last Election for the County of Leinster, of a Member to represent the said County in the Legislative Assembly.

As the account is exact and contains nothing but what is justly due me, I venture to hope that you will be pleased to pray his Excellency to issue his warrant to the Receiver General in order to payment of the said account out of the Consolidated Revenue Fund of this Province.

I have the honor to be, sir,

Your very humble and obedient servant,

L. ARCHAMBAULT,

Returning Officer,

County of Leinster.

The Honorable A. N. Morin,
Provincial Secretary,
Quebec.

Province of Canada.

Dr.

To Louis Archambault,

Registrar for the County of Leinster, in his capacity of Returning Officer at the last election for the County of Leinster, of a Member to represent the said County of Leinster during the ensuing Parliament.

1851.		£	s.	d.	£	s.	d.
	Endorsing the writ upon the day of its receipt.....	0	5	0			
Nov. 17.	Letter to the Clerk of the Crown in Chancery acknowledging receipt of the writ.....	0	5	0			
	Translation into French of the writ of election.....	0	10	0			
	Commission appointing an Election Clerk.....	0	2	6			
	Oath in writing, and certificate of oath having been taken by Returning Officer.....	0	5	0			
	Do do do Election Clerk.....	0	5	0			

24. Distance actually travelled to post up the Proclamations, from the place of residence of the Returning Officer, at L'Assomption, to the places hereinafter mentioned to wit :

To Repentigny, going and returning.....	18 miles.		
Lachenaie, "	24 "		
St. Henry de Mascouche, "	36 "		
St. Lin, "	48 "		
St. Calixte de Kilkenny, "	72 "		
St. Roch, "	24 "		
St. Esprit, "	36 "		
St. Julienne, "	48 "		
Rawdon, "	54 "		
St. Jacques, "	30 "		
St. Alexis, "	30 "		
Township of Chertsey, "	78 "		
" Wexford, "	72 "		
St. Sulpice, "	12 "		
	<hr/>	582	" 14 11 0

Dec. 9. For a hustings on the day of the nomination and the day of the closing of the Poll.....		7	10	0
To the Returning Officer for the day of nomination and the day of the closing of the Election at 40s. per diem....		4	0	0
To the Election Clerk, do do at 20s. do do		2	0	0
For two special constables on the day of nomination and the day of the closing of the Election at 5s. per diem, each		1	0	0
16. For thirteen Commissions appointing 13 Deputy Returning Officers, at 2s 6d each.....		1	12	6
The oath in writing of 13 Deputy Returning Officers and certificates of the taking of the said oath at 5s.....		3	5	0
To the Messenger for conveying the Commissions to the Deputy Returning Officers, he having actually travelled 432 miles	10	16	0	
13 Poll Books at 5s.....	3	5	0	
13 Warrants for the opening of the Poll, at 2s 6d.....	1	12	6	
To the Messenger for conveying the Poll Books and the Warrants to the Deputy Returning Officer, he having actually travelled 432 miles for that purpose.....	10	16	0	
A copy of each one of the 13 Poll Books, 8000 words each.	13	0	0	
19. Two indentures at 5s.....	0	10	0	
Report and certificate endorsed on Writ.....	0	10	0	
		<hr/>	88	10 6

To Deputies and Poll Clerks, viz : To Denis Bouthillier, Deputy Returning Officer, for St. Sulpice.

Distance actually travelled to take his oath of office 12 miles, there being no Magistrate in his neighbourhood..	0	6	0
His Commission as Poll-Clerk.....	0	2	6
Poll-Clerk's Oath in writing and certificate.....	0	5	0
12 miles travel from his residence to the polling-place.....	0	6	0
Fees for 2 days of poll.....	2	0	0
Poll Clerks' Fees.....	1	0	0
18 miles travel of Poll-Clerk to be sworn, and proceed from his residence to polling-place.....	0	9	0
Hire of a House for holding the poll.....	2	10	0
Messenger to convey poll-book to Returning Officer, and be sworn, 12 miles.....	0	6	0
Two constables, two days' poll.....	1	0	0

To Alexander Archambault, Esquire, Deputy Returning Officer for the Parish of L'Assomption, viz :

24 miles Travel to take oath of office.....	0 12 0
Poll-Clerk's Commission.....	0 2 6
Poll-Clerk's oath in writing and certificate.....	0 5 0
Hire of a House.....	3 0 0
Two constables two days' poll.....	1 0 0
Fees of Deputy Returning Officer.....	2 0 0
Poll-Clerk's Fees.....	1 0 0
	<hr/>

7 19 6

To Benjamin Moreau, Deputy Returning Officer for Repentigny.

30 miles' travel to take the oath of office.....	0 15 0
Poll-Clerk's Commission.....	0 2 6
Poll-Clerk's oath in writing and certificate of do.....	0 5 0
Hire of a House to keep the Poll.....	2 10 0
Two constables two days' poll.....	1 0 0
His Fees during two days' poll.....	2 0 0
Poll-Clerk's Fees.....	1 0 0
36 miles' travel to convey the poll-books to the Returning Officer.....	0 18 0
	<hr/>

8 10 6

To Charles Beaumont, Deputy Returning Officer for Lachenaie.

36 miles' travel to take the oath of office.....	0 18 0
Poll-Clerk's Commission.....	0 2 6
Poll-Clerk's oath in writing and certificate of do.....	0 5 0
8 miles travel from his residence to the polling-place.....	0 4 0
Hire of a House to keep the Poll.....	2 10 0
Two constables two days.....	1 0 0
His fees during two days' poll.....	2 0 0
Poll-Clerk's fees.....	1 0 0
36 miles' travel to convey the poll-books to the Returning Officer.....	0 18 0
	<hr/>

8 17 6

To Philip Mount, Deputy Returning Officer for Mascouche.

36 miles' travel to take oath of office.....	0 18 0
Poll-Clerks' Commission and oath in writing.....	0 7 6
Rent of House 60s; Fees 40s; Clerk 20s.....	6 0 0
Two constables two days.....	1 0 0
36 miles' travel to deliver poll-books to Returning Officer..	0 18 0
	<hr/>

9 3 6

To Thomas Garault, Deputy Returning Officer for St. Lin.

42 miles' travel to take oath of office, from his residence to L'Assomption, no Magistrate in his neighbourhood...	1 1 0
42 miles' do. to deliver poll books to Returning Officer.....	1 1 0
Poll-Clerk's Commission.....	0 2 6
Hire of a House to keep the poll.....	3 0 0
Two Constables.....	1 0 0
Deputy Returning Officer's fees.....	2 0 0
Poll-Clerk's Fees.....	1 0 0
	<hr/>

9 4 6

To Joseph Lamarche, Deputy Returning Officer for St Caliste.

24 miles' travel from his residence at St. Roch to L'Assomption to take oath of office.....	0 12 0
Election Clerk's Commission.....	0 2 6
Poll-Clerk's oath in writing and certificate of do.....	0 5 0
48 miles travel from his residence at St. Roch to polling place.....	1 4 0
	<hr/>

Carried forward..... 2 3 6

Brought forward.....	2 2 6	
Hire of a House to keep the poll.....	3 0 0	
Two Constables during the poll.....	1 0 0	
Deputy Returning Officer's fees.....	2 0 0	
Poll-Clerk's fees.....	1 0 0	
24 miles' travel from his residence at St. Rochs to that of Returning Officer.....	0 12 0	
	<hr/>	10 19 6

To Francis Desrivieres, Deputy Returning Officer for St. Esprit.

36 miles travel to take the oath of office.....	0 18 0	
36 do. to convey poll-book.....	0 18 0	
Rent of a House to keep the poll.....	3 0 0	
Poll-Clerk's Commission.....	0 2 6	
Poll-Clerk's oath in writing and certificate of do.....	0 5 0	
Fees of Deputy.....	2 0 0	
Poll Clerk's fees.....	1 0 0	
Two Constables two days.....	1 0 0	
	<hr/>	9 3 6

To Francis N. E. Faribault, Deputy Returning Officer for St. Rochs.

24 miles travel from his residence to L'Assomption to take oath of office.....	0 12 0	
Poll-Clerk's Commission.....	0 2 6	
Poll-Clerk's oath in writing and certificate of do.....	0 5 0	
Hire of a House to keep the poll.....	3 0 0	
Two constables during the poll.....	1 0 0	
Deputy's Fees.....	2 0 0	
Poll-Clerk's Fees.....	1 0 0	
24 miles' travel to convey poll-books.....	0 12 0	
	<hr/>	8 11 6

To Alexander Daly, Deputy Returning Officer for St. Julienne.

54 miles' travel from his residence to L'Assomption to take oath of office.....	1 7 0	
Poll-Clerk's Commission....	0 2 6	
Poll-Clerk's oath in writing and certificate of do.....	0 5 0	
Hire of a House to keep the poll.....	3 0 0	
38 miles' travel from his residence at Rawdon to polling place.....	0 19 0	
54 miles' travel to convey the poll-book to Returning Officer and oath.....	1 7 0	
Fees of Deputy Returning Officer.....	2 0 0	
Poll Clerk's Fees.....	1 0 0	
38 miles' travel by the Poll Clerk, from his residence at Rawdon to polling place.....	0 19 0	
Two Constables during the poll.....	1 0 0	
	<hr/>	11 19 6

To John Horan, Deputy Returning Officer for Rawdon.

54 miles Travel to take oath of Office from his residence to L'Assomption.....	1 7 0	
Poll-Clerk's Commission and oath in writing.....	0 7 6	
Hire of a House to keep the poll.....	3 0 0	
4 miles' travel to polling place.....	0 2 0	
Two Constables during poll.....	1 0 0	
Deputy's and Poll-Clerk's Fees.....	3 0 0	
54 miles' travel to convey the Poll-book to the Officer.....	1 7 0	
	<hr/>	10 3 6

To J. E. Ecrimont, Deputy Returning Officer for St. Jacques.

24 miles travel to take the oath of office	0 12 0	
Poll-Clerk's Commission.....	0 2 6	
Poll-Clerk's oath of Office in writing and certificate of do...	0 5 0	
Hire of a House to keep the poll.....	3 0 0	
Two Constables during poll.....	1 0 0	
Poll-Clerk's Fees	1 0 0	
Deputy's Fees	2 0 0	
24 miles' travel to deliver Poll books to Returning Officer and oath.....	0 12 0	
		8 11 6

To Mederich Dorval, Deputy Returning Officer for St. Alexis.

24 miles' travel from his residence at St. Jacques to L'As- sompition to take oath of Office	0 12 0	
Poll-Clerk's Commission.....	0 2 6	
Hire of a House to keep the Poll	3 0 0	
12 miles' travel to polling place.....	0 6 0	
Deputy's Fees	2 0 0	
Poll-Clerk's Fees.....	1 0 0	
Two Special Constables during poll.....	1 0 0	
24 miles' travel to convey poll-books to Returning Officer, and take the oath	0 12 0	
		8 12 6

22. Messenger to convey the poll books and Election Re- turns to the Clerk of the Crown in Chancery from his residence at L'Assompition to Quebec, 162 miles, at 6d. per mile	4 1 0	
162 miles in returning.....	4 1 0	
7 days' hire and board at 15s.	5 5 0	
		13 7 0
		£221 19 0

N. B.—Mr. Bondy has informed me a few days after his arrival at Quebec, that the poll-books for Leinster and Richelieu, which he handed to me, had been sent to him by the Stage.

(Signed)

F. FORTIER,
C. C. C.

Amount of Mr. Archambault's account.....		£221 19 0
Deduct the following items not provided for, viz :		
Indorsement on writ.....	0 5 0	
Letter to Clerk of the Crown in Chancery.....	0 5 0	
French Translation of the writ.....	0 10 0	
Oath in writing of Returning Officer and of Poll Clerk.....	0 5 0	
Oath in writing of 13 Deputies at 5s.	3 5 0	
432 miles' travel to convey poll-books to Deputy Returning Officers.....	10 16 0	
The same sum is previously charged for transmitting the Commissions to the Deputies; it is considered that the poll-books, &c., might have been sent at the same time, it is so done in the majority of cases.		
Return and certificate endorsed on writ.....	0 10 0	
The three last items of charge for transmitting poll-books and Return to the Clerk of the Crown in Chancery, at Quebec.....	£13 7 0	
As it appears these documents were transmit- ted by stage, allow for stage charge.....	0 10 0	
		12 17 0
Total deducted from Returning Officer's ac- count.....		£28 18 0

Brought forward..... £28 10 0

Deductions for charges for Deputies :

S. Sulpice, Poll Clerk's oath in writing.....	0 5 0	
L'Assomption, the same	0 5 0	
Repentigny, the same	0 5 0	
Lachenaie, the same	0 5 0	
St. Callixte. the same	0 5 0	
St. Esprit, the same	0 5 0	
St. Roch, the same	0 5 0	
St. Julienne, the same	0 5 0	
St. Jacques, the same	0 5 0	
		2 5 9

Mascouche.

12 miles travelling charge by the Returning Officer, more than the Deputy	0 6 0	
Poll-Clerk's oath.....	0 5 0	
2 Constables charged by Returning Officer, not by Deputy.....	1 0 0	1 11 0

St. Lin.

6 miles charged by Returning Officer more than by Deputy.....		0 3 0
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Rawdon.

12 miles do do	0 6 0	
Poll-Clerk's oath.....	0 5 0	0 11 0
		4 10 0

33 8 0

Recommended for allowance.....

£188 11 0

(Signed) JOS. CARY,
Deputy Inspector General.

Fees of the Deputy Returning Officer for the Parish of St. Henry de Mascouche, in the County of Leinster.

For two days on which he kept the poll.....	£2 0 0
" Commission appointing a Clerk	0 2 6
" his written oath	0 2 6
" Poll-Clerk at 10s per. day	1 0 0
" his written oath	0 2 6
" thirty miles really and necessarily travelled to convey the poll-books and returns to the Returning Officer	0 15 0
" do. to be sworn	0 15 0
" Rent and real and reasonable expenses incurred in establishing the polling place.....	3 10 0
	£8 7 6

Louis Archambault,

To Alexander Archambault, Deputy Returning Officer, Dr.

Fees due to Deputy.....	£2 0 0
Clerks' Commission	0 2 6
24 miles travelled to take the oath.....	0 12 0
Fees to Poll-Clerk	1 0 0
Two Constables	1 0 0
Rent of a House	3 0 0
Fire-wood.....	0 2 9

£7 17 3

To J. Horan, Deputy Returning Officer for Rawdon.

48 miles' travel to be sworn	£1	4	0
Poll-Clerk's Commission and written oath	0	5	0
Rent of a House	3	0	0
Two Constables	1	0	0
4 miles' travel to the poll	0	2	0
Fees	2	0	0
Fees to Poll-Clerk	1	0	0
48 miles travelled to convey the book	1	4	0
	£9	15	0

St. Lin, 18th December, 1851.

Account of expenses, fees, and monies paid to the Deputy Returning Officer of the Parish of St. Lin, in the County of Leinster.

For two days' poll at 20s. per day	£2	0	0
Commission appointing a poll-clerk	0	2	6
Distance travelled going and returning to take the two oaths required by law, being 36 miles at 6d. per mile	0	18	0
Distance really and necessarily travelled to convey the poll-books to the Returning Officer, 42 miles at 6d.	1	1	0
A table and chair broken at the hustings	0	5	0
Poll-Clerk for two days	1	0	0
Distance travelled to take the oath, 2 miles at 6d.	0	1	0
Constables for two days each at 5s. per day each	1	0	0
Heating of the House and rent thereof	3	1	8
	£9	12	8

As the whole may be separated and particularized in the Report to be presented to the Governor of the Province of Canada, and nevertheless respectfully submitted by

Your most obedient servant,

(Signed) L. GARAUULT,
Deputy Returning Officer.

L. Archambault,
Returning Officer.

SECRETARY'S OFFICE,
QUEBEC, 7th January, 1852.

SIR,—In reference to the account which you have transmitted of your expenses as Returning Officer for the County of Leinster, I have to remark to you that it does not appear to be sustained by sufficient vouchers.

I have therefore to request, in order that I may be enabled to lay the whole before His Excellency the Governor General, that you will forward to me by return of post, the original accounts of the Deputy Returning Officer, and their receipts and the other vouchers for the several sums mentioned.

I have, &c.,

(Signed,) A. N. MORIN,
Provincial Secy.

L. Archambault, Esquire,
Registrar,
&c., &c., &c.
L'Assomption.

L'ASSOMPTION, 12th January, 1852.

Sir,—I have the honor to acknowledge the receipt of your letter dated 7th January, instant, in which you desire me to transmit to you the original accounts of the Deputy Returning Officers, together with the receipts and other vouchers for the several sums mentioned in the account which I transmitted to you of my expenses as Returning Officer for the county of Leinster.

I have to inform you in reply, that I am unable to forward to you the original accounts of more than four of the Returning Officers, as I have no more in my possession. The other Deputy Returning Officers gave me their accounts verbally, when they presented their Poll-books to me in person, which accounts I forthwith entered in the book of my expenses. With regard to the receipts and other vouchers which you require from me, I am not able to send them, as having hitherto made no disbursement, I could have no receipt from any one. The messenger who went to post the notices of Election and to convey commissions and Poll-books to Deputy Returning Officers was myself. Before sending in my accounts I consulted persons who had formerly performed the duty, and they assured me that there was no other form to be complied with. This is the reason why I did not take the precaution of exacting written accounts under the hand of each Deputy Returning Officer. But I certify and affirm that the accounts sent in are correct and that they correspond with those which were verbally rendered to me by each several Deputy.

If more time had been allowed in which to return this answer, I might have been enabled to procure the accounts under the hands of the several Deputies, and to transmit them to you.

I trust, however, that the explanations which I have given will suffice to entitle me to be paid the full amount of my account.

I have, &c.

(Signed,)

L. ARCHAMBAULT.

Remarks on the account of Louis Archambault, Esquire, as Returning Officer for the County of L'Assomption.

	£	s.	d.
Item.—For a hustings on the day of nomination.....	7	10	0
Vouchers in support of this charge are required.			
Answer.—40 plank	2	0	0
8 pieces of Timber for frame.....	1	0	0
Cloth for cover.	1	0	0
Other materials and making.....	3	10	0
	£7	10	0
Item for eight copies of the poll-books at 20s. (8000 words at 3d. per 100) making 8 copies at 20s.....			8 0 0

(Signed)

L. ARCHAMBAULT,
Returning Officer,
County L'Assomption.

St. Roch, 25th April, 1854.

Inspector General's Office,
Quebec, 17th August, 1854.

(Signed)

JOS. CARY,
D. I. G.

I. G. O. 9th April, 1855.

Certified a true copy.
WM. DICKENSON,
Act. Dep. Insp. Genl.

Her Majesty's Government to Louis Archambault, Returning Officer for the County of L'Assomption,

1854. *Dr.*

July 8.—65 copies in English and 65 copies in French of the Proclamation or notice of Election, at 2s. 6d. 16 5 0
 Distance travelled from L'Assomption to the places mentioned, to post Proclamations:
Viz: To St. Sulpice 12 miles.
 To Repentigny 18 do
 To Lachenaie 30 do
 To Mascouche 30 do
 To St. Lin 48 do
 To St. Roch 24 do
 To L'Epiphanie 12 do

174

At 6d per mile 4 7 0
 Commission appointing an Election Clerk 0 2 6
 19.—Day of opening on nomination 2 0 0
 Hustings on the day of nomination 7 10 0
 Election-Clerk on the day of nomination 1 0 0
 Two Constables 0 10 0
 Eight Commissions appointing Deputy Returning Officers in the Subdivisions of the County at 2s. 6d. each 1 0 0
 Eight warrants for the opening of the Poll at 2s. 6d. 1 0 0
 Eight Poll-books at 5s. 2 0 0
 Messenger to convey to the Deputy Returning Officers their Commissions, the poll-books and warrants to open the polls, 174 miles travelled at 6d. 4 7 0
 3.—The day of closing the Election 2 0 0
 The Election Clerk, same day 1 0 0
 Two Constables 0 10 0
 Eight copies of the Poll-books at 20s. each 8 0 0

51 11 6

To the Deputy Returning Officers and Poll-Clerks, viz :

To J. N. E. Deputy Returning Officer for the Parish of St. Sulpice.

Commission for the Poll-Clerk 0 2 6
 Distance travelled from his residence to the polling place, 13 miles 1 0 0
 Poll-Clerk's fees 0 6 0
 Fees for two days of polling 2 0 0
 Distance travelled by Poll-Clerk from his residence (L'Assomption) 12 miles 0 6 0
 Two Constables 2 days 1 0 0
 Hustings and House to keep the poll 3 0 0

7 14 6

To Camille Archambault, Deputy Returning Officer for the Parish of L'Assomption.

Fees 2 0 0
 Poll-Clerk's Commission 0 2 6
 Poll-Clerk's Fees 1 0 0
 Two Constables 1 0 0
 Hustings and Rent of House 4 0 0

8 2 6

To Benjamin Moreau Deputy Returning Officer for Repentigny.

Fees 2 0 0
 Poll-Clerk's Commission 0 2 6
 Fees 1 0 0
 Two Constables 1 0 0
 Hustings, &c 1 10 0
 18 miles' travel to deliver the Poll-books 0 9 0

6 1 6

Carried forward £73 10 0

Brought forward..... £73 10 0

To Louis Charles Beaumont, Deputy Returning Officer for Lachenaie.

12 miles' travel to be sworn.....	0 6 0	
12 miles' travel to the poll.....	0 6 0	
Fees on the poll-days.....	2 0 0	
Poll-Clerk's fees.....	1 0 0	
Poll-Clerks' Commission.....	0 2 6	
Two Constables.....	1 0 0	
Hustings and Rent of House.....	3 0 0	
36 miles' travel to convey the poll-books.....	0 18 0	
		8 12 6

To Philip Mount, Deputy Returning Officer for the Parish of Mascouche.

Fees.....	2 0 0	
Poll-Clerk's Commission.....	0 2 6	
Fees of Poll-Clerk.....	1 0 0	
Hustings and Rent of House.....	3 0 0	
Two Constables.....	1 0 0	
6 miles' travel to be sworn.....	0 3 0	
30 miles' travel to deliver poll-books.....	0 15 0	
		8 0 6

To Thomas Carault Deputy Returning Officer for St. Lin.

Fees.....	2 0 0	
Poll-Clerk's Commission.....	0 2 6	
Poll-Clerk's fees.....	1 0 0	
Hustings, &c.....	1 10 0	
Two Constables.....	1 0 0	
48 miles' travel to deliver poll-books.....	1 4 0	
		6 16 6

To B. Rocher, Deputy Returning Officer for St. Roch.

Fees.....	2 0 0	
Poll-Clerk's Commission.....	0 2 6	
Poll-Clerk's fees.....	1 0 0	
Hustings, &c.....	1 10 0	
Two Constables.....	1 0 0	
24 miles' travel to deliver poll books.....	0 12 0	
		6 4 6

To Denis G. Lamarche, Deputy Returning Officer for St. Epiphanie.

Fees.....	2 0 0	
Poll-Clerk's Commission.....	0 2 6	
Poll-Clerk's fees.....	1 0 0	
Hustings and Rent of House.....	3 0 0	
Two Constables.....	1 0 0	
12 miles' travel to be sworn.....	0 6 0	
12 miles' travel to deliver poll-books.....	0 6 0	
		7 14 6

Total..... £110 18 6

Certified a true copy.

WILLIAM DICKINSON,
A. D. I. Gen.

Inspector General's Office,
9th April, 1855.

GENERAL REPORT

Of the Commissioners of Public Works for year 1852-3, Laid before the Legislative Assembly in accordance with the provisions of the Act 9 Vic. Cap. 37, Sec. 14.

J. CHABOT,
Chief Comm. of Public Works.

DEPARTMENT OF PUBLIC WORKS,
QUEBEC, 22nd June, 1854.

*To His Excellency, The Right Honorable James Earl of Elgin and Kincardine,
Governor General of British North America, &c., &c., &c.*

MAY IT PLEASE YOUR EXCELLENCY ;

The undersigned have the honor to submit the following General Report for the year 1852-53, in accordance with the Provisions of the Act 9 Vic., chap. 37, sec. 14 ; which requires that the Commissioners of Public Works shall prepare and submit to the Governor General in Council, to be laid before the two Houses of the Legislature within twenty-one days from the commencement of each Session, a " Report on all works under their control shewing the state of each work, " the amount of receipts and expenditure thereon, together with such further information as may be requisite." To this Report are appended the following statements.

No. 1.—Statement of the works in Canada which yield revenue, and which are under the charge of the Department of Public Works, shewing the cost of the construction thereof to 1st January, 1854, and the expenditure thereon since the date of last Report : also the cost incurred for repairs, maintenance and management.

No. 2.—Statement of the works in Canada from which no revenue is derived, shewing the total amounts of public money expended thereon up to the first of January, 1854 ; also the expenditure on them by the Department of Public Works, since date of last Report, distinguishing those works which have been given up by the Government, and those which it is intended should be sold or given up.

No. 3.—Statement of the expenditure made by the Department of Public Works, since date of last Report, on the repairs and maintenance of the Provincial Light Houses, Buoys and other works connected with the inland navigation.

No. 4.—Statement of the amounts paid on awards for damages on each work, since date of last Report, shewing the amounts awarded, also the amounts paid to the Arbitrators or Commissioners for services and expenses.

No. 5.—Statement shewing the total amount expended by the Department of Public Works as detailed in the foregoing statements.

No. 6.—Statement of the Water-power and lands leased or sold on, or in the vicinity of the several Canals or Public Slides; with the names of the Lessees and Purchasers, machinery adopted or proposed, amounts of sales and rents to the first of January, 1854.

No. 7.—Statement shewing amounts appropriated for Public Works during the last Session of the Legislature, together with the balances of former appropriations then available for expenditure on each work, the amount thereof expended to the 1st January, 1854, amounts yet unexpended and sums required towards the completion of those works.

Welland Canal.

The Report of the Superintendent of this Canal (see Appendix A.) represents it to be in good and efficient working order. This report the undersigned, from a recent general examination of the line, are enable to confirm.

The various works stated in the last Report from the Department as being then necessary, such as strengthening the embankments, raising and facing the banks with stone, providing several sets of Lock Gates and Bridges to replace those that were destroyed, &c., &c., have been judiciously executed and provided, and the maintenance of the Canal is duly and economically attended to. Considerable expenditure has been unavoidably incurred, to afford facilities and meet the wants of the trade through this Canal, which the undersigned are happy to observe, continues steadily to increase.

In 1849 the gross revenue from tolls amounts to.....	£34,741	18	8
1850 do do	37,925	17	7
1851 do do	50,460	6	8
1852 do do	58,273	7	7
1853 do do	65,002	14	8

If to this latter amount be added the sum of £1865 18 1 being the amount of the Hydraulic Rents, the gross revenue from this Canal for the past year will be £66,868 12 9

The lighting of the Locks and Bridges by night, and the construction of the second Towing path from St. Catherines to Thorold, have tended importantly to facilitate the passing of vessels. The former is still affected by means of Oil-lamps, but satisfactory arrangements have been made for gas, the works necessary for producing the supply of which are now far advanced.

Vessels drawing 9 feet 3 inches of water pass freely through the Canal, and when the Copping-timbers and Slash-boards, which are now being put on the Locks, are completed, ten feet draft of water can be carried well through.

The works of port Dalhousie and port Colborne Harbors are in a good state, and the portion of the Pier at Port Maitland, which had been injured by heavy gales on Lake Erie, has been repaired. At Port Dalhousie the increase of trade renders it necessary to extend the East Pier about 200 feet, and that at the entrance to the Lock about 100 feet.

Notwithstanding all that has been thus done towards adding to the capabilities of the Canal, the undersigned believe that the time will very shortly arrive when it will be necessary to adopt a new branch from Thorold down, with enlarged Steamboat Locks, and to build a corresponding Lock at Allenburg and at Port Robinson; and they are of opinion that no time is to be lost in having the Canal bottomed throughout from Allenburg to Port Colborne, to the breadth of fifty feet, and to the depth suited to the level of Lake Erie, as the feeder.

Most of this portion is new bottomed to that depth, but to a breadth only of twenty-six feet, with lie-bys at every half mile. This breadth would certainly be found insufficient to pass the number and class of vessels now in the Trade.

were the surface of the Canal lowered to the level of Lake Erie. The necessity for at once commencing this enlargement is obvious, from the fact that the supply of water from the Grand River during the summer months of the past and preceding years, was very insufficient, even after all the mills which drew from it had been stopped. This supply must annually decrease as the country from which it derives its source is cleared up, which the demand for a greatly increased supply is annually becoming stronger.

The work of widening and bottoming, to adapt the Canal properly to the Lake Erie level, must principally be effected by dredging, and as with a reasonable number of dredges, the accomplishment of it would require four years, at least, it is clear that the commencement of it should no longer be postponed.

The extension of the inner Harbor accommodation at Port Colborne is now also imperative. In its present dimensions, not more than from 30 to 40 vessels can safely lie in it, and with the wind S. by W. to N. W. it frequently happens that a large fleet makes for it at the same time, when, notwithstanding every exertion being made by having the Lock doubly manned, and passing the vessels through as fast as possible night and day, the Harbor becomes blocked up, and vessels run into each other, as from the nature of the coast, they dare not venture to lie off with the wind on shore.

A sum is set down in the estimates to cover the cost of this improvement, and the cost of the work of widening for the year 1854.

Another expenditure strongly called for on this Canal, is the construction of a weigh-lock, such as is in use on the American Canals, for testing the correctness and authenticity of the clearances furnished by the Masters, and by which the amount of Tolls is regulated. Notwithstanding the utmost vigilance on the part of the Collectors, it is not possible without such aid, to put a stop to the loss which the revenue has hitherto been subjected to; and the undersigned have no doubt but that the cost of the Lock would be more than amply compensated for by the suppression of frauds, now practised.

The Canal was opened on the first of April, and closed on the seventeenth of December, giving 261 days of navigation. The detention of vessels by accident or injury to the gates, was very trifling,—much less than in any former year.

In every case of breakage of gates, extra ones were in readiness to be substituted; and the interruption to the navigation generally did not exceed from 12 to 36 hours according to the number of gates broken.

St. Lawrence Canals.

Under this head are included the undernamed short Canals, constructed to overcome the Rapids of the River St. Lawrence, at which they are respectively situated, viz:—The Galops Canal,—The Point Iroquois Canal,—The Rapide Plat Canal,—and the Farrans Point Canal.

These Canals were generally opened on the first of May, and closed on the first of December 1853, thus affording a business season of seven months for the year 1853.

They have been kept in good working order, with ordinary repairs. The sundry improvements detailed in the last Report of this Department, and provided for by appropriations, have been, or are nearly completed, amongst which may be mentioned, the Pier by which the lower entrance to the Farrans Point Canal, has been so much improved as to allow of the trade being now tugged through it, instead of through the American channel, by which a saving of about three miles is effected.

The works of the "Junction Canal," which is to unite the Galops and Iroquois Canals, are still far from completion. They had been first let out to the

Contractors whose tender was the lowest, and, on their failing to prosecute the works properly, they were relet to the present Contractors who were next in succession, and who undertook them at their original tender. From difficulties arising, in some measure, from mismanagement, increased by the height of water in the River, and the great scarcity and advanced price of labor, unexpected by the present Contractors at the time of their taking the contract, their progress has also been very unsatisfactory. Their securities are now assisting in urging on the prosecution of the works, which, it is hoped, will be fully available on the opening of the navigation next season.

Cornwall Canal.

This Canal was opened on the twenty-ninth of April and closed on the fourteenth of December, 1853. It has been kept in good working order during the season, at a moderate outlay, through the attention and efficiency of the Superintendent. The heavy embankments have stood well, and but few accidents have happened to the Lock Gates. Where breakage occurred it was promptly repaired, and the navigation interrupted for as short a period as possible, spare Gates being on hand in all the Canal.

The new Lock Houses have not yet been built, but tenders for their construction are being called for, on receipt of which, contracts will be entered into, and the works be put in progress. The Pier at the lower end of the Canal must also be lengthened.

Beauharnois Canal.

This Canal was opened on the twenty-ninth of April, and closed, (prematurely by a few days), on the twenty-fourth of November, in consequence of the Steamer "Lord Elgin" coming in forcible contact with the lower Gates of Lock No. 6.

During the period of navigation, two interruptions to the Trade took place, one on the 22nd of July, when the lower Gates of Lock No. 13, were carried away by the Steamer "Ranger," which caused a delay of 48 hours. Another took place on the 20th of September, when the upper and lower Gates of Lock No. 8, were destroyed by the Steamer "Bytown" which caused a suspension of the Trade for 44 hours.

Several sets of spare gates are now completed, and others are contracted for and in course of construction by Mr. Chaffey, for the Canals generally.

The Locks and embankments are in good order, and the face of the banks generally well protected by stoning: and the ordinary repairs are steadily proceeded with, so as to keep the Canal in fair working condition.

There are several places, in some of the reaches, where, from the nature of the loamy clay of which the banks consist, deposit has taken place, which causes trouble in passing heavily laden vessels. There are no dredge vessels suitable for Canal work now at the command of the Department, and it will be necessary in the course of this summer to let off the water for a few days in order to remove these obstructions, of which advantage can be taken also to effect several matters of repair and improvement on the other Canals, which could only be done satisfactorily at such a season.

It is proposed to procure two dredge vessels for the use of the several Canals between Prescott and Montreal, one to be a single Bucket Dredge—the other with rotatory Buckets.

At the lower entrance to this Canal an extension of about 200 feet is required to the Pier, to afford more room for vessels to moor at, while waiting for the Tug vessels, or to be passed through the Lock.

Much difficulty has been experienced in getting the works of the several waste and regulating Weirs pushed on by the Contractors as they should be. Those at Locks 6, 9, 10, 11, 12 and 13, are now well advanced. Those at Locks 7 and 8 are still backward; but that at Lock 14 it would appear the Contractor has abandoned, owing principally to the expense of pumping out the foundation; but, no doubt also, to the insufficient price at which the work was taken. The experience of every season goes to shew more and more distinctly the inexpediency of letting works, the construction of which is promptly required for the convenience or safety of the Canals, to parties, simply because they are the lowest bidders. Delays sometimes, extending to years, take place in defiance of every exertion by the department, and the work ultimately costs more than it would have done, if let, at reasonable prices, to competent Contractors.

The protection Pier at St. Timothée Bridge has been completed, and a new Bridge substituted for the old one. The other Bridges generally have been renewed or repaired except one, a new superstructure for which is now in hand.

The extensive Paper works, established by Mr. Miller, at the head of this Canal, are now in full operation, and a number of hands thus profitably employed and no doubt other manufactures will shortly be erected there.

Lachine Canal.

This Canal was opened on the 20th of May, and closed, generally on the 2nd December, 1853; but vessels were passed from the River into the Dock, until the 13th of December.

Some serious obstructions to the navigation of this Canal occurred during the year 1853. On the 7th of May, at 10 o'clock at night, the Steamer "Scotland" damaged the Gates of Lock No. 3, which detained the vessels until ten o'clock on the morning of the 9th, a delay of 36 hours.

On the 6th of July, the Steamer "Princess Victoria" injured the Gates of Lock No. 4, causing a detention of 19 hours.

On the tenth of November at 6 o'clock, P. M., the Schooner "John Patten" destroyed a pair of Gates of Lock No. 4, rendering the substitution of a new pair necessary and interrupting the navigation for 71 hours.

And, on the morning of the 22nd of November, at 7 o'clock, A. M., one of the lower Gates of Lock No. 2, gave way, which caused a delay of 100 hours, owing to the inclemency of the weather, and to the fact of the Spare Gates having been above the Lock.

The erection of some houses for Lock and Bridge tenders is required on this Canal, preparations for which will shortly be made.

Great inconvenience is suffered for want of sufficient Wharf accommodation. During the past season, vessels have been detained for three days before they could get alongside a wharf. It is high time that a commencement should be made with the construction of the Docks, for which the necessary ground has been acquired and paid for.

The undersigned are of opinion, that the present Main Basin should be dredged, and the wharf walls under built, or otherwise secured so as to accommodate Atlantic Vessels. Also that a commodious Dock, with 16 feet of water, should be constructed on the ground adverted to. This Dock should have two entrances from the present Basin, rendering the re-acquisition of the property sold to Messrs. Tate, according to the condition of sale necessary. The resumption of this property can be effected, either by making reasonable compensation for the expenditure, and granting a new site suitable for the purpose of a graving-dock, or otherwise as may be thought best. But it is of great importance to the trade that a proper dry dock should exist at the end of the Canal.

It is to be regretted that this property had been so disposed of, it is directly in the way of the improvements which the trade requires, and the works erected on it, in their present state, must be considered as a nuisance to the Canal. The inner Gates and Recesses, &c., have been so unsuitably constructed, that they are not available: the consequence is the security of the Canal is endangered and the Dock and the whole of the inner Basin have to be filled and discharged, thus causing a great unnecessary waste of water, that lowers the Basin from which the Mills are supplied, from 6 to 8 inches, every time a vessel has to be let in or out of the Dock, besides seriously impeding the passing of deeply laden vessels through the Lock.

On two sides of the proposed Dock, it is intended there should be ample ground reserved for extra wharves and stores; such ground to be sold to parties applying for it; and each of the stores to be supplied with water to work grain elevators; and on one side is to be formed an extensive public wharf, with produce sheds or stores, &c., &c. Increased facility for access from the City to the south side of the Canal must also be afforded, by the establishment of one or more Bridges, widening the roads, &c., &c.

But little progress has been made with the works of the supply Gate and Channel at the head of this Canal, for the admission of a greater volume of water. The Contractor has urged the great difficulty of obtaining labor and teams, but means will be now taken to enforce a more satisfactory rate of progress.

Considerable interference with the navigation of this Canal has been caused by the mode and period of construction of a culvert undertaken by the Montreal Water Works Company, and also by the erection of a Bridge to convey the Grand Trunk Railway over it. A large proportion of the works of the former ought to have been prepared for and executed during the Summer, thereby leaving as little as possible to be done during the inclemency of the winter, and thus securing the opening of the navigation in due time. A contrary course, however, was adopted, as appears from the following extract of a Report of the Superintendent, dated 24th January, 1854. "The Montreal Water Works Company are now engaged excavating for the purpose of building a culvert under the Canal, above Brewster's Basin through which they intend to pass their main pipes; this work is progressing very slowly. It is now two months since they commenced work on this culvert, should they continue at the same rate for 4 months to come, the work will not be more than three-fourths completed. This work should be finished, and the Dams across the Canal removed, as early as the tenth of April next, in order to secure the opening of the Canal by the first of May.

"The Grand Trunk Railway Company are making preparations to build a Swing Bridge across the Canal, near this culvert, very little, however, has been done, except delivering stones for the work."

River Lights, Buoys and Beacons.

Besides the repair and maintenance of the several Lights and Beacons established at date of last Report, between Montreal and Kingston, much has been done since that period to facilitate and render safe the navigation of that part of the River. Some buoys were carried away by the ice, for which others are being substituted, and additional ones are about being placed at points which it has been found desirable to have marked.

Besides the Piers which have been constructed to improve the entrance to the Canals, several Light Houses have been located in the most intricate parts of the River. Some of them stand on Piers, which have been sunk for that purpose; others on prominent points. By means of these Lights, the services of the

Tug line and of the Mail Boats can be performed during the night as well as by day. The principal ones are at, Grenadier Island, Fiddler's Elbow, Lynedock Island, Gananoque Narrows, Jack Straw Shoal, The Spectacles Island, Red Rock, and Burnt Island. There with one more at Coleman's Creek, will be found to afford important facilities for navigating the River by night between Kingston and Prescott. A light near Chimney Island, below Prescott, would enable vessels to be towed by night from the head of the Galops Canal, and thus much time would be saved.

In the Narrow's below Gananoque, there are some large Rocks by which the navigation is much obstructed, and applications to have beacons placed upon them have frequently been made: but prior to doing so, the undersigned thought it advisable to consult Messieurs Maillefort and Raasloff, Submarine Engineers, as to whether these rocks might not be removed at a moderate expense; by which the Channel would be much improved, and the cost of maintaining the Beacons avoided. The Report of these Gentlemen has not yet been received.

The expediency of establishing a fixed light, instead of one of the floating Lights in Lake St. Louis, and of adopting the same course in Lake St. Francis, is under consideration. The cost attendant upon the maintenance of Floating Lights is so heavy, that it is desirable to substitute fixed Lights for them, wherever practicable at a moderate expense.

In the River Ottawa, between Bytown and Lake St. Louis, some lights are much called for.

Those first required are; four between Bytown and Grenville Canal, and two between St. Ann's Lock and Lake St. Louis. These, with a few Buoys, are very necessary for the improvement of the navigation of that River.

A Pier and light on Indian Point in the Bay of Quinté, would tend importantly to the safe entering of that Bay by the "Upper Gap." A great many vessels now trade between this Bay and Oswego, and the entry to the "Gap," on a dark and stormy night, is both difficult and dangerous. The Light referred to would give confidence to Masters of Vessels, and would enable them to enter, when, without it, they would be obliged to stand out all night.

At the entrance to the Bay of Kingston, Snake Island stands almost mid-channel, and from it a very dangerous reef extends, on which several vessels have been lost. A light distinguished by color, from that on Nine Mile Point, would add very much to the safety of navigating, that part of the Lake.

In Lake Ontario, a Light House is being built on the "Scotch Bonnet" or "Egg Island," a small low Island lying S. E. off Presqu'isle, and in the direct line of the Mail and other vessels running down the Lake from Coburg, &c.

In Lake Erie, the preparations for the Pier proposed to be sunk at the extreme point of Pointe Pelée Reef, are far advanced. The Cribs are all framed; the necessary timber is on the ground; the stone quarried, and the proper arrangements are made for towing the Cribs to their berths, as soon as the appearance of the weather is such as to justify the expectation of a few calm days which are indispensable for making the attempt with safety and success. The position of this work is greatly exposed; and, in all the operations connected with it, great difficulties have to be encountered.

On Lake Huron, there has been as yet, but little progress made towards the erection of the several Light Houses, which are so much needed there. Along the entire of the Canada Coast of this vast Lake, the mariner is wholly unaided by either Lights or Buoys, with the exception of the Solitary Light at Godrich. The opening of the Toronto and Lake Huron Railway, and the wants of the numerous and rapidly increasing settlements in the section of the Province bordering on that Lake, make it necessary that no further delay should take place in establishing such Lights as are essential to the encouragement and safety of its commerce.

From the best information collected chiefly through the kind interest of the Honorable W. B. Robinson, from Captain MacGregor, of the Gore Steamer, who has been for several years commanding a Steamboat on Lake Huron, and from others, it is believed, that the following are the Lights which are most required in the first instance.

On the east coast of the main Lake, one third class upon Kettle Point, near the foot of the Lake, between the mouth of the River and Goderich, where a very dangerous reef runs out to a considerable extent. One (a second class) on the N. E. point of Chantry Island, near the mouth of the River Saugeen, about 30 miles above Clarke's Point.

One (second class) on the S. E. side of White Fish Island, 18 miles N. by W. from Saugeen, where there is a Harbor represented to be one of the best and most easy of access between Goderich and Cape Hurd. One (first class) on the S. W. and of the Isle of Coves, in the Straits at the entrance to Georgian Bay. One (third class) on the S. E. end of Christian Island which will answer both for Penetanguishine and Collingwood. One (second class) on the S. E. end of Griffiths Island, at the entrance to Owen's Sound Bay, and about 35 miles from the before mentioned site. One (third class) on Badgley Island, about 75 miles from Griffiths Island, and at the entrance to the North or Montreal Channel between Georgian Bay and Sault Ste. Marie. One (third class) on Clapperton Island, about 30 miles west of Badgley Island; and one (second class) on the North eastern point of Isle St. Joseph, about 80 miles west of the latter.

A pier of about 500 feet in length from Chantry Island towards the main shore, would be of important service, in forming a Harbour, to meet the wants of that section of country, which is rapidly being settled.

River Richelieu.

The navigation of this River at St. Ours, was opened on the 13th of April and closed on the 4th of December 1853, during which period it was maintained without interruption, excepting a stoppage of about four hours, caused by breaking of a rail in one of the Lock Gates.

The works are generally in good order; a wall of 260 feet in length has been built from the Dam around the point of the Island, which secures that portion of it and the Dam.

During the course of the season, a heavy leak took place through and under the Dam, which was however, quickly stopped, and the Dam made good.

As the Slides in the banks north of the Dam have not increased lately, and as it is probable that the banks may take a natural and safe slope, it has been thought advisable to postpone the building of the intended protection Pier, until the form which the Banks are likely to assume becomes more fully developed.

Some repairs are required below the Lock, and will be effected when the level of the River is down to low Summer water.

Chambly Canal.

This Canal was opened on the twenty-eighth day of April, and closed on the second day of December. The navigation was not interrupted during that period, except for two days and a half, in the latter end of May. This interruption was caused by the sinking of a barge.

With the exception of the entrance combined Locks at Chambly, built under this Department, the works of this Canal are in a very ruinous condition, Locks 2, 3, 4, and 5, particularly, are in so bad a state, that it would be necessary to rebuild them. The Bridges also are very much out of repair.

About the latter end of December, an ice dam formed across the River Richelieu, above Hatt's Mills, for the first time in the memory of the oldest inhabitant, causing the water to flow back into and fill the Canal; and rain coming shortly after, the dam in the River was burst, and such a current thereby created in the Canal, as seriously to injure the banks in several places.

To put this Canal into an efficient state, even on its present scale, would require a very large expenditure, the incurring of which, would appear to the undersigned, to be imprudent until the important question (hereafter referred to) as to the construction of a Canal to unite the St. Lawrence with Lake Champlain is first decided by the Legislature. It is proposed therefore to expend this season, as little as possible upon the temporary repair of such works as interfere with the navigation in their present state.

Ste. Anne's Lock and Dam.

The navigation of the Ottawa, through this Lock, was opened on the twenty-fourth of April, and continued uninterrupted until the twenty-eighth of November 1853, when it was closed for the season.

The North Pier below the Lock is too low in time of high water, and must be raised at least three feet; and a Pier of about 150 feet is much required above the Lock. These Piers with the clearing of the upper approach to the Lock, from stones and rocks, for a width of about 100 feet, and to the depth of the Mitre Sill, are indisputably necessary, and it is proposed to undertake them on the falling of the water to low summer level.

A Bridge over this Lock is being built by the Grand Trunk Railway Company, and the direction which the line of the Pier in the River gives to the water, has created a current at the end of the west Pier, below the Lock, so as seriously to interfere with the safe entrance of a vessel to it.

To remove this difficulty the extension of the Pier, probably some 150 feet, will be necessary, the cost of which the undersigned are of opinion should be borne by the Railway Company referred to.

Independent of this Pier, further improvement is required at the lower entrance of this Lock; and a Lock-laborer's house and an office for the Collector, are also indispensable.

Ottawa Works.

The state of the several Public Slides, Booms, &c., on the River Ottawa and its tributaries, together with the outlay thereon, &c., will be found fully described and detailed in the Report of the Superintendent, herewith annexed (see Appendix, letter B.)

Since the date of the last report by this Department, the Dams necessary to create the water privileges at Victoria Island, have been constructed; several lots have been sold, on some of which extensive buildings and machinery are being erected; applications have been received for more sites, and it is proposed shortly to advertise another sale of such a number of lots as will meet the present demand of those who propose, *bonâ fide*, to erect machinery, and to prevent as far as possible, these lots from getting into the hands of those who merely buy on the speculation of selling again.

The undersigned have had the necessary surveys, plans, and estimates made for the Châits Canal, with which it was decided by the Legislature that the works for the general improvement of the navigation of the River Ottawa should commence, and towards which an appropriation was made. The examination and report of the Engineer set at rest the vexed question as to the side of the River upon which this improvement should take place—and the north side is

now clearly ascertained to be the proper one for it, whether as regards the approaches to it, the cost of construction, and other material points, such as its not being interfered with by the running of rafts, &c., &c.

Several tenders for the work have been received, the rates of which are low, considering the very great increase in the prices of labor and materials.

This Canal is carried through a natural ravine, which presents a very favorable line for it, and upon which comparatively but little excavation will be required. Besides the excavation the work consists chiefly of two Dams, of no great magnitude, Piers at each entrance of the Canal, and six Locks. The latter it is proposed to build in a rough but substantial class of masonry.

In the ravine through which the Canal is to be carried, some excavation and other works, were formerly done by Mr. Wright, in the construction of slides for the passing of lumber from Lake to Lake. A portion of this work is now available for the purposes of the Canal, and Arbitrators have been appointed to value the amount which should be paid to Mr. Wright for it, as well as for the lands necessary to be acquired.

Pending the advertising for tenders and commencing the works of this portion of the improvement of the Ottawa, the Engineer was instructed to proceed with the Surveys, &c., necessary to decide upon the works required to overcome the Chaudière and Duchêne rapids, between Bytown and the Chaudière Lakes. In the performance of this service, three routes have been examined, the first, leaving the river and ascending the Rideau Canal to the Bytown level, by the existing Locks, thence descending to the Chaudière Lake, for which two Locks would be necessary. The second route leaves the river at the head of the Bytown Basin, and follows along the south or Upper Canada side of the river. The third takes the north or Lower Canada side.

The report of the Engineer is strongly in favor of the second line. He enumerates the objections to the first as being, that the Canal would be four miles longer—that ten Locks would have to be passed instead of six, that the sufficiency of water from the summit level is questioned by many, (although he appears to think it might be increased,) and that, by taking this first line, the scale of the Ottawa navigation would necessarily be limited to that of the Rideau Canal. Its construction, however, would cost about £45,000 less than that of one upon the second line.

The advantages of the second over the third line are: it is two miles shorter, a large portion of rock excavated would be suitable for building the Locks, cost of land much less, only one public road to cross, and cost of its construction about £60,000 less than that of route number three.

On the completion of the works at the Chats and the Chaudière, a fine and uninterrupted navigation of 120 miles would be opened, along which numerous Saw, Flour, and other Mills are already established, and several others are in course of erection.

For the Report of the Chief Engineer to the Department upon the lines explored for the Chats Canal, and for the size of the Locks adapted for the Ottawa navigation, (see Appendix, Letter C.)

St. Maurice Works.

Full information on the state of the Works on the River St. Maurice, the expenditure thereon, the sum required to complete them, and the new works which the experience of the last spring shows to be yet necessary will be found in the Report of the Superintendent, (see Appendix, letter D.)

From that Report it will be perceived, that great difficulties have had to be encountered, and that although a very considerable amount of work has been done, much still is required to ensure safety of property, and that the full bene-

fits calculated on from these works may be realized, such expenditure however, will be fully justified by the opening of the great tract of Country bordering on this River, and its tributaries; the facilities afforded to the Lumbering operations thereon, and the revenue resulting from it.

River Trent Works.

These works may be classed under two heads.

1st.—Those of which the improvement and maintenance are indispensable, if the necessity for keeping open the existing inland navigation of that Section of the Country is admitted.

2nd.—Those which are solely required for the assisting in the passing of Timber, and for other lumbering operations.

With respect to the work comprised under both of these heads, in a Report from a former Chief Commissioner of this Department, it was strongly recommended that the entire should be disposed of to the Municipalities in which they are situated. Advertisements to that effect were inserted in the papers, but several difficulties occurred to prevent this course from being carried out. Since that time, it appears to be generally acknowledged, that such of the works as are required for the maintenance of the navigation should be kept up, and expenditure thereon has, from time to time, been sanctioned, and partial appropriations have been occasionally made for them by the Legislature.

The works of this class are:—The Dam at Crooks', by which Rice Lake is kept up to a navigable height, and the navigation is extended to Whittas Rapids, a length of 38 miles.

The Lock and Dam at Whittas, which keep up the water for navigation through to Peterborough, a distance of $1\frac{1}{2}$ miles.

The Lock and Dam at Bobcaygean, by which the navigation from the Portage-landing on Mud Lake, 7 miles north of Peterborough, to Cameron's Falls, in the Township of Fenelon would be established, a distance of 33 miles. This Lock is now in ruin.

The Dam at Buckhorn, by which 24 miles in extent are rendered navigable, and—

The Lock at Lindsay, called the Scugog Lock, which opens a navigation from the head of Lake Scugog to Bobcaygean, a distance of 50 miles.

An appropriation was made last Session, for the repairs of Scugog Lock and Dam, the partial clearing of the Scugog river below the Lock, the repair of Buckhorn Dam, and the renewal of the Lock and Dam at Bobcaygean, but, on a more particular examination of the state of the latter works, it was found that much more was required than could be effected for the amount available towards it.

The Report of Mr. Ranney the Superintendent (see Appendix letter E), will shew the works that have been executed during the past year. In it is also given a description of each work, the amount expended, and the work which he considers absolutely necessary to be done, when the water falls during the present season; but it will be seen from this Report that the expenditure and work contemplated by Mr. Ranney, are confined wholly to the passing of timber, and do not include what is necessary to render efficient the extent of navigation above detailed.

Shortly after the prorogation of the House, last year, Mr. Rigney, who has much practical experience in such works, received instructions to examine and report on the state of the navigation, and to furnish an estimate of what he considered necessary to put them into a permanent state of efficiency. (For this Report see Appendix letter F.) It appears from it that he estimates the cost of making the navigation really and permanently effective at £12,600. Some of

the prices appear, at first glance, to be high, but when the great rise in the rates of materials and labor, and the difficulty of procuring laborers at any price, are taken into consideration, the estimate may be regarded as a just one, especially as a good deal of difficulty from water may be anticipated during the execution of the work.

The balance of former appropriations remaining amounts to £3250 18s. 1d., leaving the sum of £9249 1s. 11d., to be voted for the completion of this navigation.

This expenditure appears, to the undersigned, to be fully justified when the great extent of good navigation to be made available by it is taken into account, as well as the facilities and encouragement it would afford towards the settling of several new Townships bordering on it. Very fine Saw and Grist Mills have been constructed by Mr. Wallis and others, and a considerable number of inhabitants have been induced to settle in that section of the Province, in expectation of this improvement being carried out. Moreover, the two lines of Railway now being constructed from the waters of Lake Ontario to this chain of internal Lakes; furnish additional reasons why the navigation connecting them should be perfected.

The second class of Trent Works viz: those required solely for the passing of timber, &c., comprises all the works of Slides and Booms at Hceley's Falls, Crow Bay Boom, Booms and Slides at the Middle Falls, Works at Fiddlers' Island, Boom at Seymour Bridge, Booms and Slides at Ranney's Falls, Percy Boom, excavation and other works at Eel Weir Shoal, Chisholm's Rapids, and Nine Mile Rapids. The annual expenditure on the whole of these, in 1853, was £2184 17s 5d., and the Revenue £1180 6s.

The undersigned are of opinion, that the whole of the works included under this 2nd head should be handed over to the respective Municipalities, or to such other Corporations as would be willing to take charge of them; but that, in any case, public expenditure on them should cease.

Port Stanley.

The Piers are carried out to the full extent provided for, and the work of excavating the inner Basin is progressing. For further details, (see Report of Engineer, Appendix, Letter G.)

Burlington Bay Canal.

Notwithstanding the settlement which has taken place in one of the Piers, as stated in the last Report, no obstruction to the navigation has occurred during the past year.

From the increased dimensions of the Steam Vessels now in course of construction, and which are to ply through this Canal, it will be necessary to construct strong fenders at the ends of the Piers in the inner Bay, and a portion of the North West Pier, which has been affected by the ice, must be protected against being carried further into the Channel.

The Ferry Scow, by which the communication across the entrance maintained, received considerable damage by a storm, and during its repair, a good deal of inconvenience was suffered. The undersigned are of opinion that, as it will not be possible altogether to prevent a recurrence of such annoyance, unless a second Scow is kept on hand, and safely moored in a convenient position, one should be provided. The breadth of the Canal prevents the adoption of a Swing or other Bridge in one Span; and the large number of vessels now navigating it, forbids the placing of a centre Pier, which would be otherwise highly objectionable from the deposit in the channel which it would certainly create.

Some of the Captains of large Steamers on the Hamilton line, men of experience, and well acquainted with the passage through the Canal in bad weather,

strongly advocate the extension of the South East Pier, in the Main Lake, for about 800 feet, giving it a slight inclination towards the northward, by which they contend that the entrance to the Canal would be made more easy and safe; and the undersigned are inclined to concur with them, as to the effects such extension would have.

Roads and Bridges.

On reference to the statement No. 2, of the report, it will be seen that the works of all the Roads and Bridges in Canada West, constructed at Public expense, and remaining under the control of this Department at the date of the last Report, have since been disposed of.

A similar course is to be adopted with regard to those in Canada East, and would have been carried out, but for the necessity of an alteration in the law, to render it legal. The matter is now in the hands of the Law Officers.

Piers below Quebec.

The two Piers on the North side of the River, viz : at Les Eboulements and Mal-Baie, are finished in a satisfactorily and workmanlike manner. On both of them, this Department received authority to incur some expenditure, (not originally contemplated,) towards rendering them more secure and convenient.

On the South side, the Pier at Berthier has been completed. That at L'Islet is considerably advanced. It has been carried out beyond the extent at first contracted for, and now terminates in a depth of 9½ feet water at low tide. The extensive shoals which exist for many miles at this part of the River, forbid a greater depth being had, unless by running out the Pier to such an extent as would endanger its safety. The addition of a cross head at the termination of this Pier, with a landing slip, is necessary; and the removal of a few boulders will render access to it safe and facile.

The work of the Piers at Pointe aux Orignaux, and at Rivière du Loup are far advanced, and it is hoped will be completed before winter.

These Piers also it has been found necessary to extend beyond what was originally provided for, steamers are already regularly established on the River, touching at these Piers, and the inhabitants of the respective localities are fully alive to the important tendency they will have towards opening up the country and facilitating the communication with this city. A considerable passenger trade and traffic in the productions of the country is already created, which no doubt, will increase rapidly, and in proportion to the facilities offered to it.

The works of the Rimouski Pier, after having made but very slow progress for a considerable time, have been transferred to the Contractor for the other Piers, and they are now proceeding satisfactorily.

As stated in the last Report, the undersigned are of opinion, that more Piers, besides those now built or in progress of construction, are necessary; some of which may be so situated as to combine the advantages of coaling depots and asylums for Atlantic vessels, and tug steamboats, with those of a more local character. The localities under consideration for these additional works are St. Michael, Bic, Mitis, and Anticosti.

Lights below Quebec.

Since the date of the last Report, this Department received authority to enter into contract, with Mr. Baby, for the erection of the following Light-Houses. One at Cap Rosier, one at the West point of Anticosti, one on Wood Island near the West end of the Strait of Belleisle, and one on Belleisle Island, at the eastern entrance of that Strait. Prior to the commencement of the works, the Engineer

to the Department was sent down, with some of the most intelligent of the Pilots, in order to fix on the precise site for each ; in which important duty, they had the further advantage of the opinions of Admiral Boxer and Captain Bayfield. The chief reasons which induced the undersigned to recommend that this course should be taken, were, the satisfactory manner in which Mr. Baby's previous contracts were performed ; and the fact of his being the proprietor of the Tug line below Quebec, and having, therefore, the command of vessels at all times, for the transport of men, materials, provisions, &c., to those distant and uninhabited (with the exception of Cap Rosier) positions, is a guarantee, to a great extent, for the uninterrupted progress of the works.

A strong force of mechanics and laborers has been sent down, with a large amount of provisions, materials, &c., and every exertion will be made to get up the foundations well, and to have the houses for the keepers built before winter, so that those houses may serve for accommodation for the men, immediately on the breaking up of the ice next spring ; by which means the towers may be completed as soon as the Lighting apparatus can be had. The latter is to be of the catadioptric description, (from the patentees in Paris,) now so much approved of and extensively adopted. For further details on these works see report of Engineer, appendix Letter H.

Public Buildings.

Under this head, the principal points upon which the undersigned have to touch, are,—first, the disastrous burning of the Parliament House in this City, as well as of the building which was in course of being fitted up for the temporary purpose of the Legislature, until provision had been made by that body for the necessary permanent buildings.

Great as the loss has been to the Province, it is gratifying to find that, from careful investigation into the causes of these fires, there would appear to be no grounds for believing them to be otherwise than purely accidental. In the arrangements made for the present Session of the Parliament, there was little room left for choice ; and they have been governed by the closest economy compatible with the indispensable accommodation required.

The second point to which it is considered necessary to refer, is that connected with the contemplated Governor's Residence, Public Offices, and Parliament Buildings, in the City of Toronto, towards which the sum of £60,000 had been appropriated. When this amount was first named, the plans and estimates had not been prepared, nor had the great increase in the number of members been fixed on. Prior to proceeding with the buildings, the undersigned considered it their duty to procure from the Architect, and to lay before the Governor in Council, estimates shewing the full cost involved in the carrying out of these plans, and from the great excess of the estimates thus furnished over the appropriation, (nearly fourfold,) and the near approach of the Session, it was deemed expedient to submit the subject to, and await the decision of Parliament.

Since the date of the last Report, the new Post Offices in Toronto and Montreal have been completed, and that at Hamilton is in course of erection.

The new wing to the Montreal Gaol has been completed, and the means for the safe and healthful keeping of the prisoners have been materially increased thereby : but the undersigned again beg to repeat their recommendation for the building of the surrounding walls, and of the day-rooms so much required.

The works of the Montreal Court House have been retarded by the great difficulty of procuring laborers, and by the prevalence of disease ; causes which have operated detrimentally during the past season on all the public works. All the works of joining, plastering, painting, &c., are contracted for, and every exertion is being made to render the Building available as soon as possible.

The Gaol of this City is, as stated in former Reports, almost totally devoid of classification, ventilation, airing-yards, work-rooms, &c., &c.; and is, of course, unsuitable for the purpose to which it is devoted. To the exertions and care of its proper officers is to be attributed solely its present cleanly and safe state.

The Court House has been materially improved, in several respects, by a moderate outlay, and will meet the requirements of the Bar, and of the Officers connected with the administration of justice, for some years to come.

Post Office, Quebec.

For this Building a suitable lot of ground has been purchased, but as full possession of it could not be had until very lately, the erection of the Building has been necessarily postponed, steps are now being taking to have the plans matured and the work contracted for so as to allow of the materials being prepared so soon as a suitable appropriation is made for the purpose.

Custom-House, Quebec.

A site has also been purchased for this Building, but it was limited by the insufficiency of the appropriation. The undersigned are of opinion that the extent of it should be commensurate with the wants of this, the most important Port of Entry of Canada, and that in addition to the service connected with the Customs directly, it should afford accommodation to the Trinity House, Revenue Police, &c., &c., that it should have a frontage to the River and direct and facile approaches from the water, and that the lot should be of sufficient extent to admit of the erection of bonding warehouses, all of which can be had reasonably, immediately adjoining the lot already procured, the work was therefore postponed until a sufficient appropriation for these purposes should be made.

The erection of the second wing to the Marine Hospital has been contracted for at very low prices, and but little progress has yet been made with it. Some improvement has been made in the drainage, sewerage, &c., but much remains to be done to complete the premises as they ought to be. The enclosing wall and railing is nearly finished.

Upon the other Public Buildings little or no expenditure has taken place beyond the cost of ordinary repairs.

In the foregoing, the undersigned have endeavored to give as concise a view as possible of the state of the several works, and public Buildings entrusted to their charge; and they hope that, taken in connection with the several Reports, Statements &c., in the Appendix, it will be found to afford all the necessary information.

Since the date of the last Report, many highly important changes, as the undersigned believe likely, to affect the trade and prosperity of the Province more extensively, and beneficially, (if suitable provisions are duly made) have not only been proposed but are on the eve of being carried out. Reference is particularly made to the Reciprocity Treaty, and the opening of the St. Lawrence to our neighbors of the United States, but, in order that the full benefits may be had from these measures, and that the course of Trade, which it is in our power to secure, may not be diverted from those natural channels which should be the legitimate and certain sources of considerable revenue to us, works of no ordinary extent are indispensable,—amongst the foremost of which are the enlarging of the Welland Canal, or rather the giving to it a second tier of Locks, of increased dimensions, in such a course as may be found most advisable; and also the connecting of the waters of the St. Lawrence by Canal, with those of Lake Champlain. The undersigned do not consider it necessary to urge the importance of the latter again upon the attention of the Public, further, than referring to the

last Report of this Department, pages 31 to 38 inclusive ; and by stating their opinion that, strong as the reasons then were for embarking in that work, they are infinitely enforced by the prospect of the results which may be had from the proposed Treaty and opening of the St. Lawrence. In accordance with the desire of the Legislature, a general Survey is now being made, the direction of which has been entrusted to Mr. Jervis, a gentleman of high standing in the States as an Engineer. The object of this Survey is to enable him to furnish a satisfactory report as to the termini of the proposed Canal, and the route it should take. As much local and interested feeling has been exhibited on these points, it was considered desirable to obtain the opinion of a gentleman not only of recognized ability and judgment, but also devoid of all bias or prejudice in the matter.

With regard to the Welland Canal, the great detention to vessels experienced latterly from its crowded state, sufficiently indicate the necessity for adding to its capability.

Ocean Steamers.

In the last report of this Department, submitted to the Legislature, it was stated that a contract, dated 13th August, 1853, had been entered into (subject to the approval of the Legislature), with a Liverpool Firm, for the establishment of a line of steamers between the Port of Liverpool and the Cities of Quebec and Montreal, during the season of navigating the St. Lawrence, and between the Port of Liverpool and Portland, during the winter.

By the terms of this contract, the firm adverted to covenanted to establish and maintain a regular line of large and powerful Screw Steamers, to ply between Liverpool and Quebec and Montreal once a fortnight during the season for navigating the river St. Lawrence, and once a month during the winter, between the Ports of Liverpool and Portland. Those steamers should be of not less than 1200 tons, Carpenters measurement, and 300 horse power, and their dimensions, draft, and running speed should be as following :—

Length of Keel.....	230 feet.
Breadth.....	34 feet.
Depth moulded.....	19 feet.
Depth of hold.....	18 feet.
Draft of water, loaded.....	16 feet.
Draft of water with 13 days fuel consumed.....	13 feet 6 inches.
Draft of water with 13 days fuel consumed, and 300 tons cargo landed at Quebec.....	11 feet.

By the contract it was also provided that there should be furnished for this service not fewer than five good vessels of the power and capacity above mentioned, for the fortnightly line during the season of navigation of the river St. Lawrence, and not fewer than three similar vessels, during the winter season, for the monthly trips to Portland.

These steamers were to have accommodations for first and second class passengers, equal to those of any of the present Atlantic Screw steamers ; as well as superior accommodation in the between decks, for emigrants and third class passengers.

The vessels were to be capable of stowing 1000 tons measurement of cargo, besides coals in bunkers, for 24 days consumption.

The passenger and freight rates were also particularly specified, and the time occupied by the steamers on the outward passage from England was not to exceed in a yearly average 14 days, and on the homeward passage 13 days.

The annual service between Liverpool and Quebec and Montreal, was to comprise 14 trips, one trip being understood to be from Liverpool and back ; and

the service between Liverpool and Portland was to comprise five trips, from Liverpool to Portland and back.

The steamers as described herein, were to be ready, and to commence their regular fortnightly trips, on or before the first of May, 1854, and a sufficient number of such vessels to be ready, and in fact to commence the monthly trips, in the Spring of the year 1853.

Several other conditions, which it is not necessary here to recapitulate, were embraced in the Contract, relative to the carrying of the mail, books, pamphlets, free distribution of them, exemption from the payment of light and other Provincial dues in the River St. Lawrence, &c.

The contract was to continue for seven years from the commencement of the service.

For the performance of the foregoing service, the Province of Canada was to pay the Contractors at the rate of £1238 1s. 11d. stg., for each fortnightly trip from Liverpool to Quebec and Montreal, and back to Liverpool, of which 14 such trips were to be made annually, as soon as the five steamers should be established as above stated; and, for each monthly trip from Liverpool to Portland and back, the St. Lawrence and Atlantic Railway Co., and City of Portland, were to pay the sum of £336 6s. 8d. sterling.

It was further provided that in case the Contractors had not the required number of vessels built or ready, in the spring of the year 1853, to make the fortnightly trips, they bound and obliged themselves to have a sufficient number of vessels to make monthly trips between Liverpool and Quebec and Montreal, until the required number should be ready to establish the regular fortnightly line, which was not to be later than the opening of the navigation in the year 1854; and for such time as such monthly line should be continued, the Contractors were to be paid the sum of £1333 6s. 6d. per trip.

For the due fulfilment of the contract, the several partners were jointly and severally bound in the sum of £10,000 stg.

The undersigned have to express deep regret that the conditions of this contract have been carried out in no one particular, as will appear from the following.

The vessels were to be, of not less than 1200 tons measurement, 300 horse power, to perform the outward trip on an average in 14 days, and the homeward trip in 13 days-

Between Liverpool and Quebec and Montreal, they were bound, at least, to make monthly trips during the navigation of the St. Lawrence in the year 1853: but, from the opening of the navigation in 1854 they were fully bound to be prepared in all respects to make their fortnightly trips between these Ports.

In 1853 the following vessels were sent out.

	Tons.	Horse Power.
The <i>Genova</i>	700	160.
The <i>Lady Eglington</i>	600	160.
The <i>Sarah Sands</i>	1200	150.

There were fully seven months of open and ordinary free navigation in 1853, and the contractors by their engagement should have made at least seven trips. There were but five made.

The average outward passage was to be 14 days, that of the homeward 13 days.

The *Genova* averaged 20 days out, 15 days home.

The *Lady Eglington* 14 days out, 12 days home.

The *Sarah Sands* 22 days out, 18 days home.

In the performance of the service to Portland, the contractors equally failed in the year 1853.

With regard to the rates of freight to which the Contractors are bound, on reference to their advertisements in the several newspapers it will be seen that they demand 80s. per ton, whereas the contract specifies that it shall not exceed 60s. : they therefore either abandon their contract, or act illegally in exacting 80s. per ton.

The undersigned have but little reason to hope that the service for this year will be much more satisfactorily performed than it has been during the preceding year ; they are aware, that the number and class of vessels which the Contractors had fully bound themselves to have ready, on the opening of the navigation, has not yet been provided, although ample time has elapsed since the 13th of August, 1852, to have had them built. The *Cleopatra* left Liverpool for Quebec and Montreal on the 11th of April, and reached Quebec on the 24th of May. The quantity and the lateness of the ice in the Gulf has been presented to explain the late appearance of the *Cleopatra* ; but, as early as the 10th May, a ship under sail had made the passage to Quebec, and on the 24th when the *Cleopatra* came into port, she found 50 sail already at anchor before her.

The next vessel of this line that left Liverpool this season was the *Ottawa*, of 910 tons and 200 horse-power, which cleared from Liverpool for Quebec on the 25th of April, and did not arrive at the latter city at all. This violation of the contract is thus explained :—that finding ice in the Gulf she had put into Portland, discharged her Quebec and Montreal cargo there, which was forwarded to its respective destinations by means of the Atlantic and St. Lawrence Railway to Montreal, and thence down the river to Quebec, and that she then took in a return cargo at Portland for Liverpool.

The *Charity* of 1007 tons, and 400 horse-power, was the next vessel on the line. She left Liverpool on the 10th of May, and arrived in Quebec on the 7th of June,—thus making the passage in 27 days. This vessel as well as the *Cleopatra* which arrived on the 24th of May, and was advertised to have sailed several days ago, is still in the St. Lawrence.

It is understood that the *Sarah Sands* left Liverpool for Quebec on the 25th of May so that she is now due here. The Contractors through their agents at Liverpool, had given assurance that this vessel against which public opinion was strongly expressed last year, should not again be placed on the line.

Under the circumstances detailed in the foregoing, and deeply impressed with the importance of the establishment of a truly effective and direct line of steamers between Great Britain and this Colony, and also with the necessity of removing from the public mind the injurious impression and doubts as to the possibility of establishing such a line, which the course taken by the Contractors hitherto has tended strongly to create, the undersigned are of opinion that one of two courses must be adopted, namely : either to cancel the present contract if one really exists, or to call upon the Contractor, at once, to satisfy the Government fully, that they have made such arrangements as will henceforth insure, without further delay or disappointment, such number and class of vessels being placed on the line, as will be capable of performing the service in a manner that will meet the wants of the country, and the views of the Legislature in sanctioning the expenditure.

The undersigned are of opinion that, to meet these wants fully, and so that the anticipated benefits from direct steam communication between this Colony and England may be realised, it is necessary that the line should be a weekly one, during the season of navigation of the St. Lawrence. Such a line would draw to this route a traffic of great importance, extending through a vast tract of country from the far West of the American continent ; and it would also tend importantly to the lowering of freight to and from Canada. It would be difficult, in fact, to define limits to the benefits which such a business would diffuse through the channels of Industry in this Country.

From the fact of several suitable first class Steam Vessels, owned by enterprising men in this Province, being now on the stocks, and well advanced, the undersigned are disposed to believe that a weekly line might be established without much delay, by not confining it to the parties connected with the present line; but it is to be observed that the Canadian Ocean Steamers are under the disadvantage of having opposed to them two other lines from this continent to Europe, each of which is heavily subsidized by its respective Government; and, of course, it would be necessary to give such encouragement to the former as would enable it successfully to compete with its rivals.

Tug-Boats on the St. Lawrence.

The insufficient manner in which the towing of vessels between Lachine and Kingston, was performed under the first contract, being loudly complained of, and the necessity, for making such arrangements as would insure the performance of this service more satisfactory, strongly urged, the undersigned, after advertising for tenders, to accept that of Mr. Maxwell; by whom, accordingly, the required number of vessels was placed on the respective stations.

In entering into this Contract, the undersigned availed themselves of the experience of the past, and endeavored to embody such conditions in it, as would secure its being carried out to the satisfaction of the Trade; but, after some time, finding strong dissatisfaction to exist still, and complaints made that those conditions were not fulfilled, it was considered indispensable to have an Officer appointed whose sole duty would be to look to the regular departures and arrivals of the Tug-Vessels; to see that they were suitably equipped; and, in all cases where the time specified was not duly kept, to make a return of the fine to which the Contractor was subjected therefor, under the terms of his contract. The amount of such fines, according to the Superintendent, is very great; and a copy of his return has been given to the Contractor, in order that he may have an opportunity of stating his reasons why the whole, or any portion, should not be levied, on receipt of which a decision will be come to.

Under this contract, the Department had the option of advancing to the Contractor a sum of money to enable him to build new boats of a more powerful and suitable class: but, taking into consideration the unsatisfactory performance of the service hitherto, and that the opening of the St. Lawrence to the Americans will so much increase the number of vessels to be towed, as to render the business of towing certain, extensive, and profitable, the undersigned do not deem it expedient to make the advance adverted to.

Rapids of the St. Lawrence.

Under this head, in the last report of this Department, it was stated that a further examination was then being made, and that, although not completed, it was so far advanced as to enable the Engineer of the Department to make an *ad interim* report, which was accompanied by an estimate, from which it appeared that the contemplated improvement could be had at a cost of £30,000. This sum was, accordingly, inserted in the general estimate, and appropriated.

From the very difficult and hazardous nature of the work, and the obvious impropriety of embarking in it, without some degree of certainty of having it performed within a reasonable approximation to the amount appropriated, the undersigned considered that the safest course to take, was, to advertise it, and call for tenders for the obtaining and marking out a channel such as was contemplated, (namely, one of 200 feet wide, and of a depth suitable to vessels drawing 10 feet water; throughout, from Prescott to Lachine), the tenders to state a bulk sum for which it was proposed to perform the work. The attention of Messrs. Mailléfert & Raasloff, Submarine Engineers, was thus directed to the subject.

These gentlemen had acquired considerable celebrity by their services in the improvement of one of the channels to the Port of New York ; but, although anxious to embark in the project, they were not satisfied that sufficient data had yet been established to enable them to do so with prudence, or to shew what amount of work had to be performed, or the nature of it. Arrangements have, accordingly, been made with these parties, who are now engaged in a most minute and practical examination of the Rapids. From the charts that they have already prepared, much information on these important points has been obtained, and, when completed, their examination will determine the real amount of expenditure involved in the undertaking.

Should it end in those gentlemen undertaking the work, but little compensation for the survey is to be made to them, beyond their expenses. On the other hand, should the results of the examination shew that it would be injudicious to proceed further, or that other parties were selected to do the work, in either of those cases they are to be paid such sum for their professional services as may appear reasonable.

In consequence of the want of any Piers or Wharves from the head of the Côteau Rapids to the foot of the Cascades Rapids, at which steamers could be brought up and attached, it frequently happens that the mail and other boats are stopped at the Côteau, lest they should be caught by darkness in their descent. The points at which such piers are most wanted are, one at Beaudet's, on the main shore, at the foot of the Côteau Rapids, another at Rousseau's, about three quarters of a mile above the Cedars, a third at Borro Hays's bay, below the foot of the Cedars, and another some distance below the village of Caughnawaga in a light about one mile above Lachine Rapids. It is proposed that these should be built this year.

The importance of every improvement, having for its object the rendering of the navigation from the Western Lakes to the sea safe and facile, is becoming every day more obviously paramount. As conducive to this highly desirable end, the expediency of entering into engagements to insure the advantage of tugging to such vessels as might require it, and to afford assistance to those in distress below Quebec, was represented by this Department and under authority therefor, a contract was made with Mr. Baby, who has accordingly had three vessels on this service during the season. Under the provisions of this contract, he is bound to have built and on the line by the first of August next, two other powerful vessels.

A system of continuous tugging is, therefore, now established from the Gulf to Kingston ; which, with the large number of additional Light Houses either built or in course of construction, will materially tend to facilitate the navigation of the Gulf and River. If to these improvements may be added that of the Rapids, the increasing the capability of the Welland Canal, and the connecting the waters of the St. Lawrence with those of Lake Champlain, by a suitable Canal, as already recommended in the Report, it appears to the undersigned certain, that this route must, beyond doubt, command its full and remunerative share of the present and vastly increasing trade from the West to the New England States, the West Indies, and Europe.

All the foregoing respectfully submitted. J. CHABOT,

Chief Commissioner.

HAMILTON H. KILLALY,

Assistant Commissioner.

To the Appendix, accompanying this Report, is added a copy of the instructions furnished to Mr. Jervis in relation to the Survey of the St. Lawrence and Champlain Canal, dated 12th August last, I. Also a statement of the upward and downward movement in Tons on the St. Lawrence Canals up to 31st July, in the years 1853 and 1854 respectively, K. both these amounts were furnished after the Report was written.

STATEMENT No. 1.

STATEMENT of the Works of Canada under the charge of the Department of Public Works, which yield Revenue, shewing the cost of the construction thereof, under that Department to 1st January, 1854, the Expenditure for the years 1852 and 1853, also the cost incurred for Repairs and Management.

WORKS.	Cost of construction to 1st January, 1854.		Expenditure in 1852, included in foregoing column.		Expenditure in 1853, included in foregoing column.		Cost of Repairs and Management in 1852.		Cost of Repairs and Management in 1853.	
	£	s. d.	£	s. d.	£	s. d.	£	s. d.	£	s. d.
<i>Canals.</i>										
Welland.....	1019610	6 6	23688	3 3	10129	18 1	14200	13 4	21925	0 5
<i>St. Lawrence.</i>										
General Expenditure.	12485	11 6	1076	5 0	958	5 10	11160	4 3	11557	18 5
Williamsburg.....	262094	18 9	3812	2 4	5364	12 11	.....	.....	.....	.....
Cornwall.....	100777	3 6	2918	16 11	3180	10 3	.....	.....	.....	.....
Beauharnois.....	343451	18 9	5161	12 1	5943	6 11	.....	.....	.....	.....
Lachine.....	460258	18 8	23610	15 4	33547	2 0	.....	.....	.....	.....
Junction.....	17557	11 1	12379	6 10	5178	4 3	.....	.....	.....	.....
Chats.....	653	6 7	.....	.....	653	6 7	.....	.....	.....	.....
Chambly.....	16863	6 3	.....	.....	.....	.....	2108	7 11	1412	0 8
St. Ours.....	37808	6 3	1013	4 5	656	12 11	264	10 6	301	13 8
Burlington Bay.....	50956	14 3	.....	.....	.....	.....	1336	18 0	8	2 6
St. Ann's.....	22762	15 2	38	16 1	.....	.....	125	6 10	189	15 3
<i>Slides, &c.</i>										
Ottawa.....	94371	14 11	5720	15 4	5320	18 2	2190	13 4	1553	19 10
Trent and Newcastle.	76760	9 7	700	0 0	1649	1 11	1935	12 6	2568	7 5
St. Maurice.....	23019	14 1	10326	2 8	12159	1 5	.....	.....	.....	.....
<i>Harbor.</i>										
Port Stanley.....	29094	4 10	3016	3 4	4952	8 10	.....	.....	.....	.....
<i>Bridges.</i>										
Bytown.....	16612	3 11	.....	.....	.....	.....	.....	.....	.....	.....
	2855139	4 7	93462	3 7	94693	10 1	33322	4 8	39516	18 9

STATEMENT No. 2.

STATEMENT of the Works of Canada, under the charge of the Department of Public Works, from which no Revenue is derived, shewing the Amount expended thereon by that Department during the years 1852 and 1853, and the total Amount expended to 1st January, 1854.

WORKS.	Amount expended previous to 1st January, 1852.			Amount expended during the year 1852.			Amount expended during the year 1853.			Total Amount.			How disposed of and when.
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	
Public Buildings.....	10679	19	2	8134	16	0	3917	13	1	17732	8	3	
<i>Toronto.</i>													
Parliament House.....	16563	2	0	522	15	0	410	15	5	17496	12	5	
Government House, and Elmsley Villa.....													
Post Office.....	1719	7	4	1093	18	3	774	2	9	3587	8	4	
<i>Montreal.</i>													
Court House.....	4241	18	0	12642	3	6	8184	0	1	32067	11	7	
Gaol.....	664	10		1420	1	6	1794	14	5	3879	5	11	
Monklands.....	11222	10	11	325	0	0	325	0	0	11872	10	11	
Post Office.....							1347	3	0	1347	3	0	
<i>Quebec.</i>													
Post Office.....							4003	14	1	4003	14	1	
Château St. Louis.....	1518	18	6	1720	2	6	105	14	11	3344	15	11	
St. Georges.....	1413	1	6	1276	1	8	220	8	5	2909	11	7	
Parliament Buildings.....	9569	8	9	16031	18	5	2116	11	1	27717	18	6	
Spencer Wood.....	4925	16	0	14360	8	5	4339	16	4	23616	0	9	
Marine Hospital.....	189	11	0	117	16	7	688	0	3	995	7	10	
Custom House.....							3000	0	0	3000	0	0	
<i>Gaols and Court Houses.</i>													
Aylmer.....	1918	9	4	3058	14	10	909	12	7	3886	16	9	
Kamouraska.....	2214	12	0							2214	12	0	
General Expenditure.....	7023	9	3	21	5	10				7044	15	1	
Quebec Court House.....				800	0	8	2823	15	4	3623	16	0	
Quebec Gaol.....				300	6	8	12	8	0	312	14	8	
<i>St. Lawrence.</i>													
Towage.....	4500	0	0				4100	0	0	8600	0	0	
Landing Piers.....	271	15	3	12333	2	1	61402	14	11	74007	12	3	
Emigration.....				158	10	0				158	10	0	
Sheds.....	33993	5	11							33993	5	11	
Grosse Isle.....	6020	8	1	905	6	5	332	5	1	7257	19	7	
Arbitration.....	18859	9	8	3704	15	9	9090	13	10	31654	19	3	
Surveys.....	1828	2	11	641	2	3	123	0	0	2592	5	2	
<i>Removals.</i>													
To Toronto.....	7510	5	7	36	9	2				7546	14	9	
To Quebec.....	8714	9	5	2436	18	9	8	15	0	11160	3	2	
<i>Light Houses.</i>													
Inland.....	12741	15	0	850	18	2	4444	13	9	18037	6	11	
<i>Roads.</i>													
Bradford and Barrie.....													
Bradford and Bond Head.....													
Bond Head and Barrie.....	14821	7	5				15	8	11	14821	7	5	
Barrie and Penetanguishine.....													
Cold Water Portage.....													
Amherstburg and Sandwich.....	962	8	2							962	8	2	
L'Original and Bytown.....	5537	17	9	351	2	3				5939	0	0	

Proclamation,
17 June, 1853.

No. 2.—STATEMENT of the Works of Canada, &c.—(Continued.)

WORKS.	Amount expended previous to 1st January, 1852.	Amount expended during the year 1852.	Amount expended during the year 1853.	Total Amount.	How disposed of and when.	
<i>Roads.—Continued.</i>						
	£ s. d.	£ s. d.	£ s. d.	£ s. d.		
Bytown and Pembroke.....	144 10 3			144 10 3	} Proclamation 17 June, 1853.	
Prescott and Ottawa.....	400 0 0	482 13 6	100 0 0	982 13 6		
Kingston and Ottawa.....	1084 9 1	255 8 0	160 2 11	1500 0 0		
Peterboro' and Norwood.....	327 0 7			327 0 7		
Peterboro' and Lindsay.....	250 0 0			250 0 0		
Cornwall and L'Original.....	895 8 7			895 8 7		
Lancaster.....	2823 16 6			2823 16 6		
Notawasaga.....	995 8 11			1000 0 0		
Owen's Sound.....	5527 15 4			5527 15 4		
Tecumseth.....	1055 15 9			1055 15 9		
St. Athanase.....	10017 19 6			10017 19 6		
Stanstead.....	5782 0 6	105 17 0		5887 17 6		
Granby to Province Line.....	11177 7 3			11177 7 3		
Waterloo and Sherbrook.....	480 0 0			480 0 0		
Trent Slide and Drawbridge.....		1250 0 0		1250 0 0		
Arthabaska.....	15887 12 2	10 10 0		15898 2 2		
Gosford.....	11111 2 3			11111 2 3		
Kemp.....	158 1 0			158 1 0		
Kennebec.....	3255 10 8			3255 10 8		
Temiscouta.....	1032 14 7			1032 14 7		
Gaspé.....	25083 16 5			25083 16 5		
Des Caps.....	2826 9 0	673 11 0		8500 0 0		
Metis and Matanne.....	1588 14 2	448 9 1		2036 19 3		
Rondeau.....	2354 19 3			2343 19 3		
Chatham and Amherstburg.....			53 13 11	53 13 11		} do.
<i>Bridges.</i>						
Shannonville.....	300 0 0			300 0 0	} do.	
Winchester.....	300 0 0			300 0 0		
Melbourne.....	5753 16 0	47 1 8	6 6 11	5807 4 7		
Jacques Cartier.....	4102 6 11		79 11 8	4181 18 7		
St. Maurice.....	17209 16 10		175 10 0	17385 6 10		
Ste. Anne de la Parade.....	6979 17 4			6979 17 4		
Batiscan.....	7884 4 0			7884 4 0		
Châteauguay.....	1910 0 5			1910 0 5		
Nicolet.....	4484 16 11		1 13 6	4486 10 5		
Godfroi.....	1829 11 5			1829 11 5		
Becancour.....	1870 9 3			1870 9 3		
Riviere du Chêne.....	1646 18 9			1646 18 9		
Etchemin.....	1776 19 2			1776 19 2		
Bayonne.....	1257 8 8			1257 8 8		
Rock Island.....	Included in Road.					
Gananoque.....	1005 2 7			1005 2 7		} do.
Memphremagog.....	260 0 0			260 0 0		
Peterboro'.....						} do.
Rideau.....						
Chaudière.....		1 9 8	1 1 7	2 11 3		
<i>Miscellaneous.</i>						
Lake St. Peter.....		2 1 7	200 15 0	202 16 7		
School of Navigation.....		150 0 0	832 9 4	982 9 4		
Water Police.....		118 7 6		118 7 6		
Sale of Public Works.....		71 2 11	7 5 10	78 8 9		
Atlantic Steamers.....		133 13 1		133 13 1		
Montreal & Kingston Railroad.....		1616 10 10	1564 19 1	3181 9 11		
Survey Sault Ste. Marie.....		414 3 2	140 3 0	554 6 2		

No. 2.—STATEMENT of the Works of Canada, &c.—(Continued.)

WORKS.	Amount expend- ed previous to 1st January, 1853.	Amount expend- ed during the year 1852.	Amount expend- ed during the year 1853.	Total Amount.	How dispos- ed of and when.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	
<i>Miscellaneous—(Continued.)</i>					
Simcoe & Lake Huron Railroad		100 0 0		100 0 0	
Quebec Observatory		23 6 8	28 6 9	51 13 5	
Montreal High School		4500 0 0	80 0 0	4580 0 0	
Trent Bridge repairs		5 0 0		5 0 0	
Geological Museum			380 18 10	380 18 10	
Shipping Master's Office			42 0 4	42 0 4	
Hamilton Post Office			2000 0 0	2000 0 0	
Boundary Survey between Canada and New Brun- swick			3894 3 2	3894 3 2	
St. Lawrence to New Brunswick			809 3 9	809 3 9	
Coteau and Cornwall Road			3206 19 4	3206 19 4	
Château Garden Wall			550 16 11	550 16 11	
Cornwall Canal Debentures		31 6 9		31 6 9	
Plans, Admiralty			100 0 0	100 0 0	
Repairs, Customs' Wharf			497 3 1	497 3 1	
Chambly Canal Claims			120 0 0	120 0 0	

STATEMENT of the Expenditure made by the Department of Public Works, during the years 1852 and 1853, on the Provincial Light Houses connected with the Inland Navigation.

NAME OF LIGHT.	EXPENDED IN 1852.			EXPENDED IN 1853.			Total.		
	SALARIES.		SUPPLIES, &c.		SALARIES.			SUPPLIES, &c.	
	£	s. d.	£	s. d.	£	s. d.		£	s. d.
1 Goderich	48	15 0	48	15 0	81	5 0	162	3 6	
2 River Thames	65	0 0	65	0 0	65	0 0	142	15 3	
3 Bois Blanc	87	10 0	22	10 0	46	5 0	120	6 6	
4 Pelée Island	87	10 0	117	1 0	87	10 0	192	12 3	
5 James Cunningham	87	10 0	22	17 6	85	0 0	170	13 3	
6 Long Point	168	15 0	0	6 6	135	0 0	201	18 6	
7 Moses Newkirk	60	0 0	0	5 0	50	0 0	103	7 6	
8 Peter Baikié	19	0 0	0	6 6	27	7 1	27	7 1	
9 Port Burwell	87	10 0	137	11 6	87	10 0	200	16 4	
10 Richard Smith	0	5 0	0	5 0	0	5 0	0	5 0	
11 John Burgess	87	15 0	87	15 0	43	6 8	146	14 5	
12 James Fortier	87	10 0	137	11 6	43	6 8	163	3 11	
13 Charles D. Parnell	0	0 0	64	13 0	64	13 0	64	13 0	
14 Jonathan Woodall	100	0 0	89	2 6	100	0 0	206	1 0	
15 John Davidson	85	0 0	80	5 3	85	0 0	165	2 8	
16 James Durman	87	10 0	133	18 3	87	10 0	219	16 9	
17 George Roddick	102	10 0	160	12 3	102	10 0	250	8 3	
18 False Ducks	77	10 0	96	12 3	77	10 0	187	10 6	
19 Presqu' Isle	85	0 0	84	7 0	85	0 0	169	7 0	
20 Point Peter	87	10 0	26	2 6	87	10 0	151	4 0	
21 Nine Mile Point	52	10 0	0	0 0	52	10 0	214	2 9	
22 Thomas Sparham	35	0 0	1	6 0	35	0 0	75	8 9	
23 A. McDonald	85	0 0	48	5 1	85	0 0	165	3 0	
24 E. S. Johnson	87	10 0	87	18 9	85	0 0	172	2 4	
25 Peter Shannon	45	0 0	24	6 6	45	0 0	80	6 0	
26 Joseph Meloche	37	10 0	59	8 9	71	11 0	106	4 6	
27 Pièrre Laudré	75	0 0	10	13 6	9	14 0	84	14 0	
28 Battice Carignon	0	0 0	0	0 0	0	0 0	0	0 0	
29 John Norton	0	0 0	0	0 0	75	0 0	75	0 0	
30 William Fifield	0	0 0	0	0 0	0	0 0	0	0 0	
31 Management, Postage, Freight, Advertising, Travelling, &c.	1744	0 0	169	12 11	1878	12 1	2413	13 1	
			1338	6 0	3082	6 0	4292	5 2	

STATEMENT No. 4.

STATEMENT of Amounts paid on Awards for Damages on each Work since date of last Report, also Amounts paid to Arbitrators or Commissioners for Services and Expenses up to 1st January, 1854.

	£	s.	d.	£	s.	d.
Welland Canal.....	3466	2	7			
Junction Canal.....	1521	0	0			
Beauharnois Canal.....	6387	0	4			
Burlington Bay Canal.....	900	0	0			
Lachine Canal.....	1976	4	1			
Williamsburg Canal.....	15	0	0			
River Trent.....	344	6	4			
Granby Road.....	327	0	0			
				14936	13	4
Amount paid to Wm. Hutton, Arbitrator.....	22	10	0			
do Wm. Woodruff, do.....	36	0	0			
do Joshua Bates, do.....	43	10	0			
do J. H. Connolly, Clerk.....	17	5	0			
do A. B. Sirois & J. Burroughs, Commissioners to settle } Land Damages..... }	454	8	2			
				573	13	2
				15510	6	6

N. B.—The above amounts are included in Statement N. 1. Welland, Lachine and Williamsburg Canals also in Statement No. 2, Arbitrations.

STATEMENT No. 5.

STATEMENT shewing the Total Amount expended by the Department of Public Works, during the years 1852 and 1853, as detailed in the foregoing Statements, numbered 1, 2 and 3.

	Repairs and Maintainance.	Combustion.	Total Amount.
	£ s. d.	£ s. d.	£ s. d.
STATEMENT No. 1.....	72849 2 10	188155 13 8	261004 16 6
do 2.....		220392 10 1	220392 10 1
do 3.....	7374 11 2		7374 11 2
	81223 14 0	408548 3 9	488771 17 9
Amount received from the Hon. Receiver General, during the years 1852 and 1853, } by Warrant issued on the certificates of Commissioners of Public Works..... }			469809 16 4
		*£	1037 18 7

* The Vouchers for this Amount, in the hands of Paymasters, &c., had not been received on the 1st January, when the Accounts were made up,

STATEMENT No. 6.

STATEMENT of the Water-power and Lands leased, or sold, on or in the vicinity of the several Canals or Public Slides, with the names of the Lessees, or Purchasers, Machinery adopted or proposed, Amounts of Sales or Rents.

CANALS.	LESSEES.	Description of Machinery, &c.	Runs of Mill-Stones.	Amount of Annual Rent.	Amount of Purchase Money.
				No. 4. £ s. d.	£ s. d.
Welland	See Mr. Woodruff's Report, Appendix B.	Statement			
Williamsburg.....	Benjamin Chaffey	Grist and Flouring.....	6	61 10 0	
	William Elliot.....	Grist, Flouring & Carding	3	35 0 0	
	John Molson, Jr.....	Grist and Flouring.....	4	35 0 0	
	Wm. McLaughlin	Wharf.....		3 0 0	
	John Walsh	Do		11 0 0	
	K. McPherson.....	Do		3 0 0	
Cornwall.....	Andrew Elliot.....	Grist and Flouring.....	8	60 0 0	
	John Harvie.....	Do Do	4	30 0 0	
	A. E. Cadwell.....	Saw, &c		30 0 0	
	John Bell.....	Water-pipe to Brewery...		2 10 0	
Beauharnois	William Miller.....	Paper Manufactory.....		70 10 0	
	D. B. Pearse.....	Wharf.....		5 0 0	
	Owen Lynch	Do		5 0 0	
	Léon Leduc	Do		5 0 0	
	Louis Bergevin	Do		2 10 0	
	Owen Lynch	Do		5 0 0	
Lachine	E. E. Gilbert.....	Foundry, &c.....		322 10 0	
	James Hervey	Store		135 0 0	
	Thomas Peck.....	Nail and Spike		135 0 0	
	James McDougall.....	Flouring.....	4	107 10 0	
	Thorne & Heward.....	Store		216 0 0	
	Ira Gould.....	Flouring.....	12	108 0 0	
	T. D. Bigelow	Nail and Spike		107 10 0	
	John M. Holland.....	Do Do		107 10 0	
	Wm. Lyman & Co.....	Oil and Plaster		107 10 0	
	Grant & Hall.....	Planing, &c		215 0 0	
	George & Wm. Tate.....	Dry Dock		250 0 0	
	Augustin Labbé	Marine Slip.....		25 0 0	
	Young & Gould	Sundries		420 0 0	
	N. Doré.....	Wharf.....		8 0 0	
	Brothingham Workman	Building Lot.....		164 0 0	
	W. P. Bartley.....	Foundry, &c		282 0 0	
	Wm. Parkyn	Sundries		400 5 0	
	Geo. & Wm. Tate.....	Old Locks		110 0 0	
	John Ostell	Island		25 0 0	
	John Cowan.....	Lot of Land		8 0 0	
	Duncan Grant.....	Wharf.....		20 0 0	
	H. Jones & Co.....	Building Lot.....			260 0 0
	William Murray	Do			240 0 0
	John Young	Four Do			1140 0 0
	Hooker & Hulston.....	Do Do			1140 0 0
	P. Turotte	Lot of Land.....			868 0 0
	Wm. Rodden	Do Do		10 0 0	
Chambly	J. C. Pierse.....	Wharf.....		28 5 0	
Chats Rapids, Ottawa River	Wm. McLaughlin.....	Saw.....		20 0 0	
	John Egan	Do		20 0 0	
	George Pemberton	Do		20 0 0	
	Robert Conroy	Do		20 0 0	
	Peter Ayleen.....	Do		20 0 0	

No. 6.—STATEMENT of the Water-power and Lands leased, &c.—(Continued.)

CANALS.	LESSEES.	Description of Machinery, &c.	Runs of Mill-Stones.	Amount of Annual Rent.	Amount of Purchase Money.
Bytown	Philip Thomson	3 Hydraulic Lots.....	}	£ s. d.	£ s. d.
	N. S. Blasdell.....	3 Do Do		For the water	430 0 0
	Lyman Perkins	1 Do Do		sufficient to drive	340 0 0
	J. J. Harris.....	6 Do Do		each run of Mill-	175 0 0
				Stones or other	335 5 0
				Machinery equi-	
				valent thereto,	5 0 0
	S. H. Waggonez.....	Building Lot.....			11 5 0
	Alex. W. Powell.....	Do			133 1 0
	Nathaniel Burwash..	Do			25 15 0
	Alex. W. Powell.....	Do			10 5 0
Wm. Stubbs.....	Do		20 10 0		
Alex. W. Powell.....	Do		31 0 0		
James Skead.....	Do		44 0 0		
Nicholas Sparks.....	Do		63 5 0		
River Trent,	James Cumming.....	Hydraulic Lot.....		5 0 0	

STATEMENT No. 7.

STATEMENT shewing Amounts appropriated for Public Works during the last Session of the Legislature, for which further sums are now required, together with the Balances of former appropriations then available for the Expenditure on each Works, the Amount thereof expended to 1st January, 1854, the Amounts yet unexpended, and sums now required towards the completion of these Works, as well as the sums required to cover over Expenditure under Orders in Council on other Works.

	Amount of Appropriation.	Balance for-mer Approp-riation.	Amount ex-pended on ap-propriations and Orders in Council to 1st January, 1854.	Amount unexpended 1st January, 1854.	Amounts now required towards the completion of the Works & cover over ex-penditure on Or-ders in Council.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Welland Canal	34024 11 3	102 3 4	2422 2 8	31704 11 11	58339 16 10
St. Lawrence Canals, viz.....	70692 16 6		58922 10 11	11770 5 7	
Williamsburg.....					11659 0 0
Cornwall.....					8950 0 0
Beauharnois					4250 0 0
Lachine.....					34500 0 0
Scugog Lock, &c.....	5250 0 0		1999 1 11	3250 18 1	9500 0 0
Ottawa Works.....	5500 0 0		4530 18 5	969 1 7	10372 1 0
St. Maurice Works.....	14000 0 0		13563 16 3	436 3 9	21906 1 3
St. Ann's Lock	1000 0 0	1128 16 0		1128 16 0	2550 0 0
Light Houses, (Inland).....	12000 0 0	1026 6 9	3329 14 3	9696 12 6	43600 0 0

No. 7.—STATEMENT shewing amounts appropriated for Public Works, during the last Session of the Legislature, &c.—(Continued.)

	Amount of Appropriation.	Balance former Appropriations.	Amount expended on appropriations and Orders in Council to 1st January, 1854	Amount unexpended 1st January, 1854.	Amount now required towards the completion of the Works and cover over expenditure on Orders in Council, &c.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Light Houses, (below Quebec)...	7500 0 0			17500 0 0	10401 5 0
Landing Piers (below Quebec)...	6000 0 0	26516 6 9	58430 4 6		109583 0 0
St. Lawrence to New-Brunswick	25000 0 0		830 10 11	24169 18 1	
Arbitrations	17367 0 0	5645 19 8	8823 4 10	14189 18 10	25000 0 0
Post Office, Quebec.....	9000 0 0		4000 0 0	5000 0 0	10000 0 0
Quebec Custom House.....	13000 0 0		3000 0 0	10000 0 0	15000 0 0
Advertising Atlantic Steamers...					133 13 1
Advertising sale of Pub. Works,					78 8 9
Repairs of Custom House } Wharf at Quebec. }					497 3 1
Geological Museum					507 17 1
Towage on upper St. Lawrence..					9500 0 0
Purchase of Bonner's Pro- } perty, Quebec. }					5292 13 4
Provisions sent down to the Gull } to relieve Emigrant Ships }					512 12 5
Improvements at Chateau St. } Louis, Durham Terrace, Garden Wall, Railing and Fixtures, &c. }					4764 1 8
Purchase of Spencer Wood.....					2582 14 7
Jacques Cartier Bridge.....					181 5 0
Shipping Master's office, Quebec					81 17 3
Surveys Upper and L. Canada..					1500 0 0
Water Police Building.....					155 17 6
Montreal Gaol.....					2500 0 0
Improvements St. Lawrence } Rapids. }					30000 0 0
Burlington Bay Canal					5650 0 0
Tug Boats below Quebec.....					7965 0 0
Cost incurred in consequence } of fire at Parliament Build- ings at Quebec, and fitting up sundry Buildings for the accommodation of the Legis- lature. }					9632 2 9
Governor General from Mon- } treal to Quebec and Staff, Guard of Honor to and from Quebec. }					302 15 0
Repairs Temiscouata Road					1000 0 0
Protection of the Fisheries.....					1320 0 0
To settle old Accounts against } Roads in Canada West. }					203 13 11
Old Parliament Buildings, Que- } bec					10550 9 9
Public Buildings, Repair and } Care, Rents, &c. }					4000 0 0
Port Stanley Harbor					5000 0 0

Appendix A.

WELLAND CANAL OFFICE,

ST. CATHERINES, *January 12, 1854.*

SIR,—In compliance with the instructions communicated to me by your letter of the 27th ult., I have the honor to furnish you with a Report of all the works under my charge, they are divided into two heads; the first comprises all the matters connected with the New Works in progress, or remaining to be done, such as are embraced in the general completion of the Canal, the second relates to the old works for Superintendence, management and maintenance of it, &c., &c., &c.

Under these headings I herewith furnish you with statements shewing the several appropriations with the expenditures in the construction and maintenance of both the new and old works connected with the Canal for the past year, together with statements of water and other rents, Land Sales, Fines and Damages levied on vessels, with an estimate of the probable amount required to be appropriated to fully complete the work throughout, and increase the width of the Canal from Allanburgh to Port Colborne from 26 to 45 and 50 feet bottom (embracing Sections No. 15 to 27 inclusive) previous to Lake Erie being adopted as summit level.

The necessity of the undertaking and speedy completion of this enlargement is clearly shown from the short supply of water furnished to the Canal, by the Grand River during the summer months for the past and preceding years, which supply must annually decrease as the Country from which its sources arise becomes cleared up. It therefore appears evident that the rapidly increasing trade of the Canal will very shortly exhaust the present Feeder, when the necessity for another must be sought, and as Lake Erie is the only available one, it is therefore strongly recommended that immediate preparation should be made for the completion of this enlargement as it will require a period of 4 years, with an equipment of six powerful Dredging Machines to complete the work.

The work progressing under Mr. French, Contractor, for bottoming Sections No. 17 to 26 inclusive, to suit Lake Erie level, is generally but for 26 feet bottom this width of Canal being only sufficient for the breadth of one vessel with lay-bys at intervals of half a mile for their meeting and passage, about 60,000 cubic yards remains to be taken out to finish the present Contract. On the completion of those Sections for 26 feet bottom width with the other Sections (viz: Nos. 15, 16 and 17 not yet undertaken) it does not appear advisable, or consistently practicable to lower the water (viz: 8 feet from Grand River summit to that of Lake Erie) until the bottom throughout is fully completed to the dimensions stated, as it is considered that a narrow Channel (of 26 feet bottom) cannot pass the latterly greatly increasing trade of the Canal without causing serious delays.

It is firmly believed on lowering the water that considerable Slides will take place, which it is impossible to prevent or provide against, the nature of the material being such that slips have frequently occurred, therefore it is deemed expedient to resort to the widening of the trunk of this portion of the Canal, in order there might be less interruption caused to the navigation, when such casualties occur as well as to facilitate the passage of vessels, by having a wide channel that they may meet and pass each other, and without this improvement it is certain that much delay will be caused by the contemplated arrangements,

Superintendence, management and maintenance of the Canal &c., &c., &c.

The Canal opened on the 1st day of April and closed on the 17th day of December, giving 261 days navigation, against 245 days in the previous year.

It has been during the past season more free than heretofore from obstructions caused by accidents, but one, that occurring on the 4th of April by the

breaking of a gate at Lock No. 2, which was repaired, and the navigation resumed on the 6th.

But owing to the the increased trade and the enlarged class of vessels now in use, and the increased depth to which they are loaded, much delay occasionally takes place in making trips; this difficulty will next season be removed, as stop timbers with regulating Screws are being put into the Locks at Dalhousie and Allanburgh, to prevent vessels passing, drawing more than 9 feet 3 inches water, this being the greatest depth which they are admitted to pass until the raising of the Locks, Weirs and embankments are completed: for this undertaking instructions were given in September last, the progress made with procuring the materials and other portion of the work is very satisfactory, on its completion vessels will be enabled to pass through drawing 10 feet water. By thus raising the water between St. Catherines and Thorold the several mills situate on this portion of the Canal will be to some extent affected, as their Wheels and Flumes are generally too low, which it will be necessary to have raised.

During the past season a considerable amount has been expended in the construction and repairs of Lock Gates and Bridges, this work has been indispensably necessary in consequence of their failing; Contracts have been entered into for furnishing several sets of the former, and the construction of many of the latter during the suspension of navigation.

The raising and strengthening the embankments facing and protecting them with stone &c., &c., has been unavoidable during the past year, owing to the height at which the water has been usually kept, to facilitate the increased trade through the Canal.

The construction of a second Towing Path from Lock No. 4, to Hurst's Bridge above Thorold has been nearly completed and brought into use, and has been found of considerable service and saving of time in passing vessels through the Canal.

It is recommended that its extension for 2,000 feet above Hurst's Bridge be authorized, the improvement will require an expenditure of £1,000.

The great damage done to the Port Maitland Piers by the storms on Lake Erie has been thoroughly repaired, in doing this it was found necessary to remove a considerable portion of the old materials from their decayed state, which has caused a considerable increase in the expenditure.

By referring to the accompanying Schedule No. 1 will be seen the several estimates voted by the Legislature with portions of such estimates expended, the works completed, and in progress and the balance remaining unexpended to the 1st of January 1854.

Schedule No. 2, shewing the estimated cost of completing the several works which it is proposed should be undertaken for the finishing of the Canal, and for which an appropriation is required.

Schedule No. 3, shews under different headings the several expenditures which have been necessarily incurred on the maintenance and management of the Canal for last year, together with the improvement and construction of several works authorized, such expenditure coming directly under the head of maintenance and management, has been charged against the Tolls, the sum thus expended amounts to £14,022 10s 8d.

Schedule No. 4, gives the mills erected, the annual revenue derived from the water power leased and the rents accruing from other property leased on the Canal, with the amount of rent paid in 1853, and the balance remaining due on the 1st of January 1854.

Schedule No. 5, shews the amount for Lands and other property sold, with the payment made thereon and the balance due on the 1st of January 1854.

Schedule No. 6, shews the number of vessels and other property passing through the Canal on which I have found it necessary to impose fines for com-

mitting breaches of the Canal regulations and damaging the works with the amount paid and remaining unpaid.

It appears necessary that I should add in conclusion, that a stringent regulation should be made compelling those using the Canal to proceed through it both by day and night with all possible dispatch, unless this course is adopted much additional confusion and delay will be experienced. The practice has been for the greater portion of the sailing vessels to proceed during the day, and the great part of the night which causes frequently a large number to accumulate about Locks. Heretofore the transit of vessels through the Canal, has been much retarded for the want of a sufficient number of teams and by the Tow Masters neglecting to tow at night.

To remove the serious detention occasioned thereby, a company is about forming to establish a line of Steam Tugs on the screw principle, for the purpose of towing vessels on the long levels, viz: between Port Colborne and Allanburgh also between Locks No. 1 and 2, with the tugging of vessels in and out of the Harbours, together with a sufficient number of horses, to be used at all hours in the conveyance of vessels between Allanburgh and Lock No. 2, with relays at several points.

Of the success and advantage to be derived from a proper establishment of this kind there can be but one opinion, it is my candid belief, that vessels by the use of such a line will make an additional trip in a season. I therefore recommend that the commissioners will allow the steam Tugs to pass on the Canal free of Tolls when used for that purpose.

The foregoing and accompanying statements affords I trust all the requisite information upon the works and expenditure entrusted to my charge.

I have the honor
to be Sir,
your obedient servant,

(Signed,)

S. D. WOODRUFF.

P. S. The following shews the Revenue of the Canal for 1853.

Amount collected at Colborne		£42,136	7	0
do " Robinson		1,281	7	0
do " Maitland		480	11	6½
do " Dunnville		2,734	6	0
do " St. Catherines		943	0	4
do " Dalhousie		17,338	15	0
do " Chippawa Cut		88	7	10
Total from Tolls		£65,002	14	8½
Total Hydraulic Rents	£1865	18	1	
do Land Sales &c.,	2070	0	11	
do Fines and Damages	598	5	10	
Total		£69,536	19	6½

No. 1.—SCHEDULE shewing the several Appropriations with the Expenditure made on the Welland Canal for Works in Progress, ending the 1st day of January, 1854.

Numbers.	WHAT WORKS.	Amount of Estimate voted 1853.			Total Amount expended to 1st January, 1853.			Amount expended during the year 1853.			Total Amount expended up to 1st Jan'y, 1854.			Remarks on Works done in 1853.
		£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	
1	Cotton and Rowe, Port Dalhousie, Piers, Light Houses, Planking, &c.	3235	0	0	13774	7	1½	13774	7	1½	2742	10	0	The completion of this Section will require an expenditure of £3,000 and should be put in hand.
2	Cotton and Rowe, Port Colborne, Piers, inner and outer Harbor; Light Houses, Planking, &c.	10668	15	6	2742	10	0	1120	15	4	3087	18	6	
3	Samuel Zimmerman, raising Aqueduct and embankment.	3252	3	4	5087	18	6	2525	0	0	4914	6	0	Dredging operations in progress.
4	Brown & McDonald, Guard Gates, Colborne.	1707	2	6	9590	0	0	0	0	0	12415	0	0	
5	Asa D. Wood, Section 27 and Basin.	6874	15	6	4914	6	0	4329	18	0	37	16	0	
6	Sections 17 to 27 both inclusive	19732	10	0	700	0	0	2857	10	3	700	0	0	
7 & 8	Swing Bridge and Lock Gates.	3571	0	9	500	0	0	289	0	8	100	0	0	
9	Samuel Zimmerman, Aqueduct Lock, and raising do.	4742	0	0	62	8	7	0	0	0	62	8	7	
10	Port Robinson, Lock embankment.	500	0	0	451	13	9	853	12	6	289	0	8	
11	Timber for protection of Vessels in Rock cut.	700	0	0	100	0	0	49	7	6	100	0	0	
12	Waste Weir at Aqueduct.	2300	0	0	62	8	7	0	0	0	62	8	7	
13	Embankment at junction, raising Dams, &c.	786	13	4	602	0	0	0	0	0	451	13	9	
14	Raising part of embankment on Section 23.	100	0	0	853	12	6	0	0	0	853	12	6	
15	Cribs at Tail of Junction Lock.	35	0	0	76	17	6	0	0	0	126	5	0	
16	Culvert at Brown's, ditch and drain to Chippewa.	602	0	0	50	0	0	0	0	0	50	0	0	
17	Side walling Section 27 embankment, and facing bank.	853	12	6	300	0	0	0	0	0	300	0	0	
18	Snubbing Posts.	126	5	0	1813	10	9	2739	18	0	2739	18	0	
19	Temporary Light House, Colborne.	50	0	0	387	1	3	0	0	0	387	1	3	
20	Two Scows for Dredge.	300	0	0	1586	4	9	0	0	0	1586	4	9	
21	Wall connecting Lock and Aqueduct protecting embankment.	1813	10	9	538	16	10	0	0	0	538	16	10	
22	Removing Walls at Aqueduct.	412	0	0	583	19	0	0	0	0	583	19	0	
23	Culvert at Aqueduct.	1310	0	0	1600	0	0	0	0	0	1600	0	0	
24	Covered drain at do., and approach to Bridge.	337	0	0	190	0	0	0	0	0	190	0	0	
25	Removing Dam at Junction, and do. old Culvert and Road	600	0	0	112	10	0	0	0	0	112	10	0	
26	Admission Gates and regulating Weir for Mills.	1600	0	0	65	6	1	0	0	0	65	6	1	
27	Guard Booms at Allanburgh's Locks	200	0	0	160	0	0	0	0	0	160	0	0	
28	Road from Aqueduct to Junction	140	0	0	600	0	0	0	0	0	600	0	0	
29	Road from Marlatt's Bridge	65	0	0	600	0	0	0	0	0	600	0	0	
30	Embankment and dredging away old Towpath Superintendence and Contingencies	6000	0	0	6000	0	0	0	0	0	6000	0	0	
		72814	9	2	59602	10	1½	2574	7	6	62176	17	7½	

No. 1.—SCHEDULE shewing the several Appropriations with the Expenditure, &c.—(Continued.)

WHAT WORKS]	Amount of Estimate voted in 1851.		Total Amount expended to 1st Jan'y. 1853.		Amount expended during the year 1853.		Total Amount expended up to 1st January, 1854.		Remarks on Works done in 1853.
	£	s. d.	£	s. d.	£	s. d.	£	s. d.	
1851.									
Additional Booms and protection for Vessels in Rock cut.....	500	0 0	367	6 2	23	9 2	390	15 4	} In progress, Timber delivered, and Work in hand.
Lock Houses.....	178	0 0	178	0 0			178	0 0	
Buoys at Colborne.....	150	0 0							
Recesses at Colborne, approaches to Pier, Dry Walling, &c.....	331	7 6	473	18 0			473	18 0	
Raising and widening Banks between Thorold and Dunville.....	398	16 6	398	16 6			398	16 6	
Iron protection Railing and wooden Platform to Aqueduct.....	750	0 0	651	18 1			651	18 1	
Back ditches on Canal.....	600	0 0	297	7 10	493	17 10	721	5 8	
Mountain Hydraulic Road.....	2087	0 0	1700	0 0	175	0 0	1875	0 0	
	4995	4 0	3997	6 7	692	7 0	4489	13 7	
Light Houses and House for Light Keepers, at Colborne.....	2000	0 0	2000	0 0			2000	0 0	} Completed.
Guard Gates above Allanburgh Lock.....	6000	0 0	6481	17 10			6481	17 10	
Altering and strengthening Hydraulic Race.....	500	0 0	272	10 6			272	10 6	
Scowing Stones for face of Banks and Tow-path.....	1000	0 0	422	2 0			422	2 0	
Regulating Flume above Lock No. 11.....	774	0 0	703	10 11			703	10 11	
Moving Bridge at Dalhousie.....	280	0 0	324	16 4			324	16 4	
Altering Thorold Bridge.....	300	0 0	316	3 10			316	3 10	
Back Ditches on Feeder.....	500	0 0	295	6 7	162	10 0	387	16 7	
Providing Scoops.....	680	0 0	486	0 0			486	0 0	
Providing Lying-by places for Vessels in short Heaches.....	1500	0 0	819	10 0	57	10 2	877	0 2	
Contingencies.....	1000	0 0	660	12 5	339	7 7	1000	0 0	
	14500	0 0	12712	10 5	559	7 9	13271	18 2	

No. 1.—SCHEDULE shewing the several Appropriations with the Expenditure, &c.—(Continued.)

WHAT WORKS.	Amount of Estimate voted in 1853.		Total Amount expended to 1st Jan'y, 1853.		Amount expended during the year 1853.		Total Amount expended up to 1st Jan'y, 1854.		Remarks on Works done in 1853.
	£	s. d.	£	s. d.	£	s. d.	£	s. d.	
Additional admission Weirs for Mills.....			228	16 10½	107	8 6	336	5 4½	All of these Weirs have been completed for Mills at present established.
Lock and Bridge Fenders' Houses.....			258	4 5	488	18 5	747	2 10	
Collectors Offices and residences at Colborne and Dalhousie.....	34024	11 3	.....	.....	3864	16 3	4164	16 3	Office for Collector at Port Dalhousie, with accommodation for several of the Lock Tenders completed.
Office at St. Catharines.....			385	0 0	221	2 6	306	2 6	
New Waste Weirs for Dunville Dam, and Bridge at Dunville.....			9141	8 5	1630	7 7	10771	16 0	One Weir finished, the other not yet undertaken. Bridge at Dunville finished.
Award to Contractors and Land Damages.....			268	2 5	736	7 1	1004	9 6	
Superintendence and Contingencies.....	34024	11 3	10281	12 1½	7049	0 4	17330	12 5½	£28,869 2s. 7d.—Balance of several Appropriations to be expended.
	126338	4 5	86593	19 3	10875	2 7	97469	1 10	

(Signed,) S. D. WOODRUFF.

WELAND CANAL OFFICE,
St. Catharines, January 12, 1854.

No. 2 — SCHEDULE shewing the estimated Cost of completing the Welland Canal, for which an Appropriation is required.

Proposed Works.	Amount.		Amount to be expended in 1854.		Amount to be expended in 1855.		Amount to be expended in 1856.		Amount to be expended in 1857.		Amount to be expended in 1858.	
	£	s. d.	£	s. d.	£	s. d.	£	s. d.	£	s. d.	£	s. d.
Basin below Lock at Port Colborne.....	18200	0 0	2200	0 0	10000	0 0	6000	0 0				
Collectors' offices and residences.....	2250	0 0	750	0 0	1500	0 0						
Finishing the deep cut to 50 feet bottom width, Sec. Nos. 15 and 16.....	27500	0 0	5000	0 0	7000	0 0	7000	0 0	4250	0 0	4250	0 0
Finishing Sec. Nos. 17, 18, 19, 20, 21, 23, 24, 25, 26, and Ramey's Bend to 50 feet bottom width. It is not proposed to do any work on Section 22, as it has been already finished to 45 feet bottom.	52354	3 0	5000	0 0	12500	0 0	12500	0 0	11177	1 6	11177	1 6
Raising Locks.....	4000	0 0	4000	0 0								
Weigh Locks.....	17500	0 0	2500	0 0	10000	0 0	5000	0 0				
Hydraulic Aqueduct.....	7075	0 0	2000	0 0	5075	0 0						
Extension of Piers at Port Dalhousie.....	3000	0 0	1500	0 0	1500	0 0						
Superintendance and Contingencies.....	9020	17 0	2000	0 0	1500	0 0	1500	0 0	510	8 6	510	8 6
	149900	0 0	4950	0 0	43075	0 0	32000	0 0	15937	10 0	15927	10 0

REMARKS.

This work is required to afford increased accommodation for Vessels passing through the Canal, and provide sufficient lay-by room in the Harbor. To provide accommodation for the Collectors at Yoris Robinson, Maitland and Dunnville.

This estimate is based upon a final measurement of the deep cut and settlement with Chas. H. French, in July 1848, whereby the abstract states that the work remaining to be done to complete it to 45 feet bottom throughout, is 112,000 c. yds. To this is added 46,000 c. yds. of slides ascertained by measurement, and the completion of the work from Allanburgh Lock to the deep cutting, with straightening line of Tow-path, &c., 22,000 c. yds., together with the deepening of Channel foot and widening to 50 feet bottom 120,000 c. yds.—Total, 300,000 c. yds. Sec. No. 17 requires to excavate for 50 ft. bottom 7064 c. yds., and deepening to 19 ft. below Grand River level.)

Do 18 do do 50 do 9221
 Do 19 and 20 do do 50 do 114621 and 21744 c. yds. hard pan.
 Sec. No. 21 do do 50 do 26763 and 29694 do
 Do 23 do do 50 do 81182
 Do 24 do do 50 do 70705
 Do 25 do do 50 do 79138
 Do 26 and Bend do 50 do 93909

Total 482600 c. yds., 51438 c. yds. hard pan.
 Ditching on Sections 19, 20, 23, 24, 25 and 26—30000 c. yds.
 To increase the depth of water in Canal to admit vessels to pass, drawing 10 feet.
 Required for the purpose of checking the cargoes of Vessels.
 As per Report No. 1859, December 10, 1853—£1415, chargeable against Railroad Company.

Required to be done to enlarge the Harbor.

Section 17 all 45 feet bottom.
 Do 8 45 do
 Do 19 & 20 26 do
 Do 21 about one-quarter, 45 do
 Section all 26 feet bottom, upon which work is to be done.
 Section 22 all 45 feet bottom.
 Do 23 about one-seventh, 45 feet bottom.
 Do 24 do one-third, 45 do
 Do 25 all 26 feet bottom.
 Do 26 26 do

SCHEDULE No. 3.

DETAILED SCHEDULE of the Gross Amounts of the Monthly Expenditures in the Superintendence, Management and Maintenance of the Welland Canal for the year 1853, together with the expenditure on improvements and construction of several authorized, in Items 7, 9, 10, 11, 12, 13, 14, 15, 16, and 17.

Table with 21 columns: 1-20 (Detailed Expenditure Items) and 21 (Amount). Rows include months from January to December and a total row at the bottom.

Expenditure on the General Superintendence, Management of Canal, Items 1, 2, 3, 4, 5, 6, 8, 18, 19, and 20..... £ 8181 17 11
Improvement and construction of Works authorized, Items 7, 9, 10, 11, 12, 13, 14, 15, 16, and 17 14022 10 8

Total Expenditure..... £22204 8 7

(Signed,) S. D. WOODRUFF.

SCHEDULE No. 4, shewing the annual Rents for Water Power and other property leased on the line of the Welland Canal, the annual Rent with Machinery established, the Rent for 1853 with the Arrears of Rent due to 1st January, 1853, the amount paid in 1853, and the Balance of Rent due on the 1st January, 1854.

Where situate.	Owners.	Machinery.	Annual Rent.	Rent for 1853, with arrears of Rent due 1st Jan'y., 1853.	Amount paid Collector in 1853.	Balance due on 1st Jan'y., 1854.
			£ s. d.	£ s. d.	£ s. d.	£ s. d.
Port Dalhousie.	Robt. Laurie & Co.	1st Run Stone	15 0 0			
		2d and 3d do. £12 10s.	25 0 0			
		Corn Crusher	2 10 0			
		Ground Rent	5 0 0			
		Int. on cost of flume.	1 16 6			
			49 6 6	98 6 6	49 6 6	49 6 6
Do.	R. & J. Laurie ..	1st Run Stone	15 0 0			
		3 do. at £12 10s.	37 10 0			
		Ground Rent	5 0 0			
		Int. on cost of flume.	2 10 0			
			60 0 0	20 0 0		20 0 0
Do.	Reubin Morrison, now Jno. Brown.	1 Saw	20 0 0			
		2 Circular at £4	8 0 0			
		Ground Rent	5 0 0			
		Int. on cost of flume.	1 5 0			
			34 5 0	68 10 0	34 5 0	34 5 0
Do.	Alexander Muir.	Floating Dock (use of water)	10 0 0			
		Ground Rent	7 10 0			
		Int. on Supn. Construc- tion flume	1 10 0			
			19 0 0	14 5 0		14 5 0
Lock No. 2	Jno. Ranney	1st Run of Stone.	15 0 0			
		4 do. at £12 10s.	50 0 0			
			65 0 0	130 0 0	130 0 0	
St. Catharines. .	Water Power Cy.	Surplus water from Lock 11 to Lock No. No. 3	125 0 0	250 0 0	125 0 0	125 0 0
Do.	Calvin Phelps ..	6 Run of Stones.	37 10 0	37 10 0	37 10 0	
Lock No. 5	Richard Collier.	1 Saw	20 0 0			
		3 Circular.				
		1 Last factory } 1 Turn'g Lathe } Equal to 2 Saws	15 0 0			
		Ground Rent	5 0 0			
		Int. on cost of flume.	1 18 4			
			41 18 4	83 16 8	62 17 6	20 9 2
Lock No. 10 . . .	Thomas Towers.	1st Run Stones	15 0 0			
		2d do.	12 10 0			
		Corn Crusher	2 10 0			
		Ground Rent	5 0 0			
			35 0 0	70 0 0	52 10 0	17 10 0

SCHEDULE NO. 4.—(Continued.)

Where situate.	Owners.	Machinery.	Annual Rent.	Rent for 1853, with arrears of rent due 1st Jany., 1853.	Amount Paid Collector in 1853.	Balance due on 1st January, 1854.
			£ s. d.	£ s. d.	£ s. d.	£ s. d.
Lock No. 12...	Orson Phelp...	1 Upright Saw.....	20 0 0	38 15 0	23 5 0	15 10 0
		1 Circular.....	4 0 0			
		Ground Rent.....	5 0 0			
		Int. on cost of flume...	2 0 0			
		£	31 0 0			
Lock No. 15...	John Brown...	1 Run Stone with crusher.....	15 0 0	15 0 0		15 0 0
		Ground Rent.....	5 0 0			
		Additional Power....	20 0 0			
		£	40 0 0			
Lock No. 20...	W. B. Hendershot	1 Saw.....	20 0 0	54 1 8		*54 1 8
		3 do.....	15 0 0			
		3 do.....	15 0 0			
		1 Circular.....	4 0 0			
		Ground Rent.....	5 0 0			
		Int. on cost of flume...	1 5 0			
		£	60 5 0			
Lock No. 21...	Wm. Beatty...	1st Saw.....	20 0 0	67 10 0	40 10 0	27 0 0
		2d do.....	15 0 0			
		3 Circulars.....	12 0 0			
		Ground Rent.....	5 0 0			
		Int. on cost of flume...	2 0 0			
		£	54 0 0			
Lock No. 22...	Wm. Beatty...	Wheel for grinding bark, &c.....	15 0 0	23 17 0	15 18 0	7 19 0
		Int. on cost of flume...	0 18 0			
		£	15 18 0			
Lock No. 22...	W. H. Ward...	2 Lathes, 2 Planing Machines and 3 Circular Saws.....	12 10 0	18 15 0		18 15 0
Lock No. 23...	W. H. Ward...	1 Saw.....	20 0 0	54 15 1		54 15 0
		2 do.....	15 0 0			
		Int. on cost of flume...	1 10 0			
		£	36 10 0			
Do do...	Do do...	Wharf Lot.....	10 0 0	5 0 0		5 0 0
Do do...	John Brown...	Wharf Lot.....	10 0 0	5 0 0		5 0 0
Lock No. 24...	Jacob Keefer...	1 Run Stone.....	15 0 0	151 0 0	151 0 0	
		3 do at £12 10s	37 10 0			
		Int. on cost of flume...	3 0 0			
		£	55 10 0			

* £10 deposited March 15, 1852, in hands of Collector.

SCHEDULE No. 4.—(Continued.)

Where situate.	Owners.	Machinery.	Annual Rent.	Rent for 1853, with arrears or Rent due 1st Jan'y., 1853.	Amount paid Collector in 1853.	Balance due on 1st Jan'y., 1854.
Lock No. 24 ..	Brown & Ross...	1 Run of Stones 2 & 3 do at £12 10s.. Ground Rent	£ s. d.			
			15 0 0 25 0 0 5 0 0 <hr/> 45 0 0			
Do do ...	Park & Co	1 Run of Stones 2 & 3 do	15 0 0 25 0 0 <hr/> 40 0 0	120 0 0	80 0 0	40 0 0
Lock No. 25....	A. Christie	1 Run of Stones 2 & 3 do	15 0 0 25 0 0 <hr/> 40 0 0	80 0 0	40 0 0	40 0 0
Do do ...	John Brown	1 Run Stones	15 0 0 5 0 0 <hr/> 20 0 0	35 0 0	15 0 0	20 0 0
Allanburgh, West Side }	Wright & Dun- can	1st Run Stones 2nd do	15 0 0 12 10 0 12 10 0 12 10 0 15 3 4 <hr/> 67 13 4	185 6 8	67 13 4	67 13 4
			Carding Machine			
Do do	W. H. Merritt, Jr.	1 Saw	15 0 0 1 15 6 <hr/> 16 15 6	73 11 0	36 15 6	36 15 6
			Machinery			
Do do	Abr. Bowman ..	Water equal to 1 Run Stone	15 0 0 1 10 0 <hr/> 16 10 0	33 0 0	16 10 0	16 10 0
			Interest cost of Flume.			
Allanburgh W Side.....	Wm. Pennoek...	Water equal to 1 Run Stone	15 0 0 1 10 0 <hr/> 16 10 0	24 15 0	24 15 0	.....
			Int. on cost of Flume..			
Allanburgh East Side.....	Tucker & Kenny Lessees.....	Old Grist Mill and Saw Mill	250 0 0	437 10 0	187 10 0	250 0 0

SCHEDULE No. 4.—(Continued.)

Where Situate.	Owners.	Machinery.	Annual Rent.	Rent for 1853 with arrears of Rent due 1st Jan'y., 1853.	Amount Paid Collector in 1853.	Balance due on 1st January, 1853.
			£ s. d.	£ s. d.	£ s. d.	£ s. d.
Port Robinson	D. McFarland and John Leman...	1 Saw	20 0 0			
		1 Circular Saw and Machine Shop. . . . } Int. on cost of flume ..	10 0 0 7 10 0			
			37 10 0	75 0 0	37 10 0	37 10 0
Do.	D. McFarland... John P. Abbey & Jas. Abbey.....	Dry Dock Site and water.....	15 0 0			
		Int. on cost of flume ..	4 16 0			
			19 16 0	39 12 0	19 16 0	19 16 0
Do.	Donaldson..... and McFarland	1 Run Stones.....	15 0 0			
		Ground and H. Rent .. Int. cost of flume.....	5 0 0 1 10 0			
			21 10 0	57 0 0		57 0 0
Do.	Rob. Band & Co.	1 Run of Stones	15 0 0			
		2 and 3 do, at £12 10s..	25 0 0			
		Ground Rent of Mill..	5 0 0			
		Do of Store and Wharf.	5 0 0			
		Int. on cost of flume ..	1 10 0			
			51 10 0	83 0 0	83 0 0	
Merrittville....	Dunlap & Seely	1 Run Stones	15 0 0			
		2 and 3 do	25 0 0			
		Machinery	12 10 0			
		Int. on cost of flume ..	1 10 0			
			54 0 0	108 0 0	54 0 0	54 0 0
Do.	Do. Do.	1 Saw	20 0 0			
		3 Circulars	12 0 0			
		Ground Rent	5 0 0			
		Int. on cost of flume ..	2 0 0			
			39 0 0	78 0 0	39 0 0	39 0 0
Do.	Do. Do.	1 Saw	20 0 0			
		2nd do.....	15 0 0			
		4 Circulars, at £4....	16 0 0			
		Int. on cost of flume ..	2 10 0			
			53 10 0	107 0 0	53 10 0	53 10 0
do	E. Seely	Old Aqueduct for Store House	5 0 0	5 0 0		5 0 0

SCHEDULE No. 4.—(Continued.)

Where situate.	Owners.	Machinery.	Annual Rent.	Rent for 1853 with arrears of Rent due 1st Jan., 1853.	Amount Paid Collector in 1853.	Balance due on 1st Jan., 1854.
			£ s. d.	£ s. d.	£ s. d.	£ s. d.
Merrittville...	Moses Cook ...	1 Run of Stones..... 2 & 3 at £12 10s..... Ground Rent..... Int. on cost of Flume.	15 0 0 25 0 0 5 0 0 3 0 0			
			48 0 0	96 0 0	48 0 0	48 0 0
Marshville....	John Graybiel..	1 Run of Stones, 1 Saw & Ground Rent....	40 0 0	40 0 0	40 0 0	
Broad Creek...	Lauchlan McCal- lum	1 Upright Saw..... 2 Circulars..... Ground Rent..... Int. on cost of Flume..	20 0 0 8 0 0 5 0 0 2 15 0			
			35 15 0	41 13 9	23 16 3	17 17 6
Port Maitland...	Inlack & Hicks.	1 Run of Stones..... 2nd do. do. Ground Rent..... Int. on cost of Flume..	15 0 0 12 10 0 5 0 0 2 0 0			
			34 10 0	69 0 0	51 15 0	17 5 0
Dunville	Jacob Turner...	1 Run of Stones..... 2nd do. do. 1 Saw..... 2 do..... Ground Rent..... Less ¼ until L. E. level is adopted.....	15 0 0 12 0 0 20 0 0 15 0 0 5 0 0 67 10 0 22 10 0			
			45 0 0	73 6 8	55 0 0	18 6 8
do	Samuel Darling.	1 Run of Stones..... 2nd do. do. Ground Rent..... Less 3 until L.E. level.	15 0 0 12 10 0 5 0 0 32 10 0 10 16 8			
			21 13 4	43 6 8	21 13 4	21 13 4
do	Lewis J. Wen- therly	3 Carding machine, 1 Fulling Mill, 1 Loom & Spinner, 2 Turning Lathes, Less ¼ until L.E. level.	20 0 0 6 13 4			
			13 6 8	26 13 4	13 6 8	13 6 8

SCHEDULE No. 4.—(Continued.)

Where situate.	Owners.	Machinery.	Annual Rent.	Rent for 1853 with arrears of Rent due 1st Jan'y., 1853.	Amount Paid Collector in 1853.	Balance due on 1st January, 1854.
			£ s. d.	£ s. d.	£ s. d.	£ s. d.
Dunnville.....	Henry Mittleberger.....	1 Saw..... Ground Rent.....	20 0 0 5 0 0			
		Less $\frac{1}{2}$ until L.E. level.	25 0 0 8 6 8			
		1 Circular added.....	16 13 4 2 13 4			
			19 6 8	29 13 4	20 0 0	9 13 4
Do.	Chisholm & Minon.....	1 Saw..... 2 do. 3 Circular at £4..... Ground Rent.....	20 0 0 15 0 0 12 0 0 5 0 0			
		Less 3 until L.E. level.	52 0 0 17 6 8			
			34 13 4	69 6 8		69 6 8
Do.	Hugh Boomer...	1 Run of Stones..... 2nd & 3rd at £12 10s. Ground Rent.....	15 0 0 25 0 0 5 0 0			
		Less 3 until L. E. level	45 0 0 15 0 0			
			30 0 0	60 0 0		60 0 0
Do.	John Brown & W. H. Merritt, Jr.	1 Run of Stones with Cracker..... Ground Rent..... Int. on cost of flume...	20 0 0 5 0 0 3 5 0			
			28 5 0	28 5 0		28 5 0
Haldimand....	John Oldfield & Alfred Nixon..	1 Saw..... 2nd do. 1 Circular..... Ground Rent.....	20 0 0 15 0 0 4 0 0 5 0 0			
		Less $\frac{1}{2}$ until L. E. level.	44 0 0 14 13 4			
			29 6 8	58 13 4	44 0 0	14 13 4
Do.	Cornelius Johnson	1 Saw..... Ground Rent.....	20 0 0 5 0 0			
		Less $\frac{1}{2}$ until L. E. level	25 0 0 8 6 8			
			15 13 4	33 6 8	16 13 4	16 13 4

SCHEDULE No. 4.—(Continued.)

Where situate.	Owners.	Machinery.	Annual Rent.	Rent for 1853, with arrears of Rent due 1st Jany., 1853.	Amount Paid Collector in 1853.	Balance due on 1st January, 1854.
			£ s. d.	£ s. d.	£ s. d.	£ s. d.
Haldimand	Levi Brocklebank.....	1 Run Stones	15 0 0			
		Ground Rent	5 0 0			
			20 0 0			
		Less $\frac{1}{2}$ until L. E. level	6 13 4			
			13 6 8			
		2nd and 3rd Run of Stones	25 0 0			
			38 6 8	57 18 4	19 11 8	38 6 8
Do.	John Beatty and Robert Bond....					
		1 Run of Stones.....	15 0 0			
		2nd do	12 10 0			
		Ground Rent	5 0 0			
		Int. on cost of flume ..	4 16 0			
			£ 37 6 0	36 12 6	.....	*36 12 6
Total amount of annual Rent			£ 2079 0 4			
Total Rent due for 1853, with arrears due to 1st January, 1853....			£ 3529 8 10			
Total Rent paid Collector in 1853.....				£ 1865 18 1		
Balance due on 1st January, 1854						£ 1663 10 9

* £10 deposited with Collector Nov. 17, 1851.

(Signed,) JOHN CALLAGHAN,
Clerk.

(Signed,) S. D. WARDRIFF.

Welland Canal Office,
St. Catherines, 12th Jany., 1854.

SCHEDULE

SCHEDULE of Lands on the Welland Canal sold to sundry persons, with the 1852, the Amount with Interest paid to Collector in 1853, and the

NAMES OF PURCHASERS.	NO. OF THE LOTS.	WHERE SITUATE.	QUANTITY.	Amount of Sale.
William B. Hendershot	11.	Village of Port Robinson.	¼ acre	£ s. d. 12 10 0
do	A. F. G.	Park Lots do	11¼ acres.....	83 16 10
do	11, 28, 29, 32, 34, 35 and 36.	Village of do East Side.	3¼ do	87 17 6
do	2, 4, 5	Village of Allanburgh.	1 acre 1 rod 28 p. Interest to 1st January, 1851.....	38 0 0 19 15 8
Charles Stuart	Island	Village of Port Robinson.	1 acre	25 0 0
do	18, 19, 20, 30, 31, 33, 38 and 39.	do do	3 do	86 10 0
do	Old Barracks.	do do	Interest in full	15 0 0 9 16 7
Dilly Coleman	21, 16 and 24.	Village of Port Robinson.	1½ acre	50 0 0
do	213.....	Near do part Marsh.	20 acres	50 0 0
		Interest to 1st January, 1854.....		8 10 7
John Coulter	H. S.	Near Port Robinson.	8 acres 1 rod	47 3 9
do	M.	Deep Cut, West Side.	15 acres 2 rods	58 2 6
		Interest to 1st January, 1854.....		8 19 5
George Jordan	B. J.	Park Lots near Port Robinson.	17 acres 1 rod 25 p. Interest to 1st January, 1854.....	127 10 9 11 16 10
James Griffiths.	C. D. E.	Near Port Robinson.	13 acres 1 rod 27 p. Interest in full	102 5 0 7 13 4
Patrick Finlay	22, 23 and 24.	Allanburgh Hotel and Barns.	¾ acre	204 0 0
do	19.....	Village of Allanburgh	¼ acre	8 15 0
		Interest to 1st January, 1854.....		20 14 10
John Brown	23	Village of Port Robinson.	¼ acre	50 0 0
do	3 and 4	Near Thorold	18 acres 0 rod 21 p.	153 10 9
Richard Campbell.	Park Lot	Near Allanburgh	3 acres 2 rods 2 p.	125 16 8
William Bouck	2 and 4	Near Thorold	21 acres 1 rod 20 p. Interest to 1st January, 1854.....	10 14 8
Owon Clifford	Part of Lot No. 12.	9th Concession Grantham	½ acre	5 0 0
Fredrick Holmes	Part of Lot No. 26.	7th Concession Crowland.	71 acres 1 rod 10 p. Interest in full	178 5 0 14 7 11
James R. Benson	On behalf of	Company for Hydraulic Lots below Thorold.	211 acres 1 r. 17 p. Interest to 1st January, 1854.....	2113 11 3 120 16 3

No. 5.

Amount of Sales and Amount with Interest paid thereon, to 31st December, Balances due on 1st January, 1854, with Interest included.

Amount of Sale with Interest charged to 1st January, 1854.	Amount with Interest paid to 31st December, 1852.	Amount with Interest paid Collector in 1853.	Balance due with Interest to 1st January, 1854.	REMARKS.
£ s. d.	£ s. d.	£ s. d.	£ s. d.	
242 0 0	121 2 1	68 17 9	57 0 2	£1 9s. 1d. Interest included in balance due to 1st January, 1854.
136 6 7	63 15 0	72 11 7		In full.
108 10 7	54 10 0	28 0 0	26 0 7	£1 0s. 7d. Interest included in balance due on 1st January, 1854.
114 5 8	57 7 9	29 8 10	27 9 1	£1 2s. 4d. Interest included in balance due on 1st January, 1854.
139 7 7	63 15 4	36 7 10	39 4 5	£1 11s. 11d. Interest included in balance to 1st January, 1854.
109 18 4	55 14 6	54 3 4		In full.
233 9 10	118 6 9	63 3 4	51 19 9	£0 7s. 9d. Interest included in balance due on 1st January, 1854.
203 10 9			203 10 9	To be arranged on settlement of his claim for lands taken. Forfeited.
136 11 4	68 11 7	35 4 8	32 15 1	£1 5s. 11d. Interest included in balance due on 1st January, 1854.
5 0 0		5 0 0		In full.
192 12 11	44 11 3	148 1 8		In full.
2234 7 6	502 14 3		1731 13 3	£120 16s. 3d. Interest on balance to 1st January, 1854.

SCHEDULE
SCHEDULE of Lands,

NAMES OF PURCHASERS.	NO. OF THE LOTS.	WHERE SITUATE.	QUANTITY.	Amount of Sale.
Alex. Lattimore	Lots part 34, 35, 36 South.	3rd Concession Wainfleet	488 acres	£ s. d. 244 0 0
		Interest to 1st January, 1854		7 2 0
Jonas Augustin	North half of Lots 2 and 3.	2nd Concession Wainfleet	200 acres	125 0 0
Lewis Sheekluna	Lot 21	4th Concession Crowland	100 acres	175 0 0
Municipality of the County of Welland. } do } Part of Lot 27 }	Lands do do do	Wainfleet Humberston do	10,796 acres 2,048 do 68 do	3228 0 0 116 4 0
Edwd. Lee	Half of Lot 17, South half of North half.	3rd Concession Wainfleet	50 acres	31 5 0
Edwd. Henderson	North part of Lots 26, 27, and 28.	3rd Concession Wainfleet	416 acres	208 0 0
		Interest to 1st January, 1854		5 12 9
Honble. W. H. Merritt.	Dry Dock	At St. Catherines		625 0 0
		Interest from 1st July, '46, to 1st Jany., '54		206 5 0
William Hamilton	North part of Lot 25.	3rd Concession Wainfleet	109 acres	54 10 0
		Interest in full		3 17 5
Henry Douthett	Old Dwelling and Barn from off Lot 6 at	Colborne		25 0 0
Thos. Armstrong	2 Oil Barrels			0 10 0
Alex. Forbes	Lard, Oil, not fit for use			2 10 0
				£ 8341 10 0
		Interest		£ 572 7 3

WELLAND CANAL OFFICE,
St. Catherines, 12th January, 1854.

No. 5.

&c.—(Continued.)

Amount of Sale with Interest charged to 1st January, 1854.	Amount with Interest paid to 31st December, 1852.	Amount with Interest paid Collector in 1853.	Balance due with Interest to 1st January, 1854.	REMARKS.
£ s. d.	£ s. d.	£ s. d.	£ s. d.	
251 2 0		75 0 0	176 2 0	£7 2s. included in balance to 1st January, 1854. Bond and Mortgage taken for balance on five instalments, with Interest from 18th April, 1853.
125 0 0		125 0 0		In full.
175 0 0		175 0 0		In full.
3344 4 0		322 16 0	3021 8 0	£116 4s. Interest, to 1st January, 1854, included in balance.
31 5 0		31 5 0		In full.
213 12 9		62 8 0	151 4 9	£5 12s. 9d. Interest to 1st January, 1854, included in balance. Bond and Mortgage taken in four annual instalments for balance with Interest from 6th May.
831 5 0		656 5 0		
58 7 6		58 7 6		In full.
25 0 0		25 0 0		
0 10 0		0 10 0		
2 10 0		2 10 0		
£8913 17 3	1150 8 6	2070 0 11	5693 7 10	

(Signed,) JOHN CALLAGHER,
Clerk.

(Signed,) S. D. WOODRUFF.

SCHEDULE No. 6.

STATEMENT shewing first the Vessels whose Fines and Damages were unpaid on 1st January, 1852, and secondly the Vessels and other property passing through the Canal, with the amounts levied thereon in 1853, and paid in to the Collector, and the Balance due on 1st January, 1854.

Date.	Description.	Name.	Amount of	Amount of	Amount paid	Balance
			Fine Levied.	Damage Levied.	Collector in 1853.	due on 1st Jan'y, 1854.
			£ s. d.	£ s. d.	£ s. d.	£ s. d.
1848. . . .	Schooner.	Rachel		311 18 8		311 18 8
1850. . . .	Do	Jas. Ward		1 5 0		1 5 0
Dec. 3. . . .	Brig	Liverpool		328 10 0	160 6 5	
1851. . . .	Propeller.	James Ward		10 0 0		10 0 0
May 21. . . .	Schooner.	Hulton		2 15 0		2 15 0
1852. . . .	Do	Pomona		0 15 0	0 15 0	
Augt. 18. . . .	Do	Chesapeake		3 0 0		3 0 0
Sept. 7. . . .	Steamer	Reindeer		1 5 0	1 5 0	
" "	Do	Western Miller		0 15 0	0 15 0	
" "	Propeller.	Vermont		12 10 0	12 10 0	
Oct. 13. . . .	Schooner.	Boston		1 10 0		1 10 0
" 22. . . .	Do	West Chester		2 10 0	2 10 0	
Nov. 3. . . .	Do	Sultan		1 10 0		1 10 0
" 8. . . .	Brig	Superior		10 0 0	10 0 0	
" 30. . . .	Do	New Haven		1 0 0	1 0 0	
Dec. 4. . . .	Schooner.	Pomona		1 5 0	1 5 0	
" 6. . . .	Do	Queen of the West		150 0 0	150 0 0	
1853. . . .	Raft	Saw Logs		5 0 0	5 0 0	
April 4. . . .	Schooner.	Pomona		2 10 0	2 10 0	
" 9. . . .	Do	Josephine	2 10 0		2 10 0	
" 12. . . .	Do	Minesata	2 10 0		2 10 0	
" 13. . . .	Do	Armeda	2 10 0		2 10 0	
" 13. . . .	Do	John E. Hunt	2 10 0			2 10 0
" 14. . . .	Do	Shakspear		2 10 0	2 10 0	
" 15. . . .	Do	Jenna	2 10 0		2 10 0	
" 20. . . .	Do	Cygnat		3 15 0	3 15 0	
" 22. . . .	Do	Christina		1 15 0	1 15 0	
" 23. . . .	Do	Manchester		5 0 0	5 0 0	
" 27. . . .	Do	Columbia		1 15 0	1 15 0	
" 28. . . .	Do	Ontario		1 10 0	1 10 0	
" 29. . . .	Do	J. C. Riggs	2 10 0		2 10 0	
May 6. . . .	Do	Albany		2 10 0	2 10 0	
" "	Do	Ellen Park		2 0 0	2 0 0	
" 10. . . .	Propeller.	Michigan	5 0 0		5 0 0	
" 13. . . .	Do	Boston		2 0 0	2 0 0	
" 16. . . .	Schooner.	Spencer		2 5 0	2 5 0	
" 18. . . .	Brig	Iroquois		1 5 0	1 5 0	
" 23. . . .	Schooner.	Odd fellow		5 0 0	5 0 0	
" 28. . . .	Do	Bellevidère	1 5 0			1 5 0
June 6. . . .	Do	Conductor		0 10 0	0 10 0	
" 9. . . .	Do	Petrel		15 0 0	15 0 0	
" 10. . . .	Do	Globe		10 0 0		10 0 0
" 11. . . .	Do	Empire		1 0 0	1 0 0	
July 2. . . .	Propeller.	St. Nicholas		10 0 0	10 0 0	
" 4. . . .	Schooner.	T. P. Hardy		2 10 0	2 10 0	
" "	Brig	New York	2 10 0		2 10 0	
" "	Schooner.	Arvin Bronson		1 5 0	1 5 0	
" 8. . . .	Raft	Cook & Calvin		1 17 6	1 17 6	
" 11. . . .	Schooner.	Northerner		2 0 0	2 0 0	
" 28. . . .	Do	Mary		1 10 0	1 10 0	
" 26. . . .	Do	Pomona		2 0 0	2 0 0	

Arranged by Department
Letter, 5th July, 1853.

Arranged by Department
Letter, 28th June, 1853.

SCHEDULE No. 6.—(Continued.)

Date.	Description.	Name.	Amount of Fine Levied.			Amount of Damage Levied.			Amount paid Collector in 1853.			Balance due on 1st Jan'y, 1854.			
			£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	
- 853.															
Augt. 12.	Raft	Jno. Ferguson	1	0	0										
July 8.	Propeller	Wisconsin				25	0	0	25	0	0				
Augt. 18.	Do	Young America				3	15	0	3	15	0				
" 1.	Schooner	John Irwin				3	15	0	3	15	0				
Sept. 2.	Scow	Western				3	0	0	3	0	0				
" "	Schooner	Empress	5	0	0				5	0	0				
" 17.	Do	Caroline Marsh				1	0	0				1	0	0	
" 24.	Do	Georganna				5	0	0	5	0	0				
" "	Do	Superior				3	0	0	3	0	0				
" "	Propeller	Northern Michigan				6	5	0	6	5	0				
" 27.	Brig	New York	1	5	0				1	5	0				
" 21.	Schooner	Gipsy				2	10	0	2	10	0				
Oct. 4.	Propeller	Cleveland	2	10	0				2	10	0				
" 9.	Schooner	Wm. Penn	2	10	0				2	10	0				
" 11.	Steamer	Ranger	1	5	0				1	5	0				
" "	Schooner	Coleman	1	5	0				1	5	0				
" "	Do	Ospray				1	10	0				1	10	0	
" 15.	Do	Peerless				7	10	0	7	10	0				
" 17.	Raft R. R.														
	Tim.	A. Fennie, two £6.	10	0	0	12	9	5	22	9	5				
" 18.	Schooner	John Irwin	2	10	0				2	10	0				
" 27.	Do	Oriental				0	10	0	0	10	0				
" 31.	Propeller	Dayton				2	10	0				2	10	0	
Nov. 1.	Schooner	Merrimack				2	0	0	2	0	0				
" "	Propeller	Granite State				3	15	0	3	15	0				
" "	Schooner	Robt. Wood	5	0	0							5	0	0	
" 10.	Brig	Neudeus				2	0	0				2	0	0	
" 11.	Schooner	Traveller				2	0	0	2	0	0				
" 12.	Do	Emblem				3	15	0				3	15	0	
" 15.	Do	Jane Ann Marsh				1	5	0				1	5	0	
" 21.	Raft	J. McDonald	10	0	0	9	12	6	19	12	6				
Dec. 1.	Do	E. Gifford	10	0	0	4	0	0	14	0	0				
" "	Do	J. McDonald	15	0	0	14	15	4				29	15	4	
			£	96	0	0	1042	13	5	576	0	10	392	9	0
Less Amount of Damages reduced by Department Letter of 5th July on Brig Liverpool						168	3	7							
			£	96	0	0	874	9	10	576	0	10	392	9	0
Collector at Port Robinson						15	5	0				15	5	0	
Do Dunnville						5	0	0				5	0	0	
			£	116	5	0	874	9	10	598	5	10	392	9	0

(Signed,)

S. D. WOODRUFF.

Welland Canal Office,
St. Catherines, 12th January, 1854.

APPENDIX B.

BYTOWN, January, 1854.

SIR,—I have the honor to transmit to the Department in accordance with instructions, my Annual Report of the Works under my charge, shewing a detailed statement of the Expenditure on each during the last year—also works now in progress—the amounts expended on them, and the amount that it will acquire to complete them—also a Schedule shewing the different certificates granted, names, dates, and amounts, the bills for chains, ropes and other materials being attached to the certificates as vouchers.

I beg also to remark upon the condition of the Ottawa, Madawaska and Gata-neau works as follows, viz :—

Joachim Slides.

The lower or long Slide built by Gerard Neagle, begins to shew marks of decay but I think will stand safely through next season; the foundation and floor are good. Removing the side posts, and replacing them with side piers filled with stones would make the slide permanent; this I would recommend to be done next season.

Calumet Slide.

The side posts of the long Slide have commenced to rot, but I think will do next year's business, and I would recommend that next season the posts be removed and replaced by side Piers. The foundation of this Slide is good, the floor plank is of white oak, and in good condition.

Mountain Slide.

This Slide is very sound; floor plank of White Oak and in good condition.

Portage du Fort Slide.

These works are in good repair being all nearly new.

Chats Slide.

This Slide is in good working order; the floor planks are getting worn thin, but it will last for next year's business and after the season is over they will require to be removed.

Chaudiere Slides, Bytown.

Are all in good condition.

Hull Slides.

The Upper Long Slide is in good order; the Lower Slide is under contract for repairs. The facing up of the Long Guard Pier at the head of the Long Slide proves to be a great improvement; the contractor has made an excellent job of it, and the slide will, in consequence, be furnished with sufficient water at all seasons.

Gatineau Works.

After the present contract is completed, I am satisfied that these works will be equal to any immergency likely to occur on that River.

Madawaska.

The Slide at the High Falls is built on very high frame work, and begins to shew some marks of decay. I have examined it closely and do not think it will require any repairs for some time. The new works on the Madawaska River consist of—

The Dam and Slide at Arnprior, which are nearly completed.

Two New Dams at Flat Rapids, now completed.

Booms not commenced, but will be as soon as the ice will answer to work upon

The New Retaining Booms at the mouth of the Madawaska.

The New Boom at Head of Flat Rapids.

The New Boom at Head of Long Rapids.
 The New Boom at Head of Caleboga Rapids.
 Repairing Main Guide Boom at High Falls.
 Side Dam in Long Rapids.

Bridges.

The Union Suspension Bridge, Bytown, has been painted this season, and is in good condition; and, with the new line of Bridges just completed at the Chaudière Falls, the communication between Bytown and Hull is now safe and complete.

I have the honor to be, Sir,
 Your most obedient humble servant,

HORACE MERRILL,
 Supr. Ottawa Works.

SCHEDULE shewing Certificates granted from January, 1853, to January, 1854.

		£	s.	d.			£	s.	d.
1853.					1853.				
Jan'y 19	William Richardson	164	3	2	Aug't 26	Don'd. Kennedy	168	5	4
" "	Do do	186	19	9	Sept. 2	John A. Snow	2	18	0
March 2	Messrs. McDonald & Cass	55	11	4	" 5	James Stern	27	12	7
" 5	Andrew Johnstone	49	16	3	" 6	McDonald & Cass	65	14	8
" 12	Wm. Richardson	193	15	10	" 12	Don'd. Kennedy	334	6	0
" 16	Jno. A. Snow	22	2	0	" 22	N. Burwash	208	5	0
" "	N. Burwash	80	18	2	" 26	Amount of Pay list for			
" "	Do do	52	15	0		Blasting Reef at Calumet	72	11	8
" 21	Messrs. McDonald & Cass	65	13	3	" "	N. Burwash	125	13	10
" "	Edward Dufton	77	12	2	Oct. 16	Alex. Stuart	22	10	0
" 29	N. Burwash	104	2	6	" 15	N. Burwash	341	12	2
" "	Do do	100	18	9	" 17	Wm. Richardson	64	2	11
April 2	Edward Dufton	40	5	5	" 18	Don'd. Kennedy	197	18	7
" 8	Wm. Richardson	217	15	1	" 28	McPherson & Crane	24	15	9
" 11	N. Burwash	63	15	0	Nov. 1	Morgan Curry	3	15	0
" 15	Edward Prow	24	17	6	" "	Wm. Mason	4	0	0
" "	Geo. Hay	23	7	6	" 6	Edward McGillivray	21	11	3
" 16	Jno. A. Snow	6	19	0	" 21	Wm. McLesse	83	2	10
" 26	N. Burwash	176	14	7	" "	Mr. Holt	2	0	0
" 28	Do do	65	16	4	Dec. 3	Lyman Perkins	6	17	9
" "	Do do	61	12	6	" "	Andrew Johnstone	4	18	9
" 29	Do do	140	8	10	" "	Philip Thompson	2	16	0
May 7	Don'd. Kennedy	123	11	10	" "	N. Burwash	10	16	11
" "	Wm. Richardson	163	5	6	" "	Robertson, Jones & Co.	39	2	8
" "	McDonald & Cass	127	10	0	" "	McDonald & Cass	350	4	3
" 13	N. S. Blasdell	65	19	6	" "	Workman & Griffin	231	0	10
" 14	Edward Dufton	52	4	7	" 2	Do do	16	19	11
" 25	N. Burwash	178	7	11	1854.				
" "	Do do	118	4	6	Jan'y 5	N. Burwash	203	15	2
June 4	Do do	118	18	10	" "	Duncan & Stuart	471	1	4
" 8	McDonald & Cass	72	6	7	" 17	Currie, Dickinson & Co.	3	19	0
" 13	Wm. Richardson	201	19	11	" "	Tiberius Colton	7	11	0
July 5	McDonald & Cass	143	3	1	" "	T. M. Blasdell	5	9	4
" 6	S. C. Kerr	25	0	0	" "	Edward Prow	2	11	7
" 8	Don'd. Kennedy	106	5	0	" "	Union Forwarding Co.	27	2	8
" "	Wm. Richardson	164	0	2	" "	N. S. Blasdell	1	1	0
Aug't 1	Robert Thompson	13	12	10	" "	Do do	1	5	0
" "	Alex. Stuart	60	0	0	" "	George Hay	5	6	11
" 12	Do do	81	8	9	" "	Robert Bell	3	12	8
" 21	John Donnelly	6	11	0	" "	Jas. B. Monk	11	0	0
" 24	McDonald & Cass	59	2	3	" "	Clough & Campbell	100	6	0
						Total	7149	6	14

APPENDIX C.

PUBLIC WORKS,
QUEBEC, 30th March, 1854.

SIR,—The preliminary Surveys to determine the most eligible route for the construction of a navigable channel through or around the barrier that separates Lakes Chaudière and Chats on the Ottawa river were completed in October last. Maps and Profiles shewing the position of the respective lines surveyed, the natural difficulties to be encountered on each, together with an estimate of the several routes were submitted to the Department by W. B. Gallwey, Esq., the gentleman under whose direction the surveys were conducted.

About the middle of November following, agreeable to instructions, I examined the locality with a view to a final decision being made on the arrangement of Lockage, the probability of obtaining the necessary materials for construction, together with such other available information as would aid in preparing plans, details, &c., prior to the work being placed under contract. The manner these instructions were carried out may be seen on reference to the Documents themselves and former letters relating to the subject.

In further compliance with your instructions of the 15th instant, I have the honor to submit the following general report.

1st.—Location of the proposed Canal, although the general question of location did not come within the range of my first instruction. I felt that justice to the Department and the public, demanded at least a cursory examination of the several lines proposed, inasmuch as considerable diversity of opinion seemed to exist as to the proper line that should be adopted, believing at the same time that in the location of works of a Provincial character the Public and not Local interest should be consulted, and knowing that the works in question, however extensive, are in a measure but preliminary to those that must subsequently be undertaken in order to make the present contemplated improvement to any great extent available in opening up trade and commerce to and through that vast and important tract of Country drained by the Ottawa and its tributaries. The river itself is second only in point of size and importance to the St. Lawrence, which from its confluence with the latter westward, forms many extensive Lakes, separated from each other either by a perpendicular fall, or sudden descent in the surface and of course the bed of the River. These Rapids and Falls limit the navigable portion of the River, and from their nature present many obstacles to the formation of an artificial channel; all or any portion of which can, however, by judicious arrangements be overcome at an expense proportionate to the magnitude of the undertaking.

With a view to render the above more intelligible, the following brief statement is submitted, viz:—

	Miles.	Feet.	Feet.
Assuming the lower outlet below St. Anne's Locks as a datum line	0.00	0.00	0.00
Rise above Lock St. Anne's.....	.....	3.00	3.00
From St. Anne's to Carrillon Lake of two Mountains navigable	23	.....	.....
From Carillon to Blondeau (two Locks up and one down).....	4½	8.00	11.00
Chute à Blondeau Canal (one Lock) .....	.....	4.00	15.00

From the head of Blondeau to head of Grenville Canal (six Locks).....	6½	35.00	50.00
From Grenville to Bytown (navigable).....	58½	.....	.....
From the lower entrance of the Rideau Canal to Lake Chaudière.....	6	63.00	113.00
From the foot of Lake Chaudière to Rapids des Chats navigable.....	25	.....	.....
From the Falls Rapides des Chats to Chats Lake.....	25 ⁵ / ₈	49.80	162.80
Chats Lake navigable.....	25	.....	.....
Total distance to foot of Chats Lake from St Anne's Lock.....	151½	.....	.....

Lake Chaudière, if I am correctly informed, has a sufficient depth of water at all seasons for vessels of from 5½ to 6 feet draught, but during the greater part of the year the depth is much greater, the difference between high and low water being about 6 feet.

The Channel followed by the Steamboat that plys on the Lake lies towards the north shore, at the upper end it connects with a large Bay that bears towards the north, which under the lee of several Islands and a projecting point of the main land forms a means of communication with the lower terminus of a Railway, that leads to the Steamboat landing on Lake Chats. The Country in the immediate vicinity of, and above the Bay is extremely rugged and mountainous.

Below the Falls and between the north and south shore are situated a number of Islands some of them of considerable area, the channel taken by the Steamboat when passing to the south shore is between the head of the Islands and the Falls.

Fitzroy village containing nearly 600 inhabitants is situated on the south side of the River a little below the Falls. The Wharf in front of the village is accessible by Steamboat through the channel above mentioned, except at certain seasons when much Lumber is passing down the Slide on the south side of Victoria Island, at these times the passage is said either to be dangerous or in a great measure obstructed.

The barrier between the Lakes consists generally of primitive Limestone with granite interposed and throughout the entire width of the River presents a bold outline facing towards the east over which the River is split up into many different sections by the Islands above, and has a direct fall of nearly 38 feet. These Islands are numerous, some of them flat and in positions well adapted for Milling purposes, others are high and bluff and irregular, unsuited to any purpose.

The Rapids extend from the brink of the Falls for upwards of two miles westward, in some places they form only a moderate swift current, at others the descent is sudden and requires all the skill and energy of Pilots in charge of Rafts to keep them in the proper channel while running the rapids especially in heavy squalls.

From this short description of the locality and a reference to the Map it will be seen that in order to effect any thing like an efficient and permanent improvement of the navigation, it is desirable that the channel should be at some distance from the rapids, and from the immediate vicinity of the Falls, with a view to that object three distinct lines were examined.

First.—On the north side of the River nearly in the line formerly adopted by R. Wright, Esq., for Slide navigation distance between the Lakes by this route is 26 miles.

Second.—Through Victoria Island, distance between the Lakes by this route 3 miles.

Third.—By the Mississippi River and Snye distance between the Lake 6 $\frac{1}{2}$ miles.

Thus it will be seen, that the relative positions of the lakes makes any line of connection between the head of the Rapids and the terminal point below the Falls greater on the south side of the River than that on the north, and a comparison of the respective entrances to and from each line is still more marked which unquestionably is of even greater importance than the distance.

At the head of the Mississippi route has been formed an extensive sand bar, which although removed from the position of the Bay would be likely to accumulate rapidly every season, hence an endless system of dredging would be the result.

At the lower entrance to this route the direct line between the main shore and the Island being shallow and the bottom for a distance of nearly a mile rock; at the same time a passage between the head of the Island and the Falls crosses the line of the slides situated on the South of Victoria Island, but even if the latter objection could be waived another of no less import consists in the proximity that a vessel must pass the Falls.

The lines through Victoria Island would consist of two distinct sections of Canal, between which would be a considerable declivity, and of course current. The Raft channel to the slide crosses the line and immediately on the other side is the rapid that leads to the great Chute.

In fact it is difficult to form an idea of how any craft could navigate this line, having to pass immediately under and parallel with the Falls at the lower entrance up a rapid current above the Island, and at certain seasons in danger every moment of being run foul of by an unmanageable Raft that cannot leave the line without being liable to be carried into the more immediate rapids and over the Falls.

The upper entrance would be an exposed position, shoal for a considerable distance outwards consisting partly of a Rock and part of a sandy bottom.

The North line terminates in deep smooth water at either end, affording easy access to and from Chats Lake at the upper entrance, and to Big Bay a part of Lake Chaudiere at the lower entrance. The Raft channel being on the South side of the River no interruption will be experienced from that source; the danger and uncertainty of crossing immediately under the Falls will be avoided, and the shortest line for connecting the two Lakes followed.

Thus the chief matter of consideration that ought to influence the location will doubtless be obtained by adopting the North. This line as already stated follows the course of a natural ravine on the route formerly adopted for slide navigation where upwards of 11,000 cubic yards has been done nearly all of which will be available the greater portion of the ravine although tortuous is sufficiently deep and wide to afford ample water way without the necessity of excavation except at a few points. The banks are high and will allow the summer level of Chats Lake being carried as far downwards as the location of the lower Locks and reaches between them will admit, it will however, be necessary to construct two Dams, one 100 feet, and the other 150 feet long at the places represented on the map, for the purpose of retaining the water in the Canal, where the ravine connects with the River, at these points a large quantity of water power will be available, hence the prudence of acquiring the necessary land for the erection of mills will be evident.

The greater portion of the excavation will be at the upper and lower entrances and consist chiefly of Limestone, but at some places the appearance of granite being interposed is presented. It is therefore believed that the quantity of excavation although small in proportion to the extent of Canal formed; and advantages likely to be gained, will, from the peculiar formation be of an expensive nature.

2nd Scale of Navigation.

The valley of the Ottawa from the diversity of its resources presents inducements alike to agricultural and commercial enterprise. It is well settled on the South side for nearly one hundred miles above Bytown,—abounds in minerals, unlimited in water-power, and one of the most valuable Timber regions probably in the world, as may be seen by the following extract from a Report made by A. J. Russell, Esq., of Bytown to the Crown Land Department in June 1852.

“On principles of calculation admitted by persons of experience to be correct, after making deduction for barren ground and future destruction by fire, it is estimated that there might be still standing in the Ottawa and its tributaries about 45,811,200 tons of timber of the kinds and average dimensions now taken to market and about 183,244,800 tons of a smaller size that might be made use of.”

Thus it will be seen that at the present rate of consumption 130 years will not exhaust the supply, independent of the natural growth during that period. The above has reference only to the qualities now brought to market, whereas the opening of a line of navigation to admit of an extension of Saw-mill operations, further into the interior would render much of the smaller sizes of Timber equally available and valuable, while by the same means a home manufacture and consumption would be created, tending greatly to induce settlement, and economy in preparing the Timber for transportation.

This section of Country already requires and has an import trade greater for the population than any other part of the Province, and an export trade fully double in value to that of any equal population in either this Province or the United States, and from its steadily increasing number of Settlers taken in connexion with its rapidly advancing commerce.

It appears a matter well worthy of consideration whether the works about to be constructed should be adapted only to present demands, or with a view to a still further increase likely to be brought about, or at least aided by the improvements contemplated. That the latter course is the most prudent one to follow, may be inferred from the present experienced inadequacy of some of the Canals constructed both in this Country and the adjoining States, where either an enlargement is in progress or called for, or an additional line to meet the wants of the trade demanded. It being a well known fact that facilities of transportation not only lessen the expense of valuable articles brought from a distance, but draw towards the channel thus formed, bulky, and less valuable commodities that would otherwise have gone to waste.

The Ottawa as already stated, from its junction with the St. Lawrence consists of a series of Lakes, connected by rapids of greater or less length. These Lakes, although wide, have at many places a deep channel comparatively narrow, the intricacies of which, together with the limited depth of water, render Steam-boat navigation almost indispensable, it being a well known fact that in a Lake where the channel is narrow and remote from the shore, some motive power must be applied, other than the wind to urge a craft onwards to its destination, otherwise detention likely to result occasionally in wreck and disaster may be expected.

And it is equally true that a class of steam vessels of much less dimensions than those at present navigating the St. Lawrence Canals cannot be profitably employed in carrying either freight or passengers.

Hence as a depth of barely 6 feet water at low stages of the River can only be obtained, it is evident that in order to pass vessels of a moderately profitable tonnage, the Locks and prism of the Canal should be made sufficiently capacious to admit vessels of at least a like length and breadth of beam to those that at present pass through the outlet Lock at St. Anne, such being in reality only carrying out the scale hitherto adopted by the Government for the Ottawa navigation.

Due attention has been given to the scheme of adopting the scale of the Rideau Canal Locks and using the combined Locks at Bytown as a portion of the Ottawa works, but the project has many and serious objections apart from the very limited craft that could pass through them ; some of these objections may be enumerated as follows, viz :—

1st. The Rideau Canal is 22 feet above Lake Chaudière consequently the supply would have to be drawn for both upward and downward Lockage from the Rideau, which according to the best information obtained is barely sufficient at certain seasons to supply present Lockage and the water power leased, if such be the case with the present limited trade on the Canal it would certainly be imprudent to attempt drawing a still further supply.


2nd. The distance of Canal to be made would be upwards of ten miles, and would require three Locks, that is to say, two Lift Locks and a guard Lock, which together with the great detention of so much Lockage and the liability to accident of a range of combined Locks, form a few of the reasons why, in my opinion the Government should avoid using any portion of the Rideau Canal in connexion with the Ottawa improvements.

If this view of the subject be correct, an independent cut should be formed on either the North or South side of the River. The latter from a cursory examination made, appears to be the most favorable, and to judge from the locality, I am of opinion that a Canal adapted to Steam-boat navigation could be made at about double the amount it would take to effect a junction with the Rideau Canal, while the respective merits of the two projects will scarcely bear a comparison as regards the advantages likely to be gained, I have therefore no hesitation in recommending to the Commissioners the adoption of an independent cut at Bytown and the scale of navigation throughout, suitable for the class of Steamers that ply on the lower portion of the River.

All of which is respectfully submitted.

(Signed,)

JOHN PAGE,
Engineer Public Works.



Appendix D.

QUEBEC, 17th June, 1854.

SIR,—The extraordinary flood of last Spring, having shewn the necessity of adding to, and strengthening the works which have already been undertaken on the St. Maurice, I beg leave to enclose you herewith, for the information of the Commissioners, an estimate of the probable cost of such additions to the works, as I conceive to be indispensably necessary to ensure the safe descent of timber, as well as to render it perfectly secure in the booms at the mouth of the river, after it has passed down.

I also enclose a statement of the expenditure which has already taken place on the different works.

As I have already explained in previous reports, the working of the booms and slides last year, was attended with complete success. In consequence of this satisfactory state of things, limits were eagerly sought after, and the operations of the lumbermen during the past winter were greatly extended; individual companies undertook the improvement of some of the tributaries, roads were cut for a long distance through the woods from the settlements to the scene of their operations, and farming produce was readily purchased at prices highly remunerative to the agriculturist, which as may be supposed had the effect of giving a very decided impulse to settlement in the back woods. Among other evidences of progress, I may mention that a Steam Saw Mill on a very extensive scale has been erected at the mouth of the St. Maurice by an American firm, while other Companies have it in contemplation, to engage in enterprises of a similar character. A Steamboat is now being constructed to ply between the Grande Piles and the falls of La-Tuque. In the town of Three Rivers, and in the country adjacent, property has greatly increased in value, and the people in that vicinity in general have experienced such a course of prosperity as had not been known for a long time previous to the commencement of the works, such are among the effects of having thrown open to the enterprise of the lumbermen, a territory, which before the works were undertaken by the Department, was a complete wilderness.

The damage occasioned by the extraordinary flood of last Spring, and the loss which some of the lumbermen have sustained through their own imprudence in placing their timber on the ice, on the Main St. Maurice, will have but a slight effect in checking the spirit of enterprise which has already manifested itself with such beneficial results, providing such additions are made to the works, as will with proper management on the part of the lumbermen themselves, ensure under all circumstances the safety of their property.

I shall now proceed in the first place to offer some remarks on the accompanying estimates. In the next, I shall relate briefly the manner in which the losses already alluded to have occurred, and I shall then explain the method of "driving" which in my opinion the lumbermen ought to adopt in order to ensure this timber being brought rapidly and safely down the St. Maurice.

Booms at the mouth of the St. Maurice.

A great quantity of timber having come down when the flood was at its extreme height, there was for some time an immense pressure on these booms. The main cross boom, in front of which the stoping piers were built last winter, held firmly throughout, and it is to it that the safety of the timber is principally owing. The side boom in front of the square piers bent considerably, and apprehensions were at one time felt for it, but upon its being doubly bound with chains, it was rendered perfectly secure.

The glance boom in the east channel having filled up too far, gave way once, letting loose a comparatively small quantity of logs, but it was immediately replaced in its position, and by raftering a part of the timber as it came, and passing a portion of it into a boom placed lower down, the recurrence of a similar accident was prevented. On the accompanying estimate, twelve new piers are provided for; three of these it is intended to place in the east channel, three at the head of Isle Cauchon, four at the Main boom, one at the gate in the West Channel above the bridge, and one below the main Boom; which latter will be so placed as to afford some what greater facilities for rafting. The mooring posts specified in the estimate, will be built up part of them on the shore of Isle Christophe, and from these long chains will be extended to the boom; others of them will be placed about the islands, so that rafts may be fastened from them, while timber is being passed from the booms.

Grai Falls.

Eight small cribs are proposed to be sunk at this place, for the purpose of keeping the glance booms in their position, and facilitating their being extended in the Spring.

Shawenegan.

During such a flood as occurred last Spring, I am convinced that no retaining boom could stand in the lower Shawenegan Bay, unless the timber was made to rest on sloping piers placed in front of it as at the main cross boom at the mouth of the river. I would therefore, propose to build sixteen additional piers, and with these I am confident that the boom will be secure.

The crib work in the large eddy requires to be heightened, and a similar facing of crib work requires to be built up on the east side at a bend in the shore nearly opposite the foot of the slide where timber is sometimes greatly injured. The probable cost of construction of all of which is included in the estimates.

The additional four cribs which it is proposed to sink in the upper bay, and the six piers which are required for the support of the long glance boom, leading from the upper island to the east main shore below the Hetres Rapids, will render it a matter of ease and safety to extend the guide booms in the spring, and will be the means of saving a great deal of time, and expense, in placing them in their position.

Grande Mère.

The small flat dam at the head of the west channel, put up in the spring of 1853, at a cost of about £75, was on the 8th day of May last, carried off by the ice, four buoys with chains were also carried off. The chains in value about £100,—will I am confident be recovered at low water. The want of the small dam does not affect the working of the slide at the present pitch of water, but it should be replaced by a larger and more substantial one, loaded solid with stones as provided for in the estimate. When the flood of last spring was at its height, the water was almost level with the main dam, (which is already raised 25 feet over low water.) I have in consequence proposed to add two courses to its height, which will do away with all risk of the water ever passing over it. The small cribs eight in number which it is proposed to sink, will greatly facilitate the placing of the guide booms in the spring, and will also lessen the expense.

Falls of La Tuque.

As this is the only place at which the works have sustained any considerable damage, and as I could not leave the other works to visit so distant a station, I subjoin the account which the person who was in charge at that place gives of the loss and the manner in which it occurred.

As soon as he saw the river as he supposed completely clear of ice, he had the booms extended and everything put in good working order. For several days there was no appearance of ice; but on the 13th of May he observed a large field coming down which filled the river from side to side. In order to save the booms he made all haste to unfasten the chains, and allow them to swing ashore, but before he could accomplish this the ice came against the Main boom and broke through it, carrying 1300 feet of it over the falls. At the same time the cover of the large dam was broken, but he does not suppose the injury to it is serious. The loss of the booms however which was of the best and most costly kind, cannot be set down at less than £487 10s. 0d. There was in all 4000 feet of broad boom at La Tuque, 1300 feet of which is now lost. The cost of replacing it have included in the estimate; The sum set down to complete the other works at LaTuque will, I am confident be sufficient as there is already a large Stock of material and supplies on hand at that Station.

With regard to the proposed works generally, when the water falls sufficiently low no time should be lost in commencing operations. At LaTuque there is abundance of material on hand, and at the mouth of the river there is enough to make a beginning. At the Grande Mére, Shawenegan, and Grai's Falls, stones should be collected and piled for filling the piers with, which latter should be built in winter when the timber required for their construction can be drawn out of the woods.

I come now to speak of the losses which some of the lumbermen have sustained, and as it has suited the interest, or convenience, of such of them as had squared timber on the main St. Maurice, in the vicinity of the Falls of LaTuque, to attribute these losses either to the uncontrolable nature of the river, or the management of the works, it becomes my duty to explain to the Commissioners, that in as far at least as they are concerned, the injury done to their timber was occasioned solely by their own imprudence in having placed it on the ice, where it was beyond their power to retain it until the booms should be extended, and the river in a fit state to pass it down; and to prevent the evil which may arise from reports utterly incorrect, and prejudicial to the interests of the territory being put in circulation, and gaining a credence which they now deserve. I would respectfully suggest the propriety of giving publicity to the statement which I now make.

The St. Maurice in the facilities which it affords for the safe and rapid descent of timber, is unequalled by the Ottawa or any other river with which I am acquainted, but to avail themselves of all its advantages it is necessary that the lumbermen should refrain from putting any of their timber on the ice.

I speak of the main St. Maurice, where, from the rapidity of the current the ice piles up edgewise, forming in some places into ridges of an enormous thickness, accumulated thus, as may be supposed it is not much affected by the thaws of the spring, but on the coming down of the flood which is sometimes very sudden, it breaks up into large fields which are swept on with a force and speed which nothing can resist. This applies especially to the long reach between the Grande Piles and the Falls of LaTuque, where the principal part of the timber that broke adrift was made. At the Grande Mére, and Shawenegan, sheltered at these places are to a considerable extent by islands, the action of the ice is less violent, nevertheless it is such as to carry any boom which should cross the river before it in an instant, and it would, in consequence be an act of manifest folly either to leave the booms extended in the fall, or to attempt placing them in the spring before the river was completely clear of ice.

It is therefore evident, in the first place, that timber laid upon the ice would be carried off, and in the next that coming down with the ice as it certainly would, it would inevitably be swept over the falls before the booms could be extended to guide it into the Slides.

Fully aware of this after I had spent one season on the St. Maurice, I kept an advertisement for months in the papers, recommending the lumbermen to take the proper precautions to prevent their timber from getting adrift with the ice in the main St. Maurice.

Perceiving that this warning was utterly disregarded by the persons engaged in the manufacture of square timber during the past winter, in order to save them in as far as possible from the consequences of their own imprudence; I placed on the works previous to the clearing away of the ice, double the number of hands that would be required under ordinary circumstances. The men in charge at the different stations were the same who the year previous had worked the booms and slides with complete success, and the hands employed were the best and most experienced that could be found. As soon as the ice had so far cleared away as to admit of the attempt being made, every exertion was used to have the guide booms extended, and the slides put in operation, but before the booms were clear of ice in the bays where they had lain during the winter, a great quantity of logs had passed down.

Every experienced lumberman is aware of the difficulty of extending booms in a rapid current while timber is descending, and of the danger as well as difficulty which attends the operation when they have to be placed at the head of falls which present the prospect of instant destruction to the workmen, in the event of their being upset, or losing their footing. At Shawenegan seven men were upset two of them were swept over the falls; at the same time several of the people at the Grande Mère had a very narrow escape. These accidents had the unfortunate effect of intimidating the men so much that it was scarcely possible to get any one to work. The attempt to place the booms was however, again and again renewed; but the quantities of timber in the river coming down too at the height of a most unusual flood, rendered every effort unavailing and they had ultimately to be drawn in until the flood subsided a little when they were at once placed in their position, and the slides put in operation, but this was not until the squared timber had all or nearly all passed down.

Those who placed their timber where it could not be retained were thus the means of injuring others as well as themselves, inasmuch as through the error which they committed they were instrumental in preventing the slides from being put in operation in time.

The quantity of squared timber made on the St. Maurice during the past winter, compared to the number of saw logs was but small: the loss consists principally in the injury it has sustained in passing over the Falls, as well as in the delay and consequent expense incurred in getting it off the banks and out of the woods, where a portion of it had been carried by the flood.

By far the greater portion of the saw logs, in all about 220,000 will have had the advantage of the slides. Several thousand were carried out into the St. Lawrence chiefly of the logs which broke unexpectedly from a private boom at the Grais Falls, before the public booms could be extended at the mouth of the river, a considerable portion of these were picked up in the St. Lawrence, and I am of opinion that the quantity totally lost is but small.

The following are the arrangements which I think the lumbermen, from henceforth ought to adopt in order to insure the safety of their property.

Timber made any where along the main St. Maurice should be placed during winter on "roll-ways" for, however sheltered the situation may appear to be, experience has now shewn that it is unsafe to lay it on the ice.

When the river opens in the spring and when the ice has all passed down, a temporary boom might be extended in front of the roll-way where the timber may be, the logs should then be put in the water; that is if the situation will admit of this being done without the risk of their breaking adrift, otherwise the timber on the roll-way should not be disturbed until it has been ascertained that the public booms are all extended.

If the timber for instance has been made any where between the Grande Piles, and the Falls of LaTuque, a sufficient number of men should be stationed at the Grande Mère, and Shawenegan, to render assistance if required in passing it through the booms and slides, and to keep it from being injured in the eddies; a few should also be stationed at such other places as the logs would be likely to accumulate in, or receive injury from chaffing on the shores, where these arrangements are all made; but not till then,—the timber should be driven down with as little delay as possible. If the flood should be at a very unusual height, it would of course be prudent to wait for a few days until it began to subside, inasmuch as when the river is high over its banks, as it was for a short time last spring, a portion of the logs would be carried into the woods, and the expense and delay of getting them afloat again would be very considerable.

On the St. Maurice, there are few if any places where jams form, such as are known on the Madawaska, Gatineau, and other tributaries of the Ottawa. If therefore the logs are closely followed and kept from grounding at the shores, or on the shoals, it would not require many men to bring down the rear of the drive.

By adopting these arrangements I am of opinion that a parcel of timber might be taken from LaTuque to the mouth of the St. Maurice in eight or ten days at most. A great saving of time would thus be effected, whereas, if it is placed in winter where it cannot be retained in the spring, and if no arrangement is made for passing it down further than by stationing a party of men where it was drawn out, and placing another to receive it at the mouth of the river, with more than a hundred miles intervening without any one to look after it, or keep it out of the eddies or off the shores, it must as a natural consequence occupy weeks, and months, as in some instances it has hitherto done, to bring it down.

When several lots of timber have been made in the same vicinity it would be to the advantage of the different parties to combine their operations and drive their timber together, as if it all belonged to one individual establishment. In this way a great deal of expense would be saved, inasmuch as fewer men would be required, than if each party worked independently of the other.

Lumber made on the main St. Maurice should also be placed on "roll-ways", and none of it should be sent adrift until it is ascertained that the public boom at LaTuque has been extended, from LaTuque down the same arrangements should be made, as I have recommended for timber taken out below that place.

With regard to tributaries if timber is made upon them, where it would be likely to enter the main St. Maurice, before the ice had left, it will be proper that it should also be placed on roll-ways, or that the streams where it is should be boomed at their confluence with the main river by the parties interested.

Persons engaged in lumbering on the Matane would gain a great deal by placing a boom at the mouth of the river, for although the timber does not reach the St. Maurice before the ice has cleared away a part of it begins to come out long before the bulk of it arrives, and getting shattered along the shores of the St. Maurice at the height of the flood, it requires a great deal of labour afterwards to roll it into the water.

These arrangements, which I would respectfully suggest the propriety of recommending the lumbermen to adopt will, of necessity sooner or later be carried into effect, and when they are so, the bringing of timber down the St. Maurice will be a matter of ease, and satisfaction to all concerned.

(Signed,)

SIMON L. DAWSON.

Estimate of the cost of certain works required to complete and render effective, the works already commenced on the river St. Maurice.

Booms at the mouth of the St. Maurice require 12 additional piers for their support which will take		£	s.	d.
40,000 feet of timber	a 8d.	1333	6	8
3,150 cubic yards stone filling	a 5s.	787	10	0
12,000 lbs iron bolts	a 3½d.	175	0	0
ALSO,				
20 mooring posts built up on shores	a \$24.	120	0	0
—in addition to which,—				
allow to heighten piers already built		250	0	0
		£2,665 16 8		

SHAWENEGAN.

Lower Bay.

16 boom piers required, which will take,		£	s.	d.
48,000 feet of timber	a 5d.	1000	0	0
4,000 cubic yards stone filling	a 3s. 6d.	700	0	0
1,600 iron rag bolts	a 3½d.	223	6	8

To heighten Crib-work in great eddy, to built up a similar facing on the east side, and to heighten the piers already built, allow

400 0 0

Upper Bay.

4 additional Cribbs to be sunk for mooring booms to, will take 60,000 feet of timber	a 5d.	125	0	0
400 cubic yards stone filling	a 3s. 6d.	70	0	0
2,000 lbs iron bolts	a 3½d.	29	3	4

These piers will be about 15 feet square and sunk in fifty feet water.

6 piers are required for the support of the boom leading from the upper Island to the East main shore, below the Hetres Rapids, which will take

12,000 feet of timber	a 5d.	250	0	0
800 cubic yards stone filling	a 3s. 6d.	140	0	0
3,000 iron bolts	a 3½d.	43	15	0

These piers will be built where there is only a depth of 5 feet at low water, having a slope on the up-stream face so as to guard against their being injured by the ice.

£2,991 5 0

GRANDE MERE.

Required at this place :—

A flat dam 150 feet long at the head of the fall on the West side, wood work of which will cost		£150	0	0
300 cubic yards of stone filling	a 5s.	75	0	0
Allow for putting two additional courses on main dam at head of slides and filling it up with stone, say		150	0	0
8 cribbs 13 feet square require to be sunk in 30 feet water, for mooring the booms to, which will take				

12,000 feet of timber	a 5d.	250 0 0
800 cubic yards stone filling	a 5s.	200 0 0
4,000 lbs iron bolts	a 3½d.	58 6 8
		<u>£883 6 8</u>

GRAI FALLS.

8 piers to be sunk to the bottom for mooring the booms to, instead of the anchors used at present, will take

12,000 feet of timber	a 6d.	£300 0 0
800 cubic yards stone filling	a 4s.	160 0 0
4,000 iron rag bolts	a 3½d.	58 6 8
		<u>£518 6 8</u>

FALLS OF LATUQUE.

Require :

1,300 feet of boom	a 7s. 6d.	£487 10 0
In addition to which it will take to complete the works there.		1,000 0 0
		<u>£1,487 10 0</u>

In addition to the above the following amounts have to be provided for.

Edward Normand, balance of contract and extra work at the mouth of the St. Maurice.	500 0 0
Edward Quinn, for timber left at Shawenegan, for the use of the works.	150 0 0
And to pay settlers for timber cut on their lands.	150 0 0
	<u>£800 0 0</u>

Abstract total proposed outlay.

Booms at the mouth of the St. Maurice.	£2,665 6 8
Shawenegan, upper and lower bays.	2,991 5 0
Grande Mère.	883 6 8
Grai Falls.	518 6 8
Falls of LaTuque.	1,487 10 0
Sundry accounts.	800 0 0
	<u>9,345 15 0</u>
Add for Superintendance and contingencies.	500 0 0
	<u>£9,845 15 0</u>

(Signed,)

SIMON J. DAWSON,
Superintendent-river St. Maurice Works.

Appendix (E.)

SEYMOUR WEST.

12th January, 1854.

SIR,—I beg to make the following Report of the work done during the past year at the different Stations, with the respective cost of each. Also an estimate in detail of the work absolutely necessary to be done during the present winter and ensuing summer. Together with a general description of the condition of the works under my charge. The following is a description of the work and cost of same.

Whittas' Rapids and Little Lake.

Three Piers for the support of a line of booms 1407 feet in length, for the protection and convenient entrance of Lock; also for the collection of Timber to be rafted. Removing floodwood, repairs to Dam..... £822 19 5

Crooks' Rapids.

Three Piers built for the support of boom 300 feet long, clearing bank South Shore $\frac{1}{2}$ mile, gravelling Dam, whitewashing, and new flooring Swing Bridge..... 228 5 0

Heelys Falls.

Building two Aprons, side Piers to lower one, taking up top part sunken crib, raising foot of second slide, putting on glances between two slides, raising throughout upper slide, gravelling Dam, excavating shoal below slide. New set stop logs and gear, repairs to Apron the Fall..... 750 18 9 $\frac{1}{4}$

Crow Bay Boom.

Was cut away and let down the Rapids had to be replaced and repaired..... 41 17 4

Middle Falls.

Building two Aprons, repairing side walls, glance booms, replacing Aprons, cofferdaming to give more water to slide.... 184 5 0

Fiddler's Islands.

Deepening channel, building wing, wall and cribs to give water straight course between Islands; set stop logs and hoisting gear to gate..... 295 0

Seymour Bridge.

Repairing booms on West side of raft Channel for guide through bridge..... 30 5 10

Ranney's Falls.

Apron to second slide, side Piers for same, adding 80 feet to length to upper slide floor, repairing Boom, Pier, side walls, floor of slide..... 123 15 8 $\frac{1}{4}$

Eel Wier Shoal.

Deepening Channel, removing boulders..... 167 10 0

Percy Boom.

Repairing and Swinging..... 10 10 0

Chisholm's Rapids.

Excavating rock immediately below slide.....	5 0 0	
Watching end of Dam to prevent malicious persons interfering with same.....	16 17 6	
	<hr/>	21 17 6

Nine Mile Rapids.

Removing boulders, clearing Channel for rafts.....	130 0 0
Incidental expenses.....	25 0 0
	<hr/>

£2,832 13 6 $\frac{1}{2}$

Amount for chains &c., distributed at all the Stations..... 70 11 6

Amount of accounts rendered by Neilson & Brown, months of January and February, part of which is named above, but amounts not included..... 108 17 5

179 8 11

£3012 2 5 $\frac{1}{2}$

The following is a memoranda of what is still to do, from the order granted this last fall, for ordinary repairs.

Whillas' Lock.

The gate posts to be repaired..... £7 10 0

Crooks' Rapids.

The left hand side of slide, 1 piece of timber to be replaced 45 feet <i>a</i> 7 $\frac{1}{2}$ d.....	1 8 1 $\frac{1}{2}$	
75 feet 6. in. Plank of slide floor <i>a</i> 7 $\frac{1}{2}$ d.....	2 6 10 $\frac{1}{2}$	
	<hr/>	3 15 0

Percy Boom.

To be repaired and swing..... 50 0 0

Chisholm's Rapids.

Protection to South end of Dam.....	15 0 0
Repairs to lock) gates.....	2 10 0
	<hr/>

£78 15 0

The above together with the following described repairs and improvements for the preservation and maintainence of the works and navigation are absolutely necessary.

Bobcaygean.

It is necessary for the passing of timber that a set of stop logs and hoisting gear should be built in the place where a waste gate was made in the north-end of the Dam. Posts rabated to receive 18 feet logs is the present arrangement; Two small Piers will be required to protect posts 12 feet sides set on up stream side of Dam, the probable cost will be.....

£60 0 0

The embankment between end of Dam and head of Canal requires raising to prevent water washing over in spring say 25 cords at 10s.....

12 10 0

Buckhorn.

No arrangement was ever made in the Dam, for passing of lumber. The gates and bulk head posts were cut away by lumbermen, making a breach in the Dam, over which ran the bridge, both were carried away, about 80 feet in length. The necessity for repairing the work is to keep up the water in the Lakes above for passing of lumber, and for these purposes I would recommend a slide to be placed in the breach, which might be put in during the latter part of this winter.

Estimate of probable cost will be as follows :

Removing old formation.....	10	0	0
Side Piers for slides 50 x 10 x 9 with a slide			
80 x 30 with apron 50 feet long.....	295	0	0
Rebuilding Piers on each side of slide to fill			
up breach.....	34	0	0
Removing and re-building return of Dam to			
upper Bulk Head of Mill race.....	22	15	0

361 15 0

The Boulder Shoal immediately below should be removed and inside Dams for the benefit of the navigation, which can only be done to advantage at low water.

Crooks Rapids.

The Dam is out of repair, the stone filling has worked out in consequence of the planking on the down stream side being broken off by timbers working in the re-action. In order to replace the planking and stones; it will be necessary to lower the bar of accumulated stones and shingle between the Bridge and Dam, distance of about 200 feet, to let the water down sufficient to get at the toes of the rafters. It is also necessary to gravel the Dam, in order to keep up the water to a navigable height in Rice Lake and Otanabee River, about £200 was expended last year in graveling; but was not sufficient to make the job perfect, at lowest last summer there was about 6" water on the apex previously, the whole river runs under the Dam at low season, it is difficult to say what amount it may require from the large surface that it is to cover; but would try 300 cords a 10s.....

150 0 0

Heely's Falls.

The Dam requires gravelling also, to keep the water over the Dam and through the slides, the works were greatly benefited by

what was done last year, inasmuch as the flooring and planking of Dams and slides required much less repairs, 200 cords of gravel would make a good job *a* 10s. 100 0 0

The gravelling should be done in the months of August and September only.

Fiddler's Islands.

A breach has been formed in the wing Dam or wall about 300 feet in width from where it joined the Dam. This sets the water directly across the raft Channel and against the Island on the West side of the river, which stops the navigation for lumber until it is repaired, and in order to do so it will be necessary to put in a Coffier Dam, and place a crib in the breach. The probable cost will be as follows :

Coffier Dam 500 feet.....	75	0	0
Crib 200 x 16 x 15—8960 feet timber			
<i>a</i> 7½d.....	180	0	0
140 cords stones <i>a</i> 12s. 6d.....	87	10	0
			342 10 0

I beg to refer you to Special Report, I think this includes all absolutely necessary for the present, for the above named purposes..... £1105 10 0

With regard to the condition of works generally, they are in good repair ; but of such nature and extent that it is difficult to calculate for the maintenance.

The business for this season, I think will not be as much as the past in consequence of the late commencing and difficulty of getting men and provisions, also some turning their attention to the saved lumber trade for the American market. The amount of our tolls last year was £1231; I think the tariff should be raised it is not as much as is charged on other rivers,—inasmuch as our works are extensive and expensive to maintain, renders them non-productive.

If the hydraulic powers at the different stations were offered for sale I think they would be sold and cause a revenue, in most instances the Government has retained no land, but even so, parties would manage to procure that if the powers were offered for sale ; once shewn that the power did not belong to the different private parties it would stimulate them to improve or sell, there are ample opportunities for 200 run of stones or gates between Crook's and Chisholms, say value them at £5 each a year £1,000, the prospective and already made roads will soon bring them into notice and the country requires them, as it now stands it is a sort of monopoly, the Government commanding the powers and private individuals, who are not able in some instances, others not willing, to make use of the natural advantages which the country affords, which are to be maintained at the cost of a thousand a-year from the Public Revenue.

There is no toll Collector at Lindsay or Whitlas' locks, the lock tender at Lindsay has the receipts for his attendance, at Whitlas nothing is collected and the tender is paid £30 a-year.

A lock at Bobcaygean will be asked for soon, the present being perfectly decayed ; the construction of which would make a reasonable return in the way of opening up the country, and create the sale of lands together with the traffic now commencing to generate in the lumbering business in that part.

I have the honor to be, Sir,

Your obedient servant,

(Signed.)

G. W. RANNEY,
Superintendent Trent Slides.

Thomas A. Begly, Esq.,
Secretary Public Works, Quebec.

APPENDIX F.

TRENTON, 12th October, 1853.

Sir,—In accordance with your instructions of the 13th ultimo, relative to the improvements proposed to be made in the navigation of Scugog River below the Lock near the Village of Lindsay, also at Bobcaygean and Buckhorn Dams at the foot of Buckhorn Lake, I immediately proceeded to those places and examined each as minutely as possible. I now have the honor to enclose herewith a detailed statement and estimate of the quantity and quality of the work required to be done to render these waters navigable for Steamboats and other craft drawing four feet six inches water, and for the facile and safe running of Timber over the rapids at Bobcaygean and at Buckhorn.

In the first instance, I examined the Lock at Lindsay Village, in order to ascertain the depth of water on the Mitre Sills, as the quantity of work required to be done would depend a good deal on how the water stood on this place; I found three feet water on the Mitre Sill, I then took soundings along the river below the Lock, until I got into five feet water and over. I enclose herewith a table of the soundings, which will I think assist you in forming an idea of what is best to be done for the improvement of the Navigation at this place, from the Lock to deep water, or rather to five feet deep and over; the distance is two hundred rods; the bed of the river for this distance is lime-stone rock; what I could see of the upper bed appeared to be six or eight inches thick; what the under beds are I cannot say; the rock appears to be quite sound. By reference to the table of soundings, you will see that the depth of water on this bed of rock, varies from 2' 10" to 4' 6", but a great deal of it is about 3' 6", by this you will I think see that it would be useless to sink the bed of the river any deeper without taking up the Mitre Sills and lowering them at least eighteen inches. The lowering of the Sills, the lengthening of the Gates and deepening of the bed of the river through sound lime stone rock to the depth required to give 4' 6" water on the Sills, would be attended with a great deal of expense, as rock cannot be shaved to the inch as earth or gravel could. I think less than 18 inches deep could not be calculated on; this for two hundred rods long, and say 20 yards wide, would amount to 11,000 cubic yards rock, this light cutting in the bed of a river where it is difficult if at all practicable to turn off the water without incurring a heavy expenditure. It would I think be considerably cheaper to build a new Lock at the foot of the shallow water to raise the level above, than attempt to disturb the old Lock and do the rock excavation, but after these things the best consideration I could, I came to the conclusion, that the best and cheapest way to give deep water at this Lock and shallows, is to raise the Dam at Bobcaygean so as to get up the water sufficiently high, and make the Dam sufficiently tight to keep it there when it is up, one of the difficulties was that this Dam never was I think made sufficiently tight to keep up the water to its proper level for the navigation, it was all very well during the Spring and Fall when there was a strong supply from the different tributaries, but when the dry months during navigation set in, and the tributaries began to fail, the waste of water under, through and around the Dam was greater than the supply, consequently the water gradually fell away so as to be too low for navigation, and besides seriously affected the health of the Settlers on the borders of the Lakes by stripping and leaving exposed decayed vegetable matter during the dry hot months. I estimated for raising the Dam it being cheaper and preferable in my opinion. Please see estimate.

There are some bad turns in the river between Lindsay and Sturgeon Lakes. To avoid these it is necessary to make two shutes amounting to about five hundred yards in length; these cuts will I understand shorten each trip about three miles; also, they are through wet marshes thickly covered with standing as well as fallen timber; there is at present from one foot to inches of mud and water all

over them, I could with my hands by hard pushing run a pole down about four feet through it, it then comes to a hard bottom; these places must be dredged, there is no way of getting the water off so that it could be got out by spade or shovel, nor can men or horses be got to or from it except by a boat or scow, these cuts should be made sixty feet wide and four feet deep at least, to do which requires a new dredge to be built and also a new scow on either or both of which temporary places should be fitted up for men and horses while the work would be doing, as there is not a dry spot to build a shanty or stable for horses any place near the work, and if there was, they could not be got in or out without a boat. Four horses will be required to work the dredge; there is a deal of heavy timber and large roots to contend with, and as the place will be at all times wet, there will be no such thing as getting at roots with an axe, power must be used; these cuts must be unavoidably done to render the navigation easy and safe, more particularly at night, and when a Steamboat has other craft after her in tow, or rafts in tow.

Lock at Bobcaygean.

This Lock is neither as wide or as long as the one at Lindsay; the new Lock will have to be made wider, longer and deeper than the old one is, to correspond with the one at Lindsay. The Steamer Woodman that is now running on Scugog Lake and river down to Lindsay, is thirty-two feet wide over all; the lock is thirty-three feet six inches between the piers, so that it is only the right size for the boat. I made the estimate for a Lock the same size as the one at Lindsay and estimated it in two ways, one for a Wooden Lock, and one for a Stone Lock. I was induced to estimate for a Stone Lock, from seeing the finest of lime stone in the vicinity of the Lock. The Lock is founded on rock. The difference in cost between a Wooden one and Stone would not according to my ideas much exceed one thousand pounds. This Lock and the one at Lindsay are all that ever will be required to complete the navigation of a chain of fine Lakes for nearly seventy miles, looking a little to the future as well as the present, and at the facilities on the spot for doing a good permanent work, and at the small difference in the first outlay, I am induced to respectfully suggest to the Commissioners the propriety of at once building a good Stone Lock in place of a Wooden one. The Lock at Lindsay is fast going to decay, and the time is not far off when a new Lock must be built there, it can then be built from a quarry near Bobcaygean of the best materials; when both are once done this way, they are for ever done; the stone could be boated up at small expense.

Bobcaygean Dam.

This Dam is not in a fit state at present to keep up the water in the level above it; it is founded on a bed of lime stone rock, in which there are large vertical open joints, the water in many places passes down through joints between the beds and under the Dam, and rises up on the lower side of it; it also passes through the Dam and around the Dam through the banks. To remedy these leakages a large quantity of materials was placed on the upper side of the Dam, but not being the right kind of material it had not the desired effect. As I before observed, this Dam should be raised at least one foot higher than it is at present, then well and newly shuted and carefully puddled so as to make it tight, by doing this I think there would be no necessity for disturbing any part of the Lock at Lindsay, or going into the expensive rock excavation there. When I thought of proposing this course to the Commissioners, I was fearful that it might drown lands that were before always dry, but on enquiry I ascertained that it will not, and besides raising the Dam will cause very little additional expense, because in any case the Dam must be repaired before a boat can come down.

A slide is very much required at this place. I made inquiry of persons concerned in the lumber business about the size a slide at this place should be. I was informed that it should be thirty feet wide in the clear and sixty feet long; the longest pieces are generally about sixty feet, to prevent the lower end striking the rock in low water, before the upper end clears the top of the slide; it is said the slide should not be less than sixty feet. I have accordingly estimated for one of this dimension and twelve feet of an apron at the bottom in addition; this in my opinion so far as dimensions are concerned will answer every purpose. For details see estimate.

A slide of the same dimensions will answer at Buckhorn Dam; the site is nearly similar and details the same. The bridge at this place was partly built across the Dam; timber accumulated above it, and some raftsmen cut away the Dam; this made a breach of over eighty feet long on it, and entirely and completely carried away the bridge for this length, so that even foot passengers could not cross it, much less animals or waggons; over eighty feet of the bridge will have to be built entirely new and some repairs done to other parts of it.

The Dam at this place is nearly six hundred feet long, over one hundred and fifty feet of it will have to be entirely built new, the remainder will have to be newly planked over with some new longitudinal and other pieces to support the sheeting; it is also necessary to raise this Dam at least a foot and puddled in every respect the same as at Bobcaygean, by raising the Dam here about one foot, not less, and putting in the new Mitre Sill at Bobcaygean about six inches lower, it would give sufficient water for a vessel drawing four feet six inches.

In conclusion, I beg to state that the whole of this work is so linked together that to attempt to do any part without doing the whole would not be much public advantage. The country about those Lakes and streams is filling up fast with an energetic pushing class of people. There are several Saw Mills erected and being erected along those waters that will employ a large number of hands, among those Mill proprietors there is a Mr. Wallis of Peterborough, now erecting at Fenelon Falls, Saw and Grist Mills, and I understand that he intends to work forty-eight saws in the one Mill. All the lumber cut at this place must pass up through the Lock at Lindsay on its way to the Lake at Whitby Harbour, or down through the Lock at Bobcaygean to Peterborough and Cobourg or Port Hope. The above is respectfully submitted.

I have the honor to be, Sir,

Your obedient servant,

Signed,

JAMES RIGNEY.

[APPENDIX F.—The following Tables were omitted on page 78, after Mr. Rigney's letter.]

ESTIMATE of the Expense of the Improvements proposed to render the waters navigable for Steamboats and other craft, from the Lock on the Scugog River, at the Village of Lindsay, to Buckhorn Dam, including the general improvement of the said Dam, and the repairs and rebuilding of part of Buckhorn Bridge.

DESCRIPTION OF WORK AND PRICES.	AMOUNT. £ s. d.
Chopping and clearing 100 rods long, 12 rods wide—equal to $7\frac{1}{2}$ acres (all in water) at £10 per acre, for two New Cuts on Scugog River.	75 0 0
Excavation of 500 yards x 20 yards x 4 feet—equal to 13333 cubic yards, at 3s. 9d. per yard, (must be dredged).	2499 18 9
Grubbing in water 400 square, at £1 per rod	400 0 0
Total for two Cuts on Scugog River.	£2974 18 9
Removing walls of old Lock, each 200 feet long, including wings, x 17' high x 10' feet wide = 2518 yards at 1s. 3d. per yard	157 7 6
Removing old floors, mitre sills, and gates	10 0 0
do breast of Lock 33' x 10' x 9' = 100 yards, at 1s. 3d. per yard	6 17 6
Total to remove old Lock	£174 5 0
New wooden Lock at Bobcaygean.—Excavation bottom of Lock 150' x 33' x 1' = 184 yards rock, at 7s. 6d. per yard	69 0 0
Building 2 side walls of chamber 132 feet long x 17 feet high = 4488 feet, face timber, (pine,) at 1s. 6d. per foot	336 12 0
Cross ties, 4488 feet, (pine,) at 1s. per foot	224 0 0
Longitudinal ties for chamber, 4488 feet, (pine,) at 1s. per foot	224 0 0
4 Wings, each 30' x 17' = 2040 feet face, (pine,) at 1s. 6d. per foot.	153 0 0
Cross ties for wings, (pine,) 2040 feet, at 1s. per foot	102 0 0
Longitudinal ties for do, 2040 feet, at 1s. per foot.	102 0 0
768 cubic yards Stone for filling, at 10s. per cubic yard	384 0 0
1536 cubic yards Puddling, at 5s. per cubic yard.	384 0 0
Breast work of Lock, 287 feet, (pine,) at 1s. 6d. per foot	22 5 6
Cross ties for breast, 297 feet, at 1s. per foot	14 17 0
Longitudinal ties, 297 feet, at 1s. per foot	14 17 0
4608 feet 3 inch plank for Plank top of Lock, at 6d. per foot, fixed	115 4 0
42 fox wedge Iron Bolts, each 2 feet long, equal to 263 lbs, including wedges	
42 fox Wedges for ties, 1 inch round, iron, equal to 168 lbs.	
Ray Bolts for the upper courses, say	94 5 4
2400 lbs. 1 inch round iron, total 2828 lbs., at 8d. per lb	15 0 0
1200 Tree nails, 2 inch diameter, at 3d. per lb.	250 0 0
Erecting Pumps and Pumping	300 0 0
Coffer Dams, and again removing them	500 0 0
Lock Gates and Mitre Sills complete.	
Total for a new Wooden Lock, complete	£3305 0 10
Estimate for a new Stone Lock of the same dimensions, complete	£4278 15 0
Difference between the first cost of a Stone Lock and a Wooden Lock, at Bobcaygean	£973 15 10
Big Dam at Bobcaygean, length 1274 feet.—1274 feet Oak Capping for Dam, at 1s. 8d. per foot	106 3 4
107 Iron Bolts $1\frac{1}{2}$ x 2 inches long each, equal to about 1872 lbs., at 8d. per lb., fixed	62 8 0
5096 lineal feet Pine Timber, fixed in work, at 10d. per foot	212 6 8
428 Ray Bolts 1 inch round, iron, 2 feet long, equal to about 1072 lbs, at 8d. per lb., fixed	35 14 8
1272 Tree Nails, each 2 feet long x 2 inch, at 3d. per nail	15 18 0
425 pieces Pine to sustain longitudinal pieces under sheeting, equal to 5953 feet, at 10d. per foot	247 18 4
15288 feet sheeting for Dam, at 5d. per foot superficial, fixed in work	318 10 0
1500 lbs. Spikes, at 6d. per lb.	37 10 0

Carried over £ 1036 0 0

ESTIMATE of the Expense of the Improvements on the Scugog River, &c.—
(Continued.)

DESCRIPTION OF WORK AND PRICES.	AMOUNT.
Big Bobcaygean Dam.—(Continued.)	
Brought over.....	£ 1036 9 0
Removing about 2000 yards of old puddle, or rather coarse gravel and stone, from face of Dam, at 3s. 9d. per yard.....	375 0 0
Replacing the above with about 2000 yards of good new puddle, at 3s. 9d. per cubic yard.....	375 0 0
Total to complete Big Dam.....	£1786 9 0
Little Dam at Bobcaygean, length 260 feet.—To Cap, Sheet, and Puddle in the same manner as the Big Dam (as described above) this Dam.....	250 0 0
Total amount to complete both Dams at Bobcaygean.....	£2036 9 0
New Slide at Bobcaygean for Timber.—7 Sills, each 32 feet long, equal to 224 feet, at 10d. per foot.....	
14 Posts, average 5 feet long each, equal to 70 feet, at 10d. per foot.....	9 6 8
7 Tops for Bents, each 32 feet long, equal to 224, feet at 10d. per foot.....	2 18 4
1860 feet Pine for bottom of Slide, at 10d. per foot.....	0 17 6
240 feet four inch Plank for sides, fixed, at 10d. per foot.....	77 10 0
21 fox wedge Bolts, 2 x 1½ inches, equal to 187 lbs., at 8d. per lb.....	10 0 0
20 lbs. Spikes, at 6d. per lb.....	6 4 8
Boring 21 holes in rock to bolt down floor of Slide at 1s. 3d. per hole.....	0 10 0
360 feet Pine for Apron of Dam, at 10d. per foot.....	1 6 3
60 Iron Bolt, equal to 247 lbs., at 8d. per lb.....	15 0 0
134 yards Stone for filling of slide, at 2s. 6d. per yard.....	6 4 8
250 feet Sheeting, to retain stone in slide, at 10d. per foot.....	16 15 0
Checks, Stop-log, Platform and Windlass for Slide.....	10 8 4
15 0 0	15 0 0
Total for a new Slide at Bobcaygean.....	£181 8 1
Repairs required on the Canal. Cut above the Lock at Bobcaygean, length of Cut 530 feet.—840 cubic yards of timber, earth and stone, to be removed, at 1s. 3d. per yard.....	
3180 feet face timber, pine, at 1s. 3d. per foot.....	52 10 0
1890 feet cross ties, at 10d. per foot.....	198 15 0
3180 feet longitudinal back timber, at 10d. per foot.....	78 15 0
840 yards c. filling with puddle and stone, at 2s. 6d. per yard.....	132 10 0
105 0 0	105 0 0
Total to put the Cut in good repair.....	£567 10 0
16 Snubbing posts for Canal and Lock, £16 per.....	16 0 0
Total.....	£583 10 0

*Estimate Repairs, and Re-building part of Buckhorn Bridge across
Buckhorn Dam.*

4 Sills, each 25 feet long, pine, 12 x 12 inches, at 1s. per foot.....	5 0 0
12 Upright Posts, each 12 feet long, 12 x 12 inches, at 1s. per foot.....	7 4 0
2 Oak Posts, each 12 feet long, 12 x 12 inches, at 1s. 8d. per foot.....	2 6 8
4 Cross Pieces, each 18 feet long, 12 x 12 inches = 12 foot, at 1s. per foot cubic.....	3 12 0
4 pieces Oak for Cut-waters, each 20 feet long, 12 x 12 inches, rounded on upper side, equal to 80 feet, at 1s. per foot.....	6 13 4
1700 feet Sheeting for Cut-waters, at 5d. per foot, tree-nailed.....	35 8 4
16 Braces, 6 feet long, each 6" x 6" = 96" lineal, at 6d. per foot.....	2 8 0
200 feet lineal for top hand-rail, 4" x 4", at 6d. per foot.....	5 0 0
50 Balisters or Posts for hand-rail, 4" x 4" x 4", at 6d. per foot.....	5 0 0
Carried forward.....	£72 12 4

ESTIMATE of the Expense of the Improvements on the Scugog River, &c.—
(Continued.)

DESCRIPTION OF WORK AND PRICES.	AMOUNT.
Estimate of Repairs and Re-building part of Buckhorn Bridge, &c.—(Continued.)	
Brought forward	£ s. d. £72 12 4
576 Cross-braces for hand-rail at 6d per foot lineal	14 8 0
1500 feet 3 inch Plank for bridge, 5d. per foot superficial, tree-nailed	31 5 0
8 Iron Straps, 20 lbs. each, equal to 160 lbs., at 8d. per lb, fixed	5 6 8
8 Bolts, to secure hand-rail, at 5s. each	2 0 0
Total to repair and partly re-build Buckhorn Bridge	£125 12 0
New Swing Bridge at Bobcaygean, Truss principle	£250 0 0
<i>Estimate of repairing about one-half of the Buckhorn Dam and re-building the remainder—total length of Dam 558 feet.</i>	
54 new Bents, equal to 6480 feet lineal, pine timber, at 1s. per foot	324 0 0
1368 feet lineal pine timber for repairs of the old part of the Dam, at 10d. per foot lineal, fixed	57 0 0
5000 feet lineal Scantling, 6 x 6 inches, at 6d. per foot, fixed	125 0 0
13000 feet Sheeting, 3 inch pine plank, tree-nailed, at 6d per foot superficial	325 0 0
300 yards (cube) Stone, for filling the Dam, at 5d. per yard	75 0 0
392 feet Oak Capping for Dam, at 1s. 8d per foot	32 13 4
166 feet Oak Capping laid on pine about one foot high average, running in on the land to keep up the level and bolted to the rock, at 5s per foot	41 10 0
17 fox wedge Bolts, 2½ feet long, equal to about 289 lbs., at 8d per lb.	9 12 8
30 Bolts with Nuts for capping equal to 430 lbs, at 8d. per lb.	15 3 4
886 lbs. Spikes, at 6d. per lb., fixed	22 3 0
162 fox wedge Bolts for bents, equal to 1400 lbs., at 8d. per lb	46 13 4
508 ray Bolts, 1 x 2 feet long, round iron, equal to about 2670 lbs, at 8d. per lb.	89 0 0
Removing about 700 yards of gravel and stone from the upper side of the Dam, at 5s. per yard	175 0 0
New puddle required for the Dam, about 700 yards, at 5s. per yard	175 0 0
Total amount to put the Dam in good order	£1512 15 8
To construct a new Slide in Buckhorn Dam, similar to the one built at Bobcaygean, (see details of Bobcaygean Dam)	£200 0 0

RECAPITULATION.

Two new Cuts to avoid bad turns on Scugog River	£ s. d. 2974 18 9
Removing Walls of old Lock at Bobcaygean	174 5 0
Erecting new Wooden Lock at do	3305 0 0
Raising, puddling and repairing Big Dam at do	1786 9 0
Raising, puddling and repairing Little Dam at do	250 0 0
Building new Slide in Dam at Bobcaygean	181 8 1
Repairing old Cut above Lock at do	683 10 0
Erecting a new Swing Bridge at Lock at do	250 0 0
Repairing part and Re-building part of Buckhorn Bridge	125 12 0
Raising, Repairing part, and Re-building part of Buckhorn Dam	1512 15 8
Constructing a new Slide for timber at Buckhorn Dam	200 0 0
	£11443 18 6
Add -10 per cent. for Contingencies	1144 7 10
Total to complete the Works as contemplated	£11548 6 4
Add—If the Lock at Bobcaygean is built of Stone	£973 15 10
10 per cent. for Contingencies	97 7 7
	1071 3 5
	£12619 9 9

(Signed,) JAMES RIGNEY.

TRENTON, 12th October, 1853.

The following is a TABLE of SOUNDINGS taken in the Scugog River, commencing at the lower Mitre Sill of the Lock of this River (opposite the Village of Lindsay) and extending down a distance of two hundred rods to deep water, on the 16th September, 1853. On this date there was three feet water on the lower Mitre Sill. A limestone rock bottom all the distance.

Feet.	Inches.	Feet.	Inches.	Feet.	Inches.	Feet.	Inches.	Feet.	Inches.	Feet.	Inches.	Feet.	Inches.	Feet.	Inches.	Feet.	Inches.	Feet.	Inches.	Feet.	Inches.	Feet.	Inches.	Feet.	Inches.
3	2	3	1	2	10	3	0	3	0	8	0	4	0	3	8	3	6	3	6	4	0	3	6	4	0
3	0	3	0	3	0	3	0	3	0	3	0	3	0	3	0	3	0	3	0	3	0	3	0	3	0
3	8	3	6	3	6	3	8	3	8	3	4	3	6	3	4	3	6	3	4	3	6	3	4	3	6
5	0	4	6	5	0	5	0	5	0	5	0	5	0	5	0	5	0	5	0	5	0	5	0	5	0
4	6	4	6	4	6	4	0	4	0	4	0	4	0	4	0	4	0	4	0	4	0	4	0	4	0
4	6	4	6	4	8	4	0	4	0	4	0	4	0	4	0	4	0	4	0	4	0	4	0	4	0
3	0	3	0	3	6	3	0	3	6	3	0	3	6	3	0	3	6	3	0	3	6	3	0	3	6
4	0	4	0	4	0	4	0	4	0	4	0	4	0	4	0	4	0	4	0	4	0	4	0	4	0
4	0	4	6	4	0	4	0	4	6	4	0	4	0	4	6	4	0	4	0	4	6	4	0	4	0
4	8	4	5	4	0	4	0	4	0	4	6	4	0	4	0	4	6	4	0	4	0	4	6	4	0
2	11	3	9	3	9	3	9	3	9	3	4	3	4	3	4	3	4	3	4	3	4	3	4	3	4
3	6	3	6	3	0	3	6	3	6	3	0	3	6	3	6	3	0	3	6	3	6	3	0	3	6

NOTE.—The above soundings were taken on the above date in company with James Rowe, Esquire, of Whitby, and three other persons, and in addition, I took myself, and the same men afterwards, over two hundred soundings in the same distance and place, and found the result the same as near as possible, ranging from two feet ten inches to four feet six inches, and a few places four feet nine and five feet: very few places of the latter depths.

(Signed,) JAMES RIGNEY.

Trenton, 12th October, 1853.

APPENDIX G.

PUBLIC WORKS,
Quebec.

SIR :

Agreeably to instructions, I beg to submit the following brief Report, on the present condition, works in progress, and improvements required at Port Stanley Harbour :

This Port is situated on the North Shore of Lake Eric, about 26 miles South of London, and forms the principal outlet for a large extent of fine Farming Country, from which great quantities of produce are annually shipped, it is nearly surrounded on three sides by hills of considerable height, which effectually shelter and protect vessels in the Harbour during almost any storm,—at present there is a depth of fully 10 feet water between the Piers, and a like depth throughout a portion of the inner Basin,—but much inconvenience, and frequently danger, is experienced by those in charge of vessels, entering or leaving the Port during the strong southwest gales that prevail at certain seasons,—this difficulty arises chiefly from the very limited width of the entrance, insufficient Pier light, and the absence of a good shore or leading light, and last though not least, the lax manner in which the Harbour regulations are enforced, by which parties who have erected Storehouses adjoining the Piers or Wharves are allowed to pile Cord Wood, Stone and other articles in front or alongside of their buildings, to the great annoyance and inconvenience of the public, and still greater damage of the works. In one instance fully 200 tons of stone was observed piled on the Pier, and in another a large quantity of iron broke down and destroyed a portion of the new planking before it was two weeks laid.

The extension of the Pier work is nearly, and would have been entirely completed, but for the great difficulty in obtaining stone for ballast, the work is, however, perfectly safe, and arrangements have recently been made to procure the necessary supply of stone; before sinking the additional work care was very judiciously taken to prepare, by dredging the seat of the respective cribs, which has had the desired effect of enabling a straight uniform line to be maintained throughout, presenting where completed a fair and finished appearance.

The rebuilding of a portion of the east Pier superstructure is progressing satisfactorily, and will with the exception of ballast shortly be completed.

The dredging of the inner Basin proceeds slowly, but the work done has had the effect to some extent at least of preventing the silt and sand brought down by freshets from being deposited within the Piers; this partial result, although not conclusive, still shows that, as the natural channel of the creek becomes straightened the quantity of deposit is diminished and appears to justify the conclusion, that when the Basin is completed the natural force of the current in the straight channel will be likely to aid materially in keeping it clear.

The greater portion of the dry excavation is done, and the material placed so as to form part of a wharf or embankment on the west side of the Basin, as provided for by the contract.

Official Returns show that within the last 10 years, both the Exports and Imports by Port Stanley Harbour have more than quadrupled; and that the Duties collected in 1853, amounted to £19,603 11s. 1d.; Harbour Dues, to £2,029 6s. 11d.

Thus whether it be viewed as a Harbour of Refuge, Port of Entry, or a remunerative investment, it is second in point of importance to no other work of a similar nature and extent in the Province. Such being the case while it is connected with London by a common road only, we doubtless can with certainty look forward to a very large increase in both Export and Import trade, on the completion of the London and Port Stanley Railroad, now in progress of constru-

ion, the Depots of which are located in the immediate vicinity of the inner Basin of the Harbour, hence the necessity of enlarging and improving the inside accommodation and affording greater facilities of egress and ingress to the Harbour,—with these objects in view, I beg respectfully to recommend the following improvements, viz:—

1st. The extension of the west Pier, at least 200 feet, opening outwards from the present line, with a covering crib of about 60 feet in width at the extreme end, on which a good Pier light should be erected. The latter would mark out the immediate entrance at night, and the former enable vessels to gain a lee previous to slackening sail during prevailing southwest gales. Cost, £1800.

2nd. The erection of a Lighthouse about 40 to 45 feet in height on the high land east of the Harbour, in which should be an efficient light that could be seen at 10 or 12 miles distance. Cost, £400.

3rd. The construction of a line of protection docking (800 feet) along the west side of the inner Basin, to consist of crib-work 12 feet in width to the surface of the water, thence upwards of a continuous superstructure to the height of the other Pier, so as to serve as a wharf, at which vessels can load and unload, to and from the Railroad. Cost, £2800.

These with good Harbour regulations properly enforced, would add much to the safety and security of vessels, and give such facilities to the place as its importance seems to demand.

I have the honor to be,
Sir,
Your obedient servant,

(Signed,)

JOHN PAGE,
Chief Engineer Public Works.

APPENDIX H.

PUBLIC WORKS,
Quebec, 20th June, 1854.

STR,—In compliance with instructions contained in your letter of the 20th May, relative to the location of certain Light Houses proposed to be erected on the Lower St Lawrence and Straits of Belle Isle, &c. &c. I beg respectfully for the information of the Commissioners to Report in the following order, viz:—

First.—Location of the respective Light Houses authorized.

Second.—Straits of Belle Isle with reference to Harbours of refuge, &c.

Third.—Places where the erection of other Light Houses are desirable.

1ST LOCATION, &c.

West Point of Anticosti.

The extreme West Point of this Island stands about 12 feet over high water mark, and consists of Lime Stone covered to the depth of $7\frac{1}{2}$ feet with shingle of an angular shape evidently of the same class of rock as the precipice lying towards the North and East, which at the distance of 1200 feet from the point in an easterly direction rises abruptly to the height of 70 feet.

This high land under other circumstances would have been the preferable site for the Light-house, but the low shelving rocks that extend to the South and West,

as also the projecting points towards the East, determines the proper position to be the extreme *west point*, which will be about 47 miles distant from, and open in the direction of the revolving Light on the South-west point of the Island—and about 45 miles distant from the nearest point of Gaspé,—65 miles from Cape Rosier, and 25 miles from the Mingan Islands, on the Labrador Coast.

Considerable difficulty will be encountered in landing such portions of the materials for the construction of the Light-house as must necessarily be brought from a distance, there being neither bay nor cove in which a vessel can find shelter or anchorage within 12 miles of the point, and a flat shelving rocky beach extends outwards $\frac{1}{2}$ of a mile on either side, which is dry at low water and only partially covered by neap tides.

Several places were examined in the vicinity of the point and towards the North and East sides of the Island with the view of ascertaining whether a proper description of stone could be obtained for the erection of the necessary buildings, but none were found that could judiciously be used for the exterior work of so important a structure as the Tower.

The entire west point of the Island consists of Lime Stone lying in thin horizontal strata with innumerable seams running in every possible direction, the stone is hard and brittle, and generally falls into small angular pieces under the hammer. This is the case chiefly with stones on the face of the Mountain.—There is however good reason to believe that if a Quarry was opened at a few hundred feet back from the edge of the Cliff a much better class of stone would be obtained, such as would be suitable for the construction of the Keeper's House and interior walls of the Tower.

No sand could be found at or near the point, but a good quantity of sea sand can be obtained 12 miles to the Eastward at Cape Henry, or Ellis Bay, and it is said at Mingan River 35 miles to the Northward there is plenty of fresh water sand.

Timber will have to be brought from a distance as the West portion of the Island appears to produce nothing except a Forest of dwarf spruce unfit for building purposes.

At the time we visited the Island there were several ponds of fresh water near the point, their appearance however did not indicate a constant supply—but about a mile and a quarter to the Eastward is a spring from which a large body of water issues, on this spring the Keeper's and others will chiefly have to depend.

CAPE ROSIER.

This point is about 36 feet over the level of the sea, and consists of Granwacke, Slate, Limestone, and a conglomerate of pebbles, covered with about 3 feet of loamy gravel; the Granwacke and Slate predominates, the Limestone occurs in blocks, generally of two thicknesses each, from two to nine inches, these blocks are from 30 to 50 feet apart; the Strata throughout is nearly vertical, but their upper edges present a fair surface with only a slight inclination outwards.

The appearance of the point and beach indicates that the rocks are rapidly decomposing, for this reason it was considered the most prudent course to locate the Tower fully 50 feet from the edge of the cliff, although for the assistance of outward bound vessels it is desirable to have the Light as far to the Eastward as possible.

The only objection to this location is the high land on the South and West sides, which will form a back ground much higher than the Light, this is however unavoidable as the Mountains are too far inland for any advantage to be taken of their superior height.

The light will be about 7 miles North from the extreme point of Cape Gaspé, 42 miles from the revolving Light on the South-west point of Anticosti; and 65 miles from the West point.

The Bay between Cape Rosier and Gaspé affords good shelter for vessels, except from Northwest winds, but a landing can only be effected by boats and small craft in calm weather.

No stone suitable for building purposes could be found along the cliffs with the exception of the detached ledges of Limestone before mentioned, but in a field about one half mile to the Southwest a good quality of limestone was observed, showing however a like shattered appearance to those on the West point of Anticosti, so far as we were able to penetrate with the imperfect tools at our command; still there is no doubt that stone can be obtained in the vicinity of a proper class for the construction of the Keeper's House and the interior of the Tower.

The Country to the Westward of the Cape will supply an abundance of Cedar Timber of good quality.

Sea sand of a sharp angular grain was found along the shore about a mile North of the Cape.

Fresh water sand was said to be abundant on a small River that empties into the Bay, but after walking fully a mile along its banks no appearance of sand was observed.

There are several small Creeks in the vicinity that will supply fresh water unless in very dry seasons when it will be necessary to go a mile to the Northward.

The Light on both Cape Rosier and West point of Anticosti should be at least 100 feet above the ground line, the former so as to show over the points to the Northward and be visible in clear weather from the deck of a vessel about $19\frac{1}{2}$ miles distance.

The site of the latter being low its greatest range will not exceed 18 miles.

If decided to construct the Towers entirely of stone, a superior quality of crystalized grey Limestone can be procured at the Southwest point of Anticosti, at the same place where the stone for the Light-houses already built on the Island were obtained; and it is said a good class of sandstone may be obtained in the Bay of Gaspé.

POINT AMOUR.

The site proposed for the Light-house on this point is about 160 feet back from the water's edge, and 55 feet over the level of the sea, where on excavating from 3 to 5 feet in depth a flat ledge of Blue Limestone was found under which is a conglomerate of pebbles, shells, and hard red slate. The point is 29 miles N. by E $\frac{1}{4}$ E from Point Ferrole, and 51 miles N. E. by N. from Point Rich on the Newfoundland Coast, $11\frac{1}{2}$ from Wood Island, about 41 miles from Cape Norman. The Light will be open to the East and West at the full extent of its range, and will serve as a guide into Fortier Bay, it is said to be, and doubtless is, the best Roadstead in the Straits.

A temporary Wharf constructed at the N. E. corner of the Bay (by the Proprietor of a Fishing establishment there) will, if arrangements can be made, serve as a good place to land materials, &c., otherwise some difficulty may be experienced, as even in moderate weather it is not unattended with danger to attempt landing on the beach from a small Boat.

Although the site proposed for this Light-house is high, still its being visible at a great distance is so important, that I am fully convinced of the necessity of raising the Tower to a like height above the ground line as proposed for the others.

Limestone suitable for the interior walls of the Tower and Keeper's House can be obtained on and round the point, and a good class of cross-grained sandstone, either of a red or dark grey color may be procured either at Fortean Point 4 miles

distant by water, or at Lance au Loup $3\frac{1}{2}$ miles by land, but the roads are bad, or at the North side of the Bay a distance of 3 miles along a rugged and in some places soft sandy beach over which horses could barely travel even without a load.

At about one-half mile to the north of the point, in the face of a high cliff, a stratum of sandstone, about nine feet in thickness, appears under a depth of thirteen feet of successive layers of slate, Granwacke and limestone, slightly covered with loamy gravel.

Stone taken from this place would be more expensive to quarry than at any of the others, but the cost of transporting them much less.

In the north-east corner of the Bay, about a mile and a quarter distant, was found a good quantity of sea-sand. Fresh water appears plentiful in the immediate vicinity. Timber for building must come from Canada, and even firewood will be scarce, the whole coast being a bare barren waste, with only occasional patches of dwarf spruce trees.

BELLE ISLE.

Access to a Light House on this Island will be attended with fully as much difficulty as that on the west point of Anticosti, the shores are bold and afford no shelter to vessels, a landing can, however, be effected with perfect safety in calm weather. Chateau Bay, on the Labrador coast, about 15 miles north-east of the Island, and Quirpon Bay, on the Newfoundland coast, about 25 miles to the south, are the nearest accessible places in case of a storm, in both of which good anchorage and shelter may be found.

The site selected for the buildings is near the extreme south point of the Island, on a flat surface of greenstone rock, at about 420 feet over the level of the sea, and 800 feet back from the shore. The mountain is steep on all its sides, but by landing in a small bay near the south end of the Island, thence following the circuitous route of a ravine that inclines inwards and upwards, the summit can with a little perseverance be reached from this point. This island in every direction appears to consist of a range of bare, rocky hills, without a tree, shrub or grassy spot being visible on their rugged surfaces, I was however informed that there are a few trees somewhere in the interior.

The light, from its elevated position, will, in clear weather, be visible at a great distance in every direction, except where shaded by the still higher mountains lying towards the north-east.

The height is, however, in some respects objectionable when viewed in connection with the fogs that occur on the Banks and Coast, but although a lower position would doubtless have been preferable, the locality scarcely admitted of a choice without permanently diminishing the "range" of the light in either, or both, an easterly and north-westerly direction; this was considered to be a greater evil than the risk of the light being occasionally obscured by fog, the more especially as it is well known that even dense fogs are sometimes limited in height, by the fact, from the mast-head of a vessel, objects can frequently be seen at a distance, while the deck is completely enveloped in a dark haze.

The Light will be about 21 miles from York Point, Labrador Coast, 14 miles from the extreme point of Cape Bauld, Newfoundland Coast, and 25 miles from Cape Norman.

The Tower should be from 45 to 50 feet in height, so as to over-top the mountains lying on the north-west side of the Island.

The top of the Mountain, as already stated, consists of a close-grained, compact class of greenstone, very hard and brittle, in nearly vertical strata. About one-third of the height downwards, is a dark grey, spotted granite, approximating to gneiss, lying chiefly in large detached masses. Towards the bottom is a clear, close-grained, light green granite, in parallel horizontal seams from 12 to 40 inches

apart, resembling in appearance a regular series of strata. Either class of stone mentioned is well adapted for building purposes, but all of them will be expensive to work, especially for the outer portion of the Tower, still it is believed that stone taken from any other locality would cost more before they could be landed on the spot where they are required.

The nearest place where sand can be obtained will be Chateau Bay or Quirpon Bay.

The timber for building, also firewood or coals must be brought from a distance.

A supply of fresh water is likely to be obtained from several small lakes situated a short distance in the interior, the nearest, with reference to the proposed Light House, is quarter of a mile distant, from three to four acres area, 230 feet above the sea; the next, half a mile distant, from four to five acres area, 200 feet above the sea; and a third, three-fourths of a mile distant, from twelve to fourteen acres area, and about 150 above the sea.

The highest of these lakes and ponds will, doubtless be dry towards autumn, but appearances justify the conclusion that the largest contains water throughout the year.

Having thus given a description of the several locations examined with the view to the immediate erection of Light Houses, I beg shortly to direct attention to those already built, in order, if possible, to avoid in the new structures some of the evils very justly complained of in the old ones.

On examining the Light House Towers on the south-west and east points of Anticosti, both were found to be built of the class of grey limestone before described, the interior of the walls consisting of rubble work, and the interior of well dressed cut stone, originally laid throughout in common lime mortar, the outer face having a considerable batter from bottom to top, and the inside of the building divided into several stories which are fitted up for the Keeper's dwelling.

It will at once be seen that some of these arrangements are objectionable, among which might be mentioned the following, viz:—1st. Fitting up and using the Tower for Dwelling House exposes the entire structure to accidental fire, a risk that might be avoided by having a separate Building for the Keepers, with only a watch room in the story below the Lantern. 2nd. It is well known that in thick walls, laid in common lime mortar, whatever its quality, may by the process of setting, or induration is slow, so much so that walls built for many years on being taken down, the mortar in the interior has been found to be still soft; and that when building operations are continued late in the season the mortar is frequently destroyed by the winter's frost, especially in exposed positions. Such appears to have been the case in the Light-houses alluded to, as in many places the joints between the ashlar work was entirely open, from 3 to 6 inches deep, and in several places a small twig, by a slight pressure, was pushed in much further. The absence of mortar, together with the inclined surface of the Tower, will, in a great measure, account for the leakage and damp complained of during a severe storm of wind and rain.

It is believed these unpleasant results might be avoided and the stability of the structure very much augmented by using cement mortar throughout the entire thickness of the walls, or otherwise, by using cement and well slacked lime in equal proportions.

2nd, Straits of Belle Isle, &c.

The descriptive Naval Maps and Sailing Directions published by the Admiralty from the survey of Captain Bayfield and others, shew that with few exceptions there is sufficient depth of water throughout the Straits of Belle Isle, with Harbors of Refuge and Roadsteads on the Labrador Coast, that afford good anchorage and

shelter for vessels of any class. On the Newfoundland coast no good anchorage can be found for large ships except in St. Margaret's Bay, near the west end of the Straits; but there are several Bays in which small craft can find shelter: Captain Bayfield, however, does not appear much in favor of the Straits as a navigable channel, chiefly on account of icebergs which float in from the Northward during North-easterly winds, the presence or absence of which, he states, cannot be depended on. But if these bergs accumulate only in August, as stated, or even in July and August, the channel is still clear for the outward passage of the Spring Fleet, and for both outward and inward bound vessels in the fall, which in itself would be a matter of sufficient importance to warrant an expenditure in the erection of Light-houses, commensurate with the advantages likely to result in the great facilities and security afforded to the rapidly increasing commerce of the country.

It will also be remarked that Captain Bayfield, in reference to the navigation of the Straits, chiefly alludes to the "lead;" the soundings, he states, are in some cases "perplexing." Although this be the first and only source of a prudent mariner in approaching an uncertain or unknown coast, it does not follow the "lead" must entirely be depended on, especially in a channel, the safe and facile navigation of which would justify the erection of proper Lights and warnings, such as would enable the benighted seaman at once to determine his position without the necessity of slackening the speed of his vessel, or lying to, and depending on the uncertain soundings. It is therefore believed that a parallel scarcely exists between the navigation of the Straits, assisted by lights, and in its present state.

The correctness of these views are fully confirmed by Captains and Masters of vessels who have passed directly through the Straits, and of others who have had occasion to avail themselves of the shelter afforded by the various Bays and Roadsteads on the coast.

While in the Straits I had the opportunity of conversing with several of the Jersey fishermen, an intelligent class of persons, who for many years have resided on the Labrador coast; all of them agreed that the ice was generally clear of the Straits some time in May, but this year it remained until the 4th of June, being the latest season they had ever known, and that icebergs in July or August were frequently driven in from the North during a long continuation of North-easterly winds; some seasons these bergs are said to be more numerous than others, but seldom so large or numerous as to render the Straits unnavigable.

The tides are said to be regular, except during strong North-easterly gales, when a current sets in towards the west.

Fogs were stated to be of frequent occurrence, but not more so than on the Gulf and South Channel.

That the number of vessels passing through the Straits were annually on the increase, and that nearly all the French Trading vessels that come to Quebec pass through the Straits, and the north Channel between the Island of Anticosti and the Coast of Labrador.

My own experience of the Straits consists of only five days, from the morning of the fifth to the evening of the 9th June. During the whole of this time the weather was extremely mild, and the surface of the sea as smooth as any of our inland Lakes in a mild summer day; although so short an acquaintance, and under so favorable circumstances by no means affords sufficient data on which to base an opinion for any long period of time, still it shows there are seasons and times when the Straits can be navigated with equal certainty as any portion of the St. Lawrence, and gives good reason to believe an intelligent seaman's knowledge of the effect of prevailing winds will enable him to take advantage of this channel at the proper time with less risk of coming in collision with Fishing Vessels off the Grand Banks, for two-thirds of the navigable season, than the South channel by St. Paul's and Bird Rock Islands, and it being at the same time nearly 250 miles

shorter, which to vessels that make two voyages to and from England would fully equal 1000 miles sailing distance, or admit of either route being taken that suited the wind for the time being instead of beating round in the Gulf as at present, which might allow a vessel, now making two voyages, in some cases to make three during the season.

I beg, therefore to recommend to the Commissioners not only the speedy completion of the Light Houses for which an appropriation has been made, but the erection of others at certain projecting points, Islands and head-lands along the River, Gulf and Straits, confidently looking forward to the time at no distant period when under a well organized system of Lighting, the hitherto exaggerated dangers of the River and Ocean route of the St. Lawrence, will be found to a good ship, well manned, to exist more in imagination than reality.

In connection with this subject I beg to state that Fortean Bay was carefully examined with reference to the construction of a coaling station for Atlantic Steamers. This Bay is situated about 53 miles from the east entrance of the Straits and 8 miles from the west end; it is about 4 miles long, fully $3\frac{1}{2}$ miles deep at its western extremity, and 2 miles at its eastern end, near to which is the Light-house on Point Amour;—Captain Bayfield describes it the best Roadstead in the Straits, “Where vessels may anchor anywhere in the Bay, in from 10 to 13 fathoms water, “over a sandy bottom that holds well, but the best anchorage is in the N. W. side “of the Bay, opposite the Fishing Station, one-third of a mile off shore and nearly “one half-mile within a spit of rock which extends about 120 fathoms off the west- “ern shore and must be avoided in going in, by not going nearer to the shore than “one-fourth of a mile, or than 10 fathoms till it is past.”

About 1600 feet inside of the spit of Rock mentioned, adjoining a fiat piece of land between two Fishing Stations is considered the best location for a wharf, as every facility is afforded for vessels of the largest class entering or leaving, and the place is in a measure land-locked, being protected from North-east, North, and North-west winds—the water outwards deepens rapidly, at 50 feet from the shore 12 feet water was found, at 300 feet out 29 feet, and at 400 feet 36 feet water.

The wharf can be constructed so that vessels can lie up stem or stern towards the shore or along the outer end. On the beach might be erected the necessary coal sheds, from and to which a line of Railway might be laid along the top of the wharf for the purpose of taking out and in the supplies. Coal could be procured at Sydney, Nova Scotia, about 360 miles distant.

Fortean Bay being nearly 800 miles from Quebec or about one-quarter of the entire sailing distance between Liverpool and Quebec, a coaling station there would allow a steamer to take in at least $\frac{1}{4}$ less coal from England, thus a vessel could leave either in lighter trim with a speedier passage, or with a more valuable cargo; presuming the former to be the case with a proper class of steamers. Fortean Bay and Liverpool would be within 7 or 8 days sailing distance of each other, hence with a line of telegraph from Quebec to Fortean Bay as suggested “by a Merchant” we might have during the navigable season the earliest possible intelligence and communication to and from Europe and other portions of the globe.

3rd, Points at which other Light Houses are desirable.

- 1st. Bird Rocks in the Gulf.
- 2nd. Capé Ray, Newfoundland coast.
- 3rd. Cape St. George do do.
- 4th. Point Rich, do do.
- 5th. Cape Norman near East end of Straits, on Newfoundland coast.
- 6th. North point of Belle Isle, or Table head point, Labrador.
- 7th. Great Macattina Island, Labrador.
- 8th. Cape Whittle, do.
- 9th. Natashquan, do.

- 10th. North point of Anticosti.
- 11th. Seven Islands.
- 12th. Cape Chatte, Rimouski.
- 13th. Manicougan Shoal.
- 14th. Mille Vache Point.

With good Pier Lights at Rimouski, Rivière du Loup, Rivière Ouelle, L'Islet, Berthier on the South shore, and Eboulements and Malbaie on the North shore.

The most important of those above enumerated are, The Bird Rocks, Cape Ray, Point Rich, Cape Norman, Cape Whittle, Cape Chatte, and Manicougan Shoal.

At each station should be a fog whistle or cannon in case of fogs, and a provision post for the accommodation of ship-wrecked mariners at such places as are remote from a settled part of the country.

I have the honor to be, Sir,
Your obedient servant,
(Signed,)

JOHN PAGE,
Chief Engineer Public Works

APPENDIX (I.)

Instructions for J. B. Jervis, Esq.,

OFFICE OF PUBLIC WORKS,
QUEBEC, 12th August, 1854.

SIR,—As you have been pleased to signify your willingness to undertake the duties connected with the location of the contemplated line of Canal between the river St. Lawrence and Lake Champlain, in the performance of which the Commissioners of this Department were most desirous to have the benefit of the counsel and experience of a gentleman of such admitted high standing, it now becomes necessary that you should be informed as to the points upon which your opinion and advice are more immediately sought for.

The advantages to this Province which are calculated upon from the construction of this Canal, are fully set forth in the annual Report of this Department to the Legislature, for the year 1852, in pages 32 to 38; a copy of this Report is herewith transmitted. By reference to it you will perceive that the objects aimed at, are

To complete the chain of Canals already in use, and to render them profitable as well as a convenience to the Province.

To enable our Canals to compete successfully with the Erie Canal, and the Railways on the South bank of the St. Lawrence, in the transport of property to and from the Atlantic seaboard in the United States, and the Western States and Canada.

To furnish a cheaper, quicker (and from reduced transshipments) a more desirable route to the great trade which passes between tide water in the Hudson River, the Railways in New England, and the city of New York on the one hand, and the Western States and Canada on the other, and thus to bring traffic and tolls to the St. Lawrence Canals, which, by the competition of the Oswego and Erie Canals, and the Ogdensburg and other railways, and the want of an efficient connection between them and Lake Champlain, obtain scarcely any of the transit trade between the Atlantic and the Western States or Canada.

To enhance the value of one of our great staple exports, (Lumber,) by furnishing a direct, cheap, and capacious connection between the great lumbering districts of the Ottawa, the upper and lower St. Lawrence, and the greatest lumber mart in the world, that of Albany and Troy.

By connecting Lake Champlain with the St. Lawrence, upon an efficient scale to open the districts upon that Lake to the sea, via Quebec, and afford them a shorter and cheaper route for imports of coal, iron, salt, fish, oil, &c., which articles can be had down at Quebec at cheaper rates than at any other American Port, in consequence of the larger amount of tonnage entering inwards in ballast.

Such were some of the principal objects considered attainable by the construction of this work in 1852, when the report alluded to was written, but the Commissioners are of opinion that the altered circumstances under which the Province will be placed by the passing of the Reciprocity Act, and the opening of the River St. Lawrence to our American neighbours, afford increased and strong grounds for belief in the great importance of this work for the development of the resources of the country.

Your views upon the points embraced in the foregoing are particularly requested; especially with respect to the trade of the great West, its Channels, whether in use or in course of construction; the changes that are likely to take place in a great portion of it, as regards its transport Eastward by the Lakes and Rivers, instead of down the Mississippi, upon the completion of the several lines of navigation and Railways leading from the interior to those Lakes; and the probable proportion of it which may be induced down the proposed Canal, for the supply of the Eastern States, the West Indies, &c., &c.

Your opinion, also, as to how far such trade may be interfered with, or competition formed by the several lines of Railway North and South of the Lakes and River now made, or in course of construction, will also be considered valuable, not only from your intimate knowledge of that trade and section of country, but as President of an important Railway there.

The next point on which your well considered opinion is requested, is the general location of the line, and particularly, its terminus on the St. Lawrence,—upon this much difference of opinion exists, traccable in a great measure to the separation of local interests of the several sections of the Province.

As the Commissioners desire that this question shall be decided unbiassedly, and solely upon grounds connected with the accommodation and facilities for the contemplated trade, together with the engineering difficulties or otherwise, which may be found to exist; it is well merely to state, that some advocate the line to start from some point on the Beauharnois Canal, thereby as they suppose, to carry such a level as would overcome the summit between the two waters at the least expense, others urge the selection of Caughnawaga, opposite the head of the Lachine Canal, as being the place most convenient for the Ottawa trade. The interests of Montreal naturally desire its commencement at some point opposite, or, a little below that city, the population, trade, and importance of which must necessarily command due attention; and finally, there is a party who consider that the route of the Richelieu River should be that decided on.

The advantages and disadvantages of each of these propositions, will, no doubt, be duly perceived and weighed well by you, prior to your coming to a conclusion.

The third point to which your attention is requested, is, as to the depth of water and dimensions of the Locks and Canal, which it may be in your opinion, the most advisable to adopt, and an approximate estimate of the cost of the work, the nature of the trade to be calculated on,—the class of vessels suited for it,—the capacity of the present Canals, and the capabilities of the harbours on the Lakes, will, no doubt, materially govern your decision on this point, which is more important, as, by the scale of this canal, will be determined also that of the enlargement or new branch of the Welland Canal; a work which it is believed must be undertaken at no distant day.

Besides the foregoing, the Commissioners will be obliged by receiving your views and advice upon any other branch of the question that you may think necessary to touch on.

It is most desirable that your Report should be received at as early a day as the efficient discharge of the duty will permit, with a view to which you will make such arrangements as you may deem expedient.

I am Sir,

Your obedient servant,

J. B. Jervis, Esq.,
Civil Engineer.

(Signed,)

J. CHABOT,
Chief Commissioner of Public Works.

APPENDIX K.

STATEMENT of UPWARD Movement in Tons on the St. Lawrence Canals, up to 31st July, 1853 and 1854.

	1853.	1854.
Number of Vessels	1153	1298
Tonnage of do	76218	96958
Number of Steamers	451	511
Tonnage of do	45762	50632
Number of Passengers	10629	18320
Tons of all Property moved	57091½	69312
Number of days of navigation	79	79
Navigation opened	April 30.	May 1.

STATEMENT of DOWNWARD Movement in Tons on the St. Lawrence Canals, up to the 31st July, 1853 and 1854.

	1853.	1854.
Number of Vessels	1038	1127
Tonnage of do	77653	96212
Number of Steamers	455	517
Tonnage of do	46610	50964
Number of Passengers	8819	8280
Tonnage of Property moved	81471½	101637
Number of days of navigation	79	79

SUMMARY of UPWARD and DOWNWARD Movement in Tons on the St. Lawrence Canals, to the 31st July, 1853 and 1854.

	1853.	1854.
Number of Vessels	2191	2425
Tonnage of do	153811	193170
Number of Steamers	906	1028
Tonnage of do	92372	101596
Number of Passengers	19448	26600
Tons of all property moved	138563	170949
Number of days of navigation	79	79

R E T U R N

To an Address from the Legislative Assembly, dated the 7th June, 1853, praying the appointment of a Commissioner to inquire into the circumstances attending the Loan of £100,000 to the Sufferers by the Quebec Fires.

By Command.

(Signed,) P. J. O. CHAUVEAU,

Secretary.

SECRETARY'S OFFICE,

Quebec, 22nd September, 1854.

(Copy.)

QUEBEC, 16th August, 1854.

Sir,—I have the honor herewith to transmit to you, for the consideration of His Excellency the Governor General, a Report on the subject of the Loan of £100,000, made to the sufferers by the great Fires at Quebec, in 1845, the result of the Inquiry which His Excellency the Administrator of the Government was pleased to charge me with, by a Commission, dated 4th January last.

I have the honor to be, Sir,

Your most humble and obedient Servant,

(Signed,) LOUIS PREVOST,

To the Honorable

P. J. O. CHAUVEAU,

Provincial Secretary.

To His Excellency the Right Honorable the Earl of ELGIN and KINCARDINE, Knight of the Most Noble and Most Ancient Order of the Thistle, Governor General of British North America, Captain General and Governor in Chief in and for the Provinces of Canada, Nova Scotia, New Brunswick, and Prince Edward's Island, and Vice-Admiral of the same.

MAY IT PLEASE YOUR EXCELLENCY,

The undersigned, appointed by His Excellency the Administrator of the Government, Commissioner to Inquire into the circumstances under which the Loan of (£100,000,) One hundred thousand pounds, was made to the Sufferers by the Fires which occurred in the City of Quebec, on the twenty-eighth of May and the twenty-eighth of June, Eighteen hundred and forty-five, by virtue of an Address of the seventh of June, Eighteen hundred and fifty-three, presented to Your Excellency by the Legislative Assembly, with the view of regulating the amount both of capital and interest, justly due by the Sufferers by the said Fires, according to the original intention of the Legislature, as expressed in the Act passed in the Ninth year of the Reign of Her Majesty, cap. 62, intituled "An Act for giving relief to the City of Quebec," under the faith of which they have been led to erect buildings in a more expensive manner than they otherwise would have done, conformably with the provisions contained in the said Act, and to inquire into the best means to be adopted to obtain additional sureties for the repayment of the sums justly due as aforesaid, respectfully submits to Your Excellency the present

REPORT.

Immediately upon receiving from His Excellency the Administrator of the Government, the Commission, charging me with the present inquiry, dated 4th January, 1854, together with a Letter of Instructions from the Honorable Provincial Secretary, and a Copy of an Address presented to Your Excellency by the Legislative Assembly, dated 7th June, 1853, I hastened to cause to be published in different newspapers of this City, both in French and in English, Notices requiring all persons who had suffered any loss or damage, arising from the Acts of the Legislature, with reference to the Loan made to the Sufferers by the great Fires at Quebec, to furnish at my Office all and every such evidence of the said loss or damage; and from the nineteenth of January I commenced to receive on the part of those interested, declarations in writing, and sworn to upon the facts having reference to the present inquiry. Parties continued to give their evidence after the last mentioned date, up to the fourteenth of the present month of June, to the number of seventy-six. These parties have all declared in writing upon their oath, the losses they have suffered, as will appear more minutely hereinafter. A larger number of persons have appeared, but their memory being too bad and their memoranda insufficient to enable them to make affidavits, they have refrained from giving evidence; others, in consequence of the death in their families, of the persons who were in the habit of transacting their business with reference to their Debentures, have not been able either to procure sure evidence; and even those who have made their affidavits, have done so in a very vague and uncertain manner.

This Report, in conformity with the views of Your Excellency on the subject of the present inquiry, will comprise two parts; the first, in order to establish what is the amount justly due in capital and interest by the Sufferers by the great Fires at Quebec, according to the original intention of the Legislature, and in the second, I shall consider the best means to be adopted to obtain additional guarantees for the payment of the amount justly due.

PART FIRST.

By the Act 9th Vic. cap. 62, it is provided, that it shall and may be lawful for the Governor, Lieutenant Governor, or the person administering the affairs of the Province, after the passing of the Act last mentioned, to authorize the Receiver General of this Province to raise, by a loan, from any person or body corporate willing to make the advance, on the credit of *Bons* or Debentures of the Government, the issue of which was authorized by the said Act, a sum of £100,000. One hundred thousand pounds currency, and that so soon as this money, or any part of it should have been so raised, it should be lawful for the Governor to issue his Warrant for the amount in favor of the Commissioners appointed by the authority of the said Act, to be by them advanced and lent upon the terms and conditions provided by the said Act, and that it should be lawful for the Receiver General to cause and direct Debentures for any such sum or sums of money, not exceeding the sum of £100,000, One hundred thousand pounds, as any such persons or body corporate should agree to advance on the credit of the said Debentures, the said Debentures to be made payable at such periods, and for such sums, and at such rate of interest, not exceeding five pounds currency per annum, as should be found most advisable; and that the said Commissioners should deliver to all persons to whom any of the said moneys should be apportioned by the said Commissioners, a certificate certifying the amount of the sum advanced and loaned, which certificate being deposited in the Receiver General's Office, should be a sufficient authority to the Receiver General to pay such sum of money.

By the twenty-third clause of the same Act, it is enacted, That the principal sums of money which shall have been advanced by the said Commissioners under the authority of this Act, shall be refunded without deduction to the Receiver General of the Province, or to any other person or body corporate by him authorized to receive the same at or previously to the expiration of ten years from the period of any such loan, with interest at the rate of three pounds currency per centum per annum, to be computed from the day of such advance: Provided always, that it shall be lawful for the said Commissioners, and they are thereby required to stipulate in the bonds, that the amount advanced shall be paid in ten yearly instalments, if the parties to whom the sums lent so desire it.

So that by this Act of the Legislature, the loan ought to have been made in currency money, at the rate of three per cent interest per annum, the amount to be raised by a loan on the credit of Government Debentures, but the distribution of the loan so authorized by this Act never took place.

The ensuing year the Legislature passed another Act amending the first, to wit:—The Act 10th and 11th Vic. cap. 35, intitled, “An Act to amend the “Act for granting relief to the Sufferers by the Fire at Quebec.” By this amendment, the rate of interest payable to the bearer of Debentures, was raised from five to six per cent. per annum, but instead of being negotiated and changed into currency money by the Government, it was enacted by this last Act, that these Debentures should be delivered and paid by the Receiver General to the respective parties to whom such advance should be made, upon the certificate of the Commissioners acting under the authority of the former Act, and that these Debentures should be issued for such sums as should be advanced to such parties respectively, and should be received by such parties as the sums which should have been advanced to them, and as money.

That the sums of money to be so advanced by Debentures, should be repaid in the manner provided by the first Act of the Legislature, with interest at the rate of four per cent. per annum.

By this Act in amendment, the sufferers by the Fires, instead of receiving the aid of the Government in currency money, and at the rate of three per cent. interest, according to the intention of the Act of 1846, and as soon as the money could have been raised after the passing of the Act which became Law on and after the 9th June, 1846, were forced to accept the Debentures twelve months later, and this at the rate of four per cent. interest per annum.

The loan was made by means of two distributions, at two different periods, the first distribution during the year 1847, the first certificate bearing date the 25th November, 1847, and the second during the Spring of the ensuing year.

Conformably to the twenty-first clause of the Act of 1846, a condition was inserted in the Bonds agreed to by the parties contracting the loan, in favor of the Crown, by which they bound themselves to build and erect the buildings and houses for which the loan had been granted them, of stone or brick, and to cover the roofs with slate, tin, zinc, or other not combustible material, and that before the first of November of the same year, to wit:—the 1st of November, 1848.

In the Autumn of 1846, and the Spring of the following year, a number of those who were to have participated in the loan, relying on the faith of the Act of 1846, 9th Vic. cap 62, commenced rebuilding their properties, and contracted engagements which they intended to have met by means of the help which they then expected to receive from Government, but this aid not having come in time, many of them were obliged to adopt other means to pay their workmen.

The next year, during the season of 1848, those who had not as yet commenced rebuilding, were obliged to do so without further delay, in order to conform to the conditions of the Statute which obliged them to rebuild before the first of November then next.

This regulation had the effect of causing a considerable augmentation in the price of building materials, as well as in that of labor, and the expense of building was therefore much increased. These increased expenses had to be supported and the engagements to be met within a very short time, which must also have had the effect of bringing into the market a considerable amount of Debentures in the course of the same year. A very small amount of the Debentures first issued appear to have been exchanged at *par*, or at a small discount, but later, in consequence of the depression in business, which caused a great decline in all the branches of industry during the year 1848, and the following years, up to the Spring of 1851, the Debentures also lost their value. This tendency to decline in the value of Debentures was itself much increased by the urgent necessity in which the holders of these Debentures were to convert them into money in order to satisfy their creditors; finally, on account of the great difficulty at that time in the way of negotiating loans on the security of landed property, those who had any money at their disposal, taking good care to keep it in reserve to buy up the Debentures as they issued upon the most advantageous terms they could possibly command.

Amongst those who had obtained loans in Debentures, seventy-six have experienced losses on the negotiation of these Debentures. These losses vary from *par* to thirty per cent. discount, as is shewn in Appendix A, accompanying this Report. Of this number, two have declared in their affidavits, that they have lost the entire amount of their Debentures by lending them to other parties, and that their only reason for so lending their Debentures was, because those who borrowed them took them at *par*, and that they would not have lent the money.

All have alleged that they have suffered loss on account of the delay which occurred from the time of the passing of the Act of 1846 up to the distribution of the money, and also because by the condition of the loan they were obliged to build within a certain period houses of costly materials, more than they otherwise would

have employed, and that the increase in the expense is equal to the assistance rendered, if not for all, at least for a large portion.

Considering all the losses which the sufferers by the great Fires alledge that they have suffered on account of the intention of the Act of 1846 not being carried out at once, it would be difficult to determine in a precise manner, the amount which those who have participated in the loan justly owe.

These losses may be enumerated, as follows:—

The difference in the rate of interest established at Three per cent. per annum, by the Act of 1846, and at Four per cent. per annum, established by the Act of 1847, to wit, One per cent. per annum.

The issue in accordance with the provisions of the second Act of Bonds and Debentures as and instead of money, the same as enacted by the first Act.

The loss on the negotiation of the Debentures.

An excess of expenditure in the construction of buildings, in consequence of the order contained in the Act of Amendment, obliging the persons who contracted loans, to build of costly materials, and that before the first of November, 1848, which thus only left those persons who contracted a Loan one season after the grant of the Debentures, to rebuild their properties.

In view of the above considerations, I venture to believe that it would be more in conformity with the views of Your Excellency, to recommend to Your Excellency's consideration, uniform indemnity to be granted in favor of the Sufferers by the great Fires, who are indebted to the Government, and who have built houses in accordance with the conditions of the Loan. By this means, the Government will avoid the necessity of sanctioning, in the different transactions of those who have received Debentures, the sacrifice which they may have made of its property, without its knowledge, or any information being given by these persons to the Government. By this means, also, the principle of equality which has seemed to reign in all the proceedings of the Commissioners in the distribution of the Loans, would appear with regard to the Sufferers by the Fires.

PART SECOND.

This Part applies to the best mode of proceeding in order to obtain additional guarantees for the repayment of the amount justly due by those who have obtained Loans.

The Loan of Debentures was made upon the guarantee of landed property, by Notarial Bonds, and by hypothecs on the lots upon which those who obtained the Loan were to build their houses; with a claim or privilege over these properties, in preference to all other claim or hypothec, on account of the increased value of such properties, resulting from the employment of the moneys borrowed from Government, with still another general hypothec on all the goods which the person obtaining the Loan then possessed and might possess, subsequent to the said Loan, such hypothecs taking precedence according to the date of the Bonds, leaving to each person the right of proving that the property had been increased in value, by the use of other moneys than those furnished by the Government. Apart from the above guarantees upon the properties of the principal debtors, a certain number of these last turnishdd to the satisfaction of the Commissioners, securities who also gave hypothecs upon their lands and houses, to the amount of their guarantee.

By the same clause of the Statute, the Crown is exempt from the obligation of enregistering the hypothecs stipulated by the parties who obtained the Loan.

In the greater part of the documents which constitute these claims and privileges, mention is made of the building for which the Loan was granted, as it now stands on the land upon which the hypothec is granted, whether the said building was really completed or whether only in course of erection, and without any mention in the Bonds that the buildings were erected with the moneys furnished by the Government. This mention of the buildings in the Bonds has generally given rise to contestations of the privilege of the Crown upon these buildings, on the part of third parties, and by this very fact, the Crown, instead of the position which is given to it by the 18th clause of the Act of 1846, as to with respect to its privilege, finds itself deprived of this privilege; and also, deprived of the advantage of establishing it by any other proof, although in every case, with very few exceptions, the moneys advanced by the Government have been invariably employed in the building of houses, or in the payment of debts, contracted for these same houses, as it is stated by the declarations of the parties in the present inquiry.

By the 13th clause of the same Act, 9th Vic. cap. 62, it is enacted, that the Commissioners should meet and receive the petitions or applications which should be made to them by those who sustained losses by the great Fires of the 28th May and the 28th June, 1845, and who may be desirous of obtaining a loan for the purpose of rebuilding their houses and other buildings, destroyed by the said fires, and for no other purpose.

It is nevertheless established by this Commission of Inquiry, that persons who according to the terms of this clause last mentioned, would be excluded from all right of participating in the Government Loan, were permitted by the Commissioners to obtain loans.

By a judgment of the Superior Court, rendered in the cause, No. 158, of 1851, *Têtu et al.* plaintiffs, *versus* Glackemeyer, defendant, it was decided that those only who, at the time of the great Fires at Quebec, were proprietors of building lots, were entitled to receive a Loan from Government.

In another cause in the Superior Court, No. 481, of 1853, *Vocelle versus Scott*, the privilege of the Crown was contested, and amongst other *moyens* of contestation, it was alleged by the contesting party, that the person over whose property the Crown was claiming privilege had never applied for a Loan, under the authority of the Acts of Parliament, and that if he had made such an application it was subsequent to the time after which the Commissioners could not, according to the fourth clause of the Statute, 10 & 11 Vic. cap. 35, receive applications for Loans, under the authority of the Acts of the Legislature.

Many errors and difficulties have resulted from the non-registration of the deeds consenting by which such Loans from Government were contracted. Very few of those who contracted Loans from Government, according to their own declarations, appear to have the means requisite to meet the debt when it next falls due, and if the persons thus indebted, were forced to refund their loans at no distant period, such a proceeding would have the effect of causing many properties to change owners.

If the manner of refunding mentioned in the 23rd clause of the 9th Vic. cap. 62, by which clause the debt was to be liquidated, in ten yearly instalments, was made binding on all those who have contracted the loans, the amount might easily be collected without these payments being too onerous upon those who owe the money.

With respect to the best means to be adopted in order to obtain from the sufferers by the Fires at Quebec, who are indebted to the Crown, additional guarantees for the repayment of the amounts they lawfully owe, might perhaps be difficult to obtain such guarantees, unless the Government should grant to those who had ob-

tained loans, some advantage which might be an inducement to them to give such guarantees.

I shall conclude this Report, by respectfully recommending to Your Excellency's consideration the necessity of establishing and deciding in a final manner, the means which must be adopted in order to obtain from the sufferers by the Fires at Quebec, repayment of the amount due by them, by a measure to be introduced in the Legislature for that purpose.

The undersigned respectfully submits to Your Excellency's consideration, the following scheme, as being, in his humble opinion, the best adopted, the views of Your Excellency in the present Commission of Inquiry, and at the same time to arrive at a conclusion upon the two points which form the subject of this Report.

The plan is as follows:—The Government should grant a full and entire release from payment of interest now due, and hereafter to become due on the loans contracted by the sufferers by the Great Fires, in favor of those who shall have erected buildings according to the conditions of the loan, and in favor of those only. The reduction on the part of the Government of so considerable an amount, ought to be an indemnification more than sufficient to cover the loss and damage which those who have contracted loans may have suffered from the Act 9th Vic. cap. 62, not being the only one put into force, and from its not having been so immediately. So great a reduction on the debt ought also to be more than sufficient to induce the persons indebted to the Crown, to procure good and sufficient guarantees for the repayment of the capital. As to those who have paid interest, it would in that case become necessary to permit them to deduct the amount paid from the sum due, and to consider it as so much paid upon the principal. If this suggestion were favorably received by Your Excellency, it would become necessary that the debtors should consent by a deed in due form, to a new acknowledgement of the debt which would be consolidated by means of the said deed into one amount, with such additional guarantee as might be deemed necessary by the person acting in the name of the Crown. The expense of and making out the said deed should be defrayed by Government, but the cost of enregistering it, fall upon the parties, such enregistration of the deed being necessary to prevent errors between the sufferers by the Fires and those who transact business with them.

The amount to be paid should be made payable in ten yearly instalments, to be computed from the day upon which the measure settling this business should become Law. The deed so entered into and agreed to by the parties, should be *prima facie* authentic evidence, and should be received as such in all Courts of Justice, in proof of the debt therein mentioned, and as having been entered into according to provisions, and under the authority of the said Acts of Parliament, and without its being in any manner necessary for the Crown to produce any document, list, or book kept by the Commissioners. All that the Commissioners have thought proper to do in the exercise of their power, should be confirmed, and particularly the interpretation which they have given to the 13th clause of the Act of 1846, granting a loan of money to persons who possessed lots within the limits of the part destroyed by the Fire, whether or not these persons were proprietors of the lots at the time of the Fires, reserving to all persons any rights justly acquired.

Such are the observations which I have thought it my duty to make, and the conclusions to which I have come in the execution of the arduous duty which Your Excellency has confided to me in the present Commission of Inquiry, and which I now respectfully beg leave to submit to Your Excellency's gracious consideration.

(Signed,)

LOUIS PREVOST,

Commissioner.

Appendix A.

No.	NAMES.	Loan.				Per Centum.	Loss.			Total Loss.			Nett Proceeds.		
		£	s.	d.			£	s.	d.	£	s.	d.	£	s.	d.
1	Henry O'Connor	300	0	0	0	at 10 per cent.	15	0	0	42	0	0	258	0	0
2	do	100	0	0	0	at 18 do	27	0	0	20	0	0	80	0	0
3	Widow Dominique Vachon	200	0	0	0	at 20 do	20	0	0	41	0	0	159	0	0
4	Ignace Fortier	100	0	0	0	at 21 do	21	0	0	27	0	0	73	0	0
5	do	100	0	0	0	at 27 do	...	...	...	40	0	0	160	0	0
6	Robert Hopper	100	0	0	0	at 20 do	...	...	...	15	0	0	185	0	0
7	Charles Lortie	200	0	0	0	at 20 do	...	...	...	75	0	0	225	0	0
8	Charles Deguise, Esquire, rep. Hibert.	150	0	0	0	at 25 do	...	...	...	50	0	0	150	0	0
9	Edouard Thivierge.	300	0	0	0	at 25 do	2	0	0	7	0	0	98	0	0
10	Edouard Thivierge, rep. Blais	200	0	0	0	at 4 do	5	0	0	10	0	0	70	0	0
11	Charles Drouin	100	0	0	0	at 10 do	10	0	0	20	0	0	80	0	0
12	Ignace Pepin	200	0	0	0	at 10 do	10	0	0	40	0	0	160	0	0
13	do	100	0	0	0	at 20 do	...	...	...	10	0	0	90	0	0
14	Joseph Pepin	100	0	0	0	at 20 do	...	...	...	40	0	0	160	0	0
15	P. A. Racine	200	0	0	0	at 20 do	...	...	...	7	10	0	42	10	0
16	Augustin Denis	100	0	0	0	at 20 do	...	...	...	191	12	0	8	8	0
17	do	100	0	0	0	at 20 do	...	...	...	40	0	0	160	0	0
18	John Parker	200	0	0	0	at Par.	10	0	0	10	0	0	90	0	0
19	Charles Debarcennis	200	0	0	0	at 20 per cent.	2	10	0	40	0	0	160	0	0
20	do	50	0	0	0	at 10 do	5	0	0	7	10	0	42	10	0
21	do	50	0	0	0	at 20 do	...	...	...	191	12	0	8	8	0
22	Jean Papillon	200	0	0	0	lost on the Loan	...	...	...	40	0	0	160	0	0
23	Leon Hamel	200	0	0	0	at 20 per cent.	...	...	...	7	10	0	42	10	0
24	Alexis Trepannier	150	0	0	0	at 15 do	9	0	0	7	10	0	42	10	0
25	do	150	0	0	0	at 16 do	...	...	...	191	12	0	8	8	0
26	do	150	0	0	0	at 20 do	...	...	...	40	0	0	160	0	0
27	do	150	0	0	0	at 16 do	...	...	...	7	10	0	42	10	0
28	do	150	0	0	0	at 20 do	...	...	...	10	0	0	90	0	0
29	do	150	0	0	0	at 16 do	...	...	...	40	0	0	160	0	0
30	do	150	0	0	0	at 20 per cent.	...	...	...	21	17	6	128	2	6
31	do	150	0	0	0	at 18 do	...	...	...	21	17	6	128	2	6
32	do	150	0	0	0	at 20 do	...	...	...	21	17	6	128	2	6
33	do	150	0	0	0	at 16 do	...	...	...	21	17	6	128	2	6
34	do	150	0	0	0	at 20 do	...	...	...	21	17	6	128	2	6

19	Jean Guerd	200	0	0	0	at 25 do	25	0	0	0	0	0	0	0	0
20	do	100	0	0	0	at 15 do	1	10	0	0	0	0	0	0	0
21	do	100	0	0	0	at 16 do	1	12	0	0	0	0	0	0	0
22	do	80	0	0	0	at 21 do	16	16	0	0	0	0	0	0	0
23	Jean Rochette	150	0	0	0	at 10 do	10	0	0	0	0	0	0	0	0
24	do	150	0	0	0	at Par.	...	...	...	0	0	0	0	0	0
25	do	150	0	0	0	at 20 per cent.	10	0	0	0	0	0	0	0	0
26	do	100	0	0	0	at 18 do	9	0	0	0	0	0	0	0	0
27	do	100	0	0	0	at 20 do	...	...	...	0	0	0	0	0	0
28	Widow Frs. Pepin	200	0	0	0	at 20 do	10	0	0	0	0	0	0	0	0
29	Hilary Lanfesty	200	0	0	0	at 10 do	10	0	0	0	0	0	0	0	0
30	do	200	0	0	0	at 20 do	20	0	0	0	0	0	0	0	0
31	do	200	0	0	0	at 20 do	...	...	...	0	0	0	0	0	0
32	Magiore Gingue	200	0	0	0	at 20 do	...	...	...	0	0	0	0	0	0
33	Widow J. B. Lesperance, rep. Edward Langlois	200	0	0	0	at 10 do	10	0	0	0	0	0	0	0	0
34	do	200	0	0	0	at 20 do	20	0	0	0	0	0	0	0	0
35	do	200	0	0	0	at 10 do	10	0	0	0	0	0	0	0	0
36	do	200	0	0	0	at 20 do	...	...	...	0	0	0	0	0	0
37	G. A. Allsopp, Esquire	300	0	0	0	at 20 do	...	...	...	0	0	0	0	0	0
38	J. B. Hamel	125	0	0	0	at 28 do	...	...	...	0	0	0	0	0	0
39	Jacques Richard	150	0	0	0	at 15 do	10	2	6	0	0	0	0	0	0
40	do	150	0	0	0	at 20 do	10	0	0	0	0	0	0	0	0
41	do	150	0	0	0	at 10 do	2	10	0	0	0	0	0	0	0
42	do	150	0	0	0	at 10 do	5	0	0	0	0	0	0	0	0
43	do	150	0	0	0	at 7 do	8	10	0	0	0	0	0	0	0
44	Francis Braun	100	0	0	0	at 15 do	...	...	...	0	0	0	0	0	0
45	do	100	0	0	0	at 10 do	...	...	...	0	0	0	0	0	0
46	do	100	0	0	0	at 20 do	...	...	...	0	0	0	0	0	0
47	do	100	0	0	0	at 7 do	...	...	...	0	0	0	0	0	0
48	Louis Moisan	200	0	0	0	at 15 do	...	...	...	0	0	0	0	0	0
49	J. B. Lapointe	200	0	0	0	at 10 do	...	...	...	0	0	0	0	0	0
50	Pierre Drolet	250	0	0	0	at 20 do	40	0	0	0	0	0	0	0	0
51	do	250	0	0	0	at 16 do	8	0	0	0	0	0	0	0	0
52	do	250	0	0	0	at 10 do	5	0	0	0	0	0	0	0	0
53	do	250	0	0	0	at Par.	...	...	...	0	0	0	0	0	0
54	Louis Fiset, Esquire	200	0	0	0	at 10 do	...	...	...	0	0	0	0	0	0
55	do	200	0	0	0	at 7 do	...	...	...	0	0	0	0	0	0
56	do	200	0	0	0	at 15 do	...	...	...	0	0	0	0	0	0
57	do	200	0	0	0	at 10 do	...	...	...	0	0	0	0	0	0
58	do	200	0	0	0	at 20 do	...	...	...	0	0	0	0	0	0
59	do	200	0	0	0	at 16 do	...	...	...	0	0	0	0	0	0
60	do	200	0	0	0	at 10 do	...	...	...	0	0	0	0	0	0
61	do	200	0	0	0	at Par.	...	...	...	0	0	0	0	0	0
62	do	200	0	0	0	at 7 do	...	...	...	0	0	0	0	0	0
63	do	200	0	0	0	at 15 do	...	...	...	0	0	0	0	0	0
64	do	200	0	0	0	at 10 do	...	...	...	0	0	0	0	0	0
65	do	200	0	0	0	at 20 do	...	...	...	0	0	0	0	0	0
66	do	200	0	0	0	at 16 do	...	...	...	0	0	0	0	0	0
67	do	200	0	0	0	at 10 do	...	...	...	0	0	0	0	0	0
68	do	200	0	0	0	at 7 do	...	...	...	0	0	0	0	0	0
69	do	200	0	0	0	at 15 do	...	...	...	0	0	0	0	0	0
70	do	200	0	0	0	at 10 do	...	...	...	0	0	0	0	0	0
71	do	200	0	0	0	at 20 do	...	...	...	0	0	0	0	0	0
72	do	200	0	0	0	at 16 do	...	...	...	0	0	0	0	0	0
73	do	200	0	0	0	at 10 do	...	...	...	0	0	0	0	0	0
74	do	200	0	0	0	at 7 do	...	...	...	0	0	0	0	0	0
75	do	200	0	0	0	at 15 do	...	...	...	0	0	0	0	0	0
76	do	200	0	0	0	at 10 do	...	...	...	0	0	0	0	0	0
77	do	200	0	0	0	at 20 do	...	...	...	0	0	0	0	0	0
78	do	200	0	0	0	at 16 do									

No.	NAMES.	Loan.			Per Centum.	Loss.			Total Loss.			Nett Proceeds.		
		£	s.	d.		£	s.	d.	£	s.	d.	£	s.	d.
35	J. B. Laurent	100	0	0	at 7½ per cent. estimated at 25 p.c.	0	0	0	7	10	0	92	10	0
36	Ferdinand Carrier	200	0	0	at 11 per cent.	0	0	0	50	0	0	150	0	0
37	F. X. Dumontier	100	0	0	at 11 do	0	0	0	0	15	0	0	0	0
	do	20	0	0	at 20 do	0	0	0	3	6	0	0	0	0
	do	20	0	0	at 20 do	0	0	0	4	0	0	0	0	0
38	Honoré Barbeau	200	0	0	at 10 do	0	0	0	10	0	0	91	19	0
	do	100	0	0	at 20 do	0	0	0	20	0	0	0	0	0
39	Widow Gabriel Gagnon	155	0	0	at 22 do	0	0	0	15	10	0	170	0	0
	do	80	0	0	at 20 do	0	0	0	16	0	0	123	10	0
40	J. B. Bureau	250	0	0	at 20 do	0	0	0	0	0	0	196	0	0
	do	245	0	0	at 20 do	0	0	0	0	0	0	0	0	0
	do	5	0	0	at Par	0	0	0	0	0	0	0	0	0
41	John Childs	300	0	0	at 30 do	0	0	0	45	0	0	0	0	0
	do	150	0	0	at 15 do	0	0	0	22	10	0	0	0	0
42	F. X. Martinette	200	0	0	at 20 do	0	0	0	10	0	0	232	10	0
	do	150	0	0	at 19½ do	0	0	0	29	15	0	0	0	0
43	François Lepard	250	0	0	at 20 do	0	0	0	0	0	0	160	5	0
44	Louis Dery	200	0	0	at 20 do	0	0	0	0	0	0	200	0	0
	do	100	0	0	at Par	0	0	0	0	0	0	180	0	0
45	François Beland, senior	200	0	0	at 20 do	0	0	0	0	0	0	160	0	0
46	François Beland, junior	150	0	0	at 20 do	0	0	0	0	0	0	170	0	0
47	Prime Beland	100	0	0	at 20 do	0	0	0	0	0	0	80	0	0
48	Henri Cadout	100	0	0	at 10 do	0	0	0	5	0	0	0	0	0
	do	30	0	0	at 15½ do	0	0	0	4	13	0	0	0	0
	do	20	0	0	at 20 do	0	0	0	4	0	0	0	0	0
									13	13	0	86	7	0

49	Widow Daniel McClary, for rep. Joseph Lepré	100	0	0	at 20 do	0	0	0	27	0	0	80	0	0
50	John Harwood	200	0	0	at 18 do	0	0	0	9	10	0	163	10	0
	do	50	0	0	at 19 do	0	0	0	0	0	0	250	0	0
51	Simon Bedard	300	0	0	at 17½ do	0	0	0	0	0	0	242	0	0
52	Edward Carroll	300	0	0	at 19½ do	0	0	0	0	0	0	180	0	0
53	Germain Roberge	200	0	0	at 10 do	0	0	0	0	0	0	0	0	0
54	Henry Benty	200	0	0	at 10 do	0	0	0	10	0	0	0	0	0
	do	100	0	0	at 19 do	0	0	0	19	0	0	0	0	0
55	Augustin Voelle	200	0	0	at 10 do	0	0	0	10	0	0	271	0	0
	do	100	0	0	at 3 do	0	0	0	3	0	0	0	0	0
56	Jean Paquet	300	0	0	at 21 do	0	0	0	21	0	0	187	0	0
57	Abraham Amiot	400	0	0	at 16 do	0	0	0	16	0	0	237	0	0
	do	50	0	0	at 20 do	0	0	0	10	0	0	0	0	0
	do	75	0	0	lost on Loan	0	0	0	14	5	0	0	0	0
	do	75	0	0	at 19 per cent.	0	0	0	6	0	0	0	0	0
	do	20	0	0	at 20 do	0	0	0	0	0	0	0	0	0
	do	50	0	0	at Par	0	0	0	9	0	0	0	0	0
	do	50	0	0	at 18 per cent.	0	0	0	0	0	0	0	0	0
58	Edouard Dufresne	100	0	0	at 20 do	0	0	0	10	17	6	344	15	0
59	Michael Reinhart	150	0	0	at 15½ do	0	0	0	12	0	0	80	0	0
	do	75	0	0	at 17 do	0	0	0	0	0	0	0	0	0
60	Julien Dubuc	200	0	0	at 25 do	0	0	0	0	0	0	127	2	6
61	Jean-Lemelin, junior	200	0	0	at 20 do	0	0	0	0	0	0	150	0	0
62	J. B. Nadeau	150	0	0	at 18 do	0	0	0	18	0	0	160	0	0
	do	50	0	0	at 18½ do	0	0	0	9	10	0	0	0	0
63	Claude Caron	200	0	0	at 20 do	0	0	0	0	0	0	192	10	0
64	Louis Merpette	50	0	0	at 20 do	0	0	0	0	0	0	160	0	0
65	Widow Prisque Tremblay	200	0	0	at 20 do	0	0	0	10	0	0	40	0	0
	do	150	0	0	at Par	0	0	0	0	0	0	0	0	0
66	Edouard Gaboury	150	0	0	at 20 per cent.	0	0	0	15	0	0	190	0	0
	do	75	0	0	at 2½ do	0	0	0	15	17	6	119	2	6

APPENDIX A.—(Continued.)

No.	NAMES.	Loan.			Per Centum.			Loss.			Total Loss.			Nett Proceeds.			
		£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	
67	Joseph Raupau. do	300	0	0	200	0	0	at 10 per cent. at 15 do	20	0	0	35	0	0	265	0	0
68	Murdoch McKenzie.	200	0	0	.....	.....	at 20 do	.....	.....	.....	.....	40	0	0	160	0	0
69	J. B. Bernier.	200	0	0	.....	.....	at 10 do	.....	.....	.....	.....	20	0	0	180	0	0
70	Pierre Dasilva. do	200	0	0	100	0	0	at 10 do at 19 do	10	0	0	.....	.....	.....	.....	.....	.....
71	Joseph Pepin, rep. J. B. Pepin. do	200	0	0	100	0	0	at 14 do at 10 do	14	0	0	29	0	0	171	0	0
72	Joseph Hamel, Esquire. The late Mrs. Hamel. do do	400 200	0 0	0 0	..... 600	0 0	0 0	at 20 do Commission	120 5	0 0	0 0	.....	.....	.....	.....	.....	.....
73	Augustin Paré	150	0	0	.....	.....	at 18 per cent.	.....	.....	.....	.....	125	0	0	475	0	0
74	Pierre Giroux. do	200	0	0	100	0	0	at 20 do at 12 do	20	0	0	27	0	0	123	0	0
75	Anselme Marmen	100	0	0	.....	.....	lost his Loan.	.....	.....	.....	.....	32	0	0	168	0	0
76	Amable Pelletier. do do	200 50 50	0 0 0	0 0 0	100 50 50	0 0 0	0 0 0	at 10 per cent. at 20 do at 10 do	10 10 5	0 0 0	0 0 0	25	0	0	175	0	0

(Signed,) LOUIS PREVOST,
Commissioner.

Quebec, 22nd June, 1854.

RETURN

To an Address of the Legislative Assembly to His Excellency, the Governor General, dated 14th September, 1854, for "Copies of the several Appointments of Jean Blanchet, Esquire, M.P.P., as one of the Visiting Physicians of the Quebec Marine Hospital; and also a detailed Statement shewing the several sums of money received by the said Jean Blanchet, Esquire, as such Visiting Physician, with the date of each payment.

By Command,

PIERRE J. O. CHAUVEAU,

Secretary.

SECRETARY'S OFFICE,

Quebec, 25th September, 1854.

[Copy.]

SECRETARY'S OFFICE,

27th December, 1854.

SIR,—I have the honor, by command of the Governor General, to inform you that His Excellency is pleased to appoint you to the office of Visiting Physician on the permanent Medical Staff of the Marine and Emigrant Hospital at Quebec, in conjunction with Doctors Joseph Painchaud, Sen., J. Douglas, J. Sewell, Z. Nault, O. Robitaille, A. Jackson and J. Hall.

I am, Sir,

Your obedient servant,

(Signed,)

E. PARENT,
Assistant Secretary.

Doctor Jean Blanchet,
&c., &c.,
Quebec.

(Translation.)

PROVINCIAL SECRETARY'S OFFICE,
Quebec, 3rd December, 1853.

GENTLEMEN,

I have the honor to inform you that His Excellency the Administrator of the Government, having had under his consideration the Report of the Commissioners appointed to enquire concerning the management of the Marine and Emigrant Hospital, has been pleased to direct that four Visiting Physicians should be appointed, and that such arrangement be substituted for the present system.

It is hoped, that a suitable rate of remuneration being allowed to them, the gentlemen of the Faculty who are chosen for the purpose, may be enabled to devote to the care of the Hospital a larger portion of their time.

I am moreover commanded by His Excellency, to offer to you the appointment of Visiting Physician to that Institution, with an annual salary of £100, in virtue of the new arrangements. The same offer is made to Doctors A. Rowand and A. A. Jackson, and it is hoped that you may be able to co-operate cordially with them for the relief of the sick persons who may be entrusted to your care.

I have the honor to be,

Gentlemen,
Your obedient servant,

(Signed)

P. J. O. CHAUVEAU,
Secretary.

Messrs. Joseph Painchaud,
and Jean Blanchet.

N.B. Previous to the date of this letter the services of Dr. Blanchet were gratuitous.

(Translation.)

QUEBEC, 6th December, 1853.

SIR,—In reply to your letter of the 3rd December, 1853, I have the honour to inform you that the office of Visiting Physician of the Marine and Emigrant Hospital, which His Excellency the Administrator of the Government has graciously thought fit to offer to me, is one which I did not in the least expect to be called upon to fill, having already resigned that situation for reasons which were at the time submitted to the Executive Government. Although circumstances are now changed in many respects, I am bound, nevertheless, to confess that it is not without much hesitation that I have decided upon accepting the gracious offer of His Excellency the Administrator of the Government. In accepting this office, then, for a period the length of which I cannot now determine, I cannot conceal from myself the responsibility attending it. I am, nevertheless, resolved to discharge the duty appertaining to an office of such importance, and to co-operate cordially with my colleagues for the relief of the sick who may be confided to our care.

I have the honour to be,

Sir,

Your obedient Servant,

(Signed)

J. BLANCHET.

The Honorable P. J. O. CHAUVEAU,
Provincial Secretary.

(Translation.)

PROVINCIAL SECRETARY'S OFFICE,
QUEBEC, 9th December, 1853.

SIR,—With reference to my letter of 3rd instant and your answer of 5th, I have the honour to inform you that His Excellency the Administrator of the Government has been pleased to appoint you Visiting Physician to the Marine and Emigrant Hospital in this city.

The other professional gentlemen, appointed jointly with you are Drs. A. Rowand and A. A. Jackson.

I have the honour to be,

Sir,

Your obedient servant,

(Signed)

P. J. O. CHAUVEAU,
Secretary.

Dr. Jean Blanchet,
&c., &c.,
Quebec.

(Translation.)

QUEBEC, 22nd September, 1854.

SIR,—In answer to your letter of this day, I have the honour to inform you that Dr. Blanchet received on the 10th April the sum of £81 due him as Visiting Physician to the Marine Hospital from the 9th December, 1853, and also on the 1st August the sum of £25, due him on the 1st July.

I have the honour to be,

Sir,

Your obedient Servant,
(Signed,)

PH. WELLS,
S. T. C. M. H.

E. Parent, Esq.,
Assistant Provincial Secretary,
&c., &c.

(9) 21/10/44

10/10/44

(continued)

QUEBEC:

PRINTED BY JOHN LOVELL,

MOUNTAIN STREET.

1854.

R E T U R N

To an Address from the Legislative Assembly dated 16th June last, for Copies of Documents relating to the Purchase of a Site for a Post Office in the City of Quebec.

By Command.

PIERRE J. O. CHAUVEAU,

Secretary.

Secretary's Office,

Quebec, 25th September, 1854.

POST OFFICE DEPARTMENT, Quebec, 20th June, 1854.

Sir,—In compliance with your request of the 17th instant, I have the honor by direction of the Post Master General, to forward enclosed Copies of the Documents of record in this Department connected with the Purchase of a Site for a Post Office in this City, viz :—

- No. 1.—Letter from Geo. Alford, 11th December, 1852, offering to sell present Post Office lot.
- No. 2.—Letter from Post Master General, 13th December, 1852, in acknowledgement of No. 1, inviting a definite offer.
- No. 3.—Letter from Geo. Alford, 16th December, 1852, naming £4000 as price of Post Office lot.
- No. 4.—Letter from Post Master General, 18th December, 1852, in acknowledgement of No. 3.
- No. 5.—Letter from Post Office Department, 14th July, 1853, to H. S. Scott, acknowledging an offer from him to sell his block of building for a Post Office.
- No. 6.—Post Office Department, 14th July, 1853, to Public Works, transmitting offer from Mr. H. S. Scott.
- No. 7.—Acknowledgement, 18th July, 1853, from Public Works, of No. 6.

I have the honor to be,

Sir,

Your most obedient Servant,

W. H. GRIFFIN,

Secretary.

E. PARENT, Esquire,
Assistant Secretary.

QUEBEC, 11th December, 1852.

Sir,—Understanding that you are about to make arrangements for the erection of a Post Office in this City, and believing that no more eligible situation for one can be found than that which has for years past been occupied by the Post Office Department, and is now held by the Department under lease from me, I beg to say that I am ready to sell the same to the Government upon reasonable terms.

I have the honor to be,

Sir,

Your most obedient Servant,

(Signed,) GEORGE ALFORD.

HON. JAMES MORRIS,
&c., &c., &c.,
Post Master General, Quebec.

—
Certified, true Copy.

W. H. GRIFFIN,
Secretary.

POST OFFICE DEPARTMENT, Quebec, 13th December, 1852.

Sir,—I am in receipt of your letter of 11th instant, offering to sell the property now rented for the Quebec Post Office to the Government upon reasonable terms.

In answer, I beg to say, that the Government have it in contemplation to erect a Building for the Department on another site, but would be glad to receive an offer from you of the present Office, which is as you say in a very eligible situation.

I am, &c.,

(Signed,) J. MORRIS.

GEORGE ALFORD, Esquire,
Quebec.

—
Certified, true Copy.

W. H. GRIFFIN,
Secretary.

QUEBEC, 16th December, 1852.

Sir,—In answer to the communication I had the honor to receive from you yesterday, dated the 13th instant, I beg to say, that I should be willing to accept the sum of four thousand pounds for the premises now occupied by the Post Office, which would be a moderate price, and under what I conceive to be its real value.

I have the honor to be,

Sir,

Your most obedient Servant,

(Signed,) GEORGE ALFORD.

HON. JAMES MORRIS,
&c. &c., &c.,
Post Master General, Quebec.

—
Certified, true Copy.

W. H. GRIFFIN,
Secretary.

POST OFFICE DEPARTMENT, Quebec, 18th December, 1852.

Sir,—I am in receipt of your letter of 16th instant, conveying the terms upon which you are willing to dispose to Government of the premises now occupied by the Post Office of this City, and in answer, beg to say, the same shall be carefully noted.

I am, &c.,

(Signed,) J. MORRIS.

GEORGE ALFORD, Esquire,
Quebec.

—
Certified, true Copy.

W. H. GRIFFIN,
Secretary.

POST OFFICE DEPARTMENT, Quebec, 14th July, 1853.

Sir,—In the absence of the Post Master General, I beg to acknowledge your letter of the 12th instant, offering your Block of Houses on Buade and St. Anne Streets as a site for a Post Office for this City, and to inform you that your offer will be duly submitted for consideration.

I am, &c.,

(Signed,) W. H. GRIFFIN.

H. S. SCOTT, Esquire,
Buade Street.

—
Certified, true Copy.

W. H. GRIFFIN,
Secretary.

POST OFFICE DEPARTMENT, Quebec, 14th July, 1853.

Sir,—With reference to the question of the purchase of a Site for a new Post Office in this City, I have the honor, in the absence of the Post Master General, to transmit enclosed an offer from H. S. Scott, Esquire, of the Block of Buildings owned by him on Buade and St. Anne Streets, at a certain price named.

I am &c.,

(Signed,) W. H. GRIFFIN.

Hon. J. CHABOT,
&c., &c., &c.

—
Certified, true Copy.

W. H. GRIFFIN,
Secretary.

PUBLIC WORKS, Quebec, 18th July, 1853.

Sir,—I am directed by the Chief Commissioner of Public Works to acknowledge the receipt of your letter of the fourteenth instant, enclosing a communication from Mr. H. S. Scott, offering to dispose of certain property in this City, for the purpose of a General Post Office, &c., and I have to inform you, that no

instructions having been issued by the Executive Government for the acquisition of a Site for a Post Office at Quebec, the Chief Commissioner cannot take any action in the matter, but he requests that you will be so good as to inform Mr. Scott of the absence of the Honorable the Post Master General.

I have, &c.,

(Signed),

THOMAS A. BEGLY.

W. H. GRIFFIN, Esquire,
&c., &c. &c.

Certified, true Copy.

W. H. GRIFFIN,
Secretary.

S T A T E M E N T

Shewing the Amount received from the FEE FUND in each COUNTY in UPPER CANADA, the SALARIES of the JUDGES, and the Surplus or Deficiency during the year 1853.

Submitted to the Legislative Assembly in conformity with the 7th section of 16 Vic. cap. 163.

By Command.

PIERRE J. O. CHAUVEAU,

Secretary.

SECRETARY'S OFFICE, 22nd September, 1854.

STATEMENT shewing the Amount received from the Fee Fund in each County of Upper Canada, the Salaries of the Judges, and the Surplus or Deficiency, during the year 1853.

C O U N T I E S .	Judges Salary for the year, and Travelling Allowance for the last half-year.			Net Fees Received.			Deficiency.			Surplus.		
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
Brant	400	0	0	309	12	6	90	7	6			
Carleton	400	0	0	171	12	11	228	7	1			
Elgin.....	112	10	0	61	0	7	51	9	5	Three	mon	ths.

STATEMENT shewing the Amount received from the Fee Fund, &c.—(Continued.)

COUNTIES.	Judges Salary for the Year, and Travelling Allowance for the last half-year.			Net Fees Received.			Deficiency.			Surplus.		
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
Essex	400	0	0	146	11	9	253	8	3			
Frontenac, Lennox, and Addington	525	0	0	481	15	9	43	4	3			
Grey										No Returns yet.		
Haldimand	325	0	0	235	3	1	89	16	11			
Hastings	475	0	0	609	16	10				134	16	10
Huron and Bruce	400	0	0	86	4	6	313	15	6			
Kent	325	0	0	224	17	9	100	2	3			
Lambton	87	10	0	4	9	8	83	0	4	Three months.		
Lincoln and Welland	475	0	0	285	3	3	189	16	9			
Leeds and Grenville	475	0	0	262	8	8	212	11	4			
Lanark and Renfrew	475	0	0	187	10	9	287	9	3			
Middlesex	* 225	0	0	367	1	2				142	1	2
Northumberland and Durham	525	0	0	747	19	7				222	19	7
Norfolk	325	0	0	288	2	0	36	18	0			
Ontario										No Returns yet.		
Oxford	475	0	0	289	8	0	185	12	0			
Perth	87	10	0	28	18	4	58	11	8			
Prince Edward	387	10	0	208	18	4	178	11	8			
Peterborough and Victoria	475	0	0	213	7	2	261	12	10			
Prescott and Russell	312	10	0	46	12	6	265	17	6			
Stormont, Dundas, and Glengarry	475	0	0	280	7	10	194	12	2			
Simcoe	475	0	0	211	14	0	263	6	0			
Waterloo	400	0	0	279	0	7	120	19	5			
Wellington	475	0	0	287	8	6	187	11	6			
Wentworth and Halton	525	0	0	537	0	3				12	0	3
York and Peel	† 850	0	0	1110	0	2				260	0	2
Totals	£ 10887	10	0	7962	6	5	3697	1	7	771	18	0

* This is for the first half-year only, no Returns being received for the latter half.

† This includes £350, Salary of the Assistant Judge.

N.B.—The Judges' Income, as above stated, is the amount allowed to each for 1853. The allowance made as an indemnity for Travelling Expenses, to effect only from 1st July, 1853; vide O. C., 28th November, 1853.

JOS. CARY,
Deputy Inspector General.

INSPECTOR GENERAL'S OFFICE,
Quebec, June 20, 1854.

CENTRAL BOARD OF HEALTH.

COPY of the PROCLAMATION issued by HIS EXCELLENCY the GOVERNOR GENERAL, under the provisions of the Act 12 Vic. cap. 8, relative to the PUBLIC HEALTH; and of the Regulations adopted by the Central Board of Health in virtue of the said Act, to be laid before the Legislative Assembly.

PIERRE J. O. CHAUVEAU,

Secretary.

Secretary's Office,

Quebec, 20th September, 1854.

PROVINCE OF CANADA.

By His Excellency the Right Honorable JAMES, Earl of ELGIN and KINCARDINE, Knight of the Most Ancient and Most Noble Order of the Thistle, Governor General of *British North America*, and Captain General and Governor in Chief in and over the Provinces of *Canada*, *Nova Scotia*, *New Brunswick*, and the Island of *Prince Edward*, and Vice-Admiral of the same, &c., &c., &c.

To all to whom these Presents shall come,

GREETING:

A PROCLAMATION.

(Signed,) L. T. DRUMMOND, }
Attorney General. } **W**HEREAS in and by an Act of the Legislature of this Province, made and passed in the Twelfth year of Her Majesty's Reign, and intituled, "An Act to make provision for the preservation of the Public Health in certain Emergencies," it is amongst other things enacted, that whenever this Province or any part thereof or place therein, shall appear to be threatened with any formidable Epidemic, Endemic, or Contagious Disease, the Governor of this Province may by Proclamation, to be by Him from time to time issued, by and with the advice and consent of the Executive Council of this Province, declare the said Act to be in force in this Province, or in such part thereof or place therein as may be mentioned in such Proclamation; and the same shall thereupon become and be in force accordingly; and that His Excellency may in like manner, from time to time, as to all or any parts or places to which any such Proclamation may extend, revoke or renew any such Proclamation, and subject to such revocation and renewal as aforesaid, every such Proclamation shall have effect for Six Calendar months or for such shorter period as in such Proclamation shall be expressed. And whereas, although there exists no reason for serious alarm, the Province appears to be so far threatened with Asiatic Cholera, a disease within the meaning of the said Act, as to render it expedient that all necessary precautions should be taken for the protection of the Public Health, and it is therefore expedient to declare the said Act to be in force in the said Province. Now, Know ye, that by virtue of the power in me vested by the said Act, I, the said Governor of this Province, by and with the

advice and consent of the Executive Council of the said Province, do hereby declare the said Act herein-before mentioned to be in force in this Province, from and after the date of these Presents, and that the same do and shall continue in force for and during the period of Six Calendar months, from the date hereof, unless this Proclamation be sooner revoked and recalled under the provisions of the said Act, of all which Her Majesty's loving subjects and all others whom these Presents do or may in any wise concern, are hereby required to take notice and govern themselves accordingly.

Given under my Hand and Seal-at-Arms, at Quebec, this first day of July, in the year of Our Lord One thousand eight hundred and fifty-four, and in the Eighteenth year of Her Majesty's Reign.

(Signed,) ELGIN AND KINCARDINE.

By Command.

(Signed,) P. J. O. CHAUVEAU,
Secretary.

REGULATIONS, &c., adopted by the CENTRAL BOARD of HEALTH, under the Act 12 Vic. cap. 8.

GOVERNMENT HOUSE, Quebec, Thursday, 20th July, 1854.

Present :

HIS EXCELLENCY THE GOVERNOR GENERAL IN COUNCIL.

HIS EXCELLENCY has been pleased to approve of the following Code of Directions and Regulations adopted by the Central Board of Health, under the provisions of the Provincial Statute, 12 Vic., cap. 8.

WM. H. LEE, C.E.C.

CHAPTER FIRST.

GENERAL AND PERSONAL DIRECTIONS TO FAMILIES AND INDIVIDUALS.

1. Yards should be cleansed of all Filth; Dungheaps, Liquid Manure, &c., should be removed without delay; low and wet places should be drained, but if this be not practicable at the moment, they should be filled with sand or old mortar, with a view to the absorption of the moisture. All premises around dwellings should be kept clean and dry. Privies should be thoroughly cleansed and washed, and their doors and covers left open to prevent the accumulation of foul air, and allow of free ventilation.

2. Cellars which are inhabited, or used as Kitchens, should be kept dry and comfortable by small fires, and a free circulation of the atmosphere, both by day and night, and their walls should be whitewashed twice a month during the prevalence of the Epidemic; this also should be done in old houses, especially those occupied by the poorer classes. The floors of all houses where Carpets are not used, should be washed and scrubbed twice a week.

3. Every house should be well aired; chimney boards and stove pipe stoppers removed, and the doors of all apartments left open, both day and night. A Ven-

tilator in one window of each room, particularly in old and low dwellings, would much contribute to health. Night-chairs, dirty water, &c., should be removed; and, where practicable, the upper and most airy rooms should be selected as the sleeping apartments.

4. The Bedding of every family should be well aired every day, and left uncovered and exposed for a few hours, so that the perspiration imbibed during the night, may be completely evaporated. Under any circumstances it is well to adopt this custom. The doors and windows of Schools, as well as those of Mechanics' Shops, where many persons are congregated together, should be kept open day and night.

5. Personal cleanliness should be strictly observed; a tepid bath taken two or three times a week, and the body rubbed dry with a coarse napkin, will be found very useful.

6. Flannel Vests with sleeves, and Drawers should be worn next the skin, and persons subject to bowel complaints, should wear, in addition, a warm swathe of Flannel around the Abdomen.

7. Strict moderation both in eating and drinking must be observed, and any excess of mental or bodily fatigue carefully avoided. The Diet should be of a light and nourishing nature, consisting mainly of animal food. Fish of all kinds should be eaten with extreme caution, and Vegetables should be used but sparingly, and those only to which the individual is well accustomed. Good mealy Potatoes, steam-boiled or roasted, may be used as heretofore; Bread should always be stale; Rice should be used as much as possible; and green cooked Vegetables, as Peas, Beans, Cabbage, &c., should be avoided. Those whose bowels are easily affected by Veal or fresh Pork, or by boiled meats, should not eat those articles. When Fruit is eaten, let it be with the utmost caution, and none but the ripest and most mellow should be indulged in. Those Fruits which require sugar to counteract their natural acidity, should not be used during the prevalence of Cholera.

8. Those who from principle, or any other reason, object to the use of Spirituous or fermented drinks at dinner, are recommended to take tea or toast water at that meal, but those who for years have been in the habit of using Spirituous or fermented drinks, and in whom a sudden change in their mode of life might be attended with bad results, are strongly recommended to use these articles in small quantities, and of the best quality.

9. Long fasting should be avoided. Those whose avocations oblige them to dine late, should take a wholesome nutritious luncheon. Late Suppers and indulgence in several viands at the same meal, should be avoided.

10. In the warm months of summer, the thirst is generally very great, and cold and refreshing drinks are sought after with much avidity, than which nothing can be more dangerous. Cold and acid beverages, as cider, light acid wines, and brandy sipping, should be sedulously abstained from. Soda water, with an excess of alkali, or carrara water, flavored with a little syrup of ginger, and tincture of ginger, may be taken, but in small quantities at a time.

11. Nurses and others who attend the sick, should take nourishment frequently, and should not sleep in the apartments of those they are attending.

12. The Central Board, while it admits that science has not as yet discovered any specific for the cure or prevention of cholera, is nevertheless convinced that, with certain precautions, many cases may be prevented from becoming serious, and under this conviction, it offers to the public some advice calculated to protect, and give confidence during an epidemic of Cholera.

13. Experience has proved that in a large majority of cases, Cholera is ushered in by certain premonitory symptoms, such as looseness of the bowels, nausea, un-

easiness of the stomach, colic, &c. These should be at once attended to, as in this stage the disease is easily controlled: and it is believed that many valuable lives have been lost in consequence of neglecting these indications. It is therefore advised that every family should have in the house some remedies recommended by their respective Physicians, which can at once be administered, and further, that the presence of the medical attendant be required without delay.

14. It is recommended that the sick should not be attended by a greater number of persons than is absolutely necessary, inasmuch as the crowd of persons in the room is prejudicial to the invalid, and predisposes the attendants to contract the disease.

15. The public are earnestly warned against the use of strong purgatives and emetics during the prevalence of Cholera; and also, against the indiscriminate use of the various Mineral Waters so much used at present. These latter remedies are most valuable in many diseases when selected and prescribed for the patient by his Medical Attendant, but as it frequently happens that the patient himself decides upon the quantity and quality of them he should drink, it is feared that much injury will result from the practice, although small quantities of them may be used with advantage. The Board also considers it its duty to warn the public against the use of the many kinds of Patent Medicines so extensively employed.

16. The clothing and bedding used by Cholera Patients should be destroyed by fire; when parties object to this course, they should certainly be exposed to a high temperature in an oven, and then be thoroughly washed in the following mixture:

Chloride of Lime, one pound,

Water, four gallons.

As the disinfecting agent, the Board would recommend the Chloride of Lime, or the Solution of the Chloride of Lime, for Out-Offices, Privies, Sewers, Drains, Night-chairs, &c.; and they are of opinion that in the sick chamber, and other apartments in the vicinity of Cholera patients, aromatic vinegar or burnt vinegar will be found useful and agreeable.

17. In conclusion, the Board would warn the Public against unnecessary alarm, as in its opinion, nothing will more certainly predispose to disease of any kind, than giving way to depressing fear. The Board therefore, while it condemns in the most unqualified manner, the assembling together of large bodies of persons, as at balls, theatres, races, &c., would recommend cheerful society, by family or other small reunions, as calculated to keep up the buoyancy of the spirits, and thus dispel unnecessary despondency.

CHAPTER SECOND.

GENERAL DIRECTIONS TO LOCAL BOARDS AND OTHER AUTHORITIES.

The Central Board directs and orders:—

1. That the Local Boards in all Cities, Towns or places, where the disease appears likely to spread, to adopt the system of Daily Medical Domiciliary Visits, throughout the City, Town, or place, where practicable, or, at least, in those parts of the City, Town, or place lying low, or which are badly ventilated, and occupied by the poorer classes of society.

2. That small Temporary Hospitals should be opened in different parts of Cities, Towns, or places, to which poor and indigent patients may be at once removed; thus avoiding the transport of patients through the City to a Permanent Hospital which may be at a distance, a step prejudicial to the patient, and alarming to the citizens.

3. That there shall be established Houses of Refuge in the non-infected Districts, found so useful in Scotland and elsewhere, to which poor families, who may have lost any of their members by cholera, may be immediately removed, while their own dwellings are being fumigated, white-washed, &c.

4. The Board directs the attention of the Local Boards to the over-crowded state of the Boarding Houses occupied by Emigrants and Seamen at this season of the year, with a view to remedy this so fruitful source of disease.

5. The Board directs the attention of the proper authorities, particularly of Quebec and Montreal, to the shameful manner in which, on certain occasions, the steamers trading between those Cities are overcrowded with steerage passengers. These people having just come off a long voyage, during which they often suffer many privations, are consequently already predisposed to disease, and, it is feared, often fall victims to cholera, upon being exposed to the night air, or huddled together in large numbers between decks.

6. The Central Board, while it admits that the question of the contagious or non-contagious character of cholera, is an open one, would nevertheless recommend all Local Boards, or other authorities, to act upon the presumption that it is contagious; and would further suggest, that the Quarantine Regulations at Grosse Isle should be strictly enforced.

7. The Board directs that, so soon as it shall become known that cholera exists in any City, Town, or place, the Local Board should cause the first few cases to be traced to their origin, which, with any other information that may be obtained, with reference to the course of the disease or otherwise, shall be communicated to the Central Board. The members of the medical profession are also respectfully requested to communicate to the Board that line of practice, which, in their experience, has proved most successful. The Central Board hopes thus to obtain much valuable information, and believes that the cause of humanity and science will, at the same time, be promoted.

8. The Central Board of Health do hereby direct, and the Local and other Boards and Committees of Health and Health Officers aforesaid are hereby authorised to see, that the following directions and regulations be also strictly enforced:—

9. That all putrid and unsound beef, pork, meat, fish, whether fresh or salted, hides, skins, all dead animals, animal excretions and remains, and every putrid, offensive, unsound, or unwholesome matter or substance, whether animal or vegetable, found in any street or other place, be immediately removed and disposed of, so as most effectually to secure the public health.

10. That all sinks, cellars, cess-pools, privies, and places containing unwholesome matter or substance, which require cleansing, emptying, altering or repairing, in order to preserve the Public Health, be forthwith so cleansed, emptied, altered or repaired, and abundantly sprinkled with lime, before and during the existence of any contagious disease or epidemic.

That all stagnant water about dwellings, yards, streets, and in cellars, pits, and vacant lots and other places, be at once drained off, if practicable; and all hollow and wet places be filled up with fresh earth and sand; and all drains, sewers, and water-courses, obstructed or stopped up, be at once opened, so that the waters may flow freely and unrestricted; and where the Public Health is endangered from the want of Main Drains or Sewers in any street or place, that the proper authorities do forthwith cause the same to be made, so as that all cellars, pits, and vacant lots, in which water remains, may be immediately drained off.

11. That where Swine are kept, if they occasion any bad or offensive odour, and especially if fed from the Offal of Butchers' Sheds or Slaughter Houses, they

be immediately removed to such a distance from any dwelling, so that the inhabitants may not be annoyed by such offensive odours.

12. That Butchers keep their premises particularly clean, and dispose, without delay, of all the Offal, Excrements, and remains of the Animals slaughtered, in such wise as not to offend their neighbors, or the public, with the bad odours resulting from the putrid effluvia, so abundantly given off from such substances; It would moreover be desirable that no Slaughter House be allowed within the limits of any City or Town.

13. That all Skins and Hides, and the skulls, horns and bones adhering to such skins and hides in Tanners' yards and premises, and all hoofs and horns and bones collected for or intended to be used in the manufacturing of Neats' Foot Oil, shall not be allowed to accumulate, but in every instance, be removed before disagreeable odours arise therefrom, to such place or be put into such a state as that the Public Health be not endangered thereby.

14. That Tanyards and Tanneries be visited by the Health Officers, at least once a week, to see that Hides and Skins are not piled up in heaps, or in a state of decomposition; and that the scrapings of Hides and Skins and everything appertaining to them, in the raw, green, or crude state, be at once removed, and burned or disposed of so as to prevent the escape of bad odours from their decomposition.

15. That all Bones and Skins collected for shipment, manufacture, or other purposes, be at once removed, when they occasion offensive odours, to a place or places where they are not likely to prove detrimental to the Public Health. The Board also recommends, that depots of these matters should not be allowed to exist within the limits of any City or Town.

16. That all imported Hides and Skins be at once examined, and that such as have suffered from wet, or are in a putrid state, or commencing decomposition, be conveyed away or disposed of, so as not to prove injurious to the health of the community.

17. That great attention shall be paid to the management of cemeteries, and other burying places. No interment shall be permitted within the walls of a church, or the limits of any City or Town,—care shall be taken to avoid any crowding in upon burying places; and closed vaults in which recent interments have taken place, shall be opened with the utmost caution.

18. That during the prevalence of the Epidemic, Undertakers, and parties in charge of Funerals, shall adopt the shortest possible route to the intended burying place, thus avoiding the alarm caused to the public by the frequent appearance of such processions in the more public thoroughfares.

19. That during the prevalence of the Epidemic, the Keepers of Hotels, Taverns, Boarding Houses, and other places of Public accommodation, as well as Citizens in general, to report or cause to be reported to the local Board of Health for the District, any death from cholera which may occur in their respective premises.

20. That the Sextons or persons having the charge of any burial ground, or place where persons who may have died of Asiatic Cholera, shall be buried, shall once every twenty-four hours, during the prevalence of Asiatic Cholera in their respective localities, report, or cause to be reported, in writing, to their respective local or other Boards, or Committees of Health, or Health Officers aforesaid, the names of all persons who have been so buried within the ground or place whereof they may be so in charge.

21. That the Captains or Masters of all Ships, Steamboats, Crafts and Vessels, arriving at any port or place within the Province, shall report without delay to

the Local Board thereof, any deaths that may have occurred on board during the voyage or passage, in order that precautionary measures, elsewhere referred to, may be taken.

22. That the Local and other Boards and Committees of Health throughout the Province, do report to the Secretary of the Central Board at least once a week, the state of the Public Health in the City, Town, or place, for which they are appointed, specifying the nature of the disease, and the number of deaths.
