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SECTIONS

of the

SYDNEY COAL FIELDS

CAPE BRETON, NOVA SCOTIA

by

Joseph G. S. Hudson

Special Edition Twelfth Session, 1913

OTTAWA Government Printing Bureau 1913

No. 227

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SECTIONS OF THE SYDNEY COAL FIELDS.

Joseph G. S. Hudson.

The Maritime Provinces of Canada, owing to their geological position on the Atlantic seaboard, were the first in Canada to have their mineral resources explored. Among these resources coal is one which stands pre-eminent, and Nova Scotia has for over 200 years had an enviable reputation as a producer of bituminous coal.

The first printed notice of the existence of coal in these areas appeared in 1672, when Nicholas Denys published in Paris, "La Description Geographique et Historique des Costes de l'Amerique Septentrionale." Eighteen years before, in 1654, Denys had obtained from Louis XIV, a concession granting the right to explore and work mines of gold and other minerals; for this privilege he agreed to pay the King a royalty of onetenth. In 1677, M. Duchesneau, the Intendant of New France, issued a proclamation, exacting a royalty of 20 sous per ton, from all persons taking coal from Cape Breton. In 1711, Admiral Walker—who commanded an expedition to reduce Quebec—mentions in his journal, that he procured a supply of coal from the cliffs, with no other appliances than crowbars.

The initial attempt at systematic mining was made in 1720, when it was found necessary to procure a supply of fuel for the men who came from France to lay the foundations of the fortress of Louisburg. The pit openings then made, can be seen even at the present day, at Port Morien, Table head, and other places. During the next 100 years, very little work was done, the coal mined being used almost exclusively by the garrison at Halifax. In 1820, however, when Cape Breton island became part of the Province of Nova Scotia, a considerable tonnage of coal was being mined. In 1827 all the mines were transferred to the company known as the General Mining Association by the London firm of goldsmiths (Rundle, Bridge, and Rundle) who had secured the mines and minerals concession for the entire island Province of Cape Breton, from the Duke of York. The new owners immediately organized, opened out, and systematically operated, mines in Cape Breton, Pictou,

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and Cumberland, counties. A formidable agitation had been started in the Province for some years previous to 1858, claiming that the monopoly of the coal lands by the General Mining Association was seriously retarding the legitimate expansion of the coal trade; this agitation eventually resulted in the whole subject being referred to the Privy Council of Great Britain for equitable adjustment. In 1858, the Mining Association surrendered its claims to the Provincial Government of Nova The Government, in return, agreed to abolish the fixed Scotia. rental of $\pounds 3,000$ per annum, together with the royalty on slack coal; to reduce the royalty on all screened coal up to 250,000 tons, to 4.80 pence per ton; and to reduce the royalty on all coal sold over 250,000 tons to 3 20 pence per ton. To the Association, however, was reserved the exclusive right to 20 square miles in Cape Breton, and to 4 square miles each in Pictou, Joggins, and Springhill counties respectively. Under this new regime, mining developed to such magnitude that, in 1865, the Provincial Government appointed an Inspector of Mines (John Rutherford, M.E.)—the first on this continent.

In 1854, the Government of the United States removed the duty on coal. This "open door" policy greatly increased the trade with the New England States; in 1866, the exportation of coal thereto amounted to 404,252 tons. In 1867, however, (year of Confederation) the United States once again discriminated against Canadian coal, imposing a duty of \$1.25 per ton. This duty was maintained at this rate until 1872, when it was reduced to 75 cents per ton; at which figure it remained until During this latter period, the exports fluctuated from 1894. 228,132 tons, to 13,883 tons. During the period 1894-97, the tariff was reduced to 40 cents, but in 1897 it was advanced to 67 cents, at which figure it still remains. Notwithstanding the tariff barriers, the exportation of Nova Scotia bituminous coal to the New England States continued to increase, and in 1903 the shipments reached a maximum of 968,832 tons. There has been a gradual decrease since that date, and in 1912 the shipments were 412,531 tons. The total production has, however, increased enormously; in 1912 it was 6,802,997 tons (of 2,240 pounds). Of this production 5,197,601 tons are to be credited to the coal fields of Cape Breton.

This marked increase in the production is due in part to the increased market offered by St. Lawrence ports. In 1877 a select committee of the Dominion Parliament, appointed to inquire into the condition of the coal trade, recommended the imposition of a duty on United States coals; this duty has had the desired effect of opening up the markets of the St. Lawrence to the Nova Scotia coal trade, and in 1912 the St. Lawrence market alone purchased 2,159,005 tons, most of which came from Cape Breton.

On February 1, 1903, the Dominion Coal Company was organized with a capital of \$18,000,000 by a special Act of the Legislature of Nova Scotia. This corporation amalgamated the principal interests in the coal areas on the south side of Sydney harbour, Cape Breton. These included the Caledonia, International, Gardiner, Old Bridgeport, Glace Bay, Reserve, Gowrie, Victoria, and Ontario mines, also the Sword areas, in all comprising 70 square miles; the areas controlled have now been extended to 142 square miles. With the advent of this great industrial organization, a new era in Nova Scotia coal mining began; new mine workings, railway extensions, new shipping and discharging facilities were developed, old coal markets were expanded, and new ones opened out, so that the whole coal trade was revolutionized. In the first year of its operations (1893) the coal mined was 834,019 tons; in 1912, the production amounted to 4,332,320 tons; or an increase of nearly 520 per cent in 20 years.

In 1900, the Nova Scotia Steel and Coal Company acquired all the mining rights still held by the General Mining Association. In addition to operating the existing collieries, they have opened out new mines, erected iron and steel works, and built a modern coke oven plant, all in close proximity to the working collieries. Their Princess Pit—now known as Sydney No. 1 was, in 1873, the first submarine mine in North America, the coal being won from workings under the sea. The shafts are of unique construction, consisting of metal cribbing or tubbing. The total length of metal tubbing is 842'-9", weighing some 776 tons. Here, also, was erected the first Guibal ventilating fan in Cape Breton.

The most important of the Cape Breton coal fields is that known as the Sydney field. It is an extraordinarily rich tract of coal bearing rocks, having an area of approximately 250 square miles. It extends along the northern coast of Cape Breton island for a distance of about 35 miles. Geologically the coal bearing strata are bounded by the outcrops of the Millstone Grit, as seen at Mira bay, and they terminate at Cape Dauphin, where the intrusive syenites of the Ste. Anne / hills form the northern boundary of the Great Bras d'Or lakes. The Sydney field is divided into four main basins, as follows:---

(1). Cow BAY or MORIEN BASIN, defined on the east by the Millstone Grit and on the west by an anticlinal fault that dips seaward at Cape Percy.

(2). GLACE BAY BASIN, bounded by the Cape Percy anticline on the east, and by the Bridgeport anticline on the west.

(3). LINGAN-BARASOIS—VICTORIA BASIN. This basin has not so well defined boundaries as the two preceding basins but it extends from the Bridgeport anticline, passing the eminence known as David head, to a submerged fault which exists midway in Spanish bay and Sydney harbour.

(4). SYDNEY MINES OF BRAS D'OR BASIN. This basin extends from the submerged fault in Spanish bay to the western termination of the coal measures at Cape Dauphin.

Mr. Richard Brown, the well known author of "The Carboniferous System of Cape Breton" states that the thickness of the productive measures of the Sydney field will not exceed 6000 feet. This measurement is taken from Burnt head in the Glace Bay basin, where the highest known bed occurs, down to the Millstone Grit. It is possible that the extended deep workings at this point may, in the future, accurately determine their actual thickness.

The following sections were prepared to illustrate the thickness of the productive coal seams and coal measures in the different basins of the Sydney field.

A number of tables giving analyses of coals from the different mines are also appended. These tables are taken from the Report on An Investigation of the Coals of Canada with reference to their economic qualities, published by the Mines Branch of the Department of Mines.

Plate I, Section 1

COAL SEAMS AND STRATA IN THE SYDNEY COAL FIELD, CAPE BRETON

COW BAY OR PORT MORIEN DISTRICT SOUTH SIDE

Names of Coal Seams	Thic	kness.	Vertical Section	Thickne	as of	Depth Surfs	from
	Feet	lins.		Feet	ins.	Feet	ins.
Block House seam	9	2			12		
Diota Liouse south		-		14 19 19 19	1. 1. A. A.		· The
	Mr.	1.5		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	and the		
		120			1		1
	100			1.000	100	Sec. 1	1
	1.25	1	Printing and	12.50	1.1		133
	1.3			1	1.1		1
	120	1		Real Parts	1.00		State 1
Strata	The second			285	8	294	10
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and the second of	Treas.	100		State in	1	1.1.1	a hard
	1.500	6.31	A THE A THE PARTY		1008	and the	12395
and the second second		100				1.200	1
and the second second	1.00		County Science over 10, Sugara County of Science and S	F	5.74	1.84	15.4-1-
~	1		De la constitución de enconstitución de la constitución de enconstitución de la constitución de enconstit			100	1.0
Strata	0	R		107	0	402	10
Scall L	-	0		1. 1. 1. 1.	State 1	1 N. 1.	1-22
State of the state of the state of the	1000	2.2			1.5 MI -		1992
Se Marine States							
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			and highly below a southern between between highly between the	Conversion of	10.20	10.25	10.129
and and a second in					-	-	
Strata	1.00			160	7	565	11
McAulay seam	4	11		Sec. Co	1212	1. 19 2.	1
	12.12	1.12		1.	1	Ter al	1
	- 13					Sec.	ALC: N
	12		1.	a stra	1.10		1. 23
A Star	12	1.1	TITT	14		C. States	
	15	1.2		1.20	1.1.1.		1943
	1	1.5		1	1997		
Section 1		E.v.			6.	i she	1200
Strata	1.5			187	9	758	7
Spencer seam	3	9		The set	14. A. A.	1. C. T	-
Southnead	6.5%			S	1000	P 12.	1.55
A STATE STATE	1. 25	5.0		12.22	1.	in the second	1
	12	1		1.000	1.1		
1	12.3			11.5			1 ant
	1.20	N.C			1.2	22. A.	1.5.7.4
a the state of the	Str. 1	-		- 11 A		E STATE	
and the second second			nan ananggi panaka antang bergepi tertang sigi Di Dila, tertahili dilakat dinakan anakan dinawa	- internation	1963		1000
and the second second	1.1	1.00	An office a second se	1. 25 20	1		1999
Strata		1.	terren men were meder bis 15 bislige's terren bisles bisles terre bisles bisles for Di mene were verse terren senten beren samtet bisles bisles terren sitte	330	11	1002	2
Long Beach seam	3	1	And a series of the series of	000		1000	0
and bound bound		1000	けりりりりりりつけ	Carino	Sec. 1		

TABLE I.

SUMMARY RECORD OF ANALYSES OF COALS

SYDNEY COAL FIELD, CAPE BRETON COUNTY, N.S.

		II	1 /		· · · · · · · · · · · · · · · · · · ·			11		
1. Source of co	almine and seam%	North Atlantic Collieries, Gowrie Seam, Port Morien	Do	minion Coal Co., C	lace Bay, Phalen S	Seam, Dominion N	o. 1.	Dominion Co Dominio	al Co., Glace Bay, n No. 5, or Reserve	Phalen Seam, Colliery.
2. Description	of sample	Regular sample over ⁴ / ₄ " screen and picking belt	Regular sample over 1" screen and picking belt	Mine moisture sample	Boiler trial sample	Rescreened for producer trial	Fresh sample for coking țests	Regular sample over 1 ¹ / ₂ " screen and picking belt	Mine moisture sample	Fresh sample for coking tests
3. Sample num	ber	50	38	138	338	738	2038	35 SP	135 SP	2035 SP
Moisture in 4. Total moi 5. Moisture	coal sture	2.8	· · · · · · · · · · · · · · · · · · ·	$3.5 \\ 2.1$	2.8	2.2	1.8		3·4 1·9	1.9
Proximate a 6. Fixed carl 7. Volatile m 8. Ash	nalysis of dry coal oon (FC), by difference	$53^{\circ}0 \\ 34^{\circ}7 \\ 12^{\circ}3$	59°8 34°3 5°9	7.7	4.1	60°2 33°2 6°6	60 · 4 34 · 8 4 · 8	59·5 35·0 5·5		$58 \cdot 2 \\ 35 \cdot 2 \\ 6 \cdot 6$
Ultimate an: 9. Carbon (C 10. Hydrogen 11. Sulphur 12. Nitrogen, 13. Oxygen, b	alysis of dry coal)	70.5 4.8 6.4 1.0 5.0	78.6 5.1 1.9 1.5 7.0	· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·	80·2 5·3 1·5 1·4 6·8	78.6 5.3 1.8 1.4 7.4		$78.3 \\ 4.7 \\ 2.3 \\ 1.3 \\ 6.8$
Calorific val 14by deter 15 '' 16 '' 17by calcu	ue of dry coal mination	7010 12620 7990 7290	7780 14010 8270 7850				8030	7800 14040 8250 7920	· · · · · · · · · · · · · · · · · · ·	7690
18. Ratio FC/VI 19. Ratio C/H	И	1·53 14·7	1·74 15·4			1.81	1 [.] 73 15 [.] 1	1·70 14·8		1 · 65 16 · 6

*These samples were slack coal furnished by Mr. Preston.

TABLE II.

SUMMARY RECORD OF ANALYSES OF COALS

SYDNEY COAL FIELD, CAPE BRETON COUNTY, N.S.

.														
1.	Source of coal-mine and seam		I	Dominion Coal Co.,	, Glace Bay, Hub S	eam, Dominion No	p. 7.	1	Bominion Coal Co., Glace Bay, Harbour Seam, Dominion No. 9.					
2.	Description of sample	Regular sample over 2 ¹ / ₂ " screen and picking belt	Mine moisture sample	Boiler trial sample	Rescreened for producer trial	Washed coal	Boiler trial sample of washed coal	Fresh sample for coking tests	Regular sample over 2 ¹ / ₂ " screen and picking belt	Mine moisture sample	Boiler trial sample	Rescreened for producer trial	Fresh sample for coking test	
3.	Sample number	36	136	336	736	236	536	2036	35	135	335	735	2035	
4. 5.	Moisture in coal Total moisture% Moisture left after air drying%		$3^{\cdot}5$ $2^{\cdot}6$	2.7	2.4	 	4.2	3.4		2·4 1·6	1.8	1.4	2.1	
6. 7. 8.	Proximate analysis of dry coal Fixed carbon (FC), by difference% Volatile matter (VM)% Ash%	57.6 36.5 5.9	5.2	8.8	59·1 35·8 5·1	59·1 38·2 2·7	2.5	$58^{\cdot 3}$ $37^{\cdot 2}$ $4^{\cdot 5}$	55.5 38.6 5.9	5.0	 4·2	53·3 35·6 11·1	$54.9 \\ 38.2 \\ 6.9$	
9. 10. 11. 12. 13.	Ultimate analysis of dry coal Carbon (C)% Hydrogen (H)% Sulphur% Nitrogen% Oxygen, by difference%	76.7 5.0 2.4 1.6 8.4				80°0 5°2 2°0 1°7 8°4		$78 \cdot 2 \\ 5 \cdot 2 \\ 3 \cdot 0 \\ 1 \cdot 5 \\ 7 \cdot 6$	77.0 5.2 3.7 1.5 6.7				$ \begin{array}{r} 76 \cdot 0 \\ 5 \cdot 2 \\ 3 \cdot 8 \\ 1 \cdot 4 \\ 6 \cdot 7 \end{array} $	
14. 15. 16. 17.	Calorific value of dry coal by determinationcalories """B.T.U. """calculated to ash free coalcalories 	7700 13860 8180 7600	· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·	7950 14310 8170 7920		7840	7780 14000 8270 7830				7740	
18. 19.	Ratio FC/VM Ratio C/H	$1.58 \\ 15.3$			1.65	$1^{\cdot}55 \\ 15^{\cdot}4$		$1.57 \\ 15.0$	1 · 44 14 · 8·			1.50	1·44 14·6	

*These samples were slack coal furnished by Mr. Preston.

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TABLE III.

SUMMARY RECORD OF ANALYSES OF COALS

SYDNEY COAL FIELD, CAPE BRETON COUNTY, N.S.

1. Source of coal—mine and seam		Dominio	n Coal Co., Glace	Bay, Emery Seam,	Dominion No. 10	Colliery.		Dominion Co Dom	al Co., Glace Bay, inion No. 12 Collier	Lingan Seam, ry.
2. Description of sample	Regular sample run of mine over picking belt	Mine moisture sample	Boiler trial sample	Screened for producer trial	Washed coal	Boiler trial sample of washed coal	Fresh sample for coking tests	Regular sample run of mine coal	Mine moisture sample	Fresh sample for coking tests
3. Sample number	37	137	337	737	237	537	2037	39	139	2039
Moisture in coal 4. Total moisture			2.8	2.1		<u>4·5</u>	4 1		4 9 3 6	4·3
Proximate analysis of dry coal 6. Fixed carbon (FC), by difference	53 · 8 35 · 1 11 · 1	8.1	10.1	53·9 34·8 11·3	57 · 3 36 · 9 5 · 8	5.7	58 · 5 35 · 5 6 · 0	57 · 9 37 · 3 4 · 8		58 · 8 37 · 1 4 · 1
Ultimate analysis of dry coal. % 9. Carbon (C). % 10. Hydrogen (H). % 11. Sulphur. % 12. Nitrogen. % 13. Oxygen, by difference. %	73.3 4.9 2.5 1.2 7.0	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·		$78.5 \\ 5.2 \\ 2.1 \\ 1.3 \\ 7.1$	· · · · · · · · · · · · · · · · · · ·	79 3 5 2 1 7 1 2 6 6	77 6 5 2 1 8 1 6 9 0	· · · · · · · · · · · · · · · · · · ·	80 4 5 5 1 6 1 6 6 8
Calorific value of dry coal	7290 13120 8200 7360		· · · · · · · · · · · · · · · · · · ·		7710 13880 8190 7880	· · · · · · · · · · · · · · · · · · ·	7960	7660 13790 8050 7720	· · · · · · · · · · · · · · · · · · ·	8130
18. Ratio FC/VM 19. Ratio C/H	$1.53 \\ 14.9$			1 • 55	1 · 55 15 · 1		1.64 15.2	1 · 55 14 · 9		1.58 14.6

*These samples were slack coal furnished by Mr. Preston.

TABLE IV.

SUMMARY RECORD OF ANALYSES OF COALS

SYDNEY COAL FIELD, CAPE BRETON COUNTY, N.S.

1.	Source of coal—mine and seam		Nova Sco	tia Steel & Coal Co	., Sydney Mines, 1	No. 1 Colliery.		No	ova Scotia Steel & (Coal Co., Sydney M	Mines, No. 3 Collie	ry.
2.	Description of sample	Regular sample over $\frac{1}{5}$ " screen and picking belt	Mine moisture sample	Boiler trial sample	Washed coal	Boiler trial sample of washed coal	Fresh sample for coking tests	Regular sample over ½" screen and picking belt	Mine moisture sample	Boiler trial sample	Rescreened for producer trial	Fresh sample for coking test
3.	Sample number	13	113	313	213	513	2013*	12	112	312	712	2012*
4. 5.	Moisture in coal Total moisture% Moisture left after air drying%		$3\cdot 5$ $2\cdot 7$	2.3		3.3	1.6		5·4 4·0	4.2	3.6	3.2
6. 7. 8.	Proximate analysis of dry coal Fixed carbon (FC), by difference% Volatile matter (VM)% Ash%	$55 \cdot 4$ 37 \cdot 4 7 \cdot 2		5.7	$56^{\cdot}3$ 40^{\cdot}2 3^{\cdot}5	3.8	$52^{\circ}6\ 36^{\circ}0\ 11^{\circ}4$	$ \begin{array}{c} 54.3 \\ 39.0 \\ 6.7 \end{array} $	· · · · · · · · · · · · · · · · · · ·	5 3	$55 \cdot 3 \\ 36 \cdot 6 \\ 8 \cdot 1$	48 · 4 34 · 8 16 · 8
9. 10. 11. 12. 13.	Ultimate analysis of dry coal Carbon (C)	$75.4 \\ 5.1 \\ 2.9 \\ 1.3 \\ 8.1$			$79.3 \\ 5.4 \\ 1.9 \\ 0.9 \\ 9.0$	· · · · · · · · · · · · · · · · · · ·	$72.6 \\ 5.1 \\ 2.2 \\ 1.4 \\ 7.3$	$ \begin{array}{r} 74 \cdot 9 \\ 5 \cdot 1 \\ 2 \cdot 5 \\ 1 \cdot 4 \\ 9 \cdot 4 \end{array} $				$67.4 \\ 4.7 \\ 3.5 \\ 1.3 \\ 6.3$
14. 15. 16. 17.	Calorific value of dry coal —by determination	7650 13770 8250 7570		· · · · · · · · · · · · · · · · · · ·	8050 14490 8340 7930		7370	$7600 \\ 13680 \\ 8150 \\ 7450$				6870
18. 19.	Ratio FC/VM Ratio C/H	1·48 14·8			1 · 40 14 · 7		1 · 46 14 · 3	$\begin{array}{r}1\cdot39\\14\cdot7\end{array}$			1.21	1.39 14.3

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*These samples were slack coal furnished by Mr. Preston.

GENERAL SECTIONS IN THE SYDNEY COAL FIELD, CAPE BRETON

Victoria Mines	Caledonia	Low Point	Gardinier	Tracy Seam	Port Morien	Port Morien	Cochran Lake	Lorway Area
Ross or Victoria	Back Pit Seam	Mullin Seam	Hoisting Shaft, near S. & L. Ry.	False Bay Beach	Block-House	McAulay Seam	Mosley Pit	Lorway Seam
Roof hard fine sandstone	In the pumping shaft	Below Roman Catholic chapel	Roof 57' 9" hard freestone	Roof Argillaceous shale	Roof shale and hard sandstone	Roof fireclay fails about 10"	Pit 30' 0' deep roof hard rock	Biue shale 6' 6" above coal
2.0	-144-	2, 0,	-					
3,	1°	*			3, 8,	ða ča		
					3"	0.5"		
		6		3'-1.26'			4, 6	
A. 4.	3.0	3		5.25*	4', 2"	2' 8.6'	207	1, 10
				11-			-1, 0,-	0.20
Hard grey rock		Pavement fire clay	Pavement fire clay	Pavement 5' 0* fire clay	Pavement hard fire clay	Pavement fire clay, good turns soft	Pavement fire clay, soft	

Plate III, Section 2

COAL SEA	MS		ND STRATA IN MELD, CAPE B	N THI	e st	DNE	e	
GLACE	BA	Y	DISTRICT	EAS	T SI	DE		
Names of Coal Seams	Thick	mess	Vertical Section	Thickne	ess of ta	Depth from Surface		
Hub seam	Feet 9	ins. 10		Feet	ins.	Feet	ins.	
Strata Harbour seam	5	3		366	3	376	1	
Strata Boutilier seam	2	0		299	3	680	7	
Strata Back-pit seam Strata	4	9		74	2	874	9	
Phelan seam	8	3						
Strata Ross or Emery seam	5	6		188	3	1070	9	
Strata Lorway seam	4	0		307	7	1383	10	



J. G. S. HUDSON

Plate IV, Sub-section 2A.

GENERAL SECTIONS IN THE SYDNEY COAL FIELD, CAPE BRETON

Lingan Area	Lingan Area	Lingan Area	Lingan Area	Lingan Area	Low Point Side	Low Point Side	Low Point Side	Low Point Side
Upper Carr Seam	Barachois	David Head	Northern Head	Lingan Main	Paint Seam	Crandell Seam	Hugh McGillivray	Victoria or Ross Seam
Roof sandstone, fine grained with con- glomerate 4' 0"	Red and green mari	Slope 17 chains. Roof argillaceous shale	Calcareo- bituminous shale	Strata including coarse conglomerate 75' 11"	Roof arenaceous shale 8' 0", argillaceous shale 7' 0"	Roof argillaceous shale 7' 3"	Roof blue argillace- ous shale; erect Cal- amites 7' 6"	Roof hard rock argillaceous shale next coal
		• н'- * 1' * 1' *		V. V		· · · ·		A 4
Pavement underclay stigmaria	Pavement underclay 5' 10"	Pavement underclay	Pavement underclay argillaceous	Pavement underclay 4' 0"	Pavement underclay 5' 0"	Pavement underclay 3' 6"	Pavement underclay 5' 0"	Pavement hard grey arenaceous rock

Plate VI, Section 3

COAL SEA CO	MS		ND STRATA IN TIELD, CAPE BI	THI RETO	E SJ	DNE	¥
Names of Coal Seams	Thick	moss	Vertical Section	Thickne	ss of	Depth f	rom
the second second	Feet	ins.		Feet	ins.	Feet	ins.
Hub seam	9	5					
Strata Harbour seam	6	1		344	4	353	9
Strata Boutilier seam	4	0		238	7	598	5
Strata Back-pit seam	4	0		92	1	694	6
Strata	2.00		a hand hand hand hand he had had been been been	83	3	781	9
Phelan seam	8	7					
Strata Emery seam	1	8		108	1	898	5
Strata Gardinier seam	4	8		279	2	1179	3
the second second second	2.5	1200		J. Tries	2.200	L'Aller a	1. 2.2

Plate VII, Section 4

COAL SEA CO LINGAN		S A L F IST	ND STRATA IN IELD, CAPE BI RICT I	THI RETO LINGA	n SI	DNE?	Y
Names of Coal Seams	Thick	ness	Vertical Section	Thickne	ss of a	Depth fr Surfac	om
Seam A	Feet 3	ins. O		Feet	ins.	Feet	ins.
Strata Carr seams	6	5		306	2	309	2
Strata				190	1	505	8.
Barachois seam	12	1					
Strata David Head seam	8	0		379	3	897	0
Strata Seam D	3	0		235	0	1140	0
Strata Northern Head seam	4	0		78	1	1221	1
Strata Lingan main seam	8	0		75	11	1301	0
Strata Seam G	2	6		95	3	1404	3
Strata Seam H	1	0		340	5	1747	2

GENERAL SECTIONS IN THE SYDNEY COAL FIELD, CAPE BRETON



Plate IX, Section 5

COAL SEA	AMS AND STRATA IN THE SYDNEY COAL FIELD, CAPE BRETON										
LINGAN	DI	DISTRICT SYDNEY HARBOUR									
Names of Coal Seams	Thickness		Vertical Section	Thickne	ess of ta	Depth from Surface					
Paint seams	Feet	ins. 4		Feet	ins.	Feet	ins.				
Strata Crandall seam	7	11		176	3	189	7				
Strata Victoria or Ross seam	6	7		320	3	517	9				
Strata Willie Fraser seam	3	6		308	8	833	0				
Strata Number Three seam	4	0		83	11	920	5				
Strata Hugh McGillivray	6	3		116	4	1040	9				
seam Strata Dan McGillivray seam	2	2		126	6	1173	6				
Strata Seam H		10		362	9	1538	5				

SECTIONS OF COAL SEAMS AT LINGAN AND BARACHOIS

Barachois Seam Lingan Main Victoria or Ross Victoria or Ross David Head David Head David Head Lingan Main Section in Gracie Pit Curren slopes 12° Lynks slopes, rear Pit on McNeil road Section on Ling Laffin Pit, near Gracie Pit dip N 20 E strike N 80 E Gracie Pit on headway between Curren farm 18 feet deep, dip 13° farm near Curren farm the Head shafts Roof good, some coal left up, well timbered Roof soft shale Roof Roof mixed shale Roof Roof 1' 0" gray coal, pit 31' 0" deep Roof 16°.5' to 18° dip. Roof coal 1' 1" coal left up 1' 10" dip 10° pit 23' 0" deep soft grey till, wet and some sandstone 2' 0" coal left up soil and shale Roof 1' 10% Roof Roof Coal 30 Roof Roof 1' 1" Roof Coal -2: 0"-+1.5" Roof Coal 1.0" Till N 10 in Infer-ior Coal 69 i ès ŝ splint 1" 1 + splint 1" splint 2" splint 3.05" 3 -1 + 1' 6' Hard 3 splint 1 4 3 12 3 à à -3 in 10 11 10% 20 è 15 è 4 splint 35 1 Pavement soft fireclay Pavement Pavement hard Pavement soft Pavement Pavement Pavement Pavement seggar, dip 14° soft fireclay soft fireclay gray fireclay soft fireclay soft fireclay soft fireclay

to 3 feet thick. 01 NOTE:-On the Northern Side of the Lingan slopes, stone divides the coal and comes in

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Plate XI, Section 6

COAL SEA Co Sydne			ND STRATA IN TIELD, CAPE B ES SYDNE	N THI RETO EY HA	E SY N RBO	UR	¥
Names of Coal Seams	Thiel	mess	Vertical Section	Thickne	ss of	Depth f	from
Cranberry Head seam	Feet 3	ins. 8		Feet	ins.	Feet	ins.
Strata Lloyd Cove seam	6	4		281	4	285	0
Strata Chapel Point seam	3	9		269	1	560	5
Strata Sydney Main seam	6	0		322	9	886	11
Strata Willie Fraser seam	1	4		315	10	1208	9
Strata Indian Cove seam	4	8		117	0	1327	1
Strata Seam F	1	7		87	0	1418	9
Strata Stony seam	3	0		123	9	1544	1

GENERAL SECTIONS OF COAL SEAMS IN THE SYDNEY COAL FIELD, CAPE BRETON, CRANBERRY HEAD TO STUBBART POINT

Cranberry Head	Cranberry Head	Black Point	Black Point	Swivel Point	Chapel Point	Sydney Mines	Indian Cove	Stubbart Point
Cranberry Head	Bottom Seam	Upper Seam	Lower Seam	Lloyd Cove Seam	Upper Seam	Main Seam	Indian Cove Seam	Stony Seam
Top Seam Roof sandstone and argillaceous shale 21' 7'	Roof green argillaceous shale, ironstone. Nod- ules and streaks of coal 12' 6"	Roof sandstone, 2" argillaceous shale 1' 3"	Roof arenaceous shale 13' 0", blue argiilaceous shale 3"	Roof black shale 1" underclay 9", black shale 1"	Roof greenish mica- ceous sandstone, forming reef.	Greenish argillaceous shale Neuropteris. Erect trees 5' 0"	Roof corrugated calcareo-bituminous shale 8"	Roof brown micaceous arenaceous shale 5"
	- Coal and ahale mired 1 6 - 9 - 9 - 9 - 9 - 9 - 9 - 9 - 9 - 9 -	2. 2. 		+ 10° 1 - 2° 7° - 1° 6° 18° - 2° 3°		e o.	4. 0	
Pavement underclay 3' 2"	Pavement arenaceous underclay 1' 6"	Pavement underclay 1' 3"	Pavement underclay 1' 6"	Pavement underclay 2' 0", argillaceous shale 3' 0"	Pavement underclay 2' 1"	Pavement underclay 8' 0" in thickness	Pavement underclay several layers 7' 6"	Pavement coherent arenaceous underclay 1' 2"

Plate XIII, Section 7

COAL SEA	OA		ND STRATA II FIELD, CAPE B	N TH RETC	E ST	YDNE	¥		
SYDNEY MINES LITTLE BRAS D'OR									
Names of Coal Seams	Thickness		Vertical Section	Thickness of Strata		Depth from Surface			
Lloyd Cove Seam	Feet 8	ins. 1		Feet	ins,	Feet	ins.		
Strata Seam B	4	2		231	7	239	8.		
Strata Sydney main seam	3	0		380	7	624	5		
Strata Byrant seam	2	0		205	0	832	5		
Strata			da novec cadagota dificiale actoria seconda a tenzo at	78	0	912	5		
Edwards seam Strata (approx.) Seam F	2	9		100	0	1017	10		
Strata Collins seam	5	0		100	0	1120	7		

Plate XIV, Section 8

COAL SEAMS AND STRATA IN THE SYDNEY COAL FIELD, CAPE BRETON

BOULARDERIE

WEST SIDE

Names of Coal Seams	Thick	ness	Vertical Section	Thickness of Strata		Depth from Surface	
Point Aconi seam	Feet 3	ins. 2		Feet	ins.	Feet	ins.
and the second							
Shareha		1.1.1					
Bonar seam	6	10	an kan sen una kan kan kan ken kan kan kan kan kan kan kan kan kan ka	242	0	245	2
			a na maa maa kaala ka				
Strata				218	9	470	9
Stubbart seam	7	6				100	
					N. S. S.		1
		12.20					
Strata Seam C	2	9	PARING NAMES: VERSION CONTRACTOR DURING VARIANTI AND	413	3	891	6
					1		
Millpond seam	3	11		219	4	1113	7
	140	- 00					
Strata Blackrock seam	3	0	n andre har her her her her her her her her her he	176	5	1293	11
					100		
Strata				125	8	1422	7
Scam F	0	8			1		12 Mar
Strata Seam G	0	11		43	9	1467	7

Plate XV, Section 9

COAL SEA C Cape I	AMS OAL	A F	ND STRATA II TELD, CAPE B	N THI RETO DLE D	E SY N ISTI	IDNE:	¥
Names of Coal Seams	Thickness		Vertical Section	Thickness of Strata		Depth from Surface	
Seam D	Feet in 1	ns. 8		Feet	ins.	Feet	ins.
Strata Four-foot seam	4	0		237	0	238	8
Strata Seam F				53	3	295	11
Six-foot seam	6	0		54	0	351	8

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