

## RECAPITULATION.

Districts.	Rounds.	
	Ball.	Blank.
Military District No. 1, London .....	18,940	41,387
do 2, Toronto .....	63,380	51,290
do 3, Kingston .....	37,120	39,760
do 4, Ottawa .....	26,040	20,000
do 5 and 6, Montreal .....	64,760	23,240
do 7, Quebec .....	71,790	35,182
do 8, St. John, N.B. ....	25,280	19,240
do 9, Halifax, N.S. ....	48,100	41,420
do 10, Winnipeg .....	2,220	700
do 11, Victoria, B.C. ....	5,320	4,900
do 12, Charlottetown, P.E.I. ....	8,460	5,040
<b>Total .....</b>	<b>371,410</b>	<b>282,159</b>

## (B.)

## S. A. AMMUNITION issued on repayment during the Year 1883.

*Military District No. 1, London.*

Date.	Purchaser.	Corps.	Rounds.	Amount.
1883.				\$ cts.
April 23...	Charles Cottis.....	Guelph Rifle Association.....	1,000	16 00
May 1...	do .....	do .....	2,000	32 00
do 5...	do .....	do .....	2,000	32 00
do 7...	Major Wilson.....	33rd Battalion.....	1,000	16 00
do 1...	Capt. Stevenson.....	26th do .....	1,000	16 00
do 12...	do .....	26th do .....	1,000	16 00
do 16...	Major Wilson.....	33rd do .....	1,500	24 00
June 12...	W. Lawrence.....	Perth Rifle Association.....	1,000	16 00
July 28...	Capt. Stevenson.....	26th Battalion.....	1,500	24 00
Aug. 15...	W. Lawrence.....	Perth Rifle Association.....	2,000	32 00
do 20...	Charles Cottis.....	Guelph do .....	2,000	32 00
Sept. 6...	J. Codfield.....	Woodstock Rifle Association.....	800	12 80
do 11...	Lt.-Col. Jackson.....	Perth do .....	1,000	16 00
do 28...	Major Stevenson.....	26th Battalion.....	500	8 00
do 29...	Capt. Reid.....	24th do .....	2,000	32 00
Oct. 4...	R. A. Woodcock.....	Ingersoll Rifle Association.....	500	8 00
do 13...	Lieut. R. McEwan.....	26th Battalion.....	800	12 80
do 30...	R. A. Woodcock.....	Ingersoll Rifle Association.....	500	8 00
Nov. 3...	Lieut. R. McEwan.....	26th Battalion.....	1,000	16 00
do 26...	Major Stevenson.....	26th do .....		
		<b>Total.....</b>	<b>25,000</b>	<b>401 60</b>

*Military District No. 2, Toronto.*

Jan. 10...	Lt.-Col. Otter.....	Ontario Rifle Association .....	30,000	480 00
Mar. 30...	Lt.-Col. Alger.....	do .....	22,000	} 400 00
do 30...	do .....	do .....	2,000	
May 17...	Lt.-Col. Jones.....	38th Battalion .....	1,000	16 00
do 19...	do .....	38th do .....	1,000	16 00
June 11...	do .....	38th do .....	500	8 00
do 15...	Lieut. Drinkwater .....	35th do .....	1,000	16 00
July 16...	Lieut.-Col. Jones.....	38th do .....	500	8 00
do 16...	Lieut. McMicking.....	44th do .....	500	8 00
do 16...	Major Mason.....	13th do .....	42,000	672 00
do 26...	Lt.-Col. Alger.....	Ontario Rifle Association.....	3,000	48 00
Aug. 2...	Lt.-Col. Jones.....	38th Battalion.....	500	8 00
do 6...	Pte. Wilson.....	12th do .....	3,000	48 00
do 6...	Lt.-Col. Jones.....	38th do .....	500	8 00
do 8...	Major Dunn.....	Governor General's Body Guard.....	1,000	16 00
do 14...	Lt.-Col. Davis.....	37th Battalion.....	3,000	48 00
do 14...	Lt.-Col. Jones.....	38th do .....	2,000	32 00
do 27...	Major Mason.....	13th do .....	1,000	16 00
Sept. 4...	Lieut. Cleverdon.....	34th do .....	500	8 00
do 6...	Major Dunn.....	Governor General's Body Guard.....	1,500	24 00
Oct. 4...	do .....	do .....	500	8 00
Nov. 1...	Capt. Scott.....	35th Battalion.....	500	8 00
do 16...	Capt. Carpenter.....	77th do .....	500	8 00
do 26...	R. F. Carter.....	44th do .....	5,000	80 00
Dec. 17...	Major Dunn.....	Governor General's Body Guard.....		
		<b>Total.....</b>	<b>124,000</b>	<b>2,000 00</b>

(B)—S. A. Ammunition issued on repayment during the Year 1883—*Con.**Military District No. 3, Kingston.*

Date.	Purchaser.	Corps.	Rounds.	Amount.
1883.				\$ cts.
Jan. 25...	Major Gordon.....	14th Princess of Wales Own Rifles.....	4,000	64 00
do 27...	Capt. Baillie.....	47th Battalion.....	2,000	32 00
May 21...	Major Bell.....	Peterboro' Rifle Association.....	2,000	32 00
June 7...	Lt.-Col. Bog.....	16th Battalion.....	2,000	32 00
do 27...	do.....	16th do.....	2,000	32 00
July 6...	J. W. McLaughlin.....	Bowmanville Rifle Association..... Snider	500	8 00
do 6...	do.....	do..... M. H.	500	12 00
do 16...	Major Bell.....	Peterboro' Rifle Association.....	4,000	64 00
do 21...	H. Tammadge.....	49th Battalion.....	1,000	16 00
Aug. 8...	Lt.-Col. Montizambert.....	"B" Battery.....	2,000	32 00
do 14...	H. Tammadge.....	49th Battalion.....	1,000	16 00
Sept. 17...	J. W. McLaughlin.....	Bowmanville Rifle Association.....	2,000	32 00
do 27...	Major Dingwall.....	46th Battalion.....	1,000	16 00
Oct. 2...	Major Bell.....	Peterboro' Rifle Association.....	2,000	32 00
do 13...	Lt.-Col. Bog.....	16th Battalion.....	800	12 80
do 13...	H. Tammadge.....	49th do.....	2,000	32 00
do 20...	J. W. McLaughlin.....	Bowmanville Rifle Association.....	1,000	16 00
do 22...	Capt. Howard.....	57th Battalion.....	530	8 50
do 24...	Capt. Birdsall.....	57th do.....	1,000	16 00
do 26...	Sergt. Hume.....	14th do.....	1,500	24 00
Nov. 17...	Capt. Baillie.....	47th do.....	4,800	76 80
Dec 27...	do.....	47th do.....	5,000	80 00
do 27...	Sergt.-Major Field.....	14th do.....	2,000	32 00
do 27...	Lieut. Murray.....	14th do.....	3,000	48 00
		Total.....	47,630	766 10

*Military District No. 4, Ottawa.*

May 1...	Sergt. Cawdron.....	Governor-General's Foot Guards.....	500	8 00
do 9...	Lieut. Chamberlin.....	43rd Battalion.....	500	8 00
do 11...	Dr. Malloch.....	Governor-General's Foot Guards..... M.H.	600	14 40
do 11...	Capt. Anderson.....	43rd Battalion.....	500	8 00
do 14...	Capt. Sparham.....	42nd do.....	4,000	64 00
do 17...	Sergt. Cawdron.....	Governor-General's Foot Guards.....	500	8 00
do 17...	J. Armstrong.....	.....	1,000	16 00
do 17...	Capt. Perley.....	Engineer Force.....	560	8 96
do 19...	L. Le B Ross.....	Governor-General's Foot Guards.....	500	8 00
do 23...	Capt. Chamberlin.....	43rd Battalion.....	500	8 00
June 1...	Sergt. Cawdron.....	Governor-General's Foot Guards.....	500	8 00
do 7...	do.....	do.....	530	8 00
do 14...	do.....	do.....	500	8 00
do 23...	A. P. Sherwood.....	Dominion Police.....	1,000	16 00
do 25...	Sergt. Cawdron.....	Governor-General's Foot Guards.....	500	8 00
July 4...	do.....	do.....	1,000	16 00
do 4...	Capt. Todd.....	do.....	500	8 00
do 9...	A. P. Sherwood.....	Dominion Police.....	500	8 00
do 12...	Lieut. Ross.....	Governor-General's Foot Guards.....	1,000	16 00
do 14...	Capt. Gillies.....	Gananoque Field Battery..... M.H.	1,000	24 00
do 17...	Capt. Grant.....	43rd Battalion.....	100	2 40
do 18...	Sergt. Cawdron.....	Governor-General's Foot Guards.....	1,000	16 00
do 24...	Capt. Macdonell.....	42nd Battalion.....	500	8 00
do 26...	Lieut. Ross.....	Governor-General's Foot Guards.....	1,000	16 00
do 27...	Sergt. Cawdron.....	do.....	500	8 00
do 30...	Capt. Wright.....	43rd Battalion.....	1,500	24 00

(B)—S. A. Ammunition issued on repayment during the Year 1883—*Con.**Military District No. 4, Ottawa—Concluded.*

Date.	Purchaser.	Corps.	Rounds.	Amount.
1883.				\$ cts.
Aug. 3...	Sergt. Cawdron.....	Governor-General's Foot Guards.....	2,000	32 00
do 3...	Lieut. Ross.....	do.....	1,500	24 00
do 6...	A. P. Sherwood.....	Dominion Police.....	500	8 00
do 7...	Capt. Chamberlin.....	43rd Battalion.....	500	8 00
do 9...	Lieut. Ross.....	Governor-General's Foot Guards.....	1,000	16 00
do 13...	Metropolitan Rifle Assocn.....	.....	4,500	72 00
do 17...	Lieut. Gourdeau.....	Princess Louise Dragoon Guards.....	500	8 00
do 21...	Lieut. Ross.....	Governor-General's Foot Guards.....	1,000	16 00
do 29...	Major Walsh.....	43rd Battalion.....	500	8 00
Sept. 4...	Lieut. Motherwell.....	42nd do.....	1,000	16 00
do 12...	Sergt. Cawdron.....	Governor-General's Foot Guards.....	1,000	24 00
do 12...	Lieut. Motherwell.....	42nd Battalion..... M.H.	1,000	16 00
do 19...	Lieut. Coulter.....	do.....	1,000	16 00
do 21...	Lieut. Motherwell.....	do.....	500	8 00
do 24...	A. P. Sherwood.....	Dominion Police.....	100	2 40
do 24...	C. N. O'Meara.....	Militia Department..... M.H.	400	4 00
do 26...	Lieut. Thompson.....	Governor-General's Foot Guards..... Snider.	550	18 40
do 26...	do.....	do.....	500	8 00
do 26...	do.....	do.....	500	8 00
do 27...	Sergt. Cawdron.....	42nd Battalion.....	3,000	64 40
Oct. 4...	Lieut. Motherwell.....	43rd Battalion..... Snider.	600	8 00
do 8...	Capt. Anderson.....	do..... M.H.	200	2 40
do 8...	do.....	do..... Spencer.	100	2 40
do 8...	do.....	do..... M.H.	1,500	24 00
do 9...	Pte. Pink.....	.....	1,000	32 00
do 10...	Prescott Rifle Association.....	..... M.H.	500	8 00
do 18...	Lieut. Parker.....	43rd Battalion..... Snider.	500	8 00
do 18...	do.....	do.....	500	8 00
do 19...	Lieut.-Col. White.....	do.....	500	8 00
do 25...	Lieut. Thompson.....	Governor-General's Foot Guards.....	500	8 00
do 26...	Capt. Chamberlin.....	43rd Battalion.....	1,500	24 00
do 29...	Capt. Wright.....	do.....	500	8 00
do 31...	Capt. Jowsey.....	do..... Spencer.	400	4 00
Nov. 2...	Hon. A. P. Caron.....	Governor-General's Foot Guards.....	500	8 00
do 7...	Sergt. Cawdron.....	do.....	500	8 00
do 9...	Lieut. Bate.....	do.....	500	8 00
do 20...	Lieut. Imlay.....	56th Battalion.....	500	8 00
do 24...	Lieut. Motherwell.....	42nd do.....	500	8 00
Dec. 5...	Lieut. Thompson.....	Governor-General's Foot Guards..... M.H.	50	1 20
do 6...	Lieut.-Col. MacDonald.....	Militia Department.....	1,500	24 00
.....	Dominion Police.....	..... Snider.	35,370	565 92
.....	Dominion Rifle Ass'n.....	..... M.H.	2,400	49 60
.....	do.....	.....	500	8 00
do 31...	Lieut. Gourdeau.....	Princess Louise Dragoon Guards.....	93,430	1,543 08
		Gunpowder, for Noon gun, Ottawa, 600 lbs.; friction tubes, 630.....	.....	163 92
		Total.....	93,430	1,703 00

*Military Districts Nos. 5 and 6, Montreal.*

March 22...	J. C. Marks.....	Caretaker, Rifle Range.....	560	8 96
do 27...	do.....	do.....	3,360	53 76
May 15...	do.....	do.....	3,920	62 72
do 21...	Captain Bowen.....	52nd Battalion, blank.....	1,000	10 00
do 22...	W. A. Morehouse.....	Sherbrooke Rifle Association.....	1,120	17 95

(B.)—S. A. Ammunition issued on repayment during the Year 1883—*Con**Military Districts Nos. 5 and 6, Montreal—Concluded.*

Date.	Purchaser.	Corps.	Rounds.	Amount.
1883.				\$ cts.
May 23...	Lieut. Whitman.....	60th Battalion .....	1,680	26 88
do 25...	Lt.-Col. Ibbotson.....	53rd do .....	500	8 00
June 8...	J. C. Marks.....	Caretaker, Rifle Range.....	7,200	115 20
do 23...	do .....	do .....	7,200	115 20
do 30...	W. A. Morehouse .....	Sherbrooke Rifle Association .....	3,000	48 00
July 17...	Lieut. Wright.....	50th Battalion .....	2,400	38 40
do 19...	J. C. Marks.....	Caretaker, Rifle Range..... Snider..	9,600	168 00
do 19...	do .....	do .....	600	8 96
Aug. 1...	do .....	do .....	9,600	153 60
do 3...	Major Blaiklock.....	Province of Quebec Rifle Association, M.H..	3,000	232 00
do 3...	do .....	do do Snider	10,000	
do 7...	Capt. Baker .....	58th Battalion .....	1,680	26 88
do 7...	Surgeon Smith .....	11th do .....	560	8 96
do 14...	Major Kennedy .....	Mounted Engineers .....	600	14 40
do 23...	do .....	do .....	560	8 96
do 23...	J. C. Marks.....	Caretaker, Rifle Range.....	9,000	158 40
do 23...	do .....	do .....	600	
Aug. 24...	do .....	do .....	9,600	153 60
do 28...	Capt. Baker .....	58th Battalion .....	1,120	17 92
Sept. 5...	Paymaster Johnson.....	51st do .....	2,680	43 00
do 13...	J. C. Marks.....	Caretaker, Rifle Range .....	4,800	76 80
do 13...	Capt. Sheppard .....	5th Regiment Cavalry.....	1,680	26 88
do 14...	Capt. Watts .....	54th Battalion.....	1,000	16 00
do 21...	J. C. Marks.....	Caretaker, Rifle Range.....	4,800	76 80
do 24...	Capt. Barr .....	6th Cavalry .....	1,000	16 00
do 25...	Lieut. Wright .....	50th Battalion .....	560	8 96
do 27...	Wajor McFee .....	51st do .....	1,000	16 00
do 27...	Capt. Bowen .....	52nd do .....	500	8 00
Oct. 1...	Capt. Sheppard .....	5th Regiment Cavalry .....	1,000	16 00
do 2...	Lt.-Col. Gilmour .....	60th Battalion .....	1,500	24 00
do 3...	Capt. Brooks .....	79th do .....	1,000	16 00
do 4...	J. C. Marks .....	Caretaker, Rifle Range.....	3,930	62 88
do 4...	Lieut. Whitman .....	60th Battalion .....	1,500	24 00
do 5...	Lieut. Finlayson.....	Montreal Garrison Artillery .....	500	8 00
do 9...	Capt. Weightman .....	11th Battalion .....	2,500	40 00
do 13...	J. C. Marks .....	Caretaker, Rifle Range .....	600	14 00
do 13...	R. J. Spearing.....	Sherbrooke do .....	500	8 00
do 20...	Capt. James Smith .....	11th Battalion.....	500	8 00
Nov. 5...	W. A. Morehouse.....	Sherbrooke Rifle Association .....	500	8 00
do 7...	J. C. Marks.....	Caretaker, Rifle Range..... M.H.....	200	36 80
do 7...	do .....	do .....	2,000	
do 13...	J. Larued .....	Secretary, Rifle Association .....	560	8 96
Dec. 8...	Major McFee .....	51st Battalion.....	1,000	16 00
		Ball.....	123,270	2,017 27
		Blank .....	1,000	10 00
		Total .....	124,270	2,027 27

*Military District No. 7, Quebec.*

Mar. 2...	Major Scott.....	8th Royal Rifles.....	500	8 00
do 16...	Capt. Russell.....	do .....	560	8 96
do 21...	Major Scott.....	do .....	2,000	32 00
do 28...	do .....	do .....	2,000	32 00
April 11...	do .....	do .....	1,000	16 00

(B.)—S. A. Ammunition issued on repayment during the Year 1883—*Con.**Military District No. 7, Quebec—Concluded.*

Date.	Purchaser.	Corps.	Rounds.	Amount.
1883.				\$ cts.
April 21...	Capt. Holloway .....	8th Royal Rifles.....	1,000	16 00
do 21...	Capt. Miller .....	do .....	500	8 00
do 26...	Capt. Russell .....	do .....	1,000	16 00
do 27...	Major Scott.....	do .....	2,000	32 00
May 1...	Capt. Wurtelle.....	do .....	500	8 00
do 2...	Capt. Russell.....	do .....	560	8 96
do 5...	Major Scott.....	do .....	1,000	16 00
do 8...	Capt. Russell.....	do .....	560	8 96
do 12...	Major Scott .....	do .....	1,000	16 00
do 22...	Lt.-Col. Scott.....	do .....	1,000	16 00
do 22...	do .....	do .....	1,000	16 00
June 1...	do .....	do .....	1,000	16 00
do 6...	do .....	do .....	1,000	16 00
do 14...	do .....	do .....	1,000	16 00
do 22...	do .....	do .....	1,000	16 00
do 27...	do .....	do .....	1,500	24 00
do 28...	do .....	do .....	1,000	16 00
do 28...	do .....	do .....	1,000	16 00
July 14...	do .....	do .....	1,000	16 00
do 18...	Major Demers.....	do .....	500	8 00
do 26...	Surgeon Belanger.....	61st Battalion .....	1,000	16 00
do 27...	Lt.-Col. Scott .....	8th Royal Rifles .....	500	8 00
do 28...	Capt. Miller.....	do .....	3,360	53 76
do 31...	Major LeSueur.....	Stadacona Rifle Association.....	1,000	16 00
Aug. 4...	A. Couillard .....	Rimouski do .....	1,000	16 00
do 8...	Lt.-Col. Scott .....	8th Royal Rifles .....	3,750	60 00
do 9...	Major Stewart .....	Megantic Rifle Association .....	2,000	32 00
do 9...	J. Michaud .....	Temiscouata do .....	150	2 40
do 9...	Dr. Fiset.....	do .....	1,000	16 00
do 13...	Lt.-Col. Scott .....	8th Royal Rifles .....	2,000	32 00
do 18...	do .....	do .....	1,000	16 00
do 18...	A. Couillard .....	Rimouski Rifle Association .....	2,000	32 00
do 22...	J. Michaud.....	Temiscouata do .....	1,000	16 00
do 23...	Lt.-Col. Scott .....	8th Royal Rifles .....	1,000	16 00
do 30...	do .....	do .....	1,150	18 40
Sept. 3...	Paymaster J. Blondeau.....	87th Battalion .....	3,000	48 00
do 4...	J. Michaud .....	Temiscouata Rifle Association.....	1,000	16 00
do 4...	Capt. Bégin .....	17th Battalion .....	500	8 00
do 7...	Major Fournier.....	do .....	1,000	16 00
do 12...	Lt.-Col. Scott .....	8th Royal Rifles.....	1,000	16 00
Oct. 1...	do .....	do .....	250	4 00
Dec. 21...	do .....	do .....		
		Total.....	52,810	845 44

*Military District No. 8, St. John, N.B.*

April 24...	Capt. Blois.....	62nd Battalion.....	1,000	16 00
May 10...	Capt. Langstroth.....	8th Cavalry .....	500	8 00
do 16...	Capt. Hartt .....	St. John Rifle Company .....	2,000	32 00
June 6...	do .....	do .....	4,000	64 00
do 23...	do .....	do .....	560	8 96
July 6...	Lieut. McIntyre.....	York Co. Rifle Association .....	2,000	32 00
do 11...	J. Hunter .....	St. John Rifle Company .....	100	8 00
		St. John Rifle Association.....		

(B.)—S. A. Ammunition issued on repayment during the Year 1883—*Con.**Military District No. 8, St. John, N.B.—Concluded.*

Date.	Purchaser.	Corps.	Rounds.	Amount.
1883.				\$ cts.
July 14...	Lieut. McRobie .....	62nd Battalion .....	500	8 00
do 16...	Lieut. Goddard.....	do .....	2,000	32 00
do 16...	do .....	do .....	1,000	16 00
do 31...	Capt. Langstroth.....	8th Cavalry .....	1,500	24 00
Aug. 4...	Capt. Blois.....	62nd Battalion.....	2,000	32 00
do 7...	Lt.-Col. Underhill.....	New Brunswick Brigade Garrison Artillery.	1,000	16 00
do 8...	Lieut. McIntyre.....	St. John Rifle Company.....	1,000	16 00
do 11...	J. A. Watson.....	York Co. Rifle Association.....	1,000	16 00
do 13...	D. R. McElmon .....	Westmoreland Co. Rifle Association.....	2,500	40 00
do 13...	H. N. Bourne.....	do .....	800	12 80
do 17...	O. R. Arnold.....	New Brunswick Provincial Rifle Association	12,000	192 00
do 29...	Capt. Wetmore .....	74th Battalion.....	560	8 96
do 30...	Major Likely.....	do .....	1,000	16 00
do 31...	Sergt.-Major Hunter .....	do .....	1,000	16 00
Sept. 3...	Lt.-Col. Underhill .....	New Brunswick Brigade Garrison Artillery.	2,000	32 00
do 7...	Major Arnold.....	Provincial Rifle Association, M.H.....	500	12 00
do 12...	Capt. Wetmore .....	74th Battalion.....	1,000	16 00
do 17...	Capt. Hartt.....	York Co Rifle Association .....	1,000	16 00
Oct. 18...	Capt. Blois.....	62nd Battalion.....	1,000	16 00
do 30...	D. R. McElmon.....	Westmoreland Co. Rifle Association.....	1,000	16 00
Dec. 13...	do .....	do .....	1,000	16 00
		Total.....	45,920	738 72

*Military District No. 9, Halifax, N.S.*

Jan. 22...	Lieut.-Col. Mowbray .....	1st Brigade Garrison Artillery.....	500	8 00
May 11...	do Kaulback.....	75th Battalion.....	5,000	80 00
do 11...	Capt. Jolly.....	Yarmouth Garrison Artillery.....	1,000	16 00
do 23...	do Egan.....	63rd Battalion.....	1,000	16 00
do 25...	Lieut.-Col. Mowbray.....	1st Brigade Garrison Artillery.....	500	8 00
do 26...	Capt. Bland.....	do do .....	500	8 00
do 30...	Lieut.-Col. Mackintosh.....	63rd Battalion.....	500	8 00
June 7...	Capt. Bland.....	1st Brigade Garrison Artillery.....	1,000	16 00
do 8...	do .....	do do .....	500	8 00
do 11...	Lieut.-Col. Bremner.....	66th Battalion.....	1,000	16 00
do 12...	Capt. Lawrence.....	78th do .....	500	8 00
do 20...	do Bland.....	1st Brigade Garrison Artillery.....	1,000	16 00
do 22...	do Egan.....	63rd Battalion.....	2,000	32 00
do 22...	Lieut.-Col. Mowbray.....	1st Brigade Garrison Artillery.....	500	8 00
do 22...	do Bremner.....	66th Battalion.....	1,000	16 00
do 23...	Major Purcell.....	2nd Brigade Garrison Artillery.....	500	8 00
	Capt. Egan.....	63rd Battalion.....	2,000	32 00
July 3...	do Bland.....	1st Brigade Garrison Artillery.....	1,500	24 00
do 5...	do Egan.....	63rd Battalion.....	2,000	32 00
do 9...	Lieut.-Col. Bremner.....	66th do .....	1,000	16 00
do 10...	Capt. Bland.....	1st Brigade Garrison Artillery.....	500	8 00
do 19...	Lieut.-Col. Bremner.....	66th Battalion.....	1,000	16 00
do 19...	do Mackintosh.....	63rd do .....	500	8 00
do 21...	Capt. Bland.....	1st Brigade Garrison Artillery.....	1,000	16 00
do 21...	Lieut. C. H. Dimoch.....	78th Highlanders.....	1,000	16 00
do 24...	Capt. Bland.....	1st Brigade Garrison Artillery.....	500	8 00
do 26...	Lieut. Dimoch.....	78th Highlanders.....	500	8 00
do 27...	Capt. Bland.....	Halifax Co. Rifle Association.....	3,500	56 00
do 27...	Major Egan.....	63rd Battalion.....	2,000	32 00

(B.)—S. A. Ammunition issued on repayment during the Year 1883—*Con.**Military District No. 9, Halifax, N.S.—Concluded.*

Date.	Purchaser.	Corps.	Rounds.	Amount.
1883.				
Aug. 3...	Capt. Barnhill.....	78th Highlanders.....	1,000	16 00
do 3...	Lieut.-Col. Bremner .....	66th Battalion.....	1,000	16 00
do 10...	do Lydiard.....	Rifle Association.....	500	8 00
do 15...	Capt. Lawrence.....	78th Highlanders.....	500	8 00
do 17...	Major Egan.....	63rd Battalion.....	2,000	32 00
do 28...	do .....	do .....	2,500	40 00
do 29...	Capt. Bland.....	1st Brigade Garrison Artillery..... M.H.	200	4 80
do 31...	do Weston.....	Provincial Rifle Association..... Snider.	16,500	297 60
do 31...	do do .....	do do .....	1,400	
do 31...	do do .....	do do .....	1,000	16 00
do 31...	Major Black.....	Cumberland Provincial Battalion.....	1,000	16 00
Sept. 5...	Lieut.-Col. Bremner.....	66th Battalion.....	1,000	16 00
do 11...	Capt. Jolly.....	Yarmouth Garrison Artillery.....	800	12 80
do 17...	Paymaster Miller.....	do .....	2,000	32 00
do 18...	Major Egan.....	63rd Battalion.....	3,500	56 00
do 19...	Lieut.-Col. Bremner .....	66th do .....	2,000	32 00
do 24...	Major Egan.....	63rd do .....	1,000	16 00
do 26...	Capt. Lawrence.....	78th Highlanders.....	1,000	16 00
Oct. 8...	Lieut.-Col. Mowbray.....	1st Brigade Garrison Artillery.....	3,000	48 00
do 15...	Major Egan.....	63rd Battalion.....	1,500	24 00
do 16...	Lieut. Dimoch.....	Hants Co. Rifle Association.....	500	8 00
do 17...	Capt. Gordon.....	Pictou Garrison Battery.....		
		Total.....	77,900	1,259 20

*Military District No. 10, Winnipeg, Manitoba.*

1883.				
Jan. 18...	Manitoba Rifle Assoc'n.....	..... M.H.	600	14 40
May 17...	do .....	..... M.H.	600	46 40
do 17...	do .....	..... Snider	2,000	
June 18...	Brandon Rifle Association .....	.....	2,000	32 00
do 21...	G. W. Street.....	Manitoba Rifle Association .....	2,000	32 00
July 7...	do .....	do .....	600	46 40
do 12...	J. Hingston Smith .....	Rifle Association..... M.H.	2,000	
do 12...	do .....	do .....	2,000	32 00
do 18...	Lieut. G. P. Bliss.....	do .....	600	46 40
do 26...	G. W. Street.....	do .....	2,000	
do 26...	do .....	do .....	2,000	32 00
do 27...	J. H. Smith.....	do .....	2,000	32 00
Aug. 2...	G. W. Street.....	do .....	2,000	32 00
do 3...	L. Buchan.....	do .....	1,200	28 80
do 7...	J. H. Smith.....	do .....	1,200	139 20
do 13...	G. W. Street.....	do .....	6,894	
do 13...	do .....	do .....	600	14 40
do 21...	do .....	do .....	2,000	32 00
do 30...	L. Buchan.....	do .....	2,000	32 00
Sept. 10...	Lieut. Bliss.....	do .....	2,000	32 00
Dec. 10...	J. H. Smith.....	do .....		
		Total.....	38,294	658 00

(B.)—S. A. Ammunition issued on repayment during the Year 1883—*Con.**Military District, No. 11, Victoria, B.C.*

Date.	Purchaser.	Corps.	Rounds.	Amount.
1882.				
Nov. 13...	E. Fletcher.....	B. C. Rifle Association.....	5,880	94 08
do 20...	do .....	do .....	2,100	83 60
do 30...	G. T. D. Simpson.....	do .....	840	40 32
1883.				
May 3...	Provincial Government.....	.....	4,200	67 20
do 13...	H. S. Roebuck.....	Victoria Rifle Association.....	320	5 12
June 12...	C. N. Trew.....	New Westminster do.....	2,100	33 60
July 3...	Major Holmes.....	Victoria do.....	2,000	32 00
do 17...	do .....	Nanaimo do.....	4,000	64 00
do 19...	H. Roebuck.....	Victoria do.....	2,000	33 00
do 20...	C. N. Trew.....	New Westminster do.....	4,000	64 00
Aug. 1...	H. Roebuck.....	Victoria do.....	2,000	32 00
do 9...	E. Fletcher.....	Provincial do.....	8,000	128 00
do 23...	Capt. McDonnell.....	do do.....	3,860	61 80
Sept. 10...	E. Fletcher.....	do do.....	4,620	73 92
do 25...	H. S. Roebuck.....	Victoria do.....	2,000	32 00
Oct. 27...	do .....	do do.....	2,000	32 00
Total.....			49,920	825 64

*Military District No. 12, Charlottetown, P.E.I.*

Dec. 1...	Capt. Owen.....	3rd Battery Garrison Artillery.....	1,250	20 00
do 9...	Capt. D Stewart.....	82nd Battalion.....	500	8 00
do 11...	Capt. McRae.....	do .....	1,000	16 00
do 22...	Capt. Mabon.....	do .....	500	8 00
do 22...	Capt. Alexander.....	do .....	500	8 00
do 23...	Capt. McLeod.....	do .....	500	8 00
do 29...	Capt. McRae.....	do .....	1,000	16 00
Feb. 23...	Capt. Alexander.....	do .....	1,000	16 00
do 2...	Capt. Mabon.....	do .....	500	8 00
do 3...	Capt. Alexander.....	do .....	500	8 00
April 23...	do .....	do .....	500	8 00
do 3...	George Crockett.....	do .....	500	8 00
May 25...	Major Dogherty.....	Charlottetown Engineers.....	2,000	32 00
June 5...	Capt. Alexander.....	82nd Battalion.....	500	8 00
do 19...	Capt. Owen.....	3rd Battery Garrison Artillery.....	1,000	16 00
do 29...	Capt. Alexander.....	82nd Battalion.....	500	8 00
do 30...	Lieut. A. Horne.....	Engineer Company.....	1,500	24 00
July 10...	Lieut. Bertiam.....	82nd Battalion.....	500	8 00
do 21...	Major Dogherty.....	Engineer Company.....	1,000	16 00
Aug. 1...	Capt. Owen.....	3rd Battery Garrison Artillery.....	1,000	16 00
do 2...	Major Dogherty.....	Engineer Company.....	1,000	16 00
do 10...	Capt. McLeod.....	82nd Battalion.....	500	8 00
do 11...	Major Dogherty.....	Engineer Company.....	6,000	96 00
do 28...	Lieut. Horne.....	do .....	1,000	16 00
do 31...	Capt. Owen.....	3rd Battery Garrison Artillery.....	1,000	16 00
Sept. 13...	Capt. McRae.....	82nd Battalion.....	500	8 00
Oct. 6...	Lieut. Horne.....	Engineer Company.....	1,000	16 00
do 15...	J. A. Longworth.....	Rifle Association.....	2,000	32 00
do 19...	Capt. Alexander.....	82nd Battalion.....	1,000	16 00
do 31...	Capt. McRae.....	do .....	500	8 00
Nov. 2...	Capt. McLeod.....	do .....	500	8 00
Dec. 21...	Capt. Henderson.....	do .....	500	8 00
			31,750	508 00

## RECAPITULATION.

Military Districts	Rounds.	Amount.
Military District No. 1, London.....	25,100	401 60
do 2, Toronto.....	124,000	2,000 00
do 3, Kingston.....	47,630	766 10
do 4, Ottawa.....	93,420	1,542 08
do 5 } Montreal.....	123,270	2,027 27
do 6 } { Ball.....	1,000	
do 6 } { Blank.....	52,840	845 44
do 7, Quebec.....	45,920	738 72
do 8, St. John, N.B.....	77,900	1,259 20
do 9, Halifax, N.S.....	38,294	656 00
do 10, Winnipeg.....	49,920	825 64
do 11, Victoria, B.C.....	31,750	508 00
do 12, Charlottetown, P.E.I.....		
Ammunition—Ball.....	710,054	11,570 05
Blank.....	1,000	191 82
Gunpowder and friction tubes.....		
Total.....	711,054	11,761 87

	Rounds.
Snider ball.....	688,504
do blank.....	1,000
Martini-Henry ball.....	20,950
Spencer rifle ball.....	6,600
Total.....	711,054

[C.]

RETURN of Gunpowder and Friction Tubes issued for Practice and Salutes during the Year 1883.

Military Districts.	Stations.	Corps.	Gunpowder.	Friction Tubes.
			Lbs.	No.
No. 1 .....	London .....			
No. 2 .....	Toronto .....			
No. 3 .....	Kingston .....	Field and Garrison Batteries of Artillery..	3,972	1,850
		do do do and		
		Royal Military College.....	10,565	1,718
No. 4 .....	Ottawa.....	Field Battery of Artillery and Salutes.....	655	515
Nos. 5 & 6.	Montreal .....	Field and Garrison Batteries of Artillery and Salutes .....		
		do do do .....	1,272	555
No. 7 .....	Quebec .....	do do do .....	8,289	1,639
No. 8 .....	St. John, N.B.....	do do do .....	1,744	885
No. 9 .....	Halifax, N.S.....	do do do .....	1,556	250
No. 10.....	Winnipeg .....	Field Battery and Salutes .....	600	485
No. 11.....	Victoria, B.C.....	Garrison Batteries and Salutes .....	993	25
No. 12.....	Charlottetown, P.E.I..	do do .....	1,733	214
		Total .....	31,379	8,136

J. MACPHERSON, Lieut.-Colonel,  
Director of Stores and Keeper of Militia Properties.

The Honorable  
The Minister of Militia and Defence,  
Ottawa.

31st December, 1883.

## APPENDIX No. 12.

## GOVERNMENT CARTRIDGE FACTORY.

REPORT ON OPERATIONS CARRIED ON AT THE GOVERNMENT CARTRIDGE FACTORY,  
FROM THE INCEPTION OF MANUFACTURE, UP TO THE 20TH SEPTEMBER, 1883.

QUEBEC, 20th September, 1883.

To the Deputy Minister of Militia and Defence.

SIR,—According to instructions received, dated Ottawa, 17th inst., I have the honor to report as follows:—

## I.—MACHINERY.

The machinery and apparatus for the Government Cartridge Factory, the reception of which was advised from time to time as received from England, and from manufacturers here, was put in and completed in November, 1882. The last to be put up and completed were: the heating and drying apparatus of the Fulminate Buildings, and the targets on the range at the Cove Fields.

*Spare and Duplicate Pieces therefor.*

The plant at present comprises about seventy machines and apparatus. None of these machines were received with spare pieces of any description; the estimates did not provide for spare duplicate punches and dies, &c. These spare pieces had to be made in the workshop of the Cartridge Factory before any manufacturing operations could be attempted.

This work, on spare pieces of machinery, began in March, 1882, due authority therefor having been granted, and was carried on uninterruptedly till the latter end of September, 1882.

No more than four machinists were employed at a time at that special work. Herewith is a list marked A 1, of machinery upon which this work extended. Manufacturing operations were not, in consequence, begun until the month of October, 1882.

*Tools and other Implements for the Workshop.*

The plant received from England for the workshop of the Factory comprised only lathes, drilling and shaping machines, without any tools whatever. It was therefore necessary to obtain these from the trade in Canada. Vices, files, cutters, rimmers, drills, &c., mostly of Canadian manufacture, were purchased, and a number of special tools had to be made in the workshop to make spare parts alluded to above, and also keep the machinery in repair when manufacturing operations had begun. Herewith annexed is a list of such tools and appliances provided for the above purposes, marked A 2.

*Subsequent Repairs and Alterations to Machinery.*

Since the inception of manufacture many and considerable defects in the machinery, which developed under work, were discovered. As the remedying of these defects was gradual and had to be done in the course of manufacture, involving expenditure that could hardly have been made chargeable to a "general expenditure

and repairs account," in connection with the manufacture of cartridges, I adopted the mode of issuing special orders, which formed, each, heads of special accounts for each repairs and alterations, when the amount was at all important. Annexed is a list, marked B, of such orders, and the expenditure thus entailed, with remarks to each order. Though on the above list most of those alterations and repairs are noted in the remarks, and also their object, still I must notice more specially those that were performed on the following machines.

#### *Bullet Machine No. 1.*

This machine was received with a cutting plate, the holes of which were too large and did not grip sufficiently the "lead rod" when cutting it off. Steel bushes had to be inserted in the cutting plate to secure a tighter fit.

There was also an irregular action in the feeding; this had to be remedied by adding a spring action, which had been entirely omitted by the manufacturers, to regularize the feed and produce "blanks" of almost uniform weight. Until these defects were remedied several punches and dies were overstrained, causing many repairs which would not otherwise have been required. The machine now works well.

#### *Bullet Machine No. 2.*

This machine, for compressing the bullet into shape, came with dies of unsuitable form for both the "canneluring machine" and the "choking machine." It produced a bullet fully  $\frac{1}{16}$  larger in diameter than the service Snider bullet, and did not even fit the gauges supplied with the machinery. This entailed many changes in the bullet machinery of subsequent processes, to obtain a bullet of suitable length, weight and shape.

#### *Base Discs Punching Machine.*

The machine was found not to be workable for any length of time, as it was constructed. A whole set of feeding rollers, which were more detrimental than otherwise, has been removed; one single set now does the work quite satisfactorily.

A new channel for the burrs punched out of the centre of the base discs, had to be made. In the machine, as originally constructed, the burrs were expected to turn a sharp angle, when piled one upon the other, in a narrow channel, barely more than their own diameter, and fall clear of the machine—an utter mechanical impossibility, as it proved. The above defect was the cause of many stoppages and breakages which are now entirely obviated. This machine now runs daily 30,000 discs, without any repairs except those of fair "wear and tear."

#### *Countersink Base Discs Machine.*

The countersink base discs machine also gave little satisfaction at first. The spindle of the "feed table" was out of truth, and as a result the discs were not countersunk central; the "cam" action on the feed table was irregular, the lever transmitting this action not being of proper length and not attached on the bed of the machine at a suitable point. The heavy weights provided for working the "pawls" and "drill slide" were a strain on the machine. Springs were substituted therefor, and the machine, after all those alterations, now works well.

#### *Machine for Pressing Component Parts.*

The machine for pressing component parts of the cartridge case had to be considerably altered. As received, the "feed table" was revolving on a spindle resting on a spring in a countersunk recess. This had to be taken out, a new spindle and bush provided, to give a rigid bearing to the feed table spindle. The oscillations of the feed table, as originally devised, caused an irregular pressing of the cartridge

case, for if the "pressing punch" was lowered to press the cartridge up to gauge, the chances were that the cap chamber was not in its place, and the pawl devised to keep the feed plate at rest during the pressing not acting properly, a smash occurred, or at the best the base disc got nipped, or the base cups crumpled and the cartridge case useless.

The principle of the machine is faulty, for the pressure and the resistance to the pressure are simultaneous, and exert themselves to expand or draw out the cartridge case out of proper shape. The cartridge case had to be pressed before getting into the mould that should have maintained its shape, and, as a consequence, the full depth of the case could not be obtained. This has been obviated by means of bell-mouthed moulds, which secure the discs, being pressed on to the case centrally; no loss occurs from eccentric cases, as formerly. A further improvement was made by substituting a simple ratchet for a very complicated one. In fact, thirty-two pieces were removed from the machine, and two substituted therefor, with manifest advantage.

#### *Cap Chamber and Percussion Cap Machines.*

These machines, for extending the percussion cap, and for the cap chamber extending, were received provided with weak springs to the nippers, and the ones at present on the machines put in their places—(seven.)

#### *Pellet Pressing Machine.*

The pellet pressing machine had to be provided with new punches and dies to press the paper pellets conical, the dies, &c., provided with the machines pressed it cylindrical and as a consequence the crimping of the "case body" was delayed; as a conical pellet is easier to insert and presses as well.

#### *Rifle Rests.*

The rifle rests for proof of ammunition came with slides unsuitable for Snider rifles. Though I tried to utilize them, I had to put them aside, after several alterations, and use the old pattern firing stocks and slides, adapted to the rifle rests received.

#### *Shifters and Pulleys.*

If it be added that the shifters of all the machinery had to be altered to suit the position of the line shafts and the incline of the belting, and also that pulleys on the main shaft had to be changed and altered to give proper speed to the different machines, though the pulleys had been placed according to directions of the manufacturer of the plant, a good idea will have been obtained of the most important alterations and modifications the plant had to be put through.

#### *Blank Ammunition Machines.*

Two kinds of blank ammunition are now in the service, the "converted blank" and the "paper blank." The "converted blank" is made from burned or otherwise damaged cases, cut down to suitable length and top-turned after filling. The "paper blanks" are special ammunition entirely, and require special machinery. None of the machinery for paper blank had been obtained in England, and when an order was received in May last for 100,000 rounds of blank, I had to make this special machinery and alterations for the purpose. Annexed is a list of these additions and alterations, marked C. The factory is now provided with the necessary appliances to manufacture further supplies.

#### *Cap Varnishing and Filling Machines.*

The cap filling and cap varnishing require still overhauling to be in perfect working order, the most urgent repairs and alterations only have as yet been done on them.

## GENERAL REMARK.

All this reconstruction, in a small way, if I may so express it, had to be carried on in the workshop originally provided for repairs only, and many special devices had to be improvised for the object, much labour and time diverted from manufacturing exigencies, for the above purpose.

## II.—MATERIAL.

The raw material special to the manufacture of Snider service ball ammunition was ordered in England, sufficient for 1,250,000 rounds, except such articles as could eventually be procured in Canada, for which the order was limited to what would suffice to manufacture 250,000.

The following were the articles imported for a quarter million rounds only :

Paper of three kinds. However a subsequent order completed the total quantity received to the 1,250,000 rounds, as no manufacturers here would undertake to supply any.

Oils—Linseed, Neats' foot, raw and boiled.

Wax—Nos. 1 and 2, for lubricating bullets.

Powder—R.F.G., Waltham Abbey.

Wine, spirits, mytilated, for cements.

A Canadian manufacturer, Mr. Rolland, of St. Jérôme, near Montreal, has since been supplied with samples to try manufacturing special papers required.

These materials were received about the middle of June, 1882, and stored at the factory. The supply of paper was completed last winter. The powder was stored at the Citadel, except such as was and is required for immediate use at the Laboratory.

Herewith annexed is a list of articles of raw materials received, marked D, and a list of material (special) expended to date of last inventory, marked E and 1, 2. Explosive compounds are not included, it being unsafe to weigh them :

Raw material (special) received .....	\$13,874 31
do do expended .....	4,981 96
Balance .....	\$ 8,892 36

## III—PERSONNEL.

The personnel of the factory can be divided in two classes :

1. Those who are paid an invariable price by the day or by the month.—(See accompanying list, marked F 1).

2. Those who earn piece work wages. This class receives also a fixed price to a certain extent, as may appear on List F 2, annexed, but only when, from machinery getting out of order under work, or uncontrollable cause, they are prevented from earning piece work wages and shifted to more pressing work for the advantage of manufacture, though unremunerative to those operatives. This method, combining the advantage of piece work, when possible, and at the same time paying a reasonable price for useful work and attendance otherwise unremunerative, was found the only means of retaining trained operatives who, before this, left as soon as qualified, through disgust at constant stoppages. This also prevented breakage to machinery by new hands taken on to replace trained ones, a real economy, as it proved.

All the employees of the factory, the foreman excepted, were born in Canada. Herewith a return nominal and denominational of the employees, marked C.

I also include a piece work price list marked H, corrected up to date.

## IV.—THE MANUFACTURE OF AMMUNITION.

The manufacture of Snider B.L. ammunition is difficult and complicated. It comprises over fifty different operations, partly hand work, but mostly machine work, and on special machines, different from one another both in construction and in operation.

The system of manufacture fixed upon up to the present has been the gradual building up of the Snider cartridge instead of carrying on all operations simultaneously, therefore working only part of the machinery at a time, with a limited number of hands.

Thus, operatives not only have to learn to manage one or two machines, but perhaps five or six, and be put to more operations than one. It therefore takes more time to train operatives, and perfection cannot be attained in each operation owing to their multiplicity and variety in so short a time, as if the division of labor was greater. A favorable feature is noticed at this moment in the factory, in so far as good hands which left discouraged by unremunerative returns for their work, now return finding that the machinery, being in better order, they can earn sufficient pay.

There is, in consequence, a manifest progress in the quality of the work and in the quantity produced.

Thus, an order for 250,000 rounds of ball ammunition was issued immediately at the completion of an order of 100,000 rounds of blanks, towards the beginning of August, and more than two-thirds of the work has now been performed and not seven weeks have elapsed since.

There is every reason to expect that, with the improvements I am now enabled to report, there will be no difficulty in manufacturing at the rate of 1,000,000 rounds per annum, with the present establishment.

A statement of quantities of work performed at the factory from October last up to date, is annexed herewith, marked J.

*Quality and Description of Powder used.*

The powder used for the service ball ammunition has been, till now, R.F.G. from the Royal Powder Factory at Waltham Abbey. The powder used for blanks for the last lot supplied was Canadian powder, supplied by the Hamilton Powder Company.

*Examination and Proof of Work.*

All work during the manufacture is frequently gauged and thoroughly examined before being passed from one process to another. Frequent inspections and enquiries during this period guarantee that all parts of the cartridge are made to gauge within correct manufacturing limits. During the finishing processes the ammunition is tried by firing a percentage. No daily proof of work, such as in larger establishments, can be carried on here. Time and the number manufactured daily do not allow the system to be adopted extensively, but frequent inspections and the opening and examining of a number of cartridges daily, ensure compliance with directions issued for guidance in the finishing processes.

The figure of merit of every diagram of targets fired, is worked out. None of the figures of merit obtained have been under a fair average, and in some cases been higher (10.9) which is as good as Snider ammunition has obtained.

I fail to find in every examination or proof carried on, that any defect likely to impair the efficiency of the ammunition manufactured had been allowed to pass to final examination. I am, therefore, of opinion, that the cartridges, both ball and blank, manufactured at the Cartridge Factory are serviceable in every respect, and compare favorably with similar ammunition of the latest marks produced elsewhere, while it is superior to the Snider ammunition now in store in the Dominion.

Some of the experiments alluded to were carried on in the depth of winter, as was also the manufacture of the first lot of ammunition produced, in fact, under excessive difficulties, still none of the diagrams of proof would warrant an opinion adverse to that expressed above, on the point of the ammunition manufactured being serviceable in every respect.

*Instruments for Testing Powder and Ammunition.*

During the year, valuable instruments for testing powder and ammunition were received, viz.:—1 LeBoulangé chronograph and 1 Bianchi densimeter, complete.

These two instruments were put in the office building of the factory. I have been able to test gun powders of different makes submitted for report and also ammunition, including a lot of damaged ammunition in store at this station.

#### *Range on the Cove Fields for Testing Cannon Powder.*

A range for testing cannon powder for velocity has been prepared on the Cove Fields for the proof of R. L. G. powder in accordance with instructions received.

#### V—ADMINISTRATION.

Under this head are included the interior management, system of recording work and keeping accounts of both wages and material—controlling the issues and recording the receipts of supplies of all kinds.

#### *Interior Management.*

The hours of work are from 7 a.m. to 12 noon, and from 12.30 p.m. till 6 p.m., at all seasons. On Saturdays, work is stopped at 3 p.m., and the workmen paid off.

This forms a total of sixty working hours in a week of six working days. At 7 a.m. the main gate is opened to admit the employees, and at 7.05 a.m. it is again closed, and no one admitted unless sufficient reasons to excuse the irregularity are given.

No work is performed on legal holidays, as observed in the Province of Quebec.

When it becomes necessary to employ machinists or other employees, extra hours, their time counts time and a half, according to the rules of local manufacturing establishments. The extra time is authorized only when work of urgent nature has to be performed and which could not be completed during working hours, to prevent stoppages.

The week for piece work runs from Thursday to Thursday, and from Saturday to Saturday for employees at fixed salaries. It gives time to prepare piece work pay sheets—all are paid on Saturdays. Time lost for absence for fractions of days is deducted at so much per hour at the rate of daily pay. This rule applies to all hands at so much per diem, whether at fixed daily wages in first or second class. The foreman and clerks are paid monthly.

#### *Mode of Recording Piece Work.*

The work from one operation to another is put into barrels or boxes containing a given quantity of work reckoned according to a scale similar to that followed at Woolwich arsenal—some work is reckoned by weight and some again by counting pieces. Each barrel or box contains, with the work, a "work ticket," on which appears the name of the operative, the time taken to perform the work and the quantity.

The time and quantities of each description of work is entered in the "Overlookers" book by the Overlooker in charge of the operation, and to each operative. These books are sent to the office on Thursdays, in time to make out the pay-lists for the Saturday following. The amounts of work are priced and totalized, and pay issued to each operative in accordance therewith.

The work-ticket system has the advantage of making it possible to trace any defects in the processes of manufacture to the individual "gauger" or examiner in fault.

This retracing is continuous up to the moment of packing, when all defects should then have been noticed. For any exterior defects discovered during proof the "gauger" who performed the final examination is held responsible.

#### *Mode of Recording Work in the Workshop.*

A daily work book is kept for the machinists, engineman and labourers employed at a fixed daily salary.

In this book is entered the time each machinist has been employed at such work on such a machine. From this record the wages for repairs, &c., to machinery are distributed to the different orders issued for those repairs, when the amount thereof is important, or to a general repairs and expenditure account, when of general nature, in the ordinary run of fair wear and tear, and cannot be posted to a particular order. As a general rule anything under \$5 in total amount is not charged to a special order. By issuing orders for the manufacture of determined quantities of ammunition at a time, and charging all material issued and wages paid for those particular orders, control on expenditure is more regular and easier; any waste can at once be discovered and checked.

#### *Accounts.*

The following system of keeping accounts in the office of the factory is adhered to:—

1. A store ledger, for materials and tools and appliances issued from or into general store—(A).
2. Ledger of expenses in material and wages—(B).
3. Inventory book of machinery, tools and appliances of the factory—(C).
4. Order book, containing details of work of a special nature to be performed—(D).
5. Pay-list book—(E).

#### *Store Ledger.*

In the store ledger are entered all articles of raw material, tools and appliances at the date of receipt from suppliers, with prices of each and quantities; also all articles of raw material, tools and appliances appear therein which are issued for manufacture, or the keeping in order or maintenance of the material and machinery of the factory. The ledger also shows in what manner the articles issued have been utilized and distributed, appearing as having been charged in the B ledger for expenses of material (No. 2), or in the inventory book (No. 3)—(C).

#### *Ledger B.*

In Ledger B are kept two separate accounts:—

- 1st. One comprising all expenses in wages and material incurred to fulfill orders detailed in the order book D, described hereafter, each order with a serial number.
- 2nd. The other comprising all expenses in wages and material incurred for repairs not exceeding \$5 in total amount, or not otherwise specially ordered when under that value, and also all expenses that cannot be charged to a special account, such as wages of enginemen, repairs to steam engine, lubricating oil for line shafts and other expenses of a general nature, that can be charged only by adding a percentage to the priced value of ammunition produced.

#### *Inventory Book C.*

In the inventory book C is given a detail of all machines, tools, &c., of the factory, of all their separate parts; also the detail of all tools and appliances in use in the workshop.

All the machines, tools, appliances, &c., mentioned therein, are localized by buildings, rooms, flats and sections. There is also a small store where all such tools as do not belong to any machine in particular, and subject to great wear and become soon unserviceable, such as files, chisels, cutters, &c., are returned when not in use;

these are charged when unserviceable to the general repairs account, unless it can be determined that they have become entirely unserviceable in fulfilling a special order; in that case it is charged to the special order.

*Pay List Book E.*

The Pay-list Book E contains a nominal roll of the permanent employees, such as mechanics, engineman, labourers and keeper, with the amounts paid weekly to each and their signature acknowledging receipt.

*Order Book D.*

In this order book, as already explained, special orders for manufacturing or for repairing or altering machines are entered, with a serial number. Each of these orders forms a head of account, distinct, in the Ledger B.

*Miscellaneous.*

Other books are also kept, such as the Daily Work Book, already noticed; a Requisition Book; a Book of Attendance for piece work operatives; a Scrap Book for the daily issue of stores, and books usually kept for reference, viz., correspondence, &c. I trust this report will furnish the information required. Improvements in details, will suggest themselves as work proceeds, the progress now quite noticeable in products, indicates this plainly.

I have the honor to be, Sir,  
Your obedient servant,

Osc. PRÉVOST, Major,  
Superintendent.

(A 1.)

RETURN of Work performed in accordance with authority received 8th February, 1882.

Date of Order.	No. of Order.	No. and Purpose of Machine.	Work done.	Amount of Material.	Amount of Wages.	Remarks.
1882.						
Feb. 20...	Order 1...	M. 364 Punch and form base-discs.....	Duplicate punches and dies.	20 73	369 58	
do ...	do ...	367 Punch and form base-cups (outer).....				
do ..	do ...	368 Punch and form base-cups (inner).....				
do ...	do ...	369 Punch holes in cups....				
do ...	do ...	370 Punch and form cap chambers.....				
do ...	do ...	371 2 extending cap chambers.....				
do ...	do ...	373 Flanging cap chambers				
do ...	do ...	375 Punch and form percussion caps.....				
do ...	do ...	376 Extending percussion caps.....				
do ...	do ...	384 Anvil punching .....				
do ...	do ...	388 Wad pressing .....				
do ...	do ...	395 Pressing parts together				
do ...	do ...	396 Riveting and piercing.				
do ...	do ...	426 Clay-plug forming .....				
April 4...	Order 2...	365 Counter sinking base-discs.....	Put in working order.	8 18	242 77	
do ...	do ...	372 Trimming cap chambers.....				
do ...	do ...	377 Trimming percussion caps .....				
do ...	do ...	378 Filling in fulminate....				
do ...	do ...	380 Pressing machine for fulminate.....				
do ...	do ...	388 Cutting paper into strips .....				
do ...	do ...	387 Wad winding.....				
do ...	do ...	390 Cutting for case body				
do ...	do ...	391 Cutting into case pieces.....				
do ...	do ...	393 Coiling case body.....				
do ...	do ...	394 Crimping and fixing parts.....				
do ...	do ...	397 Filling cases with powder.....				
do ...	do ...	398 Choking cases.....				
do ...	do ...	399 Capping machine.....				
do ...	do ...	409 Vertical drilling machine.....				
do ...	do ...	413 Force pump .....				
do ...	do ...	414 Distribution valve.....				
do ...	do ...	418 Bullet compressing.....				
do ...	do ...	419 Canneluring.....				
do ...	do ...	420 Warm and gauge bullets and press in clay plugs.....				
do ...	do ...	421 Steam pan for lubricating bullets.....				
do ...	do ...	529 Pug Mill.....				
		Value of coal expended on above orders.....		\$28 91	\$612 35	
				\$284 98		

(A. 2.)

RETURN of Tools, &c., for Work Shop.

		\$ cts.			\$ cts.
Screw auger.....	1	0 40	Brought forward.....		
Anvil and cutter.....	1		Handles, file.....	18	0 90
Bellows.....	1	0 05	do chisel.....	2	1 00
Chaisers.....	4 prs.	5 00	do lathe.....		Made in shop
Chucks, complete.....	2		Handspikes, 6 ft.....	4	Militia stores
do Whiton's pat. drill.....		9 75	Holder, drill, for lathe.....		Made in shop
Chisel, socket.....	1	0 35	Iron.....		26 89
do cold.....	2		Mandrills.....	16	Made in shop
Clamps, coupling.....	1 pr.		Solder.....	1 lb.	0 45
Cramps.....	2		Stones, oil.....	4	0 90
Drills, twist, varied sizes.....	59	51 10	Stamps, D. C.....	2 sets	4 00
do ratchet.....	1	7 00	Stays, complete.....	2	40 00
do twist.....	1 doz	2 00	Saws, egg-hand.....	1	2 00
do do.....	2	0 42	Turn-screws.....	6	2 45
Drip, for pulleys.....	1		do.....	1	Militia stores
do gun metal.....	3		Screws, assorted.....		7 56
Dies for chucks.....	3 prs.		Spanners.....	4	Militia stores
Drivers, wood and gun metal.....	1		Squares, machinists'.....	2	27 00
do cooper do.....	1		Sash tools No. 5.....	2	0 24
Dogs.....	8		Steel centres, 54 lbs.....	2	1 62
Emery cloth.....	9 1/2 yds	5 04	Tapers and plugs, taps.....	4	4 25
Emery wheels.....	144	24 96	Tongs.....	2 prs.	1 00
Files.....	4		Trowel, masons.....	1	0 75
do.....	17 1/2 doz	71 17	Tools, shaping machines,.....		
Flange, union.....	1	0 35	Tool holders and drills.....		37 00
do metal, sample.....	6 1/2 lbs.	2 93	Tool holders and drills.....		
Forge, portable.....	1	30 00	Steady head for lathe.....	1	10 00
Gimlets.....	2	0 40	Turn screws.....	2	0 60
Gimlet or bit spike.....	1		Tools for lathes.....	16	
Gauge socket.....	1	0 45	do.....	18	Made in shop
Holding down plates.....	4	3 00	Vices.....	3 prs.	18 00
Hammers, steel.....	4	5 00	do smiths'.....	1	4 50
do hand.....	1		do benches.....	3	6 00
do machinists'.....	2	1 65	do hand.....	2	1 00
do smith.....	1	0 60	do blacksmiths'.....	1	7 36
Carried forward.....			Wrench, screw, 12 in.....	2	2 40
			Total.....		430 09

(B.) RETURN OF ALTERATIONS TO MACHINERY.

Date of Order.	No. of Order.	Number and Purpose of Machine.	Specification of Work done.		Amount of Material		Amount of Wages.		Remarks.
			\$ cts.	\$ cts.	\$ cts.	\$ cts.			
1882.									
Aug. 4...	Order 4...	M. 418 <sup>1</sup> Bullet compressing.....			0 95	17 50			The holes in cutting plate as received, unsuitable.
do 19...	do 5...	.....	Putting 24 steel bushes in holes of cutting plate.....						
			Pulley to bore and turn for pug-mill, pump for press; two capping machines; one clay-grinding; shafting ground floor, main building; put pins in couplings and shifters of altered.....	0 48	19 00				These had to be done to hasten fitting in machinery. Carrier & Laine had the contract for this work; failed to do it in time; value struck off their account. The coupling provided could not resist strain of hydraulic press.
Sept. 4...	do 6...	.....	Base-disc gauge and anvil strip stand.....	2 12	18 00				No blacking discs gauge provided with machinery, not estimated for; made in workshop. Anvil strip stand to replace useless appendage on the anvil machine.
Oct. 18...	do 10...	M. 369 Punching and fixing base-cups.....	New punch, new holder and alteration of bottom punch.....	0 61	13 46				The punch and dies supplied with machinery were of too soft steel; only "Vickers" steel will last.
do 18...	do 12...	364 Punching and forming base-discs.....	New punch and alteration to sliding cross-pieces.....	0 15	4 51				To remedy faulty construction.
Nov. 2...	do 15...	264 Countersinking base-discs.....	1 new striker; 1 new hollow punch.....	0 85	26 40				do do do do do do
do 25...	do 18...	265 Pressing component parts together.....	New spindles to feed-plates.....	1 50	85 77				do do do do do do
Jan. 12...	do 22...	388 Wad-pressing machine.....	20 new punches and dies.....	0 30	13 05				do do do do do do
do 22...	do 23...	364 Punching and forming base-discs.....	New dies and alteration of punches.....		3 47				do do do do do do
Feb. 16...	do 25...	4182 Bullet compressing.....	New punches and dies and alterations.....	1 13	107 70				do do do do do do
do 23...	do 27...	385 Pressing component parts together.....	Repairing machine.....		8 91				Caused by faulty construction.
March 21...	do 28...	419 Canneturing machine.....	do		17 01				Caused by bad dies of bullet machine No. 2.
do 27...	do 30...	.....	.....						

## (B.)—RETURN OF ALTERATIONS TO MACHINERY—Continued.

258

Date of Order.	No. of Order.	Number and Purpose of Machine	Specification of Work done.	Amount of Material	Amount of Wages.	Remarks.
1883.				\$ cts.	\$ cts.	
May 4...	Order 35...	365 Countersinking base-discs...	Repairing and making new cam for spindle of drill.....	0 97	22 79	To remedy faulty construction.
do 31...	do 41...	395 Pressing component parts together.....	10 new bell-mouthed dies for service cases.....	2 98	80 45	do
June 5...	do 42...	418 Bullet compressing.....	1 new guide-plate; 24 new bushes for cutting off plate.....	3 00	46 20	do
May 17...	do 49...	.....	Changing 2 slides of 2 rifle-rests and fitting same on slide-guides.....	.....	5 50	do
July 5...	do 53...	M. 365 Countersinking base-discs...	Repairing machine.....	.....	13 30	do
Aug. 17...	do 60...	426 Clay-plug machine.....	New lever (unfinished, still in progress)	0 35	4 40	This was broken through faulty action of the machine.
do 25...	do 63...	419 Canneluring machine.....	Alteration of disc and segment.....	.....	10 35	To suit the form of bullet presently made.
do 29...	do 66...	395 Pressing component parts...	New pawl and altering cam.....	.....	7 40	To remedy faulty construction.
Sept. 12...	do 70...	398 Choking cases machine.....	Re-facing disc and segment (unfinished, still in progress).....	.....	6 30	To suit the form of bullet presently made.
				18 09	574 57	

(C.)  
RETURN OF MACHINERY PROVIDED FOR BLANK AMMUNITION.

259

Date of Order.	No. of Order.	Number and Purpose of Machine.	Specification of Work done.	Amount of Material	Amount of Wages.	Remarks.
1883.				\$ cts.	\$ cts.	
May 21...	Order 36.	M. 394 Rolling and crimping blank	4 Machines converted.....	0 16	21 91	
do 26...	do 38.	395 Pressing parts together.....	10 new bell-mouthed dies (blank cases).	0 75	18 82	
do 26...	do 39.	394 Rolling and Crimping blank	1 machine converted.....	0 46	8 22	
do 30...	do 40.	369 Base-cup piercing.....	2 new punches (1 for blank and 1 for service).....	0 22	5 15	
June 30...	do 48.	388 Pellet pressing.....	New die for blank pellets and altering both punches for same.....	0 30	9 42	
				1 89	63 53	

[D.]

## RAW Material (Special) Received.

		\$	cts.
Fulminate of mercury.....	25 lbs.	47	85
Paper, brown, 90lbs.....	40 reams.	364	13
do 42 ".....	25 "	125	32
do 45 ".....	90 "	309	88
White tissue.....	22 "	17	40
Whited brown.....	9 "	8	40
Shellac (orange).....	728 lbs.	177	94
Brass strips—Outer cup.....	7,047 "	1,057	05
do Inner cup.....	3,820 "	592	05
do Case body.....	10,710 "	1,686	83
do Anvils.....	1,568 "	235	20
do Cap chambers.....	7,963 "	1,194	45
Copper strips—Percussion caps.....	1,561 "	265	37
Iron strips.....	16,428 "	535	38
Glue.....	330 "	32	71
Oil—Linseed.....	34 galls.	23	56
Neatsfoot.....	5 "	3	65
Olive.....	30 "	24	33
Chlorate of potash.....	30 lbs.	6	09
Stockholm tar.....	75 galls.	13	87
Bees wax—Canadian.....	400 lbs.	127	50
do English.....	112 "	32	24
Spirits of wine.....	117 galls.	113	36
Sulphate of antimony.....	17½ lbs.	1	95
Seedlac.....	112 "	43	12
Turmeric.....	112 "	6	82
Lead, pig.....	89,700 "	2,804	55
Coal.....	278 "	1,474	46
Coke.....	13 chaldrons	82	00
Powder—English.....	2,600 lbs.	572	00
do Canadian.....	8,240 "	1,812	80
Oil, machinery.....	120 galls.	82	05
		13,874	31

[E 1.]

## RAW Material (Special) Expended.

		\$	ct
Fulminate of mercury.....	19 reams.	169	88
Paper—Brown, 90lbs.....	33 "	65	98
do 45 ".....	12 "	58	89
do 42 ".....	5 "	3	93
do White tissue.....	1 "	0	93
do Whited brown.....	210 lbs.	51	03
Shellac (orange).....	3,412 "	511	80
Brass strips—Outer cup.....	2,021 "	313	21
do Inner cup.....	5,098 "	802	94
do Case body.....	605 "	90	75
do Anvils.....	3,818 "	572	70
do Cap chambers.....	813 "	138	21
Copper strips—Percussion caps.....	6,027 "	198	02
Iron strips—Base discs.....			
Glue.....	17½ galls.	11	18
Oil—Linseed.....	1 "	0	73
Neatsfoot.....	2 "	1	63
Olive.....			
Chlorate of potash.....	1 gall.	0	19
Stockholm tar.....	124 lbs.	38	10
Bees wax—Canadian.....	112 "	32	24
do English.....	36½ "	28	83
Spirits of wine.....			
Sulphate of antimony.....	112 lbs.	43	12
Seedlac.....	½ "	0	04
Turmeric.....	5,285 "	179	30
Lead, pig.....	225 tons.	1,222	71
Coal.....	10½ chaldrons	64	50
Coke.....	1,450 lbs.	319	00
Powder—English.....	1,580 "	347	00
do Canadian.....	105 galls.	72	67
Oil, machinery.....		5,340	11
Less:—Copper scrap, 357lbs.....		\$ 53	55
Brass do 2,941 ".....		294	10
Iron do 700 ".....		10	50
		358	15
		4,981	96

## (E 2.)

## STOCK on hand.

		\$ cts		\$ cts.
Brass strips, outer cup.....	3,635 lbs.	545 25	Brought forward.....	6,421 04
do inner do.....	1,799 "	278 84	Paper, tissue.....	17 Rs. 13 47
do case-body.....	5,612 "	883 89	do N. B. Manilla,	
do anvils.....	963 "	144 45	Reid's.....	34 " 29 58
do cap-chambers.....	4,145 "	621 75	Powder, English.....	1,150 lbs. 253 00
Brushes, cement, large.....	6		do Canadian.....	6,660 " 1,465 20
do do.....	5 doz.	12 50	Oil, coal.....	40 galls. 11 20
Copper, percussion caps..	748 lbs.	127 16	do linseed.....	16 1/2 " 12 38
Cotton waste.....	22 1/2 "	18 48	do machinery.....	15 " 9 38
do wool.....	90 "	18 00	Oil stones.....	2 0 60
Coal, laboratory.....	23 tons.	109 25	Oil, Neatsfoot.....	4 galls. 2 92
do factory.....	30 "	142 50	do olive.....	28 " 22 70
Coke.....	2 1/2 chald.	17 50	Shellac, orange.....	518 lbs 126 91
Drills, twist.....	49		Steel, machinery.....	7 " 0 35
Dusters.....	4	0 80	do Sanders.....	63 1/2 " 9 52
Emery cloth.....	12	0 30	do Vickars.....	480 " 144 00
Files, varied.....	80	32 40	do drawn.....	1 1/2 " 3 95
Handles, file.....	7	0 35	Scraps, copper.....	357 " 53 55
do lathe.....	12		do brass.....	2,941 " 294 10
Iron, base-discs.....	10,399 lbs.	337 36	do iron.....	700 " 10 50
do flat.....	10 1/2 "	0 30	Seedlac.....	112 " 43 12
Laps, copper.....	2		Turpentine.....	1/4 gall. 0 75
Lead, black.....	1/2 lb.	0 13	Tar, Stockholm.....	7 1/2 galls. 13 68
do pig.....	84,415 lbs.	2,625 25	Turmeric.....	111 1/2 lbs. 6 78
Laps, lead.....	3		Wax, Canadian, No. 1.....	132 " 46 20
Mops.....	6		do do No 2.....	144 " 43 20
Mercury, fulminate of.....			Wine, meth. spirits of.....	80 1/2 galls. 84 53
Paper, 90 lbs.....	21 Rs.	194 25	Whitening.....	272 lbs. 4 77
do 45 lbs.....	66 Rs., 380 sheets.	243 90	Clay, Newcastle.....	1 bag. 2 50
do 42 lbs.....	13 Rs.	66 43	Paper, white brown.....	8 7 47
Carried forward.....		6,421 04		9,137 35

## (F 1.)

## LIST of Salaried Employés

Names.	Rate per Day.
	\$ cts.
William Dixon.....	3 51 1/2
F. E. Knight.....	1 50
Arthur J. Duchesnay.....	1 00
Charles Robitaille.....	2 50
Thomas Lane.....	2 00
Anson G. Ronan.....	2 00
François Hallée.....	2 00
G. Goudie.....	1 00
O. Bolduc.....	1 00
G. Grenier.....	1 00
J. B. Lefebvre.....	1 00
Matté Boucher.....	1 00

## (F 2.)

## LIST of Employés on Piece Work.

	Rate per Day.
	\$ cts.
1 Charles Roy.....	1 08 1/2
2 William Joyce.....	1 00
3 Thos. Douglass.....	0 30
4 Joseph Robichaud.....	0 30
5 Eugenic Genest.....	0 30
6 Delima Genest.....	0 30
7 Delima Tessier.....	0 25
8 Marie Lepine.....	0 20
9 Olive Lepine.....	0 13 1/2
10 Sophie Fiset.....	0 25
11 Emelie Roussel.....	0 15
12 Théophile Rochette.....	0 10
13 Sarah Martel.....	0 5
14 Rose Fiset.....	0 15
15 Louis Robichaud.....	0 20
16 Alex. Wright.....	0 20
17 Josephine Lavallée.....	0 20
18 Clara L'Heureux.....	0 20
19 Zelia Gagné.....	0 15
20 Victor Fiset.....	0 15
21 Isidore Giroux.....	0 15
22 Alphonse Pelletier.....	0 20
23 Leda Pouliot.....	0 20
24 Delina McCarthy.....	0 20
25 Marie Baker.....	0 20

G.  
NOMINAL LIST.

Names.	Employment.	Where Born.	Remarks.
William Dixon.....	Foreman.....	England.....	
F. E. Knight.....	Clerk.....	Canada.....	
Arthur J. Duchesnay .....	do.....	do.....	
Charles Robitaille.....	Mechanic.....	do.....	
Thomas Lane.....	do.....	do.....	
Anson G. Ronan.....	do.....	do.....	
François Wallée.....	do.....	do.....	
G. Goudie.....	do.....	do.....	
Ovide Bolduc.....	Engine man.....	do.....	
Gabriel Grenier.....	Labourer.....	do.....	
J. Bte. Lefebvre.....	Caretaker.....	do.....	
Charles Roy.....	Overlooker.....	do.....	
William Joyce.....	Examiner.....	do.....	
Thomas Douglas.....	Cartridge machinery.....	do.....	
Jos. Robichaud.....	do.....	do.....	
Eugenie Genest.....	do.....	do.....	
Delima Genest.....	do.....	do.....	
Delima Tessier.....	do.....	do.....	
Marie Lepine.....	do.....	do.....	
Olive Lepine.....	do.....	do.....	
Sophie Fiset.....	do.....	do.....	
Emelie Roussel.....	do.....	do.....	
Théophile Rochette.....	do.....	do.....	
Sarah Martel.....	do.....	do.....	
Rose Fiset.....	do.....	do.....	
Louis Robichaud.....	do.....	do.....	
Alex. Wright.....	do.....	do.....	
Josephine Lavallée.....	do.....	do.....	
Clara L'Heureux.....	do.....	do.....	
Zelia Gagné.....	do.....	do.....	
Victor Fiset.....	do.....	do.....	
Isidore Giroux.....	do.....	do.....	
Alphonse Pelletier.....	do.....	do.....	
Leda Pouliot.....	do.....	do.....	
Delima McCarthy.....	do.....	do.....	
Marie Baker.....	do.....	do.....	
Matté Boucher.....	Labourer.....	do.....	

(H)  
PRICES for Piece Work on S. A. Ammunition.

17th September, 1883.

Operations.	Per 1,000.	Operations.	Per 1,000.
<i>Forming Empty.</i>		<i>Anvils.</i>	
	\$ cts.		\$ cts.
Cutting paper.....	0 01 <sup>10</sup> / <sub>100</sub>	Punching.....	0 00 <sup>5</sup> / <sub>100</sub>
do brass into lengths.....	0 01	Cleaning.....	0 00 <sup>10</sup> / <sub>100</sub>
do do widths.....	0 01	Examining.....	0 00 <sup>10</sup> / <sub>100</sub>
Fixing tissue paper on brass.....	0 06	Percentage.....	0 00 <sup>25</sup> / <sub>100</sub>
do brown paper.....	0 08		
Cutting case-pieces.....	0 01	<i>Base-Discs.</i>	
Cementing.....	0 10	Punching.....	0 02
Fixing and punching base-cups.....	0 03	Cleaning.....	0 00 <sup>2</sup> / <sub>100</sub>
Preparing discs and chambers.....	0 02 <sup>3</sup> / <sub>100</sub>	Countersinking.....	0 03
Punching holes in base-cups.....	0 10	Examining.....	0 02 <sup>5</sup> / <sub>100</sub>
Rolling cases.....	0 04	Examining.....	0 02 <sup>5</sup> / <sub>100</sub>
do and fixing cases.....	0 04	Coating with oil.....	0 00 <sup>7</sup> / <sub>100</sub>
Examining cases.....	0 24	Separating.....	0 00 <sup>10</sup> / <sub>100</sub>
Pelleting and fixing cases.....	0 03	Overlooking.....	0 00 <sup>10</sup> / <sub>100</sub>
Riveting and piercing cap-chambers.....	0 05 <sup>5</sup> / <sub>100</sub>	Percentage.....	0 00 <sup>10</sup> / <sub>100</sub>
Inserting paper linings.....	0 08 <sup>10</sup> / <sub>100</sub>		
Cutting down cases for blank.....	0 30	<i>Base-Cups (Inside.)</i>	
Rolling, pelleting and crimping blank.....	0 05	Forming.....	1 01 <sup>5</sup> / <sub>100</sub>
Pressing cases (parts together).....	0 01 <sup>5</sup> / <sub>100</sub>	Cleaning and annealing.....	0 00 <sup>10</sup> / <sub>100</sub>
Overlooking.....	0 08 <sup>10</sup> / <sub>100</sub>	Examining.....	0 05
Percentage.....	0 08 <sup>10</sup> / <sub>100</sub>	Examining.....	0 00 <sup>10</sup> / <sub>100</sub>
		Percentage.....	0 00 <sup>10</sup> / <sub>100</sub>
		Cutting strips.....	0 00 <sup>10</sup> / <sub>100</sub>
<i>Filling and Finishing.</i>		<i>Base-Cups (Outside.)</i>	
Final examination.....	0 05	Forming.....	0 01 <sup>5</sup> / <sub>100</sub>
Cutting paper.....	0 00 <sup>5</sup> / <sub>100</sub>	Cleaning.....	0 00 <sup>7</sup> / <sub>100</sub>
Placing bullets in trays.....	0 02	Examining.....	0 05
Hot gauging and cleaning bullets.....	0 10 <sup>3</sup> / <sub>100</sub>	Examining.....	0 00 <sup>10</sup> / <sub>100</sub>
Filling cases with powder.....	0 03	Percentage.....	0 00 <sup>10</sup> / <sub>100</sub>
Inserting wool and bullet.....	0 17		
Dipping in wax.....	0 02	<i>Cap-Chambers.</i>	
Choking cartridges.....	0 02 <sup>5</sup> / <sub>100</sub>	Forming { 1st Process.....	0 00 <sup>7</sup> / <sub>100</sub>
Turning in tops of paper linings.....	0 04	2nd do.....	0 03
Pressing down the same.....	0 09	3rd do.....	0 03
Crimping top of cases.....	0 04	Trimming.....	0 03
Plating caps and anvils.....	0 02 <sup>5</sup> / <sub>100</sub>	Flanging.....	0 01 <sup>5</sup> / <sub>100</sub>
Capping.....	0 07 <sup>2</sup> / <sub>100</sub>	Overlooking.....	0 00 <sup>5</sup> / <sub>100</sub>
Chamber gauging.....	0 03 <sup>10</sup> / <sub>100</sub>	Cutting strips.....	0 01 <sup>5</sup> / <sub>100</sub>
Packing in bundles.....	0 10	Examining.....	0 00 <sup>10</sup> / <sub>100</sub>
Length gauging.....	0 03 <sup>6</sup> / <sub>100</sub>	Annealing and cleaning.....	0 00 <sup>10</sup> / <sub>100</sub>
Packing in packages, weighing.....	0 4 <sup>2</sup> / <sub>100</sub>	Lacquering.....	0 01
Labelling and stencilling.....	0 14 <sup>3</sup> / <sub>100</sub>	Percentage.....	0 01
Percentage.....	0 14 <sup>3</sup> / <sub>100</sub>		
		<i>Percussion-Caps (Emp'y.)</i>	
<i>Pellets.</i>		Forming.....	0 00 <sup>10</sup> / <sub>100</sub>
Cutting paper into strips.....	0 01 <sup>3</sup> / <sub>100</sub>	Extending.....	0 03
Pasting strips.....	0 01	Trimming.....	0 02
Carrying strips to winders and removing work.....	0 00 <sup>5</sup> / <sub>100</sub>	Overlooking.....	0 01
Winding.....	0 08	Examining.....	0 01 <sup>5</sup> / <sub>100</sub>
Pressing.....	0 02 <sup>5</sup> / <sub>100</sub>	Cleaning and annealing.....	0 00 <sup>5</sup> / <sub>100</sub>
Overlooking.....	0 01 <sup>5</sup> / <sub>100</sub>	Cutting strips.....	0 00 <sup>10</sup> / <sub>100</sub>
Percentage.....	0 01 <sup>2</sup> / <sub>100</sub>	Percentage.....	0 00 <sup>10</sup> / <sub>100</sub>

(H.)

## PRICES of Piece Work on S. H. Ammunition—Continued.

Operations.	Per 1,000.	Operations.	Per 1,000.
<i>Percussion-Caps (Filling.)</i>	\$ cts.	<i>Bullets.</i>	\$ cts.
Mixing composition.....	0 03	Squirting rod-lead.....	0 01 $\frac{1}{2}$
Conveying composition from fulminate buildings.....	0 00 $\frac{7}{10}$	Winding rod lead on machine.....	0 01
Filling.....	0 00 $\frac{3}{10}$	Making { 1st Operation.....	0 01
Pressing and finishing, &c.....	0 04 $\frac{1}{10}$	{ 2nd do.....	0 02
Overlooking.....	0 01	Sorting blanks (old machine).....	0 01
<i>Clay-Plugs</i>		Canneluring.....	0 01
Making complete.....		Rectifying, &c.....	0 04
Grinding clay.....	0 00 $\frac{5}{10}$	Sorting and packing.....	0 01 $\frac{1}{2}$
Forming plugs.....	0 03	Work-taker and sweeping.....	0 01 $\frac{1}{2}$
Baking plugs.....	0 00 $\frac{3}{10}$	Overlooking.....	0 01 $\frac{1}{2}$
Gauging and waxing.....	0 00 $\frac{1}{10}$	Mechanics, repairing machines, dies, punches, &c.....	0 05 $\frac{1}{2}$
Percentage.....	0 00 $\frac{3}{10}$	Pressing in clay-plugs.....	0 06

(J.)

## RETURN of Ammunition Manufactured up to Date.

	Ball.	Blank.	Percussion Caps.
Issued Storekeeper as per his receipts.....	69,720	128,900	
Remaining on hand (filled).....	6,000	17,000	
do do.....			4,000
<b>Total.....</b>	<b>75,720</b>	<b>145,900</b>	<b>4,000</b>
Ready for filling.....	150,200		
Partly finished.....	132,000		
<b>Total.....</b>	<b>282,000</b>		

Proceedings of a Board of Survey assembled at the Militia Office, Quebec, by order of the Hon. the Minister of Militia and Defence, dated at Ottawa on the 6th of October, 1883, for the purpose of testing without delay and reporting fully on the cartridges manufactured at the Government Cartridge Factory, at Quebec, under the superintendence of Major Prévost:

President:

Lieut.-Col. T. J. Duchesnay, D.A.G., 7th Military District.

Members:

Lieut.-Col. E. B. Beer, 74th Batt.

Lieut.-Col. E. G. Scott, 8th R.R.

Major C. J. Short, B.B., R.S.C.

Capt. H. F. Perley, H.Q. Staff.

Capt. G. H. Balfour, 8th R.R.

Capt. E. A. Macnachten, C.G.A.

The Board, pursuant to order assembled on the 8th, 9th, 10th and 11th of October, 1883, and proceeded to carry out the orders conveyed in the letter of the 6th of October, inst.:

1st. By a minute inspection of the manufacture of the cartridges in the Dominion Factory, in detail.

2nd. By testing 90 rounds of the above ammunition at 500 yards, from a Whitworth fixed rest.

Diagrams of these practices are annexed to the proceedings.

3rd. By testing at the same time, for comparison, 20 rounds each of 1877 and 1882, No. 9 ammunition, manufactured at Woolwich.

Diagrams of these practices are also annexed.

4th. By testing in individual shooting at the Lévis Rifle Range, with a squad of 16 men at 200, 500 and 600 yards, 144 rounds at each range, of the Dominion ammunition.

*Opinion.*

The Board are of unanimous opinion—

1st. That the process of manufacture of the Dominion cartridges is perfectly satisfactory, the greatest care being taken in overlooking and testing the component parts of each cartridge, by which the slightest defect or blemish must be discovered; that the powder used is the R.F.G., Waltham Abbey, such as is used at Woolwich in the manufacture of Snider Ball Cartridges.

2nd. That the tests from the Whitworth fixed rests, of the Dominion Ammunition, were quite satisfactory, the result as shown on the annexed diagrams being that the variation was much within the limit of the Woolwich test.

3rd. The Dominion Ammunition gave a better result than the English No. 9 of the years 1877 and 1882, from a fixed rest at 500 yards—as shown on the accompanying diagrams.

4th. The result of the individual shooting on the Lévis Range, at 200, 500 and 600 yards, by the squad of sixteen men from "A" Battery C.A., and the 8th Royal Rifles, satisfied the Board of the uniform strength and quality of the Dominion Ammunition. Therefore, the Board have no hesitation in recommending the Dominion Ammunition for issue and general use in Canada.

The Board, in conclusion, have much pleasure in testifying to the superior qualifications of the Superintendent of the Dominion Cartridge Factory, Major Prévost, who afforded them every facility in furthering their investigations.

Signed at Quebec, this 11th day of October, 1883.

T. J. DUCHESNAY, Lt. Col.,

D.A.G., M.D. No. 7, President Board of Survey.

Edwin B. Beer, Lieut.-Col., Commanding 74th Battalion.

E. G. Scott, Lieut.-Col., Commanding 8th R.R.

Charles J. Short, Major, "B" Battery, R.S.C.

H. F. Perley, Capt., H.Q. Staff.

G. H. Balfour, Capt., 8th R.R.

E. A. Macnachten, Lieut., C.G.A.

