



CANADA

DEPARTMENT OF FINANCE

REPORT

of the

MASTER OF THE ROYAL CANADIAN MINT

For the Calendar Year

1947

Published by Authority of Hon. D. C. ABBOTT, M.P.,
Minister of Finance

OTTAWA
EDMOND CLOUTIER, C.M.G., B.A., L.Ph.,
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
CONTROLLER OF STATIONERY

1948

ROYAL CANADIAN MINT

OTTAWA, ONTARIO,

February 21, 1948.

The Honourable,
The Minister of Finance,
Ottawa, Ontario.

SIR:
I have the honour to submit the following report on the operations of the Royal Canadian Mint during the calendar year 1947.

COINAGE

There was a decrease of \$583,700 in the amount of coin issued during 1947 as compared with the previous year. A detailed statement of the issues by denominations for the years 1946 and 1947 is set out below:—

Denomination	Coin issued in	
	1946	1947
	\$	\$
SILVER COIN—		
1 dollar.....	91,000.00	67,000.00
50 cents.....	400,000.00	278,000.00
25 cents.....	556,000.00	397,000.00
10 cents.....	654,000.00	444,000.00
Total Silver.....	1,701,000.00	1,186,000.00
NICKEL COIN—		
5 cents.....	291,500.00	391,000.00
BRONZE COIN—		
1 cent.....	528,500.00	360,300.00
Total.....	2,521,000.00	1,937,300.00
Representing.....	Number of Pieces	
	68,335,000	50,501,000

In addition, the following coinages were executed for the Government of Newfoundland:—

Denomination	Value	Number of Pieces
	\$	
SILVER COIN—		
10 cents.....	11,973.60	119,736
5 cents.....	15,537.50	310,750
Total Silver.....	27,511.10	430,486
BRONZE COIN—		
1 cent.....	3,137.72	313,772
Total.....	30,648.82	744,258

Distribution of the coin issued to the various Agencies of the Bank of Canada was as follows:—

—	Silver				Nickel	Bronze
	Dollar \$	50 Cents \$	25 Cents \$	10 Cents \$	5 Cents \$	1 Cent \$
Calgary.....		4,000.00	4,000.00	36,000.00	31,000.00	25,200.00
Charlottetown.....					1,000.00	
Halifax.....	2,000.00		2,000.00	2,000.00	6,000.00	6,500.00
Montreal.....	14,000.00	2,000.00	52,000.00	50,000.00	65,000.00	97,000.00
Ottawa.....	9,000.00	2,000.00	79,000.00	38,000.00	22,500.00	10,900.00
Regina.....		36,000.00	24,000.00	28,000.00	37,000.00	23,500.00
St. John.....		2,000.00	32,000.00	16,000.00	16,000.00	10,500.00
Toronto.....	36,000.00	162,000.00	134,000.00	226,000.00	110,500.00	139,700.00
Vancouver.....		70,000.00		34,000.00	58,000.00	18,000.00
Winnipeg.....	6,000.00		70,000.00	14,000.00	44,000.00	29,000.00
Total.....	67,000.00	278,000.00	397,000.00	444,000.00	391,000.00	360,300.00

Worn and mutilated coin withdrawn from circulation:—

—	Withdrawn	Net Increase in Circulation
	\$	\$
Silver Coin.....	80,563.50	1,105,436.50
Nickel Coin—5 cents (mutilated only).....	986.40	390,013.60
Tombac Coin—5 cents.....	286,797.70	
Steel Coin—5 cents.....	201.45	
Bronze Coin.....	2,519.55	357,780.45

GOLD BULLION

Four thousand and thirty-three deposits gold bullion were received at the Mint during the year from Canadian Mining Companies, the Dominion of Canada Assay Office, Vancouver, and sundry persons. The gross weight of the deposits amounted to 3,559,497 ounces, containing by assay 2,868,469 ounces fine gold and 411,629 ounces fine silver. The receipts show an increase as compared with the year 1946 of 457 in the number of deposits, gross weight 288,251 ounces, gold content 216,224 ounces fine and fine silver 39,034 ounces.

The net amount paid by cheque to depositors was \$97,467,163.78. In addition, 12,558.323 ounces of fine gold with a statutory value of \$259,603.97 was also issued in payment of gold deposits.

Postage collected for the Postmaster General on deposits shipped by mail postage collect, amounted to \$17,810.37.

Details of the origin of the bullion deposited at Vancouver and Ottawa are shown in the following table:—

Source	Gross Weight	Fine Gold	Fine Silver
	Ounces	Ounces	Ounces
From Canadian Mines and Refineries—			
Ontario.....	2,247,383.904	1,828,959.546	243,677.74
Quebec.....	885,385.675	719,195.467	105,723.34
British Columbia.....	164,422.215	128,370.155	25,383.65
Manitoba.....	84,487.575	65,525.044	6,605.53
Yukon.....	59,740.325	47,680.003	9,699.04
Nova Scotia.....	1,286.800	1,163.282	44.40
North West Territories.....	83,870.090	60,508.658	16,143.13
Alberta and Saskatchewan.....	119.870	81.447	16.92
Total from Mines and Refineries...	3,526,696.454	2,851,483.602	407,293.75
From Jewellery and Scrap.....	34,333.849	17,265.341	4,405.29
GRAND TOTAL.....	3,561,030.303	2,868,748.943	411,699.04

A detail of the fine gold issued in the form of trade bars to the Bank of Canada, and granulated, sweep and medals to sundry persons is shown hereunder:—

	Ounces Fine
6,811 Trade Bars to Bank of Canada.....	2,724,800.999
Depositors.....	12,558.323
Sales to Manufacturers.....	113,834.606
Proof Plate.....	0.500
Medals.....	16.433
Sweep.....	7,873.357
	<u>2,859,084.218</u>

This total shows an increase of 193,119.455 ounces fine as compared with the year 1946.

COINAGE AND MEDAL DEPARTMENT

The great urgency of the demands for coin for general circulation which has been so much in evidence during the past eight years has apparently abated considerably, as the number of good coins produced in 1947 was only 45,888,843 compared with the output of 73,168,921 in 1946 and 114,435,791 in 1945. However, 1947 production greatly exceeded the number of coins executed in any year previous to the War of 1939-45.

Operations were actively pursued on two shifts throughout the year in connection with the striking of Medals and Campaign Stars, clasps and Overseas Bars, for the various services on behalf of the Department of National Defence. To meet the general desire that medals should be made available in reasonable time, any machines and equipment in the Operative Division that could be freed from the main requirements of coinage work, were adapted to process the initial stages of medals and stars. Thereafter, they were passed to the Medal Branch proper, for the finishing, assembling, inspection and packing.

The two following statements give the number of good coins of all denominations produced in 1946 and 1947, and the number of completed medals and stars, etc., ready for issue:—

COINAGE

	1946	1947
	Pieces	Pieces
DOMINION OF CANADA		
SILVER (800 fine)—		
1 dollar.....	93,055	65,595
50 cents.....	950,235	424,885
25 cents.....	2,210,810	1,524,554
10 cents.....	6,300,066	4,431,926
NICKEL—		
5 cents.....	6,952,684	7,603,724
BRONZE—		
1 cent.....	56,662,071	31,093,901
Canadian Total.....	73,168,921	45,144,585
NEWFOUNDLAND		
SILVER (800 fine)—		
10 cents.....		119,736
5 cents.....		310,750
BRONZE—		
1 cent.....		313,772
Newfoundland Total.....		744,258
Total Canadian and Newfoundland.....	73,168,921	45,888,843

MEDALS AND CAMPAIGN STARS

Description	1946	1947
Canadian Volunteer Service Medals—		
800 and 925 fine silver.....	139,900	258,100
Clasps to Canadian Volunteer Service Medals—		
800 and 925 fine silver.....	157,480	364,095
Overseas Bars to Canadian Volunteer Service Medals—		
800 and 925 fine silver.....	36,950	218,050
CAMPAIGN STARS (Bronze)—		
1939-45.....		92,868
France and Germany.....		68,905
Italy.....		33,602
Atlantic.....		40,319
Aircrew Europe.....		12,306
Africa.....		4,135
Burma.....		5,745
Pacific.....		8,456
		266,336
SECOND AWARD BARS TO CAMPAIGN STARS—		
Battle of Britain.....		59
Atlantic.....		8,839
Aircrew Europe.....		1,009
North Africa.....		4,084
Pacific.....		999
Burma.....		934
France and Germany.....		10,009
		25,933

Details of the weights of bullion and metal melted, cast into bars, rolled into the gauged fillets, blanks cut, and the good coins and medals produced in 1947, are summarized in the following tables:—

COINAGE

—	Bars Cast	Bars Rolled	Blanks Cut	Good Coin Produced
CANADA	Ounces	Ounces	Ounces	Ounces
SILVER (800 fine)—				
1 dollar.....	111,183.80	116,840.38	50,585.98	49,253.81
50 cents.....	271,782.40	319,413.60	202,818.24	159,429.04
25 cents.....	173,185.80	437,454.70	319,239.74	286,245.22
10 cents.....	625,008.10	555,050.00	316,684.84	332,105.02
Total Silver.....	1,181,160.10	1,428,758.68	889,328.80	827,033.09
NICKEL—	Pounds	Pounds	Pounds	Pounds
5 cents.....				76,221.21
BRONZE—				
1 cent.....	305,960.00	331,886.18	222,210.82	221,760.00
NEWFOUNDLAND	Ounces	Ounces	Ounces	Ounces
SILVER (800 fine)—				
10 cents.....				8,969.20
5 cents.....			4,324.10	11,596.78
			4,324.10	20,565.98
BRONZE—	Pounds	Pounds	Pounds	Pounds
1 cent.....				2,240.00
	Short Tons	Short Tons	Short Tons	Short Tons
	193.5	214.9	141.7	140.9

MEDALS

—	Bars Cast	Bars Rolled	Blanks Cut	Finished Medals, etc.
SILVER (800 and 925 fine)—	Ounces	Ounces	Ounces	Ounces
Canadian Volunteer Service Medals.....	964,021.63	877,827.55	434,129.37	} 299,396.00
Clasps.....	94,952.77	94,952.77	37,981.11	
Overseas Bars.....	92,001.20	92,001.20	16,946.45	
	1,150,975.60	1,064,781.52	489,056.93	313,368.00
CAMPAIGN STARS—	Pounds	Pounds	Pounds	Pounds
Eight Stars.....	86,630.50	69,058.22	22,039.76	10,653.00
Seven Award Bars to Campaign Stars.....		462.99	165.96	72.25
	86,630.50	69,521.21	22,205.72	10,725.25
	Short Tons	Short Tons	Short Tons	Short Tons
	82.9	71.3	27.8	16.2

Melting House:

Additional melting work done consisted of 53,261.00 ounces of worn and mutilated silver coins which were withdrawn from circulation. These coins were cast into ingots for assay purposes, to be converted later into 800 standard coinage bars.

Worn and mutilated bronze-cent coins amounting to 2,915.80 pounds, and 2,808,200 five-cent coins weighing 28,082.00 pounds, which were taken out of circulation, were also melted down and cast into coinage bars for one-cent pieces.

Rolling Room:

In this room the total weight of silver and bronze fillets, gauged to the thickness of the various denominations of coins, and for medals, campaign stars, clasps and overseas bars, was 286.2 tons.

Extra rolling consisted of the following:—

- (1) 1,196 ounces of fine silver for 26 grain, 10 grain and $2\frac{1}{2}$ grain discs for the Assay Office;
- (2) 182 ounces fine gold proof plate for the Assay Office;
- (3) 60 ounces fine silver proof plate for the Assay Office;
- (4) 1,291 pounds of lead bars for the Assay Office;
- (5) 281 ounces of 800 silver for the Dominion Observatory;
- (6) 1,460 pounds of $3\frac{1}{2}$ " bronze bars for the National War Finance Committee Medals.

Cutting Room:

Extra work in the Cutting Room consisted of cutting the discs and blanks from the bars and fillets as they were gauged in the Rolling Room, mentioned in the foregoing paragraph.

The three existing cutting presses used on coinage work were quite inadequate to cut the stars and larger blanks, and as new presses were not available, the tri-cutter and a large shearing machine were fitted with the proper tools and adapted for cutting and trimming medals, stars, clasps and overseas bars.

In an effort to provide the Press Room with perfect blanks, a portable examining belt with individual motor was designed and made in the machine shop. The blanks are subjected to a more thorough examination by passing each blank over this machine to pick out defective pieces.

Annealing Room:

Rapid tarnishing of the bronze annealed blanks became very troublesome during the year and the whole process of washing was changed which, with the addition of a burnishing barrel, containing a special solution, resulted in greatly improved work going to the Press Room.

Press Room:

The table below shows the average production of coins per pair of dies for 1947, compared with similar figures for 1946:—

Denomina- tion	1946				1947			
	Number of Good Pieces Coined	Number of Dies Used		Pieces per Pair of Dies	Number of Good Pieces Coined	Number of Dies Used		Pieces per Pair of Dies
		Obv.	Rev.			Obv.	Rev.	
Dollar.....	93,055	48	35	2,215	65,595	11	17	4,685
50 cents....	950,235	24	30	35,194	424,885	8	5	65,367
25 cents....	2,210,810	46	78	35,658	1,524,554	32	29	49,985
10 cents....	6,300,066	193	169	34,807	4,431,926	136	111	35,886
5 cents....	6,952,684	75	84	86,909	7,603,724	99	93	79,205
1 cent.....	56,662,071	200	168	307,946	31,093,901	175	134	201,255
	73,168,921	586	564		45,144,585	461	389	
	Average per pair of dies.....			127,250	Average per pair of dies.....			106,222

The second drop-hammer was installed during the year and a swedging machine for use on Campaign Stars.

Four presses were used to strike the first and second impressions on the Canadian Volunteer Service Medals when relaxation of coinage demands permitted. As a result of the installation featuring the single lift ejector device on three presses, the production of medals daily has increased 100 per cent over the original estimation.

The two drop-hammers were continuously busy striking Campaign Stars, Clasps and Overseas Bars. They have only a capacity of 4,000 units daily on two shifts, operating in conjunction with two trimming machines and one swedging machine, to produce the same number of pieces.

Die and Medal Branch:

The total number of matrices, punches and dies engraved and prepared for coinage and medal work are detailed below:—

	Obverse	Reverse
Coinage, Matrices, Punches, Dies.....	492	456
Star Dies of Light Types.....	16	3
C.V.S.M. Dies.....	210	153
Governor-General Medal Dies.....	1	1
Secretary of State Die.....	1	0
Professional Institute Medal.....	1	1
Engineering Institute Medals.....	2	2
National Physical Fitness.....	1	1
Clasp Dies for C.V.S.M.....	39	35
Overseas Bar Dies (C.V.S.M.).....	35	32
Campaign Bar Dies (Star).....	5	1

New master dies were made for the following medals:—

- Professional Institute of the Civil Service of Canada;
- National Amateur Athletic Achievement Award;
- The Ross Medal for the Engineering Institute of Canada;
- The Keefer Medal for the Engineering Institute of Canada;
- Crest for the Governor-General's Medal.

The above dies were engraved direct in the steel by the Mint Engraver from designs submitted by the Departments of Government and other organizations concerned. The Seal of the Secretary of State was also engraved by the Mint Engraver.

The balance of the working punches from which the dies are made were received from the Royal Mint, London, early in the year, for striking the eight kinds of Campaign Stars, viz.: 1939-45; France and Germany; Italy; Atlantic; Aircrew Europe; Africa, Burma and Pacific Stars.

Punches were also received from the Royal Mint, London, for the seven Second Award Bars to the Campaign Stars mentioned above, excepting the 1939-45 Star, for which no second award clasps are necessary. When a clasp is awarded to one of the Campaign Stars, denoting the award of another Star, this further award will be shown as a bar, suitably inscribed, which will be attached to the ribbon of the first star earned. For example, if an individual has qualified for the Aircrew Europe and France and Germany Stars, the latter will be noted by a bar inscribed "France and Germany" attached to the ribbon of the Aircrew Europe Star.

The issue of the total requirements for the above Bars has been completed, and a proportionate issue of each Star, numbering 266,336 of the total required of 658,000, has also been made.

At the request of His Excellency, the Viscount Alexander of Tunis, the Governor-General's Medals were struck from dies prepared in England. There were 194 bronze, 56 sterling silver and 9 gold (silver gilt) medals, 2 1/16" diameter, struck as awards to students attaining the highest academic standing at Canadian Universities. The obverse design bears the conjoint busts of Their Excellencies, facing right, surrounded by the inscription "HIS EXCELLENCY THE GOVERNOR-GENERAL AND LADY ALEXANDER" and on the reverse are engraved the Ensigns Armorial of His Excellency The Viscount Alexander of Tunis. Illustrated on Plate I.

The Professional Institute of the Civil Service of Canada requested the Mint to execute new designs for the Professional Institute Medal, to be awarded to scientific, professional or technical workers belonging to the Dominion or Provincial Civil Service, for outstanding contributions to science or other fields of endeavour. Obverse and reverse master dies were engraved by hand by the Mint Engraver. The obverse design depicts the northern hemisphere on a globe in high relief, surrounded by the inscription "PROFESSIONAL INSTITUTE OF THE CIVIL SERVICE OF CANADA—1920"—above, a Canadian beaver; below, a riband with the words "WE SERVE THE STATE," with branches of maple and laurel leaves on each side. On the reverse is engraved a view of the Peace Tower from between pillars of the East Block, surrounded by the words "THE PROFESSIONAL INSTITUTE MEDAL," in the exergue "FOR MERITORIOUS ACHIEVEMENT—AWARDED TO . . ." with space left for engraving the name of the recipient. The designs are illustrated on Plate II.

Four 14 carat gold medals were struck, 2" diameter, two of which were engraved with the recipient's name, as follows:—

"Otto Maass, O.B.E., Ph.D., LL.D., F.H.S., 1947."

"James Hamilton Lowther, 1947."

The Department of National Health and Welfare requested the Mint to furnish sketches of appropriate designs for a gold medal to be known as the National Amateur Athletic Achievement Award. After the most suitable design was selected by members of the National Council on Physical Fitness, the obverse and reverse master dies were engraved by hand by the Mint Engraver.

The medal bears on the obverse, the Armorial Bearings of the Dominion of Canada, surrounded by a garter of entwined maple leaves, the whole encircled by the title or inscription "NATIONAL AMATEUR ATHLETIC ACHIEVEMENT AWARD"; below, a scroll engraved with the motto in French, "QUE LA VOIE SOIT OUVERTE AU TALENT". And on the reverse "PRESENTED BY THE NATIONAL COUNCIL ON PHYSICAL FITNESS TO.....FOR OUTSTANDING ACHIEVEMENT IN AMATEUR ATHLETICS," surrounded by a series of sprays of laurel leaves. Illustrated on Plate III.

One 14 carat gold medal 2 1/16" diameter, was struck during the year engraved with the name of the recipient—"Barbara Ann Scott—1947."

Fifteen Bronze specimen medals of this award were also struck for the Department of National Health and Welfare.

Two additional awards were authorized by the Engineering Institute of Canada and dies were engraved for the new Keefer Medal and the Ross Medal. The medals are similar in design to the other Engineering Institute Medals; the Keefer Medal being awarded for the best paper on a civil subject and the Ross Medal for the best paper on an electrical subject.



PLATE I



PLATE II



PLATE III

Nine 10 carat gold medals and three in toned bronze were issued to the Engineering Institute of Canada, engraved as follows:—

- 1 Gzowski Medal,
"J. G. G. Kerry, 1946."
- 1 Plummer Medal,
"W. J. Tomlinson, 1946."
- 1 Leonard Medal,
"George Gedge, 1946."
- 3 Ross Medals,
"R. A. H. Hayes, 1944,"
"S. T. Fisher, 1945,"
"A. B. Hunt, 1946."
- 3 Keefer Medals,
"M. V. Sauer, 1944,"
"R. M. Hardy, 1946,"
"E. D'Appolonia, 1946."
- 1 Sir John Kennedy Medal,
"Lorne A. Campbell."
- 2 Julian C. Smith Medals,
"Charles Camsell,"
"John B. Challies."

Four gold medals were issued to the Royal Society of Canada, engraved with the recipient's name, as follows:—

- 1 Flavelle Medal, 14 kt. gold,
"G. B. Reed, 1947."
- 1 Henry Marshall Tory Medal, 18 kt. gold,
"E. F. Burton, 1947."
- 1 Willet G. Miller Medal, 18 kt. gold,
"F. H. McLearn, 1947."
- 1 Tyrrell Medal, fine gold,
"A. R. M. Lower, 1947."

Sixty-one Long Service and Good Conduct Medals were struck in fine silver, each mounted with clasp and ribbon, for the Royal Canadian Mounted Police. The name of the recipient was engraved on the edge of each medal.

Five hundred and eighty-four 3" bronze Medallions were struck and toned for the National War Finance Committee, with the name of the recipient engraved on the reverse.

One John Webster Medal for Good Airmanship was struck in bronze, $2\frac{1}{4}$ " in diameter, at the request of the Department of Transport, Civil Air Division. It was awarded to Charles W. Wilson, Vancouver, B.C., whose name was later engraved on the medal.

A great variety of punches, cutters, plates, jigs, bolsters and tools used for the cutting, swedging, trimming and mounting operations were made under the supervision of the Mint engraver.

During the year many labour saving devices were invented, tools, jigs and dies redesigned and new processes introduced in the manufacture of Canadian Volunteer Service Medals, Campaign Stars, etc., resulting in considerable economy of labour and costs, as well as speeding up the production of these units in the Medal Branch.

Mechanical and Electrical Services:

Maintenance repairs and renewals of all machines and equipment in the Melting Branch and Coining Division are tending to increase through continuous heavy pressure of work during the past ten years. A recapitulation of the various jobs performed by the artificer and electrical staff for all branches of the Mint

service to maintain equipment in good condition and machinery operating efficiently shows a total of over 2,000 different items, in addition to work on dies and tools.

These duties included much heavy work grinding rolls, refitting bearings, installing safety switches and starters on the rolling mills, the overhaul of the coining presses, machining and fitting bronze and steel knuckles, feed fingers, guides, striking blocks, stoops, bolsters, crankshafts, and clutches repaired on coining presses. In the annealing room new lead-lined tanks, copper colanders, and one hundred cast iron annealing pots were reconditioned, and eighty new ones machined, with aluminum and stainless steel equipment in the acid blanching room, bright-dipping Campaign Stars. One hundred and fifty moulds for one-cent coinage bars and for the Canadian Volunteer Service Medal Bars were made for the Melting House.

Work in connection with the new tools for cutting, striking and trimming the Campaign Stars, was carried out successfully. After much difficulty, an old shearing machine was revamped for cutting the blanks. There were no other machines available which were heavy enough to cut out the star shaped blanks. A complete overhaul was required, repairing of gears, new shaft, bed and cutting punch holders made, and ejector device designed, before it could be converted for use as a blanking cutter.

A gas furnace complete with new burner, air and gas lines, was made and installed in the Assay Office.

The worm gear speed reduction unit on the Mixer in the Refinery was repaired.

New electric wiring and lighting was installed in the basements of the Mint Office and Assay Office, replacing the old wiring which was becoming a hazard.

A modern electroplating rectifier was purchased for chromium plating and the old generator plant dismantled. The new equipment is more accurate for the critical operations required of chrome-plating and increases the range of the size of articles needing protection from wear, such as large dies, gears, collars and cutters.

Safety guards on all working parts where there is any danger to workmen have been installed, motors equipped with the latest safety switches and starters, safety power panels erected and every precaution taken to safeguard the health and welfare of the staff.

Miscellaneous:

The National Film Board entertained the entire staff of the Mint on two occasions by showing a number of reels of moving pictures.

The number of craftsmen and apprentices in the Mechanical Branch, Coining and Medal Department, remained fairly constant during the year, about 200.

Assay Department:

The number of assays made in the Department from January 1 to December 31, 1947, was as follows:—

GOLD—

Refinages.....	5,225
Rough Gold.....	22,134
Proofs.....	2,529
Parting Proofs.....	687
Parting Buttons.....	8,357
Miscellaneous.....	1,529

SILVER—	
Standard Bars.....	1,185
Medal Bars.....	1,173
Pyx.....	504
Newfoundland Coinage.....	16
Fine Silver.....	493
Worn Coin Ingots.....	146
Jump Rings for Medals.....	32
Proofs.....	669
Miscellaneous.....	23
	4,241
MISCELLANEOUS—	
Mint Residues (Sweep, etc.).....	458
For the Marking Act Inspector.....	243
Commercial.....	4
Nickels, Coppers, etc.....	39
	744
Total.....	45,446

The mean finesses of the Silver Coinage struck in 1947 were as follows:—

Denomination	Standard Fineness	Mean Fineness
1 dollar.....	800.00	799.99
50 cents.....	800.00	799.25
25 cents.....	800.00	799.36
10 cents.....	800.00	799.62

Some coinage for the Government of Newfoundland was undertaken during the year. The mean finesses of the coins assayed are given below:—

Denomination	Standard Fineness	Mean Fineness
10 cents.....	800.00	799.77
5 cents.....	800.00	800.65

During the year ending December 31, 1947, 4,033 deposits were received in the Mint. The gross weight of this bullion was 3,559,496.703 and consisted of the following:—

FINE GOLD—

273 deposits weighing 570,998.104 ounces of a mean fineness of 997.249.

CRUDE BULLION—

3,294 deposits; 2,883,769.750 ounces of an average fineness of 771.301 gold, 147.431 silver and containing 8.126 per cent base metal.

SCRAP (Jewellery and Dental)—

325 deposits weighing 30,220.809 ounces at an average fineness of 507.197 gold and 135.262 silver.

FROM VANCOUVER ASSAY OFFICE—

141 ingots; 74,508.040 ounces gross at 798.025 gold and 154.678 silver.

Two working trial plates, one each of gold and silver, were made and fixed against our standards.

One-half ounce of gold proof and 24 ounces of silver proof was sold.

Thirty-four ounces of fine silver and 32.033 ounces fine gold were especially refined and assayed for the National Research Council.

Samples from 29 lots of nickel blanks (5,800,000 pieces) were assayed and found to satisfy specifications.

A number of medals of various finenesses were electroplated for the Operative Department.

REFINERY DEPARTMENT

Tellurium in Fine Silver:

For many years the Mint has produced silver which is fit only for casting, being unsuitable for any form of milling despite its high fineness (999.5). A gravimetric determination has recently shown that a sample of Refinery silver chloride before reduction contained 0.011 per cent tellurium, 0.0043 per cent phosphorus and a trace of selenium. After reduction the percentage of tellurium rose to 0.019 per cent and the phosphorus diminished to 0.0012 per cent. This shows that not only is tellurium incompletely removed from the deposits by the chlorination process, but that this refractory element is also picked up from the cast iron plates which have hitherto been used for reduction. As there is no metallurgical laboratory at the Mint, an experimental furnace has been built in the silver melting room and with its aid we have discovered how to make our silver fit for coinage. It is hoped later to speed up the process by the use of a nitre gun, the ultimate object being the formation of tellurium dioxide (TeO_2), which is afterwards readily eliminated. The minerals in the gold bearing ores from which tellurium is derived are sylvanite ($\text{Au, Ag} \text{Te}^2$), petzite ($\text{Ag, Au} \text{Te}^2$), altaite ($\text{Ag, Au, Pb} \text{Te}^2$) and hessite (Ag^2Te). Some of the tellurium forms chloride during our process, but the last traces have hitherto been very difficult to remove.

To prove the success of our research work, the following exhibits were produced:—

- (a) Fine silver rolled to half the thickness of a ten cent piece;
- (b) Standard silver 800 fine;
- (c) Standard silver rolled to coin thickness;
- (d) Blanks from the new silver;
- (e) Coins from the new silver.

Modern Melting:

Forced draught furnaces and manual stirring are still in use at the Mint for the melting and mixing of gold bullion. Modern high frequency furnaces have so many outstanding advantages that our present methods appear completely out-of-date. The electro-magnetic forces stir the liquid metal so effectively that segregation of the elements is impossible, while such difficult refractories as nickel and tellurium are melted so quickly and mixed so thoroughly there is no contamination.

In addition to this, increased speed and flexibility are combined with a low working temperature, assuring more comfortable working conditions which increase the skill and morale of the operator.

Plans for the introduction of these induction furnaces have already been made, but unfortunately most of the equipment necessary is manufactured in the United States and the installation of the furnaces must be postponed owing to the dollar situation.

Post-war Shortages:

Owing to strikes, world shortages and other causes, our supply of such essentials as chlorine, borax, sodium carbonate, bone ash and chlorination tubes ceased altogether at various times during the year. Considerable ingenuity was necessary to surmount these shortages, but each was successfully tackled, either by experimenting with substitutes or exploring fresh markets.

Miscellaneous:

Three separate consignments of gold were melted and cast into standard Canadian bars for the Bank of Canada.

Lot I—42,929.282 ounces fine gold.

Lot II— 2,134.600 ounces gross.

Lot III—53,764.750 ounces gross.

A series of bullion melts was made for the Bank of Commerce and cast into bars of specified weights.

Experimental work was carried out on fourteen carat medal alloy and a very satisfactory result was achieved with gold, copper and zinc.

In order to compare methods of refining and sweep sampling, a visit was paid to the International Nickel Company's plant at Copper Cliff, with results satisfactory to both sides.

Steel coins withdrawn from circulation by the Finance Department were destroyed in the presence of a representative of that Department and on December 19, thirteen watch cases and eight rings seized by the Mounted Police were destroyed before the eyes of a representative of the Customs and Excise Division.

The work of the Refinery during the year is reflected in the following details:—

BULLION

Source	Number of Deposits	Fine Gold	Fine Silver
		Ounces	Ounces
Mines.....	3,567	2,793,681.807	396,318.34
Vancouver Assay Office.....	141	59,459.291	11,524.75
Miscellaneous.....	325	15,327.913	3,785.52

Refined and Delivered	Number	Gross Weight	Fine Weight	Average Assay
		Ounces	Ounces	
Fine Gold Bars.....	6,672	2,675,512.304	2,668,163.137	997.2
Granulated Gold.....		130,947.400	130,922.333	999.8
Fine Silver Bars.....	330	372,412.64	372,196.41	999.4
Granulated Silver.....		2,135.70	2,134.63	999.5

BULLION—*Concluded*

Received for Disposal	Sources	Gold Fine	Silver Fine	Platinum Fine
		Ounces	Ounces	Ounces
Granulated Gold.....	Mint Office	147·281		
Silver Medal Scrap.....	Mint Office		280·36	
Gold Medal Scrap.....	Mint Office	78·014		
Granulated Silver.....	Mint Office		101·97	
Jewellery Scrap.....	Various			0·825
Special Processes	Number	Gross Weight	Fine Gold	Fine Silver
			Ounces	Ounces
Re-melts.....	445	361,071·255		
Toughenings.....	9	6,521·175		
Sweeps.....	36	97,310·0 lbs. av.	9,956·03	36,511·17
Chloride.....		371,582·28 lbs.		

DOMINION OF CANADA ASSAY OFFICE, VANCOUVER, B.C.

The sum of \$2,081,867.67 was disbursed for gold bullion purchases and the following shows source, weights, etc., of the deposits:—

Source	Number of Deposits	Gross Weight	Fine Gold	Fine Silver
		Ounces	Ounces	Ounces
Yukon Territory.....	240	59,708·05	47,663·417	9,697·18
British Columbia.....	216	12,069·94	10,034·612	1,255·84
Alberta and Saskatchewan...	9	112·72	76·141	16·41
North West Territories.....	3	37·89	27·625	5·98
Jewellery and Dental Scrap...	110	4,113·04	1,937·428	619·77
	578	76,041·64	59,739·223	11,595·18

COMPARATIVE STATEMENTS

(1) TOTALS FOR EACH YEAR UNDER ABOVE HEADINGS, 1940 TO 1947, INCLUSIVE:—

1940.....	2,224	219,976·14	175,301·091	31,822·17
1941.....	1,978	202,766·19	163,014·058	28,462·72
1942.....	1,460	183,738·18	147,517·917	26,422·54
1943.....	722	80,552·50	63,312·314	11,630·24
1944.....	577	48,983·87	37,679·028	7,649·55
1945.....	499	61,113·31	48,131·200	8,923·70
1946.....	603	85,071·57	67,325·255	12,923·84
1947.....	578	76,041·64	59,739·223	11,595·18

COMPARATIVE STATEMENTS—*Concluded*

(2) TOTALS FOR EACH YEAR, 1940 TO 1947, INCLUSIVE, DISBURSED FOR GOLD BULLION PURCHASES:—

1940.....	\$6,685,353.07
1941.....	6,216,906.58
1942.....	5,628,080.26
1943.....	2,414,688.10
1944.....	1,436,665.86
1945.....	1,835,799.67
1946.....	2,406,170.90
1947.....	2,081,867.67

GENERAL

The annual stocktaking and inspection of the store of bullion and coin, as required by the Act establishing the Royal Canadian Mint, was conducted by the officers of the Auditor General's Department in March.

The Assay Commissioners, Dr. J. D. Babbitt of the Division of Physics and Electrical Engineering, National Research Council, Mr. P. Gishler of the Division of Chemistry, National Research Council, and Mr. J. A. Fournier, Chief Chemist of the Metallic Minerals Division, Department of Mines and Resources, appointed under the provisions of the Currency Act for the purpose of ascertaining that coins of the Currency of Canada struck at the Royal Canadian Mint during 1946 had been minted in accordance with the provisions of the said Act, were sworn in by His Honour, Judge A. G. McDougall, in the presence of Mr. G. E. Lowe as representative of the Department of Finance, on the 6th day of May, 1947.

The findings of the Assay Commissioners indicated that the coins, both as to weight and fineness, conformed with the standards established by the Currency Act.

Appendix "A" shows the transactions in gold bullion since the opening of the Mint in January, 1908, and in Appendix "B" are given the details of the coin issues in Canada since 1858.

I am, Sir,

Your obedient Servant,

W. C. RONSON,
Master, Royal Canadian Mint.

APPENDIX A

Summary of Transactions in GOLD BULLION of the Ottawa Branch of the Royal Mint from its opening on January 2, 1908, to its disestablishment on November 30, 1931, and of the Royal Canadian Mint from December 1, 1931 to December 31, 1947.

Year	GOLD RECEIVED			GOLD ISSUED		
	Gross Weight	Value (Statutory) Gold Only	Coin	Bullion	Statutory Value Coin and Bullion	\$
	Ounces	\$	\$	Ounces Fine		
1908 to 1937.....	58,870,464.914	992,128,835.78	7,923,878.73	47,572,435.560		991,333,394.86
1938.....	5,601,260.642	90,920,063.13		4,308,067.369		89,055,654.13
1939.....	6,181,336.290	100,656,105.55		4,834,214.285		99,932,075.82
1940.....	6,295,218.554	103,169,970.38	30.00	5,026,792.728		103,913,055.43
1941.....	6,444,056.215	105,273,560.67		5,134,347.805		106,136,385.78
1942.....	5,761,045.973	95,338,135.90		4,611,892.227		95,336,270.79
1943.....	4,456,437.559	74,769,168.35		3,645,739.964		75,364,131.92
1944.....	3,537,734.636	59,163,794.79		2,829,755.000		58,496,226.17
1945.....	3,102,991.020	51,750,218.87		2,499,163.674		51,662,297.22
1946.....	3,271,246.445	54,826,765.59		2,665,964.763		55,110,381.61
1947.....	3,559,496.703	59,296,515.31		2,859,084.218		59,102,514.80
	107,081,288.951	1,787,293,134.32	7,923,908.73	85,987,457.593		1,785,442,388.53

