



CANADA

DEPARTMENT OF FINANCE

REPORT

of the

MASTER OF THE ROYAL CANADIAN MINT

For the Calendar Year
1944

Published by Authority of the HON. J. L. ILSLEY, K.C., M.P.,
Minister of Finance

OTTAWA
EDMOND CLOUTIER
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1945

ROYAL CANADIAN MINT

OTTAWA, 16th April, 1945.

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 1944.

COINAGE

Coinage demands continued to be much in excess of the normal production capacity of the Mint, and it was again necessary to operate two and three shifts daily, Sundays included, for the greater part of the year.

The tombac five-cent piece which replaced the nickel coin in the latter part of the year 1942 and during the year 1943, in order to conserve supplies of nickel for war purposes, was replaced in 1944 by a chromium-plated mild steel coin of five-cent denomination. The new coin is described in detail later in this Report.

A comparative statement of the value of coin issued, by denominations, for the years 1943 and 1944, is shown in the following table:—

Denomination	Coin Issued in	
	1943	1944
	\$	\$
	cts.	cts.
SILVER COIN—		
1 dollar.....	Nil	Nil
50 cents.....	1,564,000.00	1,230,000.00
25 cents.....	3,402,000.00	1,818,000.00
10 cents.....	2,078,000.00	958,000.00
Total Silver.....	7,044,000.00	4,006,000.00
TOMBAC COIN—		
5 cents.....	1,238,000.00	400.00
STEEL COIN—		
5 cents.....		571,000.00
BRONZE COIN—		
1 cent.....	881,300.00	454,600.00
Total.....	9,163,300.00	5,032,000.00
	Number of pieces	
Representing.....	150,406,000	76,200,000

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

—	Silver			Tombac	Steel	Bronze
	50 cents \$	25 cents \$	10 cents \$	5 cents \$	5 cents \$	1 cent \$
Calgary.....	68,000	226,000	76,000	.....	58,500	42,600
Charlottetown.....	.....	12,000	12,000	.....	3,000	4,100
Halifax.....	84,000	124,000	74,000	.....	45,500	44,000
Montreal.....	14,000	76,000	74,000	.....	131,000	66,500
Ottawa.....	14,000	120,000	42,000	400	25,000	8,900
Regina.....	152,000	302,000	134,000	.....	43,500	52,500
Saint John.....	30,000	88,000	38,000	.....	20,000	25,000
Toronto.....	532,000	580,000	306,000	.....	167,000	136,400
Vancouver.....	216,000	8,000	112,000	.....	46,500	34,500
Winnipeg.....	120,000	282,000	90,000	.....	31,000	40,100
	1,230,000	1,818,000	958,000	400	571,000	454,600

No Dollar Coins were issued during the Year.

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

—	Value	Number of Pieces
	\$ cts.	
SILVER—		
10 cents.....	15,147.10	151,471
5 cents.....	14,325.20	286,504
BRONZE—		
1 cent.....	13,287.76	1,328,776
	42,760.06	1,766,751

Worn and mutilated coin withdrawn from circulation:

—	Withdrawn	Net Increase in Circulation
	\$ cts.	\$ cts.
Silver Coin.....	42,233.75	3,963,766.25
Nickel Coin (mutilated only).....	976.35	.....
Tombac Coin—5 cents.....	69.65	330.35
Steel Coin—5 cents.....	.....	571,000.00
Bronze Coin.....	1,897.87	452,702.13

GOLD BULLION

Gold deposited at the Mint again showed a decrease, the receipts being the lowest since the year 1933. 3,857 deposits weighing 3,487,810 ounces gross were received from Canadian Mining Companies and sundry persons, and 96 deposits weighing 49,924 ounces gross were received from the Dominion of

Canada Assay Office, Vancouver, B.C. The total gross weight of gold received at the Mint, including mutilated gold coin, was 3,537,734 ounces, containing by assay 2,862,048 ounces fine gold and 385,991 ounces fine silver. This shows a decrease as compared with the year 1943 of 1,037 in the number of deposits, gross weight 918,703 ounces, gold 754,910 ounces fine and silver 88,394 ounces fine.

The net amount paid by cheque to depositors was \$107,504,172.45. In addition 5,603·962 ounces of fine gold with a statutory value of \$115,844.59 were also issued in payment of gold deposits.

Postage collected for the Postmaster General on deposits shipped by mail, postage collect, amounted to \$13,165.36.

There were 577 gold deposits received at the Dominion of Canada Assay Office, Vancouver, B.C.

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.....	2,135,742·075	1,724,975·760	225,046·97
Quebec.....	1,073,876·275	880,766·502	120,627·19
British Columbia.....	135,588·080	109,626·768	19,824·86
Manitoba.....	103,842·375	84,301·336	6,297·93
Yukon.....	30,569·640	23,814·864	5,124·83
Nova Scotia.....	6,251·250	5,841·465	187·68
North West Territories.....	30,644·600	21,927·511	5,760·22
Alberta and Saskatchewan.....	79·315	57·322	5·05
Total from Mines and Refineries..	3,516,593·610	2,851,311·528	382,874·73
From Jewellery and Scrap.....	20,200·410	9,456·454	2,784·56
Mutilated Gold Coin.....	.236	.213	.....
GRAND TOTAL.....	3,536,794·256	2,860,768·195	385,659·29

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
6,858 Trade Bars to Bank of Canada.....	2,739,922·833
Depositors.....	5,603·962
Sales to Manufacturers.....	74,866·088
Medals.....	5·009
Sweep.....	9,357·108
	<hr/> 2,829,755·000

This total shows a decrease of 815,984·964 ounces fine as compared with the year 1943.

OPERATIVE DEPARTMENT

Superintendent—MR. R. J. EDMUNDS

Coinage production, 76,490,775 pieces, of all denominations during the year 1944 may still be considered a greater than normal performance over pre-war years, although the output was only about half that of 1943. A decrease was naturally anticipated as all signs indicated that in metallic currency circulating throughout the Dominion, a saturation point had been reached early in the new year. The yearly figures of coin produced since 1940, and passed for issue in

Canada, viz., 1940—127,767,415; 1941—82,103,728; 1942—105,481,533; 1943—151,684,612; 1944—74,724,024, make an aggregate of 541,761,312 pieces minted in the five years of the war. This unprecedented coinage would also give credence to the belief that demands for specie should moderate presently to some extent.

The first half of 1944 shows requisitions for coin to be only trifling, and it was possible to build up a reserve stock of coin and blanks of about 33,000,000 pieces. The coinage demand, however, during the latter part of the year was of such volume that even this surplus was inadequate and the Operative Department was unable to meet all requirements fully in the late fall.

The following table sets out by denominations the number of coins produced in 1943 and 1944:—

	1943	1944
	Pieces	Pieces
DOMINION OF CANADA		
SILVER (800 fine)—		
1 dollar.....		
50 cents.....	3,109,583	2,460,205
25 cents.....	13,559,575	7,216,237
10 cents.....	21,143,229	9,383,582
TOMBAC—		
5 cents.....	24,760,256	
STEEL—		
5 cents.....		11,532,784
BRONZE—		
1 cent.....	89,111,969	44,131,216
Canadian Total.....	151,684,612	74,724,024
NEWFOUNDLAND		
SILVER (925 fine)—		
10 cents.....	104,706	151,471
5 cents.....	351,666	286,504
BRONZE—		
1 cent.....	1,239,732	1,328,776
Newfoundland Total.....	1,696,104	1,766,751
Total Canadian and Newfoundland.....	153,380,716	76,490,775

At the request of the Newfoundland Government a coinage of ten-cent, five-cent and one-cent coins was executed during the year in quantity as shown in the foregoing table.

The five-cent coin of tombac metal was replaced on the 1st January, 1944, by a new coin of Steel in Chromium Finish. The steel was purchased in strips, chromium plated, ready for the cutting presses; thus eliminating the casting of coinage bars and rolling them to gauge, which caused considerable congestion of work in the Melting House and Rolling Room while minting the tombac coins during 1943. The designs of both the obverse and reverse remain the same as for the tombac five-cent coin with the "Victory" motif on the reverse.

Owing to the slackening off in coinage production, work on the three-shift basis was discontinued on March 11th, 1944. The services of thirty-five Apprentices and Craftsmen Grade 1, were dispensed with on the 31st March. On the 30th of June, the Operative Division Staff was further reduced by the release

of thirty-five more Apprentices and Craftsmen Grade 1. Through the co-operation of the Dominion Government Employment and Selective Service Officers these men were offered, and many accepted positions of employment of a similar nature in war plants before their release from the Mint, which meant a minimum of hardship and loss of wages. At the end of the year the total number of officers, craftsmen and apprentices was 95, compared with 176 at the close of 1943. Four of our best and skilled Craftsmen joined the Armed Forces and are on military leave.

Details of bullion and metals melted and cast into coinage bars, bars rolled, blanks cut, and good coins passed for issue are summarized in the following table:—

—	Bars Cast	Bars Rolled	Blanks Cut	Good Coin Produced
	Ozs.	Ozs.	Ozs.	Ozs.
FOR CANADA				
SILVER (800 fine)—				
1 dollar.....	5,165.00			
50 cents.....	1,722,346.30	1,527,161.80	1,123,531.07	922,044.23
25 cents.....	2,238,849.80	2,395,712.60	1,524,032.90	1,354,031.00
10 cents.....	1,335,253.40	1,180,922.30	784,867.95	700,509.07
Total Silver.....	5,301,614.50	5,103,796.70	3,432,431.92	2,976,584.30
	Lbs.	Lbs.	Lbs.	Lbs.
STEEL—				
5 cents.....			120,595.53	111,829.56
BRONZE—				
1 cent.....	507,681.70	524,848.19	357,022.77	314,426.83
	Ozs.	Ozs.	Ozs.	Ozs.
FOR NEWFOUNDLAND				
SILVER (925 fine)—				
10 cents.....	49,395.50	19,002.80	12,231.14	11,237.05
5 cents.....		38,455.50	22,179.33	10,692.66
Total Silver— (925 fine).....	49,395.50	57,458.30	34,410.47	21,929.71
SILVER (800 fine)—				
10 cents.....	41,890.90			
	Lbs.	Lbs.	Lbs.	Lbs.
BRONZE—				
1 cent.....		15,860.63	10,785.23	9,491.00
	Short Tons	Short Tons	Short Tons	Short Tons
	438.74	446.81	363.06	320.68

Melting House:

As mentioned in last year's report, the extensive preliminary preparations necessary to install the new high-frequency electric melting furnaces were well in hand in 1943. The melting equipment was completely installed and in operation early in 1944.

A novel feature was introduced in the design of the furnaces used, and in the application of the inductive method for melting. This required electrical equipment of somewhat special character. The Lift Coil Furnace is particularly adapted to the melting of precious metals as the recovery of the entire charge is essential for accurate accounting of the gold, silver or copper given to work daily. After the bullion or metal is melted in the crucible, the furnace box containing the coil is lifted and the crucible, filled with molten metal, is free to be carried to the molds for casting into bars. The heat is concentrated within the charge itself, the melt acting as the secondary. The primary or inductor coil in the furnace surrounding the melt is cooled by water. The loss of heat is negligible, which is not only conducive to comfortable and skilled handling, but to greater efficiency in the use of energy, as no heat is radiated from the sides of the furnace.

The high-frequency electric induction method has great and important advantages from a metallurgical standpoint, viz., freedom from contamination of the melt, the high temperature obtainable, and the thorough circulation of the molten charge by the electromagnetic forces within it. Inherent in the furnace is its stirring feature. Segregation, so often a troublesome cause of stop-pots by manual or mechanical stirring, is almost impossible. Actual figures for 1943 and 1944 show a decrease from 8% to 1% in the number of "pots" of silver meltings rejected. When one considers the fact that every stop-pot requires remelting to obtain the prescribed composition of coinage bars, this decrease results in considerable saving of labour and power costs.

The adoption of electrical energy in place of oil as a fuel, has been accompanied by several incidental economies, such as firebrick and refractory materials, which are no longer needed, reduced operating costs and more rapid melting.

A complete re-arrangement of the accessory equipment for finishing the coinage bars after being cast was made, in keeping with the new plant. The lineshaft, shears, assay cutter, files and work bench were moved into the space previously occupied by the oil furnaces and combustion chamber. Tracks and turn-tables were laid in the floor on which the mould carriages travel from the pouring table to the plunging tanks. The overhead crane was arranged to travel the full length of the room instead of across. Ventilating fans were installed in the lantern light. Also, an electric mould-heating oven was made in our own shops to heat the moulds sufficiently for the first round.

During the year 438.74 short tons of bullion and metal were melted and cast into coinage bars of silver and bronze.

In addition, 36,225 ounces of silver worn coins were cast into 1,000-ounce ingots to determine the composition; and 1,560 pounds of mutilated nickel coins were cast into ingots to destroy their identity for purposes of sale as scrap metal; 3,540 pounds of bronze worn coins were melted and cast into one-cent coinage bars, and 2,013 pounds of tin into working slabs. For the Department of National Defence 7,607 ounces of sterling silver were melted.

Rolling Room:

The additional work done in the Rolling Room besides rolling 446.81 tons of coinage bars to the gauge of each denomination, consisted of:—

- (1) 27,873 lead discs from bars rolled for the Assay Office.
- (2) 772.85 ounces of fine silver rolled for 10-grain and 26-grain discs for the Assay Office.

Cutting Room:

To overcome any possibility of steel cuttings and scrap from the steel coinage fillets for five-cents contaminating the silver and bronze metal which

has to be re-melted, a compartment, to house the entire process of cutting, sorting, and marking the edges of the chromium plated steel blanks, was erected contiguous to the Rolling and Cutting Rooms.

The cutting press which had been adapted last year to automatic self-feeding the strips to cut the steel blanks gave continuous satisfactory service. A new sorting table and planchet upsetting machine was installed to complete this unit.

Annealing Room:

The new centrifugal drying machine mentioned in the last report was installed early in 1944 and has been used steadily. It has about twice the capacity of the old machine. A good deal of time is saved by its use, resulting in increased output.

Press Room:

A statement of the number of dies used, by denomination, and the number of good pieces struck per pair of dies is given in the following table for 1943 and 1944:—

Denomination	1943				1944			
	Number of Good Pieces Coined	Number of Dies Used		Number of Pieces per Pair of Dies	Number of Good Pieces Coined	Number of Dies Used		Number of Pieces per Pair of Dies
		Obv.	Rev.			Obv.	Rev.	
50 cents..	3,109,583	168	118	21,745	2,460,205	127	101	21,581
25 cents..	13,559,575	456	491	28,426	7,216,237	276	282	25,865
10 cents..	21,143,229	709	535	33,992	9,383,582	436	384	22,887
5 cents..	*24,760,256	352	323	73,364	†11,532,784	348	364	32,395
1 cent..	89,111,969	421	331	237,000	44,131,216	215	174	226,896
	151,684,612	2,106	1,798	77,707	74,724,024	1,402	1,305	55,208
		3,904				2,707		
	*Tombac Metal				†Steel			

Die and Medal Branch:

The Die Department prepared 2,857 dies, punches and matrices for Canadian coinages, and 181 dies for Newfoundland coinage, compared with a total of 3,912 dies in 1943.

Twenty-six R.C.M.P. Long Service and Good Conduct medals, mounted with clasp, were struck and issued to the Commissioner of the Royal Canadian Mounted Police. The name of the recipient was engraved on the edge of each medal.

Three gold medals were struck for the Royal Society of Canada, the Tyrrell Medal in fine gold, engraved "Harold A. Innes, 1944"; the Henry Marshall Tory Medal, 18 carat gold, engraved "Frank Allen, 1944"; and the Flavelle Medal, 14 carat gold, engraved "Velyien Ewart Henderson, 1944". One 10 carat gold medal, the Gzowski Medal, engraved "Frank E. Sterns, 1943", and three tombac medals, were struck for the Engineering Institute of Canada, the Sir John Kennedy Medal engraved "Chalmers Jack Mackenzie, 1943", and one Julian C. Smith medal, engraved "George J. Desbarats, 1943", and one Julian C. Smith medal, engraved "Frederic H. Sexton, 1943".

The striking of the Long Service and Good Conduct Medals and the Efficiency Medals on behalf of the Department of National Defence, and the manufacture of tools, punches and beds for the clasps, bar mounts and other work necessary in this connection, was continued intermittently throughout the year with very limited staff spared part time from coinage production work.

There were 160 Long Service and Good Conduct Medals, 1,960 Canadian Efficiency Medals, 1,500 Second award Bar Mounts to the Efficiency Medal, completed and boxed for delivery to the National Defence Department. A supply of clasps was also made up in advance to complete the present order of 7,000 Efficiency Medals for the Army and Air Force.

At the request of the Under-Secretary of State for External Affairs several sketches were prepared by the Mint Engraver and submitted to that Department of a design for a special medal to be presented by the Canadian Ambassador to the Republic of Brazil as an award to the students of Brazilian educational institutions obtaining the highest proficiency in the study of Canadian history and geography.

A pair of master dies was subsequently engraved here by the Mint Engraver from the approved sketches. These dies were cut in the steel direct by hand and are $2\frac{1}{16}$ " in diameter. The design may be described as follows:—

For the obverse, a relief map of the Dominion of Canada and of the Republic of Brazil on a globe, both countries projected into prominence on an outline map of the Western Hemisphere; the words "CANADA" and "OTTAWA", the capital of Canada, are inscribed on the one, and "BRASIL" and "RIO DE JANEIRO", the capital of Brazil, on the other; above, is a figure of a girl, representing Canada, in a sitting posture with right arm and hand extended in greeting to a similar figure of a young lady with arm and hand upraised, representing Brazil. In the background above are displayed the Northern Lights and cumulus cloud effects, while the globe appears to be floating in the clouds. A small outline of a ship and aeroplane represent the means of transportation between the two countries. A space in the exergue below is left for the date or name of recipient.

For the reverse, a representation of the shield, only, in a plain circular field, of the Arms of Canada, emblematic of the four original races of Canada, English, Scottish, Irish and French, all joined together on the branch of maple leaves; "CANADA" above, and "BRASIL" below; between the words on each side are engraved the Southern Cross, part of the Arms of Brazil and a Canadian Maple Leaf.

The motif depicted in the obverse design appears to convey without inscription or words the spirit of friendliness between the two countries, Canada and Brazil, to be in keeping with the Canadian Ambassador's idea to encourage the study of the history and geography of Canada by the young and growing population of Brazil.

Twenty-five Canada-Brazil Medals were struck from these dies and forwarded to the Under-Secretary of State for External Affairs for transmission to Brazil.

Fourteen specimens of the "Canada Medal" instituted last year for meritorious service above and beyond the faithful performance of duties, were struck for special presentation only.

Additional work under the Engraver's immediate supervision included much experimental medal work on designs, tools, clasps, and punches. Considerable research in connection with equipment and organization for an enlarged medal branch was also carried out, which it is hoped will be of value if further expansion is necessary to strike anticipated orders for War Service Medals.

Mechanical and Electrical Branch:

In addition to a considerable amount of maintenance work, operating repairs and machine replacements, the mechanics and electricians carried out the manufacture and installation of many machinery parts and electrical apparatus added during the year to the general equipment. New plant and machinery in the Melting House, Cutting Room and Annealing Room purchased direct from the manufacturers were also erected in position by our own staff.

The main feature of the year's work was the installation of the high-frequency electric melting furnaces. Under the able direction of the Foreman Electrician, the special generator set was erected, the starting equipment, control panels, static capacitors or condensers, were all assembled and wired between the various parts. So efficiently was the whole elaborate apparatus installed and assembled that upon inspection by the technical expert from the manufacturing company no changes were found necessary for immediate starting and operation of the furnaces.

The generator set is arranged to give 960 cycle current rated 167 k.w., 1,800 r.p.m., 800 volts, changing the frequency from 60 cycles, 550 volts, 3 phase. Each furnace is designed for 83 k.w. and to operate simultaneously from the 167 k.w. generator. Each furnace will melt about 190 pounds of bronze or silver bullion in 20 to 30 minutes.

The three 15 K.V.A. lighting transformers were replaced by three 25 K.V.A. transformers in the sub-station. New secondary distribution panels for lighting were also installed.

Fluorescent lighting was placed in the Medal Branch, Mint Office, Chief Assayer's Office, and the Superintendent's Office.

The use of soft coal for heating and supplying steam for coinage and gold refining from the three 75-H.P. boilers was discontinued on the last day of 1944, and the boilers were re-fitted with oil-burners.

The boilers had been thoroughly cleaned and overhauled during the summer months and passed by the Inspector.

Miscellaneous:

Continued efforts to eliminate hazards, cut down wastage of paper, nails, wipers, oil, coin bags and numerous other supplies, have resulted in reducing the number of accidents, and a considerable saving of much valuable material which otherwise might not have been salvaged.

The Operative Department contributed to the waste paper drive organized by a Civil Service Committee.

Representatives of the Department of National Health and Welfare visited the Mint during the year. The inspection of safety devices around machinery, first aid facilities, food storage and cafeteria, and the general working conditions, was made.

ASSAY OFFICE

Chief Chemist and Assayer—A. L. ENTWISTLE, F.R.I.C., M.I.M.M.

The number of assays made from the 1st January to 31st December, 1944, was as follows:—

GOLD—	
Refinages.....	4,764
Rough Gold.....	18,374
Proofs.....	2,181
Parting Proofs.....	658
Parting Buttons.....	7,194
Miscellaneous.....	828

SILVER—			
Canadian Coinage			
Standard Bars.....	5,616		
Pyx.....	1,690		
Newfoundland Coinage			
Standard Bars.....	118		
Pyx.....	23		
Proofs.....	1,285		
Fine Silver.....	1,048		
Miscellaneous.....	338		
			10,118
MISCELLANEOUS—			
Mint Residues (Sweeps).....	364		
Commercial.....	38		
Assays for Marking Act Inspector.....	82		
Determination of base metals in alloys, etc.....	299		
			783
Making a Total of.....			44,900

The mean finenesses of Canadian Coinage struck during the year 1944 were as follows:—

Denomination	Standard Fineness	Mean Fineness
50 cents.....	800.0	799.38
25 cents.....	800.0	799.58
10 cents.....	800.0	799.91

The mean finenesses of Newfoundland Coinage struck during 1944 were as follows:—

Denomination	Standard Fineness	Mean Fineness
10 cents.....	925.0	924.79
5 cents.....	925.0	925.55

Gold bullion deposits received at the Mint during the year were 3,953, gross weight 3,537,734 ounces including 96 deposits from the Vancouver Assay Office, 253 deposits of scrap jewellery, dentists' scrap, etc., and 376 deposits of fine gold, the latter weighing 740,181 ounces which were over 995.0 fine and did not require refining.

The average assay of crude bullion from mines was gold 760.89, silver 138.01, base 101.10.

The largest amount of gold bullion received in one year was in 1941. The fine gold contents were 5,092,609 ounces while during the year under review the fine gold contents of bullion received were only 2,862,048 ounces.

Two fine gold working trial plates were made and fixed against our special fine gold plate (fineness 999.95) and three silver working trial plates were made and fixed against the fine silver trial plate (fineness 1000.0) in use.

The amount of fine silver trial plate sold during the year was 24 ounces.

Powdered gray fine silver was specially made and 92.95 ounces were sold to the National Defence Chemical Laboratories.

One hundred ounces of pure silver chloride were produced containing 75.26 ounces of fine silver and sold to a silver plating company. Twenty-two ounces of fine silver in the form of sheets 56/1000" gauge were also sold to the same firm.

Gold cornets from assays were received from the Vancouver Assay Office containing 32.101 ounces of fine gold. This gold was replaced by 32.104 ounces of fine gold trial plate (fineness 999.9).

Several suspected counterfeit coins were examined and assayed for the Bank of Canada.

No nickel assays of five-cent blanks were made as no nickel five-cent pieces were struck. The five-cent Tombac coin was replaced during the year with a five-cent piece struck from fillets of chromium plated steel.

Several medals of various gold carats, struck in the Operative Department, were electrolytically plated with a very small deposit of fine gold.

Owing to the installment of the two high frequency induction furnaces in the Melting House, replacing the four oil furnaces, the stop-pots in silver coinage bars were reduced almost to a minimum which of course results in a large saving in time and labour. The induction furnaces produce a homogeneous molten metal and all errors caused by inadequate manual stirring are eliminated.

REFINERY

Superintendent—MR. P. W. BOND

The following report gives details of work carried out in the Refinery during the year 1944.

During this period 3,857 deposits were received from mines and miscellaneous depositors and 96 deposits from the Vancouver Assay Office, containing in all 2,862,048 ounces of fine gold and 385,991 ounces of fine silver.

Six thousand, eight hundred and eighty-four fine gold trade bars, with a gross weight of 2,744,807 ounces, containing 2,766,374 ounces of fine gold at an average assay of 996.96; granulated gold with a gross weight of 79,486 ounces, containing 79,475 ounces of fine gold at an average assay of 999.86; silver bars with a gross weight of 377,802 ounces, containing 377,512 ounces of fine silver at an average assay of 999.23, and granulated silver with a gross weight of 2,000 ounces, containing 1,999 ounces of fine silver at an average assay of 999.5, were delivered to the Mint Office.

Granulated gold weighing 732 ounces fine; worn coin weighing 0.213 ounces fine; medal scrap weighing 18 ounces fine and silver worn coin weighing 40 ounces fine were received from the Mint Office.

Thirty-two ounces of fine gold cornets were received from the Vancouver Assay Office, melted and forwarded to the Assay Office to be replaced by proof plate for the Vancouver Assay Office.

One hundred and thirty-four thousand, one hundred and sixty-eight ounces of the total amount of deposits received were remelted, and 1,259 ounces toughened, before uniform assays could be obtained.

Sweep amounting to 39,872 tons was recovered, ground, barrelled, sampled and assayed, and contained 8,629 ounces of fine gold, and 41,216 ounces of fine silver, and sweeps amounting to 40.2 tons containing 9,152 ounces of fine gold, and 41,732 ounces of fine silver, were delivered to the Mint Office.

Three hundred and seventy-seven thousand, five hundred and twelve ounces of fine silver bars, and 1,999 ounces of granulated fine silver, were produced from treatment of 822,179 ounces of base and silver chloride.

In 1938 an acid proof metal alloy launder tank with a capacity of 83 cubic feet, was erected in the basement of the Refinery, for drying the precipitate from the settling tank.

This tank was found to be unsatisfactory as the precipitate reacted with the metal.

Mr. N. A. Parker, Assayer Grade 1, drew up plans for an iron reinforced cement tank with a capacity of 159 cubic feet. It consists of two bottoms, one false made of two inch planks perforated with holes and covered with Hessian cloth which is used as the medium for filtering, the other bottom, or floor, is sloped toward the drain. There are openings at the end to allow a circulation of air to pass under the false bottom to facilitate the drying. The inner face of tank and false bottom are painted with acid proof tar paint.

This tank has shown its advantages over the previous type, the increase in capacity considerably decreases the time for drying and the precipitate has no appreciable reaction on the tank.

The work entailed in its construction was carried out by our own staff at a minimum of cost under the supervision of Mr. N. A. Parker.

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

Manager—MR. G. N. FORD

The sum of \$1,436,665.86 was disbursed for the purchase of gold bullion deposited at this office during the calendar year 1944.

A statement of the origin, weights, etc., of the deposits received during 1944, and comparative statements for the years 1939 to 1944, inclusive, are shown hereunder:—

Source	Number of Deposits	Gross Weight	Fine Gold	Fine Silver
		Ounces	Ounces	Ounces
Yukon Territory.....	207	30,569.64	23,814.864	5,124.83
British Columbia.....	253	15,360.93	12,486.271	2,015.01
Alberta and Saskatchewan.....	4	68.59	51.498	4.16
Jewellery and Dental Scrap.....	113	2,984.71	1,326.395	505.55
	577	48,983.87	37,679.028	7,649.55

COMPARATIVE STATEMENTS

(1) Totals for each year under the following headings—1939 to 1944 inclusive.

Year	Number of Deposits	Gross Weight	Fine Gold	Fine Silver
		Ounces	Ounces	Ounces
1939.....	2,326	221,137.00	178,707.286	30,235.32
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

(2) Totals for each year—1939 to 1944 inclusive, disbursed for gold bullion purchases.

1939.....	\$6,442,365.81
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

GENERAL

The decease of the late Master, Mr. Henry E. Ewart, severed a connection of some 37 years with this Mint. Mr. Ewart was first appointed to the post of Second Senior Clerk in the Operative Department when the Ottawa Branch of the Royal Mint was opened in January, 1908. He served in various positions in the Department and was promoted to the post of Master in 1938. The Mint sustained a great loss in his passing on 28th April, 1944.

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 results of which will be found in the Auditor General's Report.

The Assay Commissioners, Dr. L. G. Turnbull of the Division of Physics and Electrical Engineering, National Research Council, Mr. R. W. Hoff of the Division of Chemistry, National Research Council, and Mr. R. J. Traill of the Metallic Minerals Division of the Bureau of Mines, 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 1943 have been minted in accordance with the provisions of the said Act, were sworn in by His Honour, Judge A. G. McDougall, and in the presence of Dr. A. K. Eaton, Taxation Investigator, as representative of the Department of Finance, on the 4th day of May, 1944.

The findings of these gentlemen indicated that the coins, both as to weight and fineness, conformed with the standards established by the Currency Act with the exception of two fifty-cent pieces in respect of which the Commissioners report that "the weights of which were respectively 178.31 and 178.28 grains, the same being below the remedy allowance in weight by 0.19 and 0.22 grain".

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,

A. P. WILLIAMS,

For the Master, Royal Canadian Mint

APPENDIX A

Summary of Transactions in GOLD BULLION of the Ottawa Branch of the Royal Mint from its opening on the 2nd January, 1908, to its disestablishment on the 30th November, 1931, and of the Royal Canadian Mint from the 1st December, 1931, to the 31st December, 1944.

Year	GOLD RECEIVED		GOLD ISSUED		Statutory Value Coin and Bullion \$
	Gross Weight	Value (Statutory) Gold Only	Coin	Bullion	
	Ounces	\$	\$	Ounces Fine	
1908 to 30th Nov., 1931.....	34,321,068.750	591,419,217.02	7,923,878.73	28,141,076.806	589,651,570.24
1931—1st to 31st Dec.....	299,973.100	5,100,968.08	.....	189,512.838	3,917,577.86
1932.....	3,520,276.570	58,491,549.39	.....	2,873,221.290	59,394,754.05
1933.....	3,331,905.174	53,819,014.01	.....	2,589,648.765	53,532,789.33
1934.....	3,888,848.540	62,201,080.02	.....	3,038,018.961	62,801,423.68
1935.....	3,996,131.927	65,297,776.55	.....	3,177,497.360	65,684,697.95
1936.....	4,552,289.960	74,487,536.98	.....	3,625,548.842	74,946,744.64
1937.....	4,959,970.893	81,311,693.73	.....	3,937,910.698	81,403,837.11
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
	97,147,554.783	1,621,419,634.55	7,923,908.73	77,963,244.938	1,619,567,194.90

