

C  
Stack

cap.  
(latest)

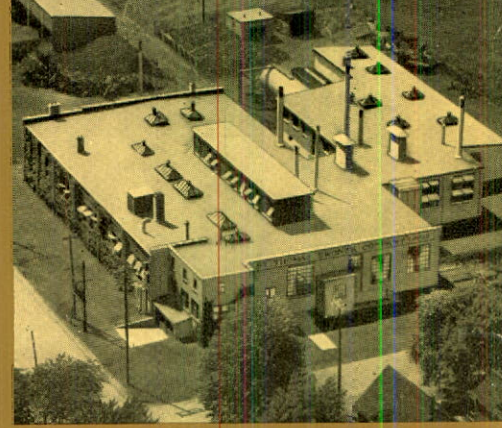


---

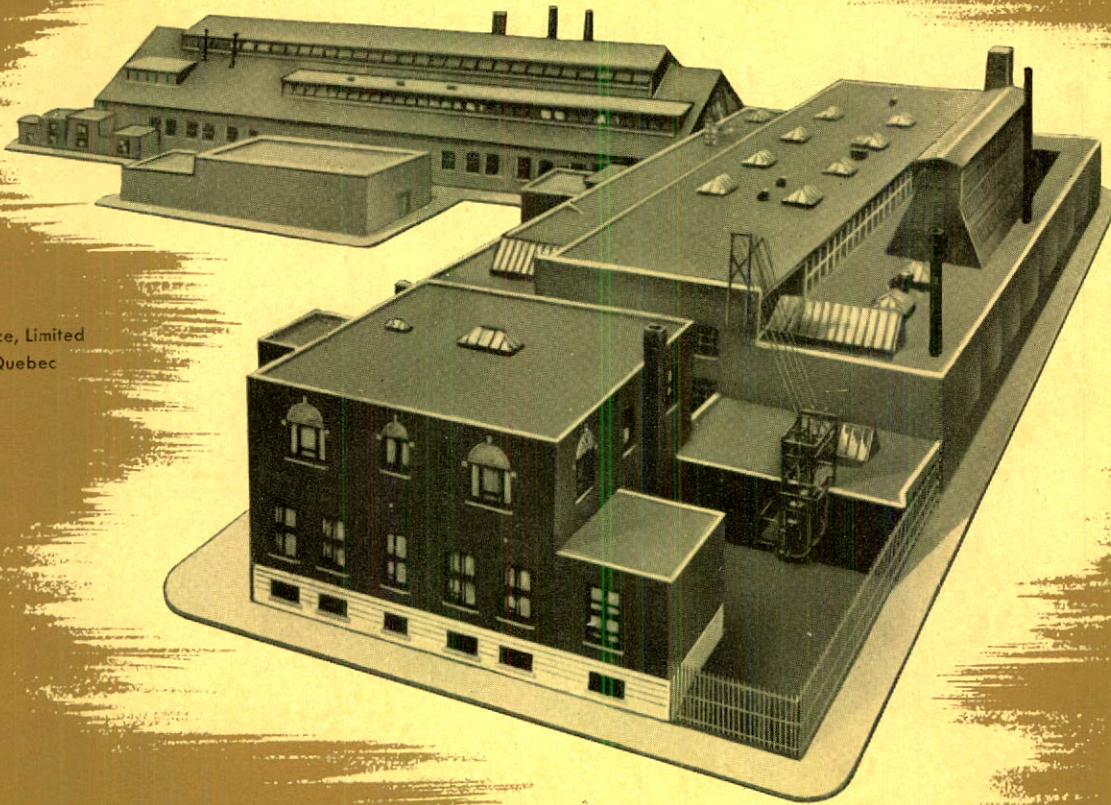
**ANNUAL  
REPORT  
1949**



Winnipeg Brass Limited  
Winnipeg, Manitoba



St. Thomas Bronze Company, Limited  
St. Thomas, Ontario

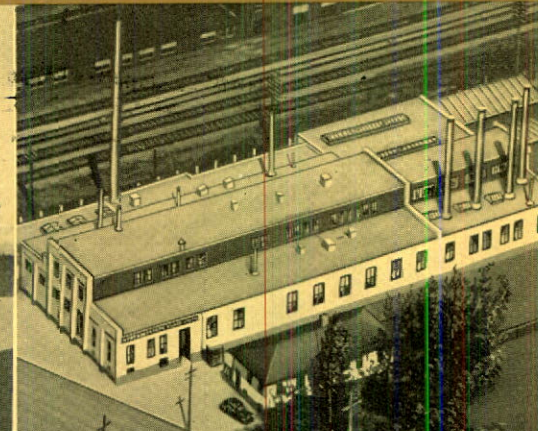
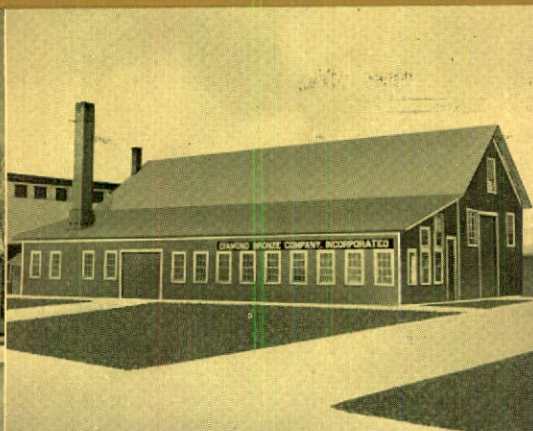
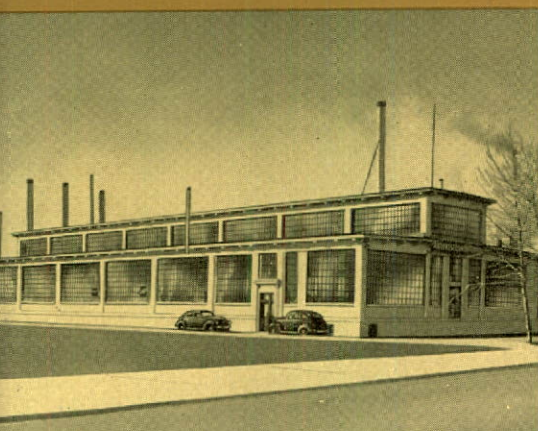


Montreal Bronze, Limited  
Montreal, Quebec

Northwestern Brass, Limited  
Calgary, Alberta

Diamond Bronze Company Inc.  
Lyndonville, Vermont

Northwestern Brass Limited  
Winnipeg, Manitoba





# CANADIAN BRONZE COMPANY, LIMITED

999 DELORIMIER AVENUE

**MONTREAL 24**  
CANADA

WHOLLY OWNED SUBSIDIARIES  
MONTREAL BRONZE, LIMITED  
NORTHWESTERN BRASS, LIMITED  
ST. THOMAS BRONZE CO., LIMITED  
DIAMOND BRONZE COMPANY INC.  
WINNIPEG BRASS LIMITED  
NATIONAL BRONZE CO., LIMITED

March 22nd, 1950

Gentlemen:

In accordance with our usual custom, we take pleasure in enclosing the Annual Report of this Company for the year ended December 31st, 1949.

Yours very truly,

W. C. Paquette,

Secretary.

# THE UNIVERSITY OF CHICAGO

THE UNIVERSITY OF CHICAGO  
1890-1900  
CHICAGO, ILL.

1890-1900

## HOWARD

Howard

Howard

Howard

Howard

Howard

Howard

# CANADIAN BRONZE COMPANY, LIMITED

---

## DIRECTORS

STEWART G. BENNETT	C. HOWARD GORDON
AUBREY H. ELDER, K.C.	SAMUEL J. HUNGERFORD, C.M.G.
H. CARSON FLOOD	RICHARD O. JOHNSON
HON. WILFRID GAGNON, C.B.E.	HERMAN W. TRITT

## EXECUTIVE OFFICERS

H. W. TRITT, President and Managing Director.

A. H. ELDER, K.C., Vice-President.

R. J. KING, Treasurer.

W. C. PAQUETTE, Secretary.

## SOLICITORS

WAINWRIGHT, ELDER, LAIDLEY,  
LESLIE, CHIPMAN & BOURGEOIS

## TRANSFER AGENTS

THE ROYAL TRUST COMPANY  
MONTREAL and TORONTO

## REGISTRARS

THE TORONTO GENERAL TRUST CORPORATION  
MONTREAL and TORONTO

---

## EXECUTIVE OFFICES

999 DELORIMIER AVENUE - MONTREAL

PURVIS HALL  
LIBRARIES

MAR 22 1950

McGILL UNIVERSITY



## CANADIAN BRONZE COMPANY, LIMITED

---

### To the Shareholders:

Your Directors take pleasure in submitting the Consolidated Balance Sheet and Profit and Loss Account of your Company and its wholly-owned subsidiaries, together with the report of your Auditors.

The results of the past year's operations show a net profit of \$505,275.63 after provision for taxes, depreciation and other expenses, compared with \$532,288.63 for the previous year, or a decrease of \$27,013.00. Although sales in 1949 were below the record established in 1948, operating results are satisfactory due to increased efficiency in the plants.

Dividends of \$5.00 per share on the preferred stock and \$1.25 per share on the common stock were declared during the year, and a special year-end dividend of 50¢ per share was also declared on the common stock. After payment, or provision for payment, of these dividends there remained a balance of net profit of \$187,775.63 which has been added to earned surplus.

The following comparison shows how the Company's income dollar has been spent during each of the last three years:

	<u>1947</u>	<u>1948</u>	<u>1949</u>
Materials, Supplies and Operating Expenses . . . .	73.47¢	75.78¢	73.23¢
Employees—Salaries, Wages and Insurance . . . .	15.78	13.45	15.13
Depreciation . . . . .	0.66	0.56	0.61
Taxes—Dominion, Provincial and Municipal . . . .	4.69	3.94	4.53
Dividends declared . . . . .	3.03	2.78	4.08
Retained in business . . . . .	2.37	3.49	2.42

In the past year a refund of \$66,603.66 was received from the Dominion Government against excess profits taxes and this amount has been added to the Company's surplus.

In order to meet changing conditions, your Company is entering the Diesel locomotive field by producing such parts as are suited to our manufacturing facilities, and your Directors have increased the Contingency Reserve by \$200,000.00 from Earned Surplus in anticipation of additional necessary equipment and plant facilities in this connection.

Notwithstanding a substantial reduction in inventories, your Directors felt that the Inventory Reserve should be maintained in view of the average current prices of non-ferrous metals being, in most instances, in excess of the 20-year average. Manufactured stocks are free of obsolete items and are controlled by the class and volume of orders on hand. Raw materials consist only of metals, readily convertible, in quantities consistent with current needs.

Following the financial statements is a comparative Consolidated Balance Sheet for the years 1947 to 1949 inclusive and your Company's financial position from its inception is summarized below:

	Average <u>1927-1947</u>	<u>1948</u>	<u>1949</u>
Current Assets.....	\$1,167,853	\$2,851,443	\$2,666,795
Current Liabilities.....	389,611	1,436,462	974,278
Working Capital.....	778,242	1,414,981	1,692,517
Ratio of current assets to current liabilities ..	3.00	1.99	2.74
Property, plant and equipment, less reserves	786,855	881,858	858,702
Net Worth.....	1,603,106	2,453,148	2,640,923
Tax Requirements.....	145,997	320,000	335,000

Employee relations have been cordial and no time was lost during the year through work stoppages. Medical supervision is provided at all plants and every means is taken to safeguard the health of employees. The Company also contributes to the cost of a pension plan, group life insurance and a Christmas Club Fund. There are now thirty-three members in the Company's Quarter Century Club, with an average of 34 years of service.

Business in the first quarter of the current year will no doubt be affected by the decline in carloadings due to unprecedented weather conditions in the West and labour disputes elsewhere. Any such falling off is, however, expected to be recovered and, if the railways find themselves in a position to resume their customary rehabilitation programs, we, in common with the equipment builders, will share in this business. Industrial sales continue to expand and your Research and Technical Department is constantly developing new products. In general the outlook is encouraging although the volume of business may not attain that of the peak years of 1948 and 1949.

In concluding the fifty-third year of the business, your Directors wish to renew their thanks to all employees for their loyalty and efficient co-operation, and to record their appreciation of the continued confidence and support of the shareholders.

By Order of the Board,

H. W. TRITT,  
President.

**CANADIAN BRONZE**  
AND WHOLLY OWNED  
**CONSOLIDATED BALANCE**

**ASSETS**

**Current Assets:**

Cash.....	\$ 333,962.25	
Call loan.....	150,000.00	
Accounts receivable, less reserve.....	682,419.14	
Inventories:		
Priced at the lower of cost or approximate market value		
Raw materials, goods in process and finished stock.....	721,844.88	
Prepaid insurance.....	7,673.68	\$1,895,899.95

**Investments:**

Government bonds and corporation shares at cost, less reserve (quoted market value \$799,488.00)	765,447.34	
Revenue accrued to date.....	5,447.21	770,894.55

**Refundable Portion of Excess Profits Tax:**

As confirmed by assessment, less amount received from the Dominion Government during the year.....		89,703.05
--	--	-----------

**Life Insurance Policies** ..... 1.00

**Fixed Assets:**

Land, buildings, machinery, etc., valued on the basis of appraisals made on 30th April 1934 and 13th October 1934 by the Canadian Appraisal Company, Limited with additions since the dates of these appraisals at cost.....	2,090,839.97	
<b>Less:</b> Reserves for depreciation.....	1,232,138.38	858,701.59

**Contracts, Rights, Patents and Goodwill** ..... 1.00

\$3,615,201.14



# AUDITOR'S REPORT TO THE SHAREHOLDERS

ASSOCIATED WITH  
SCOVELL, WELLINGTON & CO.  
ACCOUNTANTS AND AUDITORS  
UNITED STATES OF AMERICA  
AND  
COOPER BROTHERS & CO.  
CHARTERED ACCOUNTANTS  
GREAT BRITAIN EUROPE  
SOUTH AND EAST AFRICA  
SOUTHERN RHODESIA  
AUSTRALIA NEW ZEALAND

## McDonald, Currie & Co. Chartered Accountants

MONTREAL QUEBEC OTTAWA TORONTO SAINT JOHN  
SHERBROOKE VANCOUVER KIRKLAND LAKE

TELEPHONE MARQUETTE 8311  
CABLE ADDRESS "CURMAC"

507 PLACE D'ARMES  
MONTREAL 1

### AUDITORS' REPORT TO THE SHAREHOLDERS

We have made an examination of the books and accounts of Canadian Bronze Company, Limited and its wholly owned subsidiary companies for the year ended 31st December 1949, and we have obtained all the information and explanations which we have required.

We report that, in our opinion, the attached consolidated balance sheet and the accompanying consolidated statements of surplus and profit and loss are properly drawn up so as to exhibit a true and correct view of the state of the affairs of the companies as at 31st December 1949 and of the combined results of their operations for the year ended on that date, according to the best of our information and the explanations given to us and as shown by the books of the companies.

*McDonald Currie & Co.*

23rd February 1950.

CHARTERED ACCOUNTANTS.

# CANADIAN BRONZE COMPANY, LIMITED

and Wholly Owned Subsidiary Companies

## CONSOLIDATED STATEMENT OF PROFIT AND LOSS

for the Year ended 31st December 1949

### Operating Profits:

From subsidiary companies—before deducting the following .....	\$939,642.95		
Provision for depreciation of fixed assets.....	\$ 47,800.09		
Provision for income taxes.....	335,000.00		
Legal fees.....	1,207.13		
Directors' fees.....	10,534.00		
Salaries and fees of executive officers	55,726.00	450,267.22	\$ 489,375.73

### Net Revenue:

From investments and rentals.....		15,899.90	
-----------------------------------	--	-----------	--

**Net Profit for the Year**..... 505,275.63

### Deduct:

Dividends paid and payable—			
Preference.....	37,500.00		
Common .....	280,000.00	317,500.00	

**Balance of Net Profits for the Year**..... \$ 187,775.63

## CONSOLIDATED STATEMENT OF EARNED SURPLUS

for the Year ended 31st December 1949

Balance—31st December 1948.....		\$ 874,158.49	
Balance of net profits for the year.....	187,775.63		
Refundable portion of excess profits tax transferred from special surplus being the amount received from the Dominion Government during the year...	66,603.66	254,379.29	
		1,128,537.78	
Amount transferred to reserve for contingencies.....		200,000.00	
<b>Balance—31st December 1949</b> .....		<u><u>\$ 928,537.78</u></u>	

## CONSOLIDATED STATEMENT OF SPECIAL SURPLUS

(Refundable Portion of Excess Profits Tax)

for the Year ended 31st December 1949

Balance—31st December 1948.....		\$ 156,306.71	
Amount transferred to earned surplus being the amount received from the Dominion Government during the year.....		66,603.66	
<b>Balance—31st December 1949</b> .....		<u><u>\$ 89,703.05</u></u>	

# COMPANY, LIMITED

SUBSIDIARY COMPANIES.

SHEET AS AT 31st DECEMBER 1949

## LIABILITIES

### Current Liabilities:

Accounts payable and accrued expenses.....	\$ 633,383.72		
Dividends payable 1st February 1950—			
on preference shares.....	\$ 9,375.00		
on common shares.....	131,200.00	140,575.00	
Income taxes payable, less amounts paid on account.....		163,193.96	
Sales taxes payable.....		37,125.06	\$ 974,277.74

### Capital Stock, Surplus and Reserves:

5% cumulative redeemable preference stock <small>(redeemable only as a whole at \$105 per share on 30 days' notice)</small>				
Authorized—				
15,000 shares of \$100 par value.....	\$1,500,000.00			
Issued and fully paid—				
7,500 shares.....		750,000.00		
Common stock—				
Authorized—				
200,000 shares without nomi- nal or par value				
Issued and fully paid—				
160,000 shares.....		197,395.24		
Earned surplus—				
as per attached statement.....		928,537.78		
Special surplus—				
as per attached statement.....		89,703.05		
Reserves—				
Inventories.....	375,287.33			
Contingencies.....	300,000.00	675,287.33	2,640,923.40	
				<u>\$3,615,201.14</u>

Approved on behalf of the Board:

H. W. TRITT }  
A. H. ELDER } Directors.

# C A N A D I A N B R O N Z E

AND WHOLLY OWNED

## COMPARATIVE CONSOLIDATED BALANCE SHEETS

### ASSETS

	<u>1947</u>	<u>1948</u>	<u>1949</u>
<b>Current Assets</b>			
Cash.....	\$ 368,560.98	\$ 136,576.48	\$ 483,962.25
Accounts Receivable—Less Reserve	575,857.29	979,035.92	682,419.14
Inventories.....	1,041,838.65	1,375,257.69	721,844.88
Investments.....	254,776.84	347,424.84	765,447.34
Accrued Interest.....	719.19	1,979.17	5,447.21
Prepaid Insurance.....	2,024.22	11,169.33	7,673.68
	<u>\$2,243,777.17</u>	<u>\$2,851,443.43</u>	<u>\$2,666,794.50</u>
<b>Other Assets</b>			
Refundable Excess Profits Tax.....	176,400.00	156,306.71	89,703.05
Life Insurance Policies.....	.....	1.00	1.00
Contracts and Goodwill.....	1.00	1.00	1.00
<b>Fixed Assets</b>			
Land, Buildings, etc., after depreciation.....	864,085.48	881,858.11	858,701.59
	<u>\$3,284,263.65</u>	<u>\$3,889,610.25</u>	<u>\$3,615,201.14</u>

# COMPANY, LIMITED

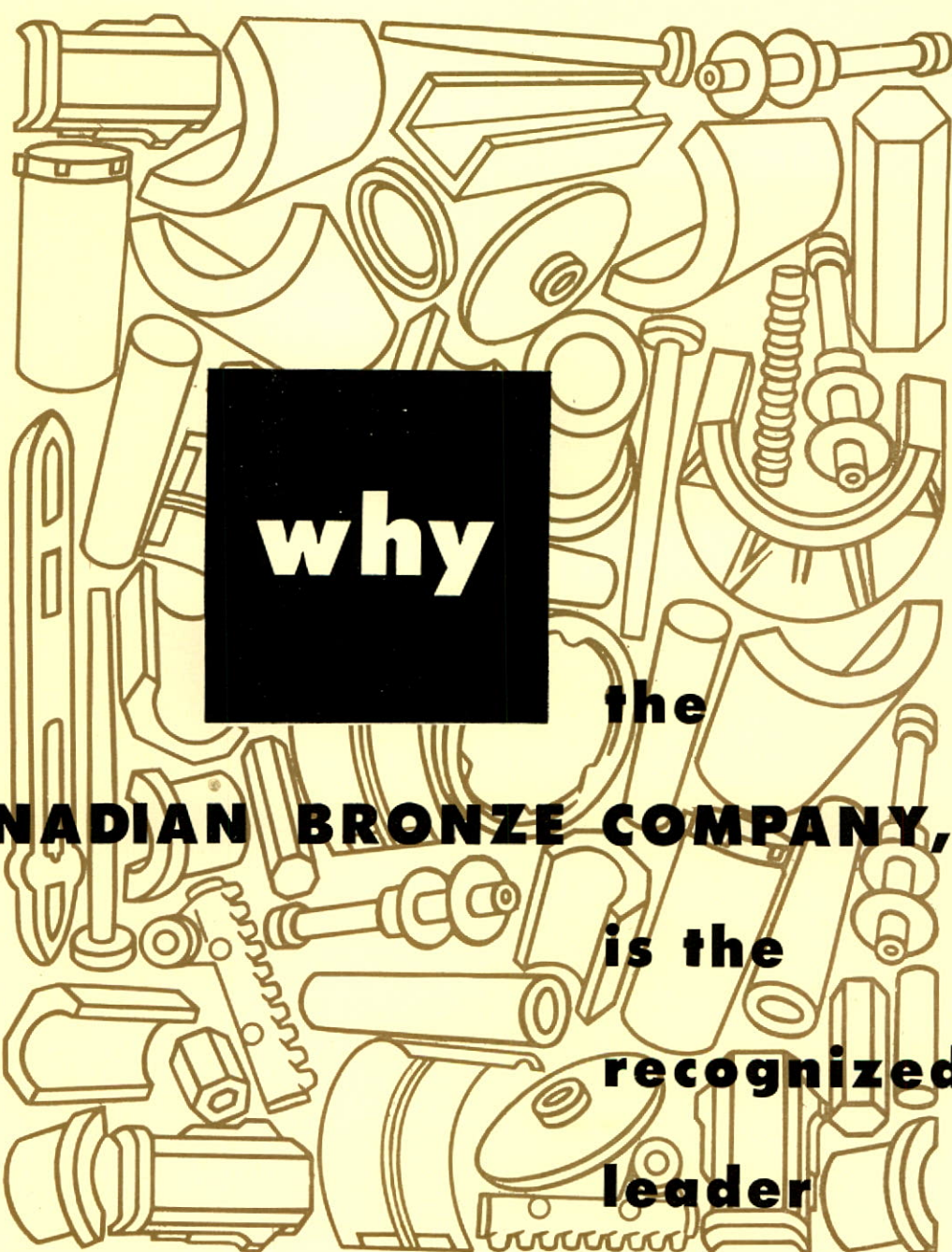
SUBSIDIARY COMPANIES

INCOME SHEET AS AT 31st DECEMBER

## LIABILITIES

	<u>1947</u>	<u>1948</u>	<u>1949</u>
<b>Current Liabilities</b>			
Bank Loan.....		\$ 175,000.00	
Accounts Payable.....	\$ 865,254.31	1,001,219.90	\$ 633,383.72
Dividends Payable.....	49,375.00	89,375.00	140,575.00
Income and Sales Taxes.....	251,388.78	170,867.58	200,319.02
	<u>\$1,166,018.09</u>	<u>\$1,436,462.48</u>	<u>\$ 974,277.74</u>
<b>Reserves</b>			
Inventory.....	77,287.33	375,287.33	375,287.33
Contingency.....	50,000.00	100,000.00	300,000.00
Insurance.....	16,049.45		
<b>Capital Stock and Surplus</b>			
Preference Stock.....	750,000.00	750,000.00	750,000.00
Common Stock.....	197,395.24	197,395.24	197,395.24
Earned Surplus.....	851,113.54	874,158.49	928,537.78
Special Surplus, E.P.T.....	176,400.00	156,306.71	89,703.05
	<u>\$3,284,263.65</u>	<u>\$3,889,610.25</u>	<u>\$3,615,210.14</u>





**why**

**the**

**CANADIAN BRONZE COMPANY, LIMITED**

**is the**

**recognized**

**leader**

**in its**

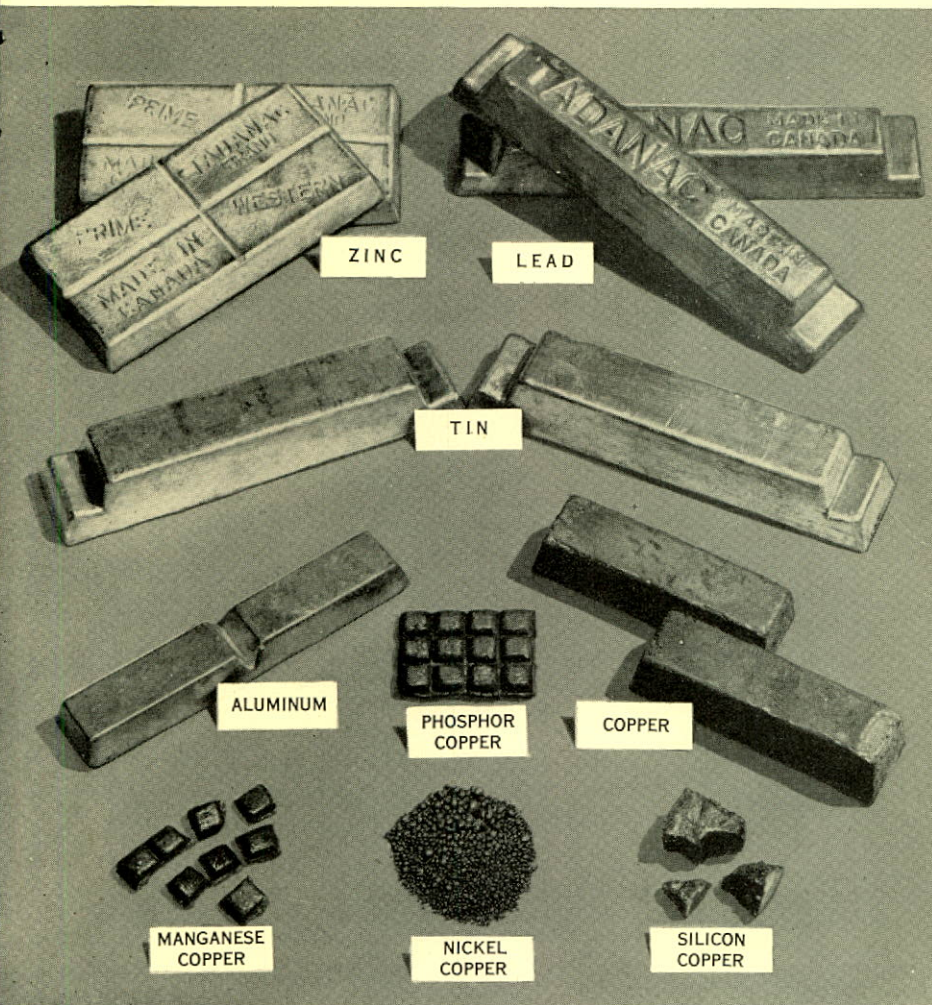
**field**



**CONTROL of raw materials**



# CONTROL of base metals



1.

1. Certain base metals are essential to the operation of the brass and bronze foundry. Under the heading of base metals we include not only the pure metals such as lead, zinc, copper, tin, etc., but also binary alloys such as phosphor copper and nickel copper.

2. Many of the available grades of base metals contain only minute quantities of impurities. These are the grades that are purchased by the Canadian Bronze Company. The problem of ensuring that all contained impurities are held to less than certain well-defined maximum percentages is solved by applying a system of rigid analytical control to all base metal purchases.



2.

## CONTROL of ingot metal

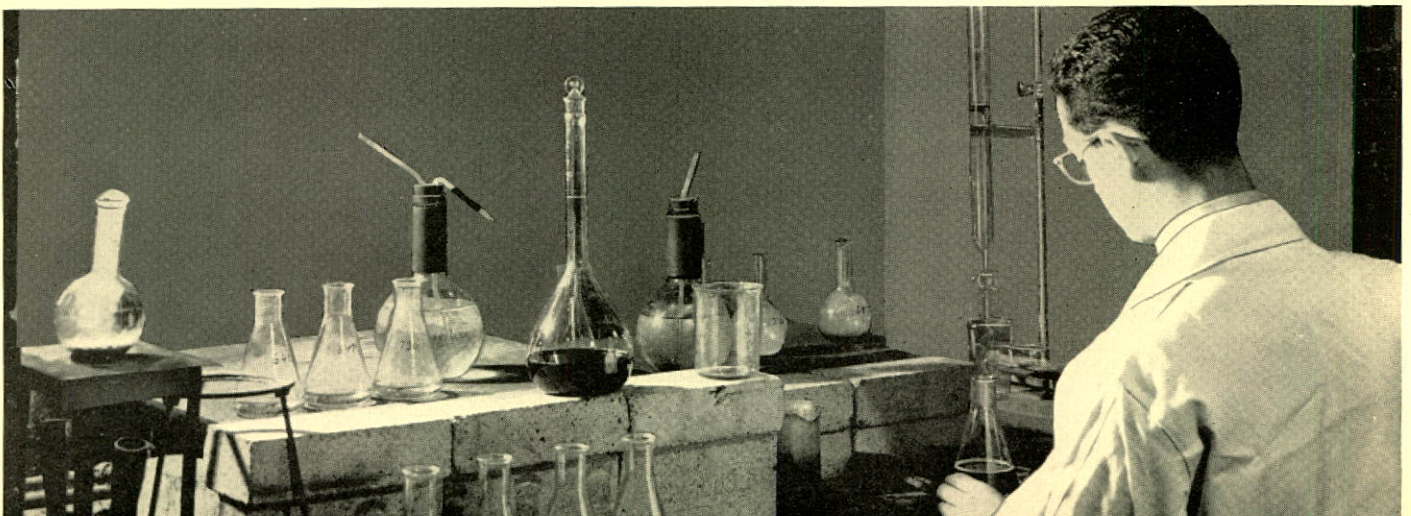


3. 3. The non-ferrous foundry is called upon to produce castings in a variety of alloys differing radically in chemical composition and mechanical properties. All of these alloys could be made in the foundry from their essential pure metals. It is advisable, however, from the point of view of composition control, for the foundry to purchase these alloys already compounded in the form of ingot metal.

4. 4. The buying of ingot metal requires that the foundry be prepared to demand that each alloy supplied meets certain specific chemical and mechanical requirements. The foundry must also be prepared to determine that each alloy meets these requirements exactly.

This the Canadian Bronze Company is equipped to do and, in so doing, has achieved two vastly important goals. Primarily it has evolved a comprehensive system of setting the chemical composition and mechanical properties requirements for each of its alloys by specification writing. Secondly, it has, by rigid analytical control, succeeded in holding all ingot metals to within the limits dictated by these specifications.

4.



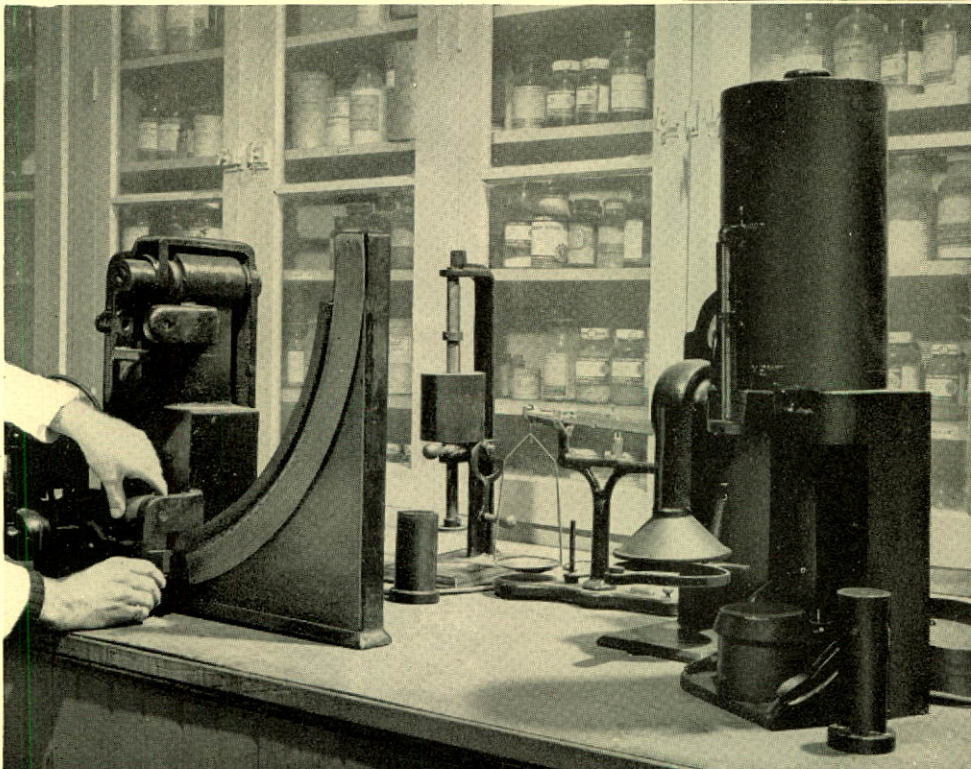
## CONTROL of moulding sand

5. Moulding sands and core sands of various types are required by the foundry to replace those lost gradually through use. In order that it will satisfactorily perform in its proper application, each type of sand must possess certain definite characteristics of strength, permeability and grain size.

5.



6.



6. All new sands are carefully checked, through the use of modern sand testing equipment, to determine whether or not they meet the required characteristics. These characteristics are clearly outlined in the specifications used by the Company to cover each type of sand required.



# **CONTROL of casting quality**

The first step in the production of a product from casting is the pattern or wooden mold. This is made from a material that is easy to work with and can be used for many years. The pattern is used to create a mold for the molten metal. The metal is poured into the mold and allowed to solidify. The finished part is then removed from the mold and finished.

The second step is the inspection of the finished part. This is done to ensure that the part meets the required specifications. The inspection is done by a trained inspector who checks the part for any defects. The inspector will check the part for any cracks, porosity, or other defects. If any defects are found, the part will be rejected and the mold will be repaired.

The third step is the final inspection of the finished part. This is done to ensure that the part meets the required specifications. The final inspection is done by a trained inspector who checks the part for any defects. The inspector will check the part for any cracks, porosity, or other defects. If any defects are found, the part will be rejected and the mold will be repaired.



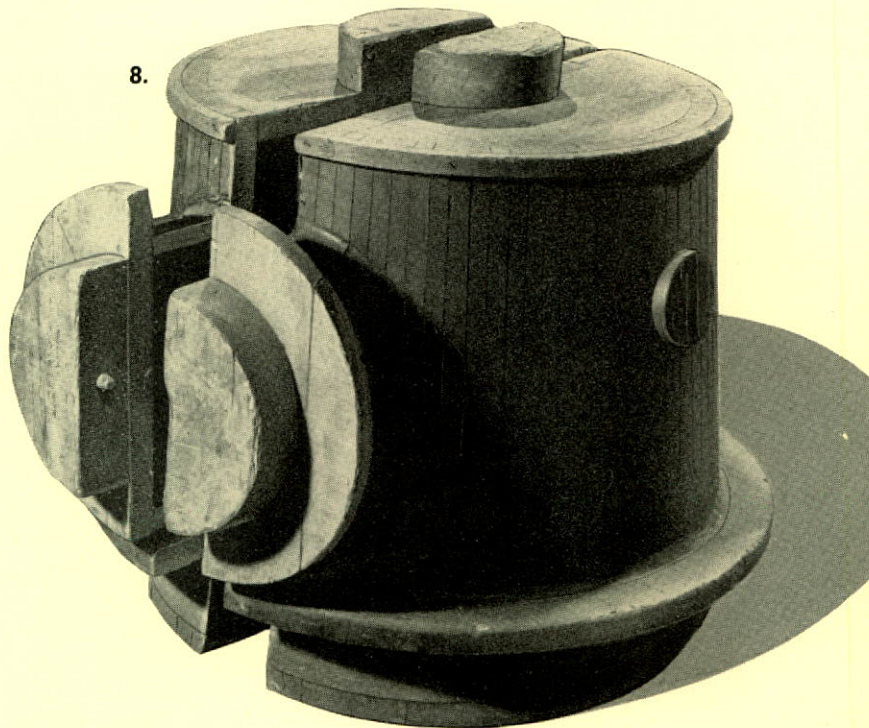
# Patterns

7.

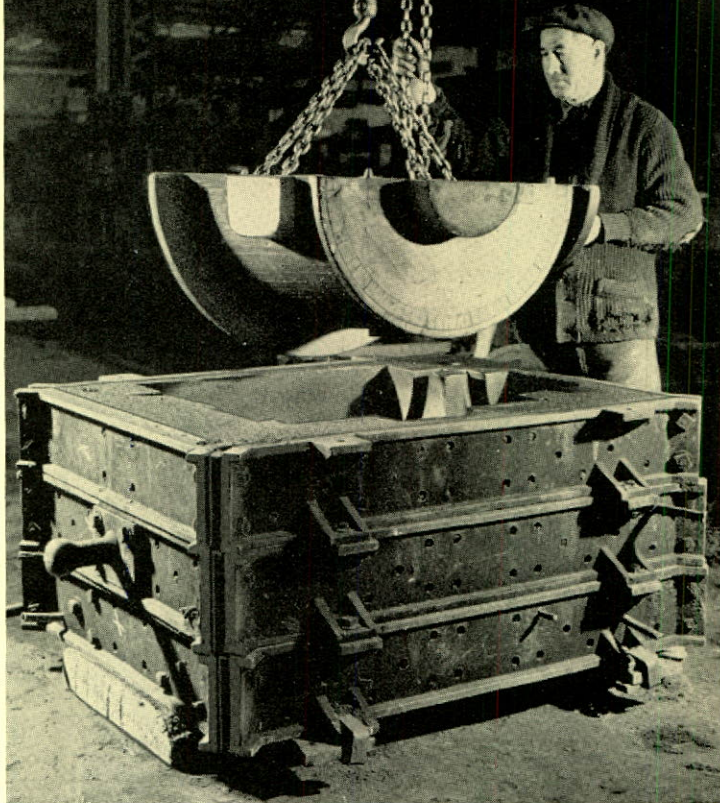
7. The first step in the production of a bronze or brass casting is the pattern or wooden form that dictates the shape of the final casting. Since any defect in a pattern may ultimately be transferred to the casting made to it, all patterns are carefully checked to ensure that they are free from defects. As an additional safeguard each pattern is checked for design in order to be sure that this design is such that it can be readily adapted to normal foundry production practices. All patterns, after checking, are catalogued and placed in a fireproof storage room.

8. The pages that follow give a graphic description of the processes and inspections that are standard practice with the Canadian Bronze Company in producing high quality brass or bronze castings. For our purpose we shall follow the production of a "suction elbow" casting, made from the pattern illustrated at the right, to its ultimate use.

8.



9. Every casting is made by pouring molten metal into a mould having internal voids designed to impart the desired shape to the particular casting involved. Castings are made either statically in dry or green sand moulds, or centrifugally in iron moulds or sand-lined steel moulds. The internal voids required in the sand moulds are formed by ramming moist sand around a pattern. In the accompanying illustration this pattern is subsequently withdrawn from the sand leaving behind it in the mould the spaces or voids having the desired shapes.



10. Two factors are essential in order that any mould will produce a quality casting.

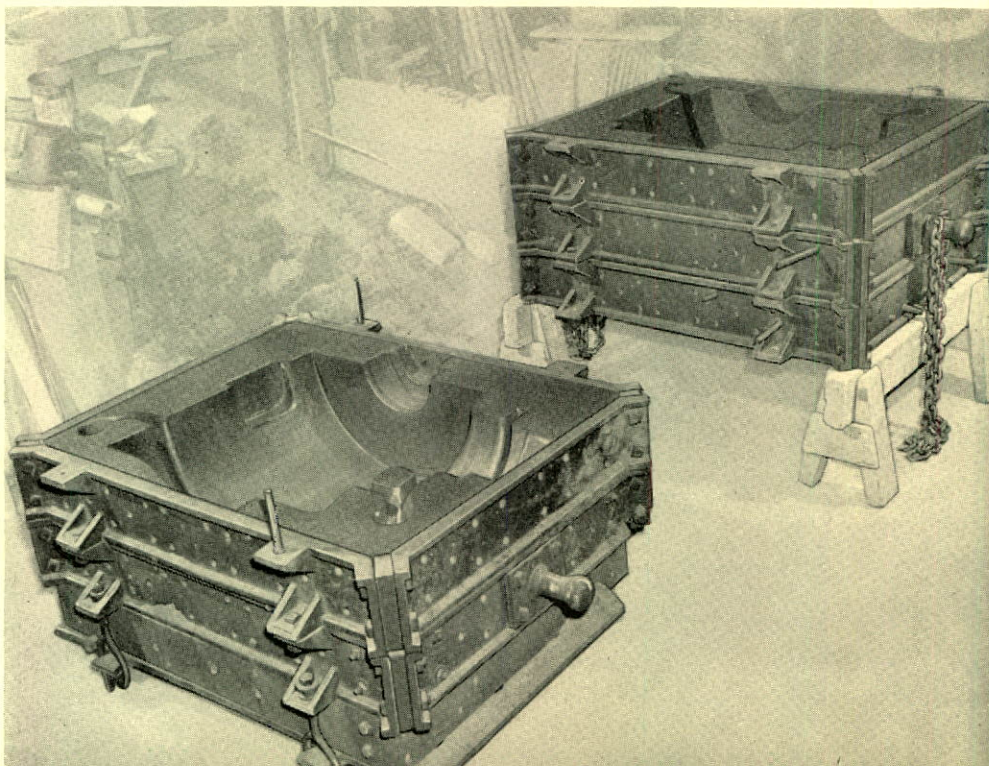
First, the moulder actually making the mould, and the moulding foreman supervising him, must be skilled and experienced men. It is their responsibility to be sure that each mould is made correctly with respect to the particular casting involved.

Second, the right type or grade of moulding sand must be used in making the moulds for different designs of castings. Only by a system of rigid routine control of all sands can they be held consistently to the characteristics required for each type. The Canadian Bronze Company, by employing skilled moulders, and

by applying the best methods of scientific sand control, provides quality castings from accurate moulds.

The foundry procedure involved in the production of the "suction elbow" casting requires the mould to be made up in two exact halves. In this case, since our casting is a symmetrical one, the two mould halves are almost identical where the shape and extent of the internal voids are concerned. For asymmetrical castings one half of the mould may present a radically different appearance from the other half.

10.



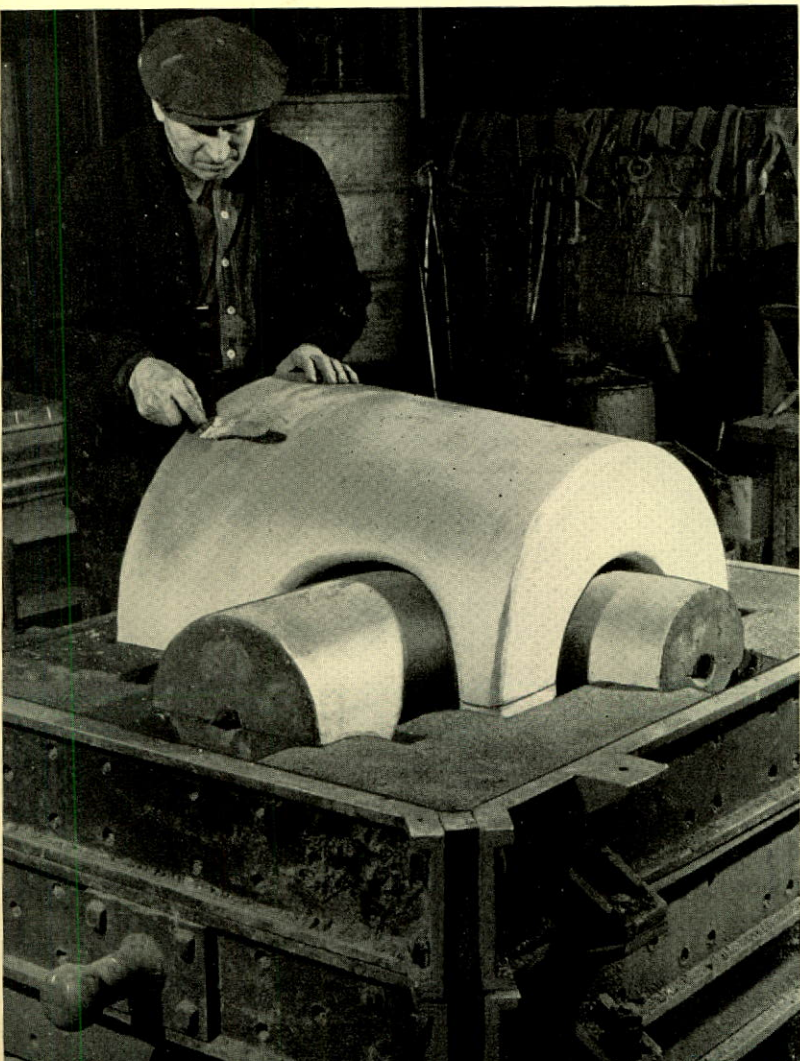
# Moulding

## Coremaking

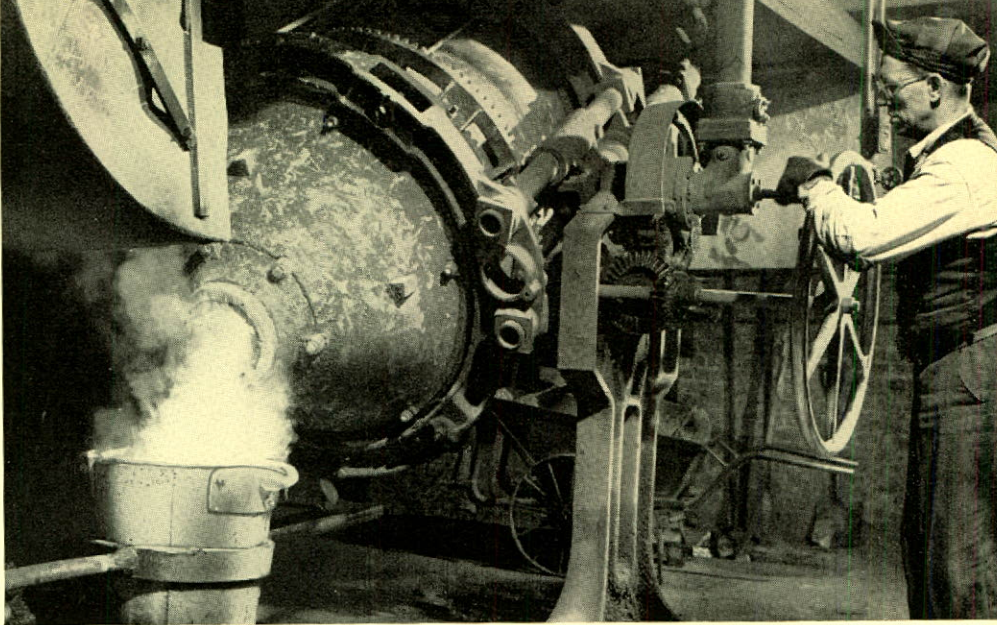
11. All castings are not solid throughout. Many have internal spaces of some definite shape. In order to obtain a casting having such shaped spaces molten metal is poured into a mould and around sand forms enclosed within the mould. These sand forms, known as cores, impart their shape to the interior of the casting. Coremaking, as is the case with moulding, requires the work of skilled and experienced men. The illustration at the right shows a coremaker laying in the steel wires used to strengthen the sand core.



12. The sand used to manufacture cores is known as core sand, and differs from moulding sand in that the grains are much coarser. When a sand core is to be made, binder substances such as oils or cereal materials, are added to core sand to cause the grains to adhere together. This mixture of sand and binder is shaped by manual methods or by machine methods, as the case may be. Subsequent baking of the shaped core hardens the oils or cereal substances and thus binds the grains firmly together. After baking, the cores are placed in the mould cavity before the mould is closed and readied for receiving the molten metal. Under our system of controls the selection of the type of binder, the ratio of binder substance to sand and the baking temperature ensures that each type of core will possess the properties required to produce a quality casting.



# Melting and Casting

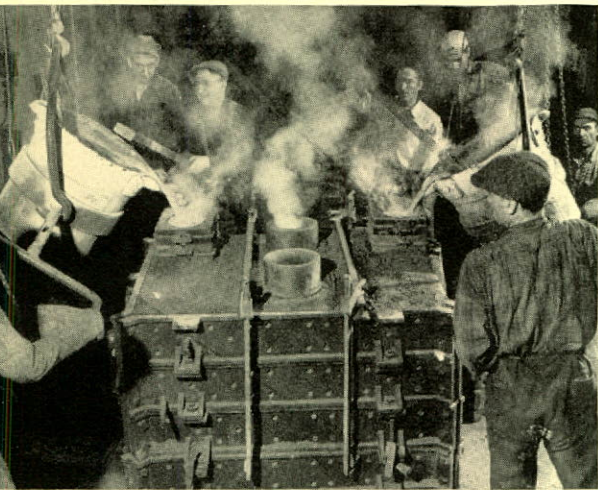


13. All of the care and precautions taken in connection with the selection of raw materials, the preparation of the moulds and the forming of the cores, come to naught if the molten metal brought to the moulds has not been melted and deoxidized properly. Care and control in preparing the metal for melting, the actual melting operation and the deoxidizing of the molten metal are factors that cannot be over-emphasized in the production of quality castings.



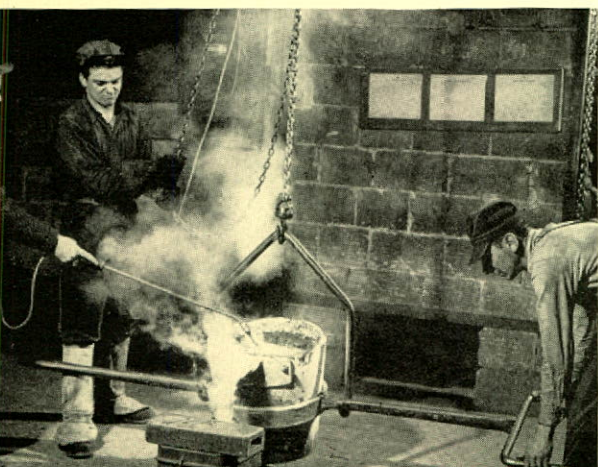
14.

14. The temperature at which a casting is poured is of vital importance if a sound casting free from defects is to be obtained. Only the most modern pyrometric equipment is used in the accurate recording of casting temperatures.



15.

15. The pouring rate for the entry of the metal into the mould cavity is carefully controlled in order to ensure that, for each type of casting, a rate of pouring adequate to the dimensions of the casting will be secured. The illustration at the left shows the pouring of the "suction elbow" casting.



16.

16. The only way in which the foundry can be sure that any alloy will possess the chemical composition and mechanical properties required for the castings involved is to check, both chemically and mechanically, test bars cast from representative melts of the alloy. In our organization a regular and thorough routine sampling system guarantees that all alloys cast will be in accordance with their respective specification requirements.

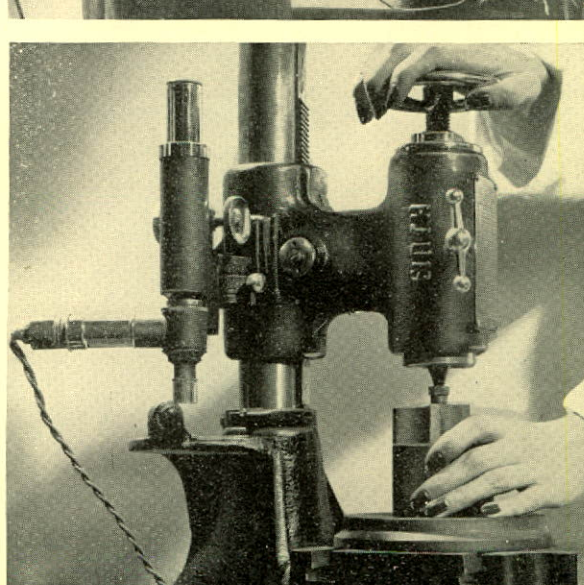
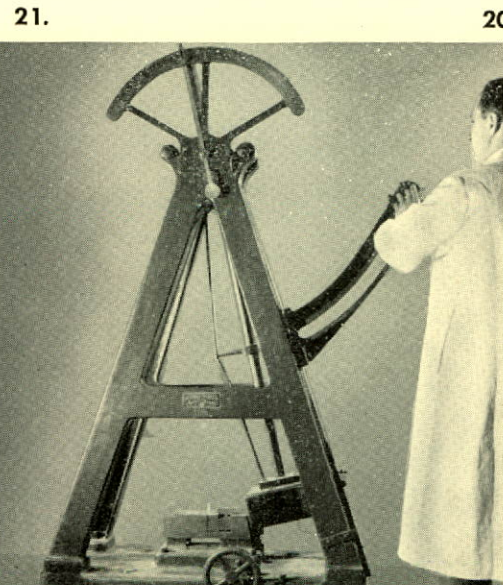
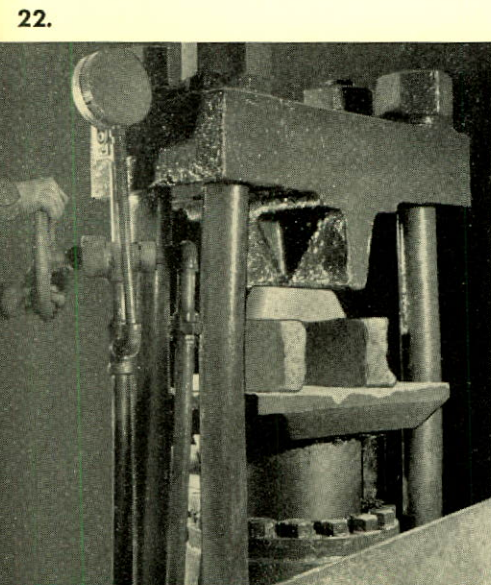
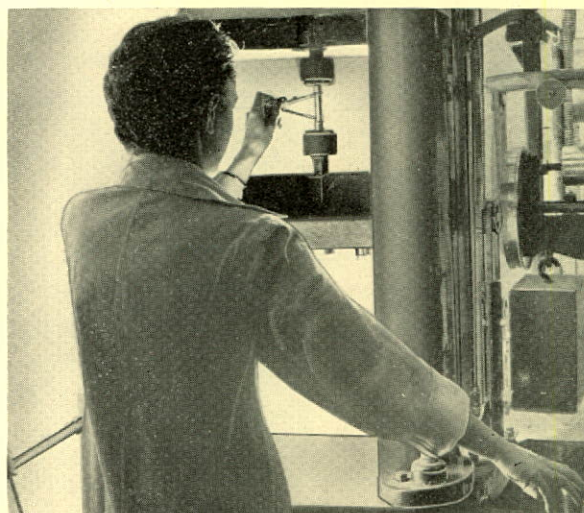
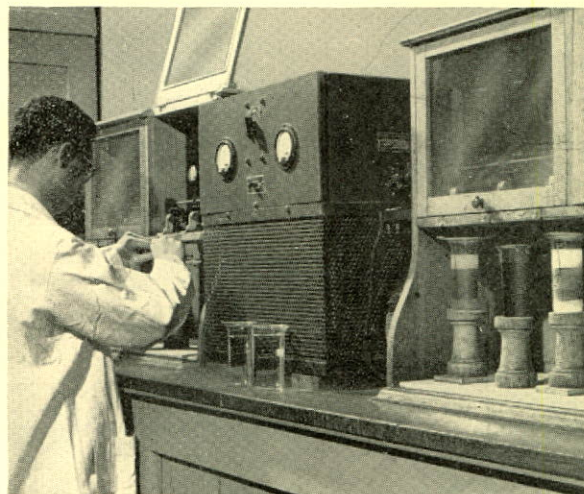
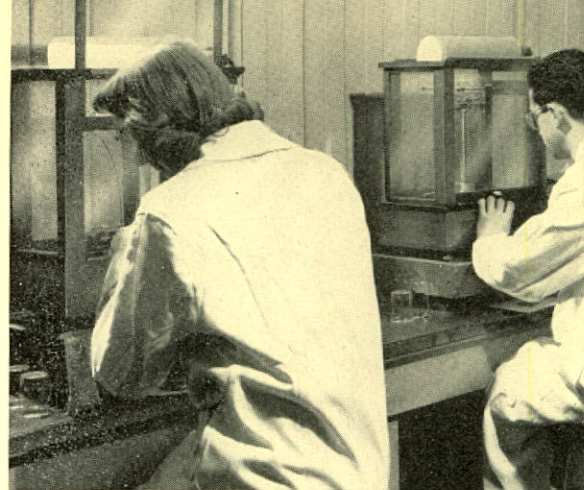


# Testing

17 - 18. The thoroughness of control of the chemical composition of raw materials has already been explained. This same control, pursued by trained technicians using the most modern of the instrumental methods of chemical analysis, extends to all phases of our routine checking of the composition of the various metals melted.

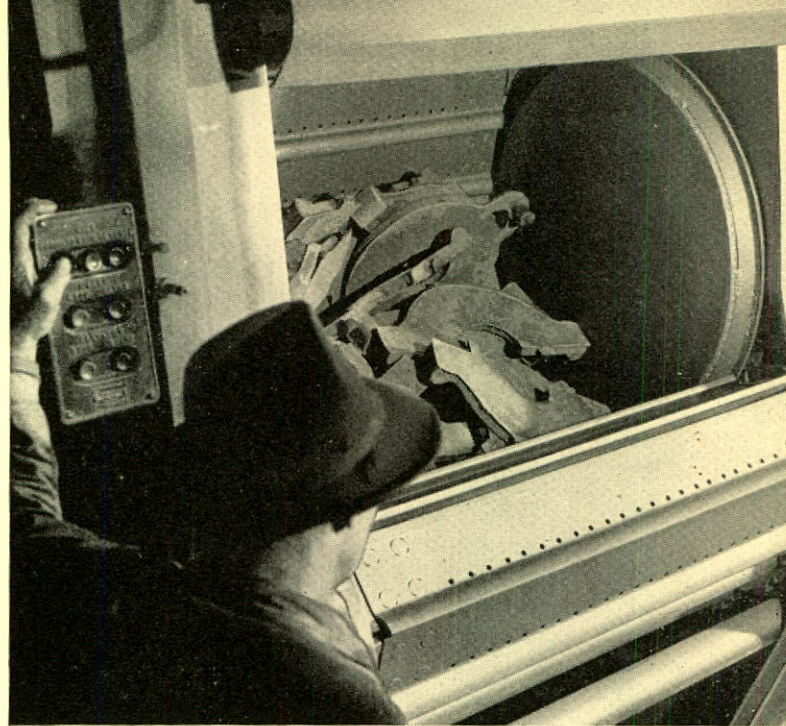
19 - 22. The laboratory is equipped with testing machines to determine tensile, shear and compression strength, impact resistance, hardness properties and grain structures.

The individual results obtained by chemical analysis and mechanical testing are considered from the point of view of the specification requirements. They are also studied with respect to the specific conditions surrounding the melt from which the test bars were obtained. Apart from these considerations, however, the individual test results are judged by comparing them with statistical data accumulated over many years and covering each particular alloy.



# Casting Cleaning

23.



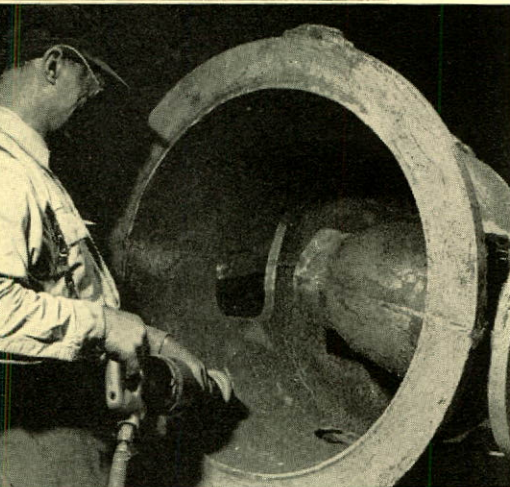
23. Once the casting has cooled sufficiently to permit its removal from the mould it is then ready for the cleaning operations. Foremost of these is the technique of airless abrasive cleaning. This is one of the most modern and efficient methods for cleaning castings.

24.



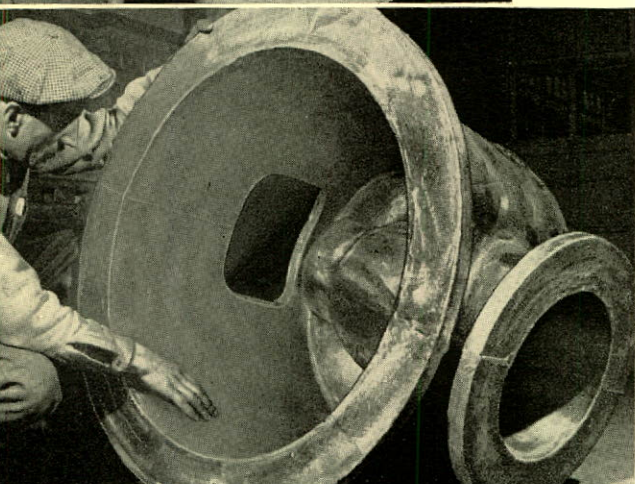
24. The casting is then chip-cleaned or fettled, using pneumatic chipping chisels, to remove casting fins and any other minor surface protrusions that may exist.

25.



25. The final cleaning operation is that of grinding and, in this operation, all irregularities on the external surfaces, as well as those that may exist internally, are removed.

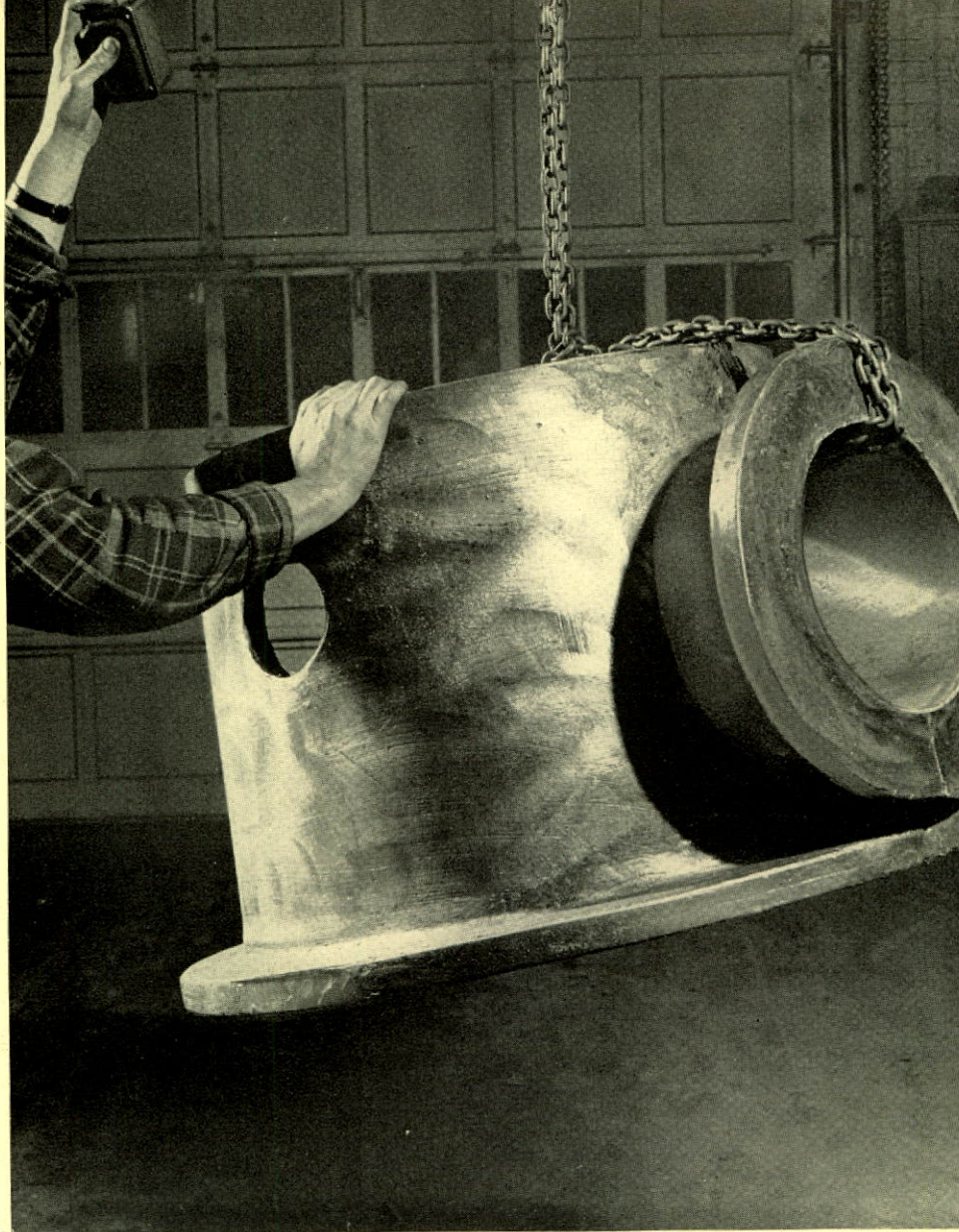
26.



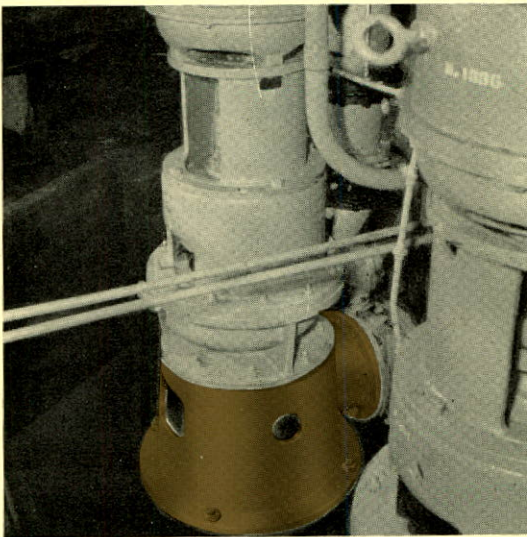
26. As a final protection to the customer the thoroughly cleaned casting is inspected for any defects that might prove to be injurious under the service conditions to which the casting is to be subjected.

## Follow-through to Customers

27. Here, then, is the "suction elbow" ...the result of a carefully supervised series of events that extends directly from the wooden pattern to the final casting. It represents the successful collaboration of experienced foundry supervision and skillful scientific control.



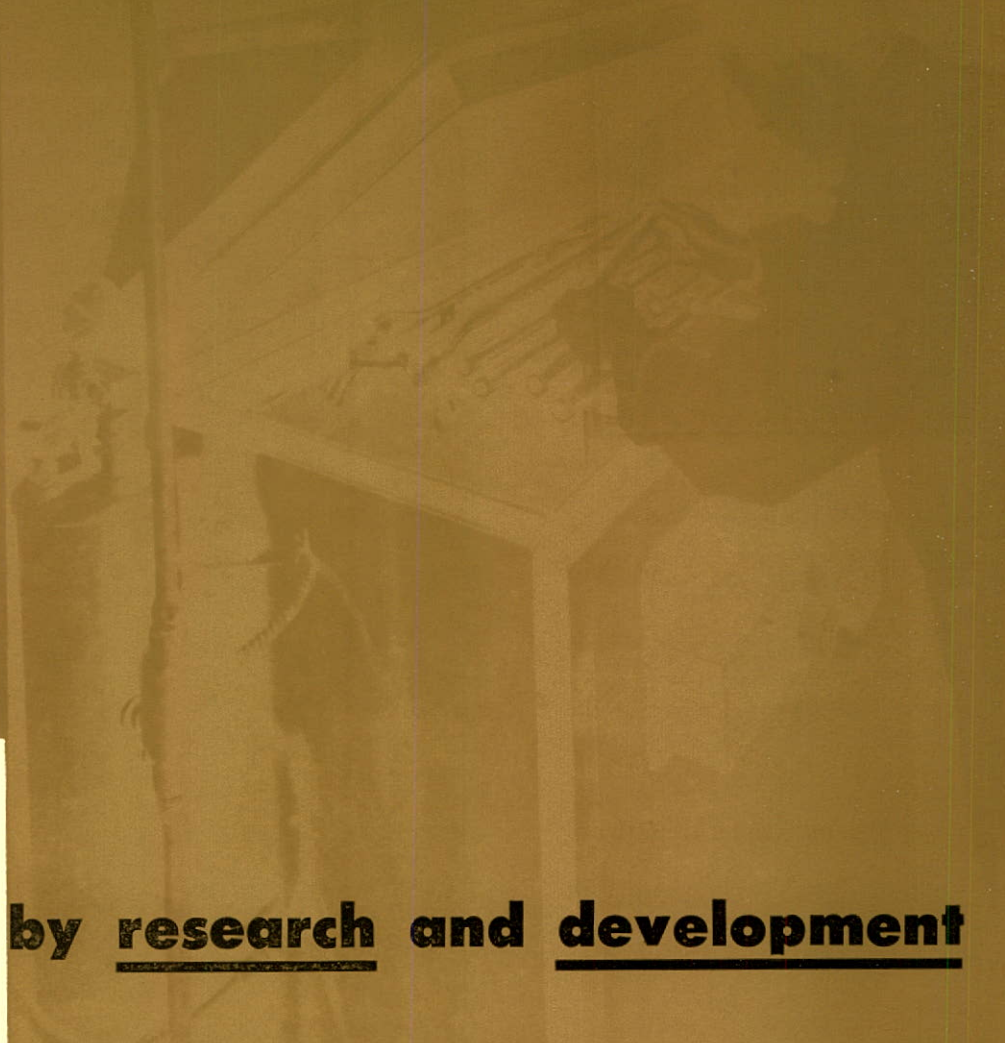
28.



28. The story does not end here, however. Complete control of casting quality demands that any casting, once delivered to the customer, be followed up and its performance under service

conditions carefully checked. This extremely important follow-through to the customer is handled by our Service Department. A group of experienced service engineers are continually engaged in the checking of castings after delivery to our customers.

... One of the...  
... Canadian...  
... limited...  
... as well as...  
... in the...  
... of all...  
... in order...  
... will be...  
... have...  
... modern...  
... This...  
... soft...  
... A.S.T.M.,...  
... U.S. Navy...  
... results...  
... to point...  
... and...

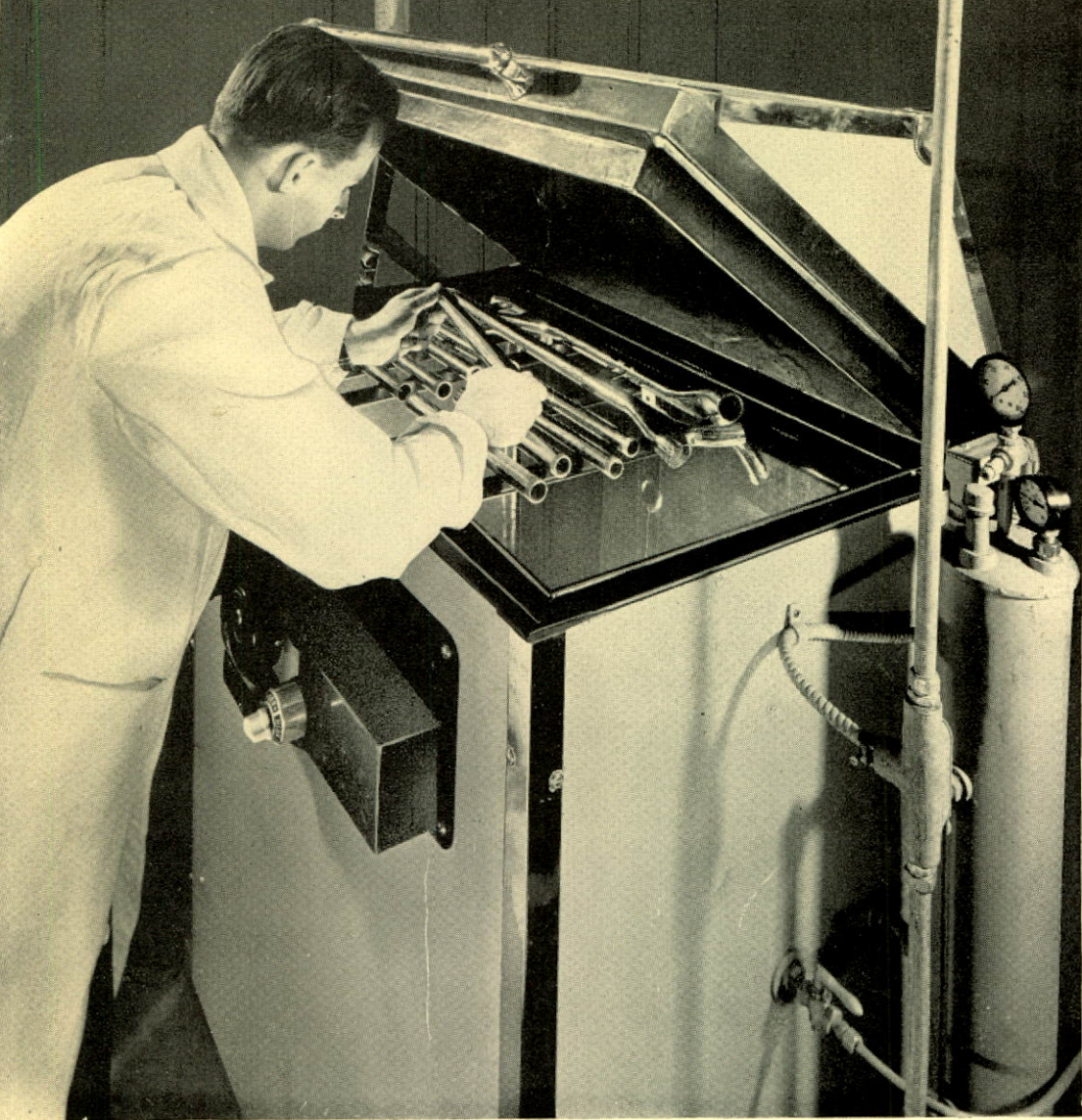


**CONTROL**

**by research and development**



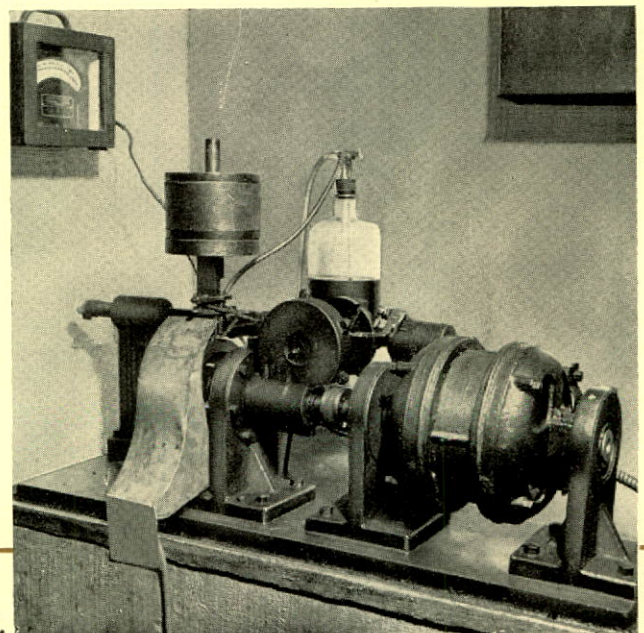
... important...  
... for the...  
... To maintain...  
... largest...  
... designed...  
... employed...  
... quality...



29.

29. One of the plants operated by the Canadian Bronze Company, Limited is engaged as part of its regular operations in the production of electro-plated coatings of all types. In order to guarantee that this work will be of high quality we have installed one of the most modern salt fog testing cabinets. This unit is used in conducting salt fog corrosion tests to A.S.T.M., A.E.S., U.S. Army and U.S. Navy specifications. The results of these tests are used to point the way to changes and improvements that can be made with a view to securing plated coatings of even higher quality and greater dependability.

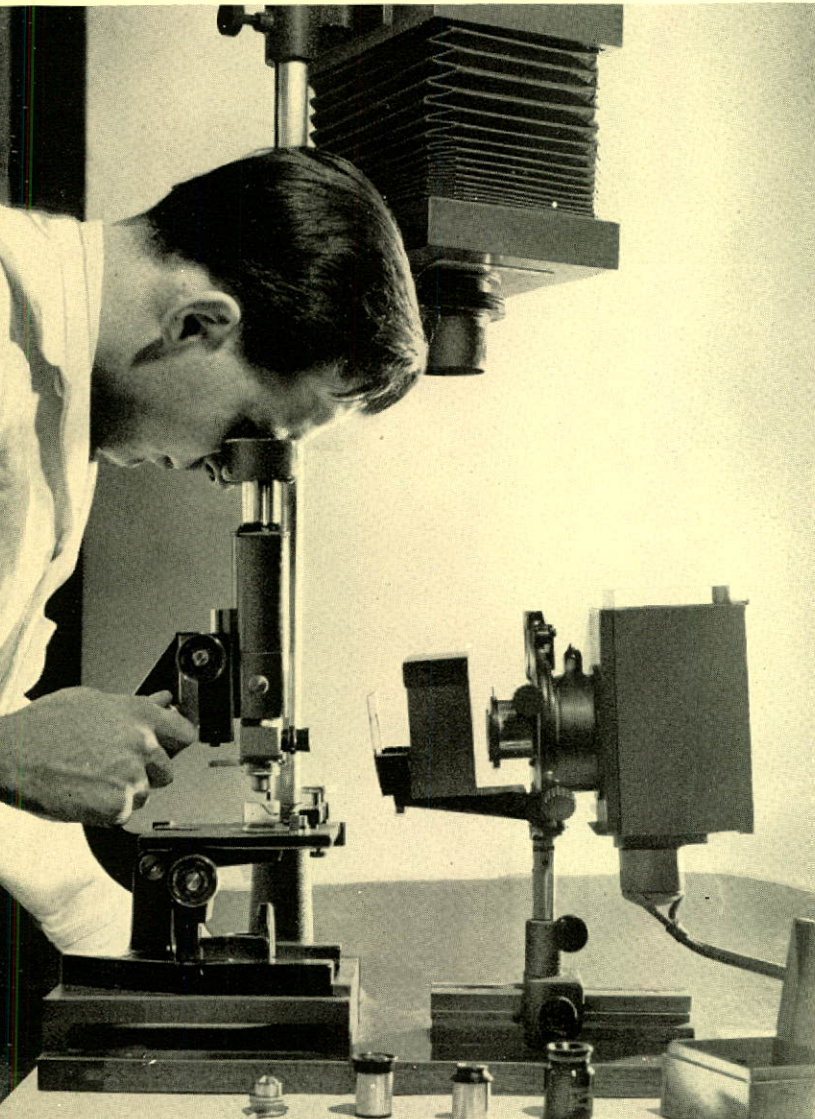
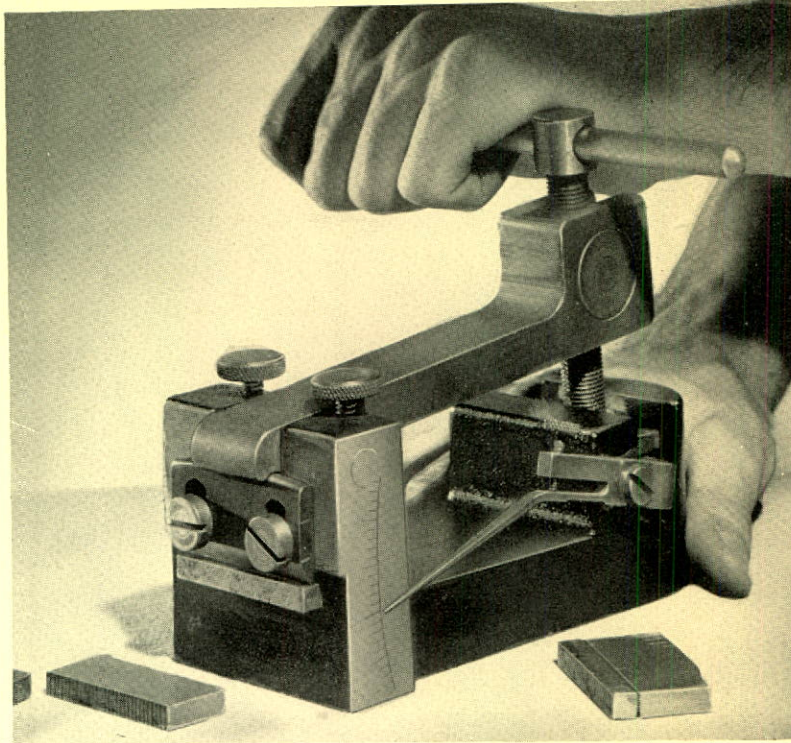
30. An important facet of the operations of the Canadian Bronze Company is the manufacture of bearings for the Canadian Railways and industry in general. To maintain our position as Canada's foremost and largest manufacturer of bearings an abrasive wear testing machine, designed and built by our own technicians, is employed to conduct research studies into the wearing qualities of bearing metals.



30.

31. The Canadian Bronze Company plays a most important part in Canada's transportation industry in supplying the Canadian railroads with journal bearings for use on freight and passenger cars. Journal bearings of this type have a solid bronze back, lined with an alloy of lead, tin and antimony. One of the factors that must be carefully controlled in such a bearing is the adhesion between the metal lining and the bronze back. Constant supervision, accurate control of the temperature at which the babbitt metal is poured, and testing of the bond between the lining and the bronze assure satisfactory performance in service.

31.



32.

32. A study of the microstructure of brass and bronze alloys provides a means of controlling the melting and casting operations. The Company maintains, for research purposes, a fully-equipped metallographic laboratory for the study of alloy microstructures.

*Wholly Owned Subsidiaries of*

**CANADIAN BRONZE COMPANY, LIMITED**

MONTREAL BRONZE, LIMITED

NORTHWESTERN BRASS, LIMITED

ST. THOMAS BRONZE COMPANY, LIMITED

DIAMOND BRONZE COMPANY INC.

WINNIPEG BRASS LIMITED

NATIONAL BRONZE COMPANY, LIMITED

