CRANE CO.

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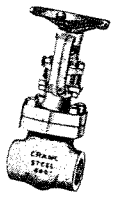
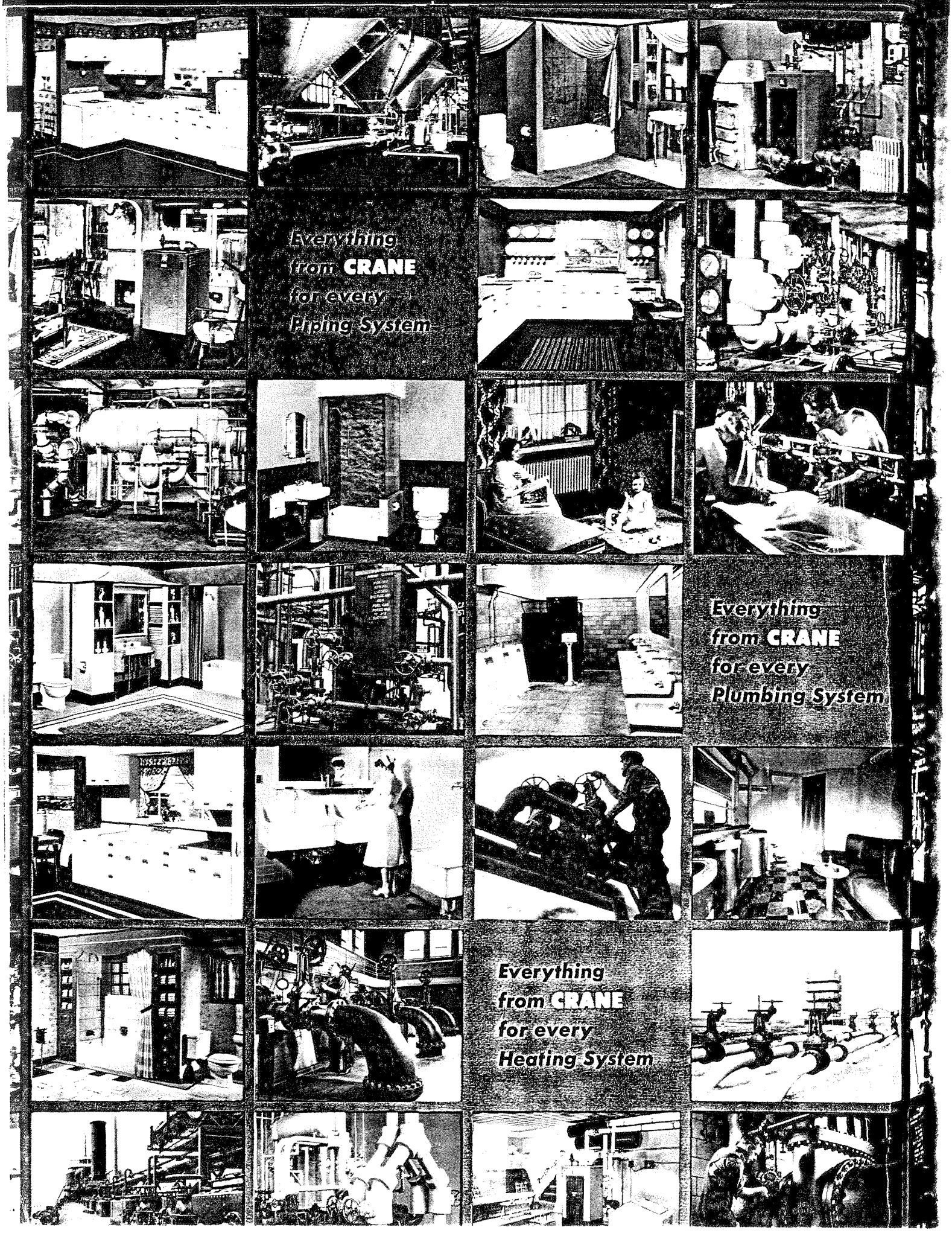


ANNUAL REPORT

CRANE CO.

OUR NINETY-SECOND YEAR


Everything
from CRANE
for every
Piping System
Everything
from CRANE
for every
Plumbing System
Everything
from CRANE
for every
Heating System

ANNUAL REPORT

FOR THE YEAR ENDED DECEMBER THIRTY-FIRST

1947

CRANE CO.

836 SOUTH MICHIGAN AVENUE, CHICAGO

Founded 1855 Incorporated 1865

DIRECTORS

Arthur O. Choate
John H. Collier
C. R. Crane, II
G. A. Eastwood
J. L. Holloway
Gordon H. Kellogg
Mark W. Lowell
E. H. McDermott
P. R. Mork
William R. Odell

OFFICERS

John H. Collier, *Chairman*

J. L. Holloway ..... *President*
P. R. Mork ..... *Executive Vice President*
C. R. Crane, II ..... *Vice President*
J. A. Dwyer ..... *Vice President*
V. P. Rumely ..... *Vice President*
H. F. Potter ..... *Secretary*
Walter Evensen ..... *Treasurer*
F. H. Kaiser ..... *Comptroller*
E. E. Wyatt ..... *Assistant Comptroller*
I. A. Cothrin ..... *Assistant Secretary*
A. R. Glass ..... *Assistant Secretary*
H. H. Bunchman ..... *Assistant Treasurer*
C. W. Dittmar ..... *Assistant Treasurer*
J. K. O'Neill ..... *Assistant Treasurer*

STOCK TRANSFER AGENTS

J. P. Morgan & Co., *Incorporated*
Wall and Broad Streets
New York City

A. R. Glass, *Transfer Clerk*
Crane Co., 836 South Michigan Avenue
Chicago, Illinois

REGISTRARS OF STOCK

The Chase National Bank
of the City of New York
Pine and Nassau Streets
New York City

Continental Illinois National Bank
and Trust Company of Chicago
231 South La Salle Street
Chicago, Illinois

ANNUAL REPORT

To the Shareholders of Crane Co.:

The Management presents with the approval of the Board of Directors the Annual Report covering the operations of your company for the year 1947.

FINANCIAL REVIEW

Statements of Profit and Loss and Surplus for the year, and a Balance Sheet as of December 31, 1947, for the company and its United States subsidiaries consolidated, together with statements reflecting the net assets and the results of operations of the wholly owned subsidiary companies located in Canada and England, and a certificate of Arthur Young & Company, independent public accountants, are shown on pages 8 to 13.

The financial and statistical information contained in this report is, except where the context indicates otherwise, on a basis of consolidating only the figures of the United States companies and relates to the year 1947.

CONSOLIDATED PROFIT AND LOSS STATEMENT

The Profit and Loss Statement shows $12,744,072 of net profit transferred to earned surplus for the year. This is equal to $5.17 per share on the 2,348,628 Common Shares outstanding after allowance for the dividend requirements of the 3¾% Cumulative Preferred Shares. It compares with $8,597,317 of net profit transferred to earned surplus for the year 1946.

Sales:

Net sales amounted to $191,672,400 for the year 1947 compared with $142,445,818 for the year 1946. The demand for the company's products continued at high levels and the dollar volume of sales for the year was the highest in its history. The company's program for increasing the use of its extensive distribution system for the sale of products manufactured by others was continued and the sales of such products again accounted for nearly 50% of total net sales. In line with this program the company, during the year, made a substantial equity investment in AllianceWare, Inc., Alliance, Ohio, and is distributing on a non-exclusive basis, the enameled steel plumbing fixtures manufactured by that company.

Notwithstanding the satisfactory dollar volume of sales the year was not without difficulties. Material shortages and inability to obtain adequate supplies caused delays in the production lines and handicapped deliveries to our customers. It should be kept in mind too, that because of the reduced value of the dollar and higher operating costs, selling prices were also on a higher level. Consequently, physical volume of output and sales was not comparatively as great as indicated by the dollar volume.

Cost of Sales:

Net profits from operations in the United States only, after reserves, taxes and appropriations, but before dividends, amounted to approximately 5½ cents on each dollar of sales. There is included in cost of sales, selling, administrative and general expenses, a charge of $1,080,000 as provision for possible future price decline on the principal part of the company's inventory not carried on "Last-in, First-out" basis of inventory valuation which is discussed under the heading "Inventories"; also an item of

$1,500,000 toward provision for future payments in recognition of past services of employees. Although having no formal pension plan it has long been the practice of the company to pay pensions to aged employees of long service. During the year such payments in the United States amounted to $487,924. The provision of $1,500,000 was in addition to a similar provision during 1946 in the amount of $500,000, both of which were made with a view to more fully assuring the company's ability to make pension payments in the future. If a formal pension plan is later adopted under the authority currently requested of the shareholders, this reserve or any balance thereof might then be used toward funding the past service benefits under such plan.

A chart illustrating in condensed form the disposition of the sales dollars for the year 1947 is given on page 7.

Additions to Plant and Equipment:

Depreciation charged to operations in 1947 amounted to $2,315,815 compared with $2,008,714 in 1946. The charge for depreciation of machinery and equipment is established on a basis of the estimated remaining life of the individual item. The charge for depreciation of buildings and structures is computed at rates established from the experience of this and other companies for the various types of construction. This has been the general depreciation policy of your company for many years.

While the provision for depreciation is generally considered the appropriate charge for absorbing the original cost of depreciable assets, it does not include any provision for the extra cost of replacing such assets at present price levels. Accordingly, pursuant to action taken by the Board of Directors, $500,000 has been appropriated out of 1947 earnings toward the excess of anticipated replacement cost over the original cost of machinery and equipment. This appropriation, and a similar appropriation in the same amount during 1946 do not purport to represent the extra cost which would be encountered were the company faced with replacing all of its machinery and equipment at present prices. For example, it is estimated that the depreciation on machinery and equipment charged during 1947 would have been increased by $900,000 had it been computed on a basis of replacement cost of such items at the end of 1947, rather than the actual cost of acquisition. Similarly, the entire depreciation reserve for machinery and equipment would have to be increased by $14,238,000 if it were to reflect the required reserve based on such replacement cost. This factor is not of comparable significance in regard to buildings in view of their much more permanent nature. However, it is to be remembered that they too will eventually have to be replaced, and present indications are that such replacement cost may greatly exceed the original cost of those in use.

During the year the company expended $4,691,710 for replacements and additions to property, plant and equipment compared with similar expenditure in the amount of $5,132,759 during 1946. The amount for 1947 is comprised of $38,200 for land, $1,123,564 for buildings, and $3,529,946 for machinery and equipment. The expenditures for buildings were largely for additions to the company's Chattanooga plant and the construction of two new branch warehouses. The additions to machinery and equipment included items for the production of new products, but consisted largely of replacements of slower and less efficient machinery.

Operations of Foreign Subsidiaries:

Operations of the wholly owned foreign subsidiaries located in Canada and England continued at satisfactory levels during the year. Net profits of the wholly owned Canadian subsidiaries for 1947 were $1,464,931 compared with $1,401,866 for 1946, and the net profit of the subsidiary company in England amounted to $916,302 compared with $837,506 for the previous year. Summary statements of the net assets at December 31, 1947, and of their operating results for the year are given on pages 11 and 12 of this report.

The income of $1,591,045 shown as dividends from the Canadian subsidiary represents in effect a dividend of $1,194,030 from the operations of the Canadian subsidiaries, and a dividend of $397,015 from the subsidiary in England, which dividend was paid first to the principal Canadian subsidiary, it being the parent of the subsidiary in England. The principal Canadian subsidiary received an additional dividend of $321,399 from the subsidiary in England. This dividend was retained by the Canadian subsidiary to aid in financing the purchase of a controlling equity interest in AllianceWare, Limited, Vancouver, British Columbia, Canada, and in Crane Steelware, Limited, Quebec City, Quebec, Canada.

The principal operation of AllianceWare, Limited, is the application of porcelain enamel to pressed steel forms of sanitary ware, which are purchased from AllianceWare, Inc., Alliance, Ohio. Crane Steelware, Limited, was organized in 1947 but at the end of the year had not engaged in productive operations. Its operation to start with will be the application of porcelain enamel to pressed steel forms of bath tubs and flat rim sinks and other steel sanitary ware, but ultimately it will also engage in the forming of parts and in some cases in the entire production of enameled steel sanitary ware.

Taxation:

During the year the company paid or accrued in combined direct taxes of all kinds in the United States a total of $11,566,393 including $9,129,506 as provision for federal income taxes.

Dividends Paid:

A total of $6,691,058 was paid in dividends during 1947. This consisted of regular quarterly dividends at the annual rate of $3.75 per share on the 3¾% Cumulative Preferred Shares amounting to $584,625, and regular quarterly dividends of $.40 per share and a special dividend of $1.00 per share on the Common Shares totaling $2.60 per share or $6,106,433.

CONSOLIDATED BALANCE SHEET

Financial Condition:

Net working capital, as of December 31, 1947, amounted to $64,409,509 which represents an increase of $4,739,189 over the comparable position at December 31, 1946. The ratio of current assets to current liabilities was 6.21 to 1 at the close of 1947 as compared with 6.04 to 1 at the close of the previous year.

Inventories:

Consolidated inventories, which a year ago totaled $31,143,746, after deducting the provision for possible future price decline, increased by $3,838,672 to a total of $34,982,418 on a comparable basis. This increase resulted from an increase of $328,527 in raw materials and supplies, a decrease of $1,613,259 in work in process, and an increase of $5,123,404 in finished goods.

The major portion of the inventory is priced on the basis of the "Last-in, First-out" method of inventory valuation. The principal part of the remaining inventory is priced at the lower of cost or market but has been reduced by a taxable reserve of $2,420,000 provided for possible future price decline. This

reserve has been deducted from the applicable inventory accounts and has the effect of stating such inventories on a basis substantially equivalent to the "Last-in, First-out" method. As a result, inventories at December 31, 1947, priced at cost on a "Last-in, First-out" or substantially equivalent basis, aggregated $33,806,561 and the remainder, aggregating $1,175,857, representing special order products, is priced at the lower of cost or market.

Open commitments for raw materials made in the ordinary course of business amounted to approximately $836,000 at the end of the year. Prices thereon were substantially the same as current market quotations.

Investment in Foreign Subsidiaries:

Except for the two recently acquired subsidiaries mentioned under the heading "Operations of Foreign Subsidiaries" the foreign subsidiaries of the company located in Canada and England are wholly owned. The company's investment in them is carried in the balance sheet at cost, namely $12,000,000. The company's equity in the surplus of its wholly owned foreign subsidiaries, which amounted to $7,608,272 at December 31, 1947, when computed at official rates of exchange, is not included in the consolidated surplus.

During 1947 the company acquired a small minority interest in capital stock of the Nederlands-Amerikaanse Fittingfabrick, which company was formed in Holland under the sponsorship of agencies of the Netherlands Government, for the erection of a plant and the production of whiteheart malleable iron fittings at Deventer, Holland. In consideration for this investment the company transferred to the Dutch interests its equity in 46,000,000 francs on deposit in France, and restricted by the French Government as to practically any use, and also agreed to deposit in escrow to the credit of the Dutch company approximately $150,000 for use by that company in purchasing machinery and equipment produced in this country. The "frozen" francs represented practically all of the remaining proceeds from the sale of the company's interest in a plant located in Paris, France, as reported in a previous year. The investment in the Dutch company is restricted as to sale or transfer for a period of years.

Sinking Fund for 3¾% Cumulative Preferred Shares:

The 3¾% Cumulative Preferred Shares are subject to sinking fund requirements as follows: On or before April 30 in each year beginning with the year 1947 the company is to pay over in cash to a sinking fund agent appointed by the Board of Directors, as a sinking fund for the redemption or purchase of shares of such series, an amount equal to the amount by which the consolidated net income of the company and its domestic subsidiaries for its latest fiscal year ended prior to the preceding January 1 shall exceed the sum of (i) all dividends (whether or not paid) accrued during such year on the outstanding Preferred Shares plus (ii) $2,500,000, but the amount so to be paid over to the sinking fund agent with respect to any such fiscal year shall not exceed $320,000. Against its obligation to make the cash sinking fund payment in any year the company may, at its election, take credit for shares of such series purchased or redeemed by it otherwise than through the sinking fund.

During the year the company purchased 5,600 shares of its 3¾% Cumulative Preferred Shares at an aggregate principal cost of $573,350, all purchases being at less than the sinking fund redemption price. On or before April 30, 1948, 3,135 of these shares will be deposited with the sinking fund trustee in lieu of $320,000 cash payment which otherwise would be required.

Reserve for Contingencies:

During the war years the Board of Directors provided from earnings a Reserve for Contingencies totaling $13,000,000 against possible losses and costs resulting from the war. By appropriate transfer to Earned Surplus this reserve at December 31, 1946 had been reduced to $2,000,000 which amount, in the opinion of the Board of Directors, is still necessary to provide for contingencies which have not been eliminated.

Litigation:

In last year's annual report attention was called to the fact that the company and its manager of plumbing and heating sales, together with approximately seventy other defendants, both corporate and individual, were on trial in the Federal District Court in Cleveland, Ohio, under an indictment, returned in 1940 and continued during the war, charging conspiracy to restrain trade in the sale of plumbing supplies. The case was terminated on April 8, 1947, when the court entered an order at the close of the Government's case, acquitting all defendants.

In December, 1946, a "portal to portal" action was instituted against the company claiming approximately $7,400,000, together with an equal amount as liquidated damages and attorneys' fees. It is believed that these claims are barred by the Portal to Portal Act of 1947. The company's liability, if any, is not now determinable.

General:

The physical properties of the company have been maintained in excellent condition. Substantial progress has been made in improving its products and in developing better methods for producing these products. Major attention has been devoted to maintaining a sound and aggressive enterprise and to producing better and better products at the lowest cost consistent with high quality.

Subject to unfavorable economic developments or other circumstances over which the company has no control, the business prospects of the company for 1948 appear favorable. Generally speaking the activity of the company is closely allied to industrial, commercial and residential construction, and the back-log of construction demand continues to appear large. However, production of the plumbing and heating industry has been substantially increased and supply may well reach and exceed the demand in these categories during 1948. Also, construction costs continued to increase during 1947 and the present level may prove a deterrent in many instances. In this connection, it will be observed from the chart on page 28 of this report that the cost of plumbing fixtures and materials in relation to the total cost of a typical house has decreased from an average of 6.9% for 1931 to 3.6% for 1947.

The management desires to acknowledge its appreciation of the continued loyalty and cooperation of the company's some 19,500 shareholders, its countless customers, its many suppliers, and the 21,700 officers and employees of the organization.

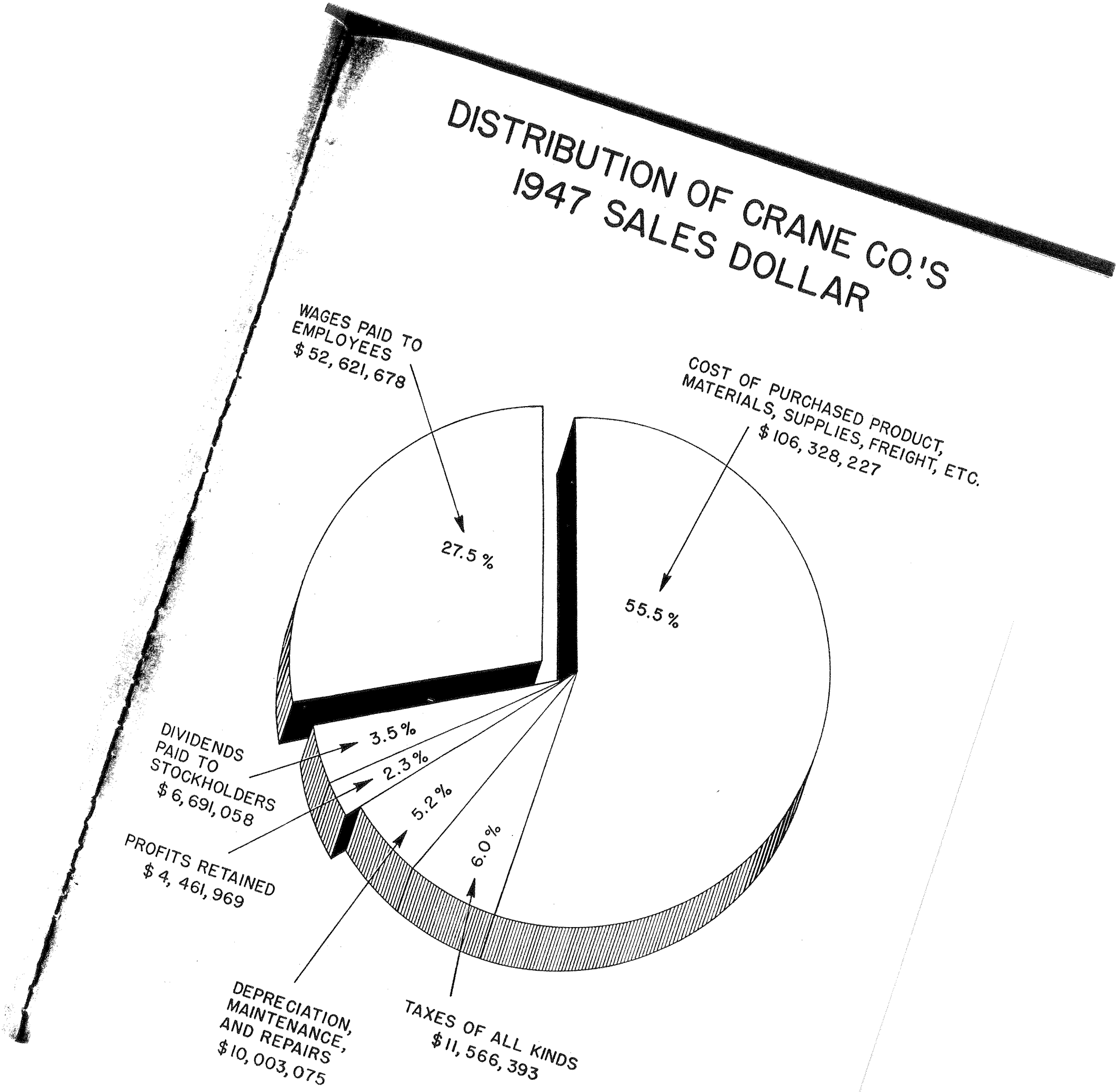
JOHN H. COLLIER — *Chairman*

J. L. HOLLOWAY — *President*

March 25, 1948

With deep regret we record the death on November 5, 1947, of Dr. Frank R. Lillie, a Director since 1935. His death closed a long active life during which he distinguished himself in various fields.

DISTRIBUTION OF CRANE CO.'S 1947 SALES DOLLAR



CRANE CO.

AND SUBSIDIARIES IN THE UNITED STATES

CONSOLIDATED BALANCE SHEET—DECEMBER 31, 1947

ASSETS

CURRENT ASSETS:		
Cash		$ 11,890,867
U. S. Government securities at cost, which approximates market value		8,018,746
Accounts receivable	$ 23,053,497	
Less: Reserve for doubtful accounts	1,453,598	
		21,599,899
Inventories (Note 1) —		
Raw material and supplies	$ 6,724,868	
Work in process	7,796,522	
Finished goods	20,461,028	
		34,982,418
Due from foreign subsidiaries not consolidated		281,609
Total Current Assets		$ 76,773,539
INVESTMENTS:		
Investment in foreign subsidiary not consolidated, at cost (Note 2)	$ 12,000,000	
Other investments, at cost or nominal value (less reserve, $144,588)	741,208	
		12,741,208
FIXED ASSETS:		
Land and land improvements	$ 5,842,790	
Buildings	$31,319,644	
Less: Reserve for depreciation	14,180,193	
	17,139,451	
Machinery and equipment	$39,119,514	
Less: Reserve for depreciation	23,202,817	
	15,916,697	
Unfinished construction	480,805	
		39,379,743
DEFERRED CHARGES:		
Prepaid insurance, etc.		516,474
		$129,410,964

See accompanying notes

CRANE CO.

AND SUBSIDIARIES IN THE UNITED STATES

CONSOLIDATED BALANCE SHEET—DECEMBER 31, 1947

LIABILITIES, CAPITAL STOCK AND SURPLUS

CURRENT LIABILITIES:		
Accounts payable and accrued payrolls		$ 10,373,574
Accrued federal income and excess profits taxes	$ 10,253,192	
Less: U. S. Treasury tax notes, at cost plus accrued interest	10,012,770	
		240,422
Accrued general taxes		1,750,034
Total Current Liabilities		$ 12,364,030
RESERVES AND APPROPRIATIONS:		
Reserve toward future payments in recognition of past services of employees	$ 2,000,000	
Reserve for contingencies	2,000,000	
Miscellaneous reserves	162,182	
Appropriation toward excess of future replacement cost of machinery and equipment over original cost	1,000,000	
		5,162,182
MINORITY INTEREST IN SUBSIDIARY COMPANIES:		
Common stockholders (par value $668,700 plus equity in surplus of $486,231)		1,154,931
CAPITAL STOCK AND SURPLUS:		
Capital Stock—		
3¾% cumulative preferred shares, par value $100—		
Authorized—160,000 shares		
Outstanding—156,906 shares (including 3,656 shares in treasury) (Note 3)	$ 15,690,600	
Common shares, par value $25—		
Authorized—3,000,000 shares		
Outstanding—2,348,628 shares	58,715,700	
	$ 74,406,300	
Surplus—		
Capital surplus (unchanged during year)	$ 1,509,050	
Earned surplus (Notes 3 and 4)	35,186,948	
	36,695,998	
	$111,102,298	
Less: Cost of 3,656 shares of 3¾% cumulative preferred shares purchased in connection with sinking fund requirements (Note 3)	372,477	
		110,729,821
		$129,410,964

See accompanying notes

CRANE CO.

AND SUBSIDIARIES IN THE UNITED STATES

CONSOLIDATED PROFIT AND LOSS STATEMENT

FOR THE YEAR ENDED DECEMBER 31, 1947

Gross sales, less discounts, returns and allowances:		
Sales to customers		$189,884,090
Sales to foreign subsidiaries		1,788,310
Total		$191,672,400
Cost of sales, selling, administrative and general expenses (Note 1), including provision of $1,500,000 toward future payments in recognition of past services of employees	$168,534,138	
Provision for depreciation	2,315,815	
		170,849,953
Net operating profit		$ 20,822,447
Other income:		
Interest income	$ 210,602	
Miscellaneous other income (net)	65,009	
		275,611
		$ 21,098,058
Minority stockholders' interest in net income of subsidiaries		315,525
Net profit (exclusive of dividends received from foreign subsidiary) before federal income taxes		$ 20,782,533
Provision for federal income taxes		9,129,506
		$ 11,653,027
Dividends received from Canadian subsidiary (Note 2)		1,591,045
Net profit for the year		$ 13,244,072
Appropriation toward excess of future replacement cost of machinery and equipment over original cost		500,000
Amount of profit transferred to earned surplus		$ 12,744,072

See accompanying notes

CRANE CO.

AND SUBSIDIARIES IN THE UNITED STATES

CONSOLIDATED EARNED SURPLUS STATEMENT

FOR THE YEAR ENDED DECEMBER 31, 1947

Balance, December 31, 1946		$29,145,693
Add:		
Amount of profit for the year transferred to earned surplus		12,744,072
		$41,889,765
Deduct:		
Cash dividends paid–		
On 3¾% cumulative preferred shares, $3.75 per share	$ 584,625	
On common shares, $2.60 per share	6,106,433	
		6,691,058
Deduct:		$35,198,707
Excess of cost over par value of 3,094 shares of 3¾% cumulative preferred shares cancelled in connection with sinking fund requirements		11,759
Balance, December 31, 1947 (Notes 3 and 4)		$35,186,948

NOTES TO FINANCIAL STATEMENTS

1. INVENTORIES:

The major portion of the inventories of finished goods, work in process and raw materials of the Company and its subsidiaries in the United States are priced at cost on a "last-in, first-out" basis, which was first applied as of January 1, 1941.

In 1946, a charge of $1,340,000 was included in cost of sales as provision for possible future price decline on certain inventories not carried on a "last-in, first-out" basis. This amount, together with a further provision of $1,080,000 charged to cost of sales in 1947, a total of $2,420,000, has been deducted from the applicable inventory accounts at December 31, 1947 and has the effect of stating such inventories on a basis substantially equivalent to the "last-in, first-out" method, except that this provision has not been deducted in computing the provision for federal income taxes.

At December 31, 1947, inventories priced at cost on a "last-in, first-out" or equivalent basis, aggregated $33,806,561 and the remainder, aggregating $1,175,857, representing special order products, is priced at the lower of cost or market on a "first-in, first-out" basis.

2. INVESTMENTS AND OPERATIONS IN CANADA AND ENGLAND:

The investment in the Canadian subsidiary, Crane, Limited (Canada), is carried in the balance sheet at U. S. dollar cost, $12,000,000. The net assets of this Company and its wholly owned subsidiaries, segregated as between Canada and England, are summarized below:

	Canada	England	Total
Fixed assets at U. S. dollar cost at date of acquisition, less accrued depreciation	$ 6,273,441	$ 2,081,081	$ 8,354,522
Net current assets at official rates of exchange	6,550,737	3,805,694	10,356,431
Other assets at official rates of exchange	376,195	25,224	401,419
Investments in affiliated companies at U. S. dollar cost at dates of acquisition	495,900	.....	495,900
	$13,696,273	$ 5,911,999	$19,608,272

The results of operations of the wholly owned subsidiaries operating in Canada and England for the year ended December 31, 1947 (converted at official rates of exchange, except that the provision for depreciation on fixed assets has been computed on U. S. dollar cost) are shown below:

	Canada	England
Gross sales, less discounts, returns and allowances	$30,363,168	$ 6,674,502
Cost of sales, including selling, administrative and general expenses, but before provision for depreciation	25,669,209	4,850,314
	$ 4,693,959	$ 1,824,188
Provision for depreciation	539,271	125,225
Net operating profit	$ 4,154,688	$ 1,698,963
Other income, less other deductions	60,243	(967)
Net profit before income and excess profits taxes	$ 4,214,931	$ 1,697,996
Provision for income and excess profits taxes	2,750,000	781,694
Net Profit	$ 1,464,931	$ 916,302

During the year 1947, Crane, Limited (Canada) received from its English subsidiary a dividend of $723,148 Canadian dollars (equivalent to $723,148 U. S. dollars) which, being an inter-company dividend, is not reflected in the operating results of the Canadian companies.

During the year 1947, Crane Co. received dividends of $1,591,045 (U. S. Dollars) from Crane, Limited (Canada) which have been reflected in the consolidated income account of Crane Co. and subsidiaries in the United States.

Canada and England have enacted certain exchange regulations restricting the withdrawal of funds, etc., and the investments in and the profits of the Companies located therein are subject to such restrictions, as well as to such income and excess profits taxes as may be payable on the transfer of profits between England, Canada and the United States. For the year 1947, the dividends from Crane, Limited (England) to Crane, Limited (Canada) and from Crane, Limited (Canada) to Crane Co. were not subject to taxes on income because of credits for taxes paid to these foreign countries.

3. 3¾% Cumulative Preferred Shares:

These shares are redeemable at the option of the Company at $107 per share if called for redemption prior to June 15, 1955 (an aggregate amount of $16,397,750), and at $104.50 per share if called for redemption on or after June 15, 1955, in each case plus accrued dividends to the date fixed for redemption. They are also redeemable through the operation of the sinking fund at any time at the sinking fund redemption price of $104.50 per share, plus unpaid accrued dividends. Reference is made to the narrative section of this report for a statement in respect of the sinking fund requirements.

Under the Business Corporation Act of Illinois, earned surplus of Crane Co. is restricted in the amount of $372,477, the cost of 3,656 re-acquired shares in the treasury at December 31, 1947.

4. Dividends on Common Stock:

Under the provisions of the Articles of Incorporation, earned surplus at December 31, 1947, in the amount of $18,770,694, is not available for the payment of dividends on the Company's common shares.

5. Litigation:
Reserves and Appropriations:

Reference is made to the narrative section of this report for statement regarding the position of the Company in regard to so-called "portal to portal" claims and for comment in respect of certain reserves and appropriations.

CERTIFICATE OF INDEPENDENT PUBLIC ACCOUNTANTS

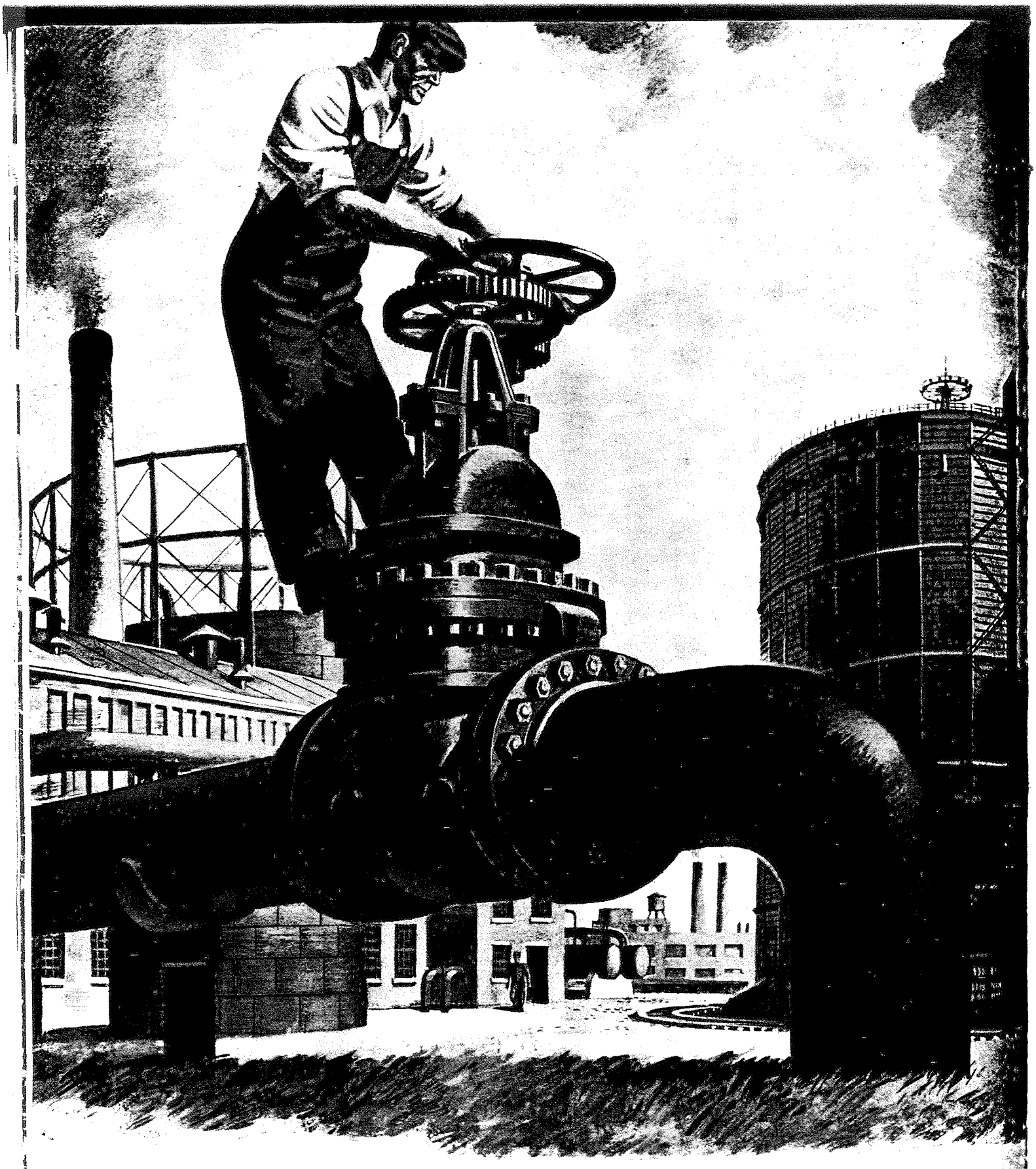
To the Shareholders of Crane Co.:

We have examined the consolidated balance sheet of Crane Co. (an Illinois Corporation) and subsidiaries in the United States at December 31, 1947, and the consolidated profit and loss and surplus statements for the year then ended, have reviewed the system of internal control and the accounting procedures of the Companies and, without making a detailed audit of the transactions, have examined or tested accounting records of the Companies and other supporting evidence, by methods and to the extent we deemed appropriate. Our examination was made in accordance with generally accepted auditing standards and included all procedures which we considered necessary in the circumstances.

In our opinion, the accompanying consolidated balance sheet and consolidated profit and loss and surplus statements present fairly the position of Crane Co. and its subsidiaries in the United States at December 31, 1947, and the results of their operations for the year ended that date, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

ARTHUR YOUNG & COMPANY

Chicago, Illinois,
March 15, 1948.



This Crane valve controlling the flow of gas into the city's mains typifies the dependence of modern man upon the products your company manufactures. No industry, no public utility, no building, no home within the compass of the American way of life is feasible without the kinds of valves and fittings, the sanitary and heating equipment produced by Crane Co.

the Challenge and THE ANSWER

THE preceding pages have provided a succinct report on the level of Crane Co.'s operations. Actually, this level of high demand and high production instituted a distinct challenge to manufacturing and distributing operations.

Like many another manufacturer, Crane has been faced since the war's end by a triple challenge: To produce more, to combat the strong tendencies toward higher and higher costs, and to anticipate the demand for new and improved products.

Throughout all industry the coming of peace released long-delayed construction projects and renewed maintenance programs—all creating new and exigent demands for valves and piping equipment.

The great upsurge in home construction has taxed Crane and other manufacturers' capacities to produce plumbing and heating equipment. New hospitals, schools and other types of institutional and commercial construction added materially to the swelling tide of demand.

Along with the demand for more products there was, of course, an imperative need for modernization of many products on which design had been frozen through the war period. In product after product, in the design of lavatories and high pressure valves, of domestic boilers and corrosion-resistant piping, of brass valves for home water lines and steel valves for petroleum refinery service, there was a constant challenge to Crane research, engineering and production departments.

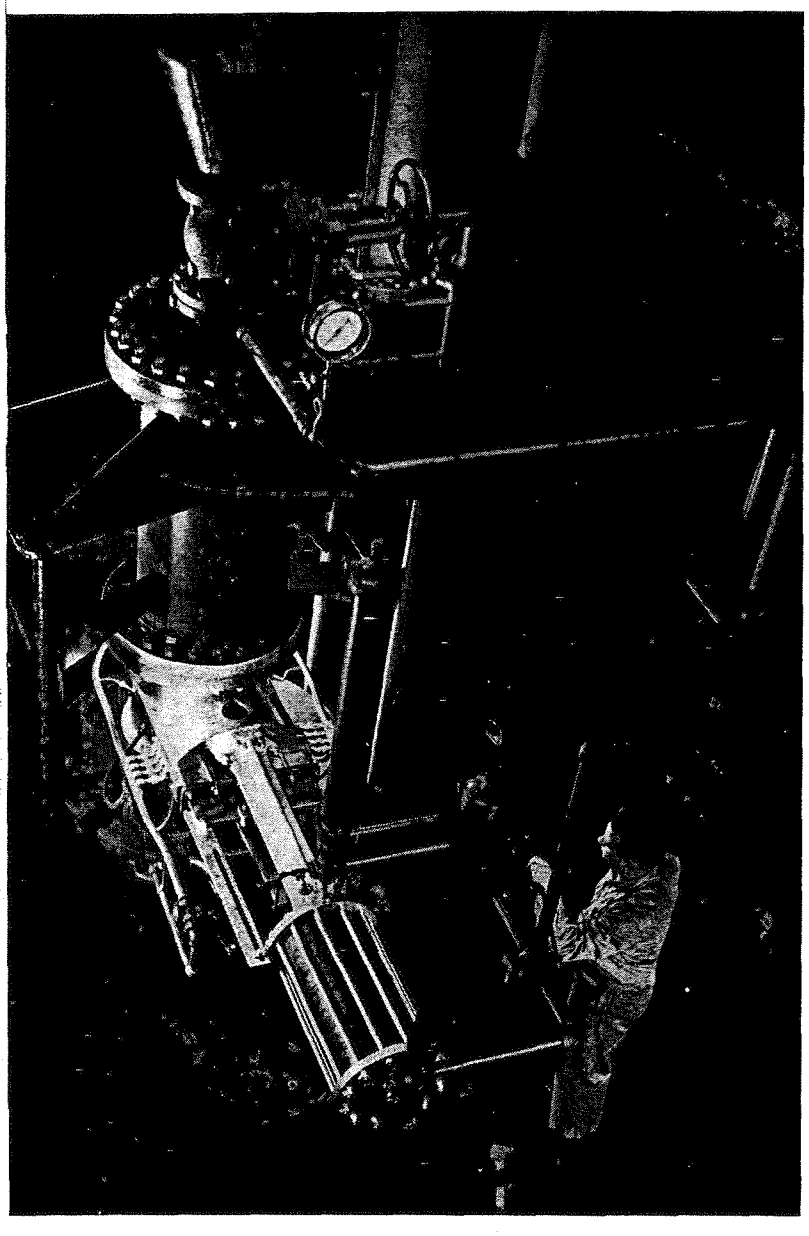
And underlying all of these forces of demand there was the pressing necessity of combatting the pressures tending to force costs higher and higher.

Starting with basic engineering research, carrying on through scores of manufacturing operations, and ending in the various aspects of distribution, the policy of increasing supply, bettering product, and fighting advancing costs has been vigorously furthered.

Some of the steps taken were in the realm of intangibles – of better personnel training, of morale improvement, of methods, of relationships between departments – of progress in the realms which do not lend themselves to illustration in a brief report.

But many others were in the physical facilities and techniques of production. On the following pages will be found a few — a very few — examples of manufacturing developments by which Crane Co. has sought to meet the challenges of the times.

New Frontiers in RESEARCH



LABORATORY and shop are closely allied at Crane. For the development of new products, designs and materials must always recognize the problems of how to produce them and produce them at a cost that makes the project practical.

Often too, the development of a product to meet new service requirements involves basic metallurgical research before the designer can put pencil to page.

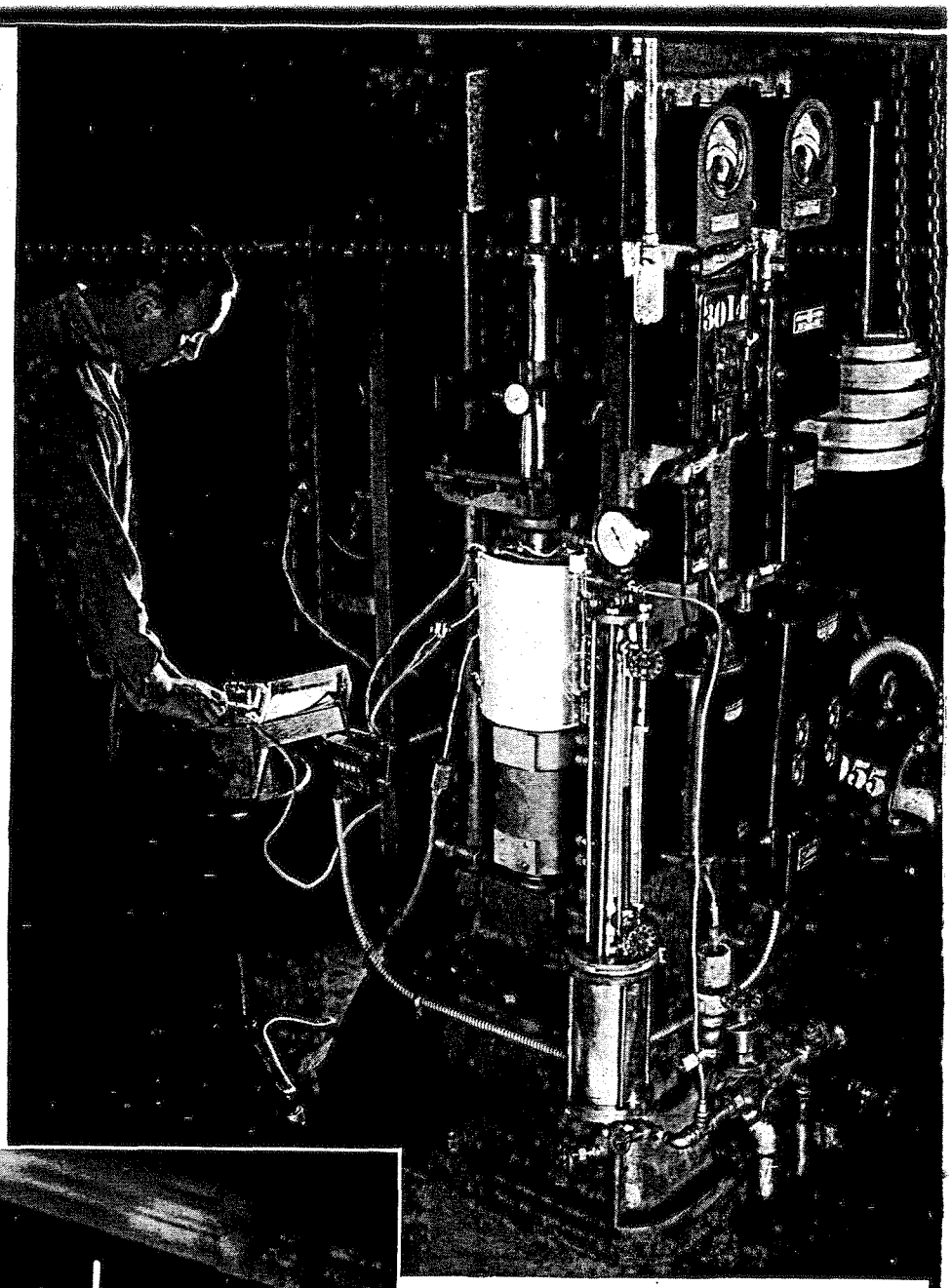
Recent developments in the power, petroleum, chemical and other fields exerted important influences upon Crane's research and engineering studies before they could be reflected in manufacturing programs.

For example, new power plants are operating with steam at temperatures up to 1050°F and at very high pressures, thus creating a demand for new alloy steels as well as new product designs. At the other extreme, new processes utilize temperatures as low as liquid air (minus 317°F) in the conversion of natural gas and the production of liquid fuels from coal conversion; these, too, place new emphasis upon the research for new alloys.

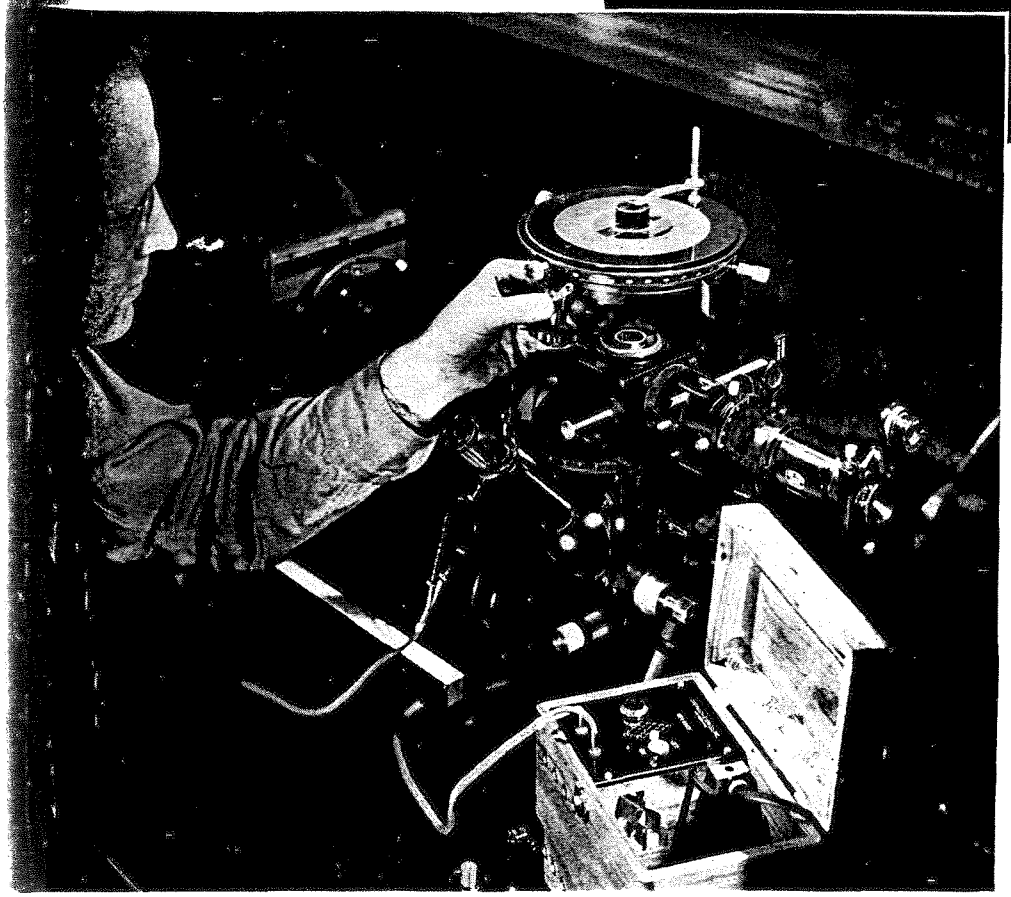
Even in the field of nuclear energy, Crane researchers have been active in the study of materials and products which will be required to make this new and startling source of energy available for the production of power and other peacetime uses.

But along with such dramatic developments, research and engineering has been patiently and effectively pioneering many changes and improvements in product and in the techniques of production. The laboratory is an important Crane weapon in meeting the triple challenge of these postwar days.

Simulated Service Test on a Valve for the Pulp & Paper Industry.



Special Machine for determining the Resistance of Various Materials to Wear and Seizure at High Temperatures.



Utilizing Microscopic Techniques to Measure the Hardness of the Grains of a Metal.

New Techniques at the CHICAGO WORKS

IN a plant as large and as diversified in its operations as our Chicago Works, equipment and its application are under constant study. The saving of even a few seconds in "floor-to-floor" time on an operation may mean a considerable cost reduction or, conversely, an increase in production.

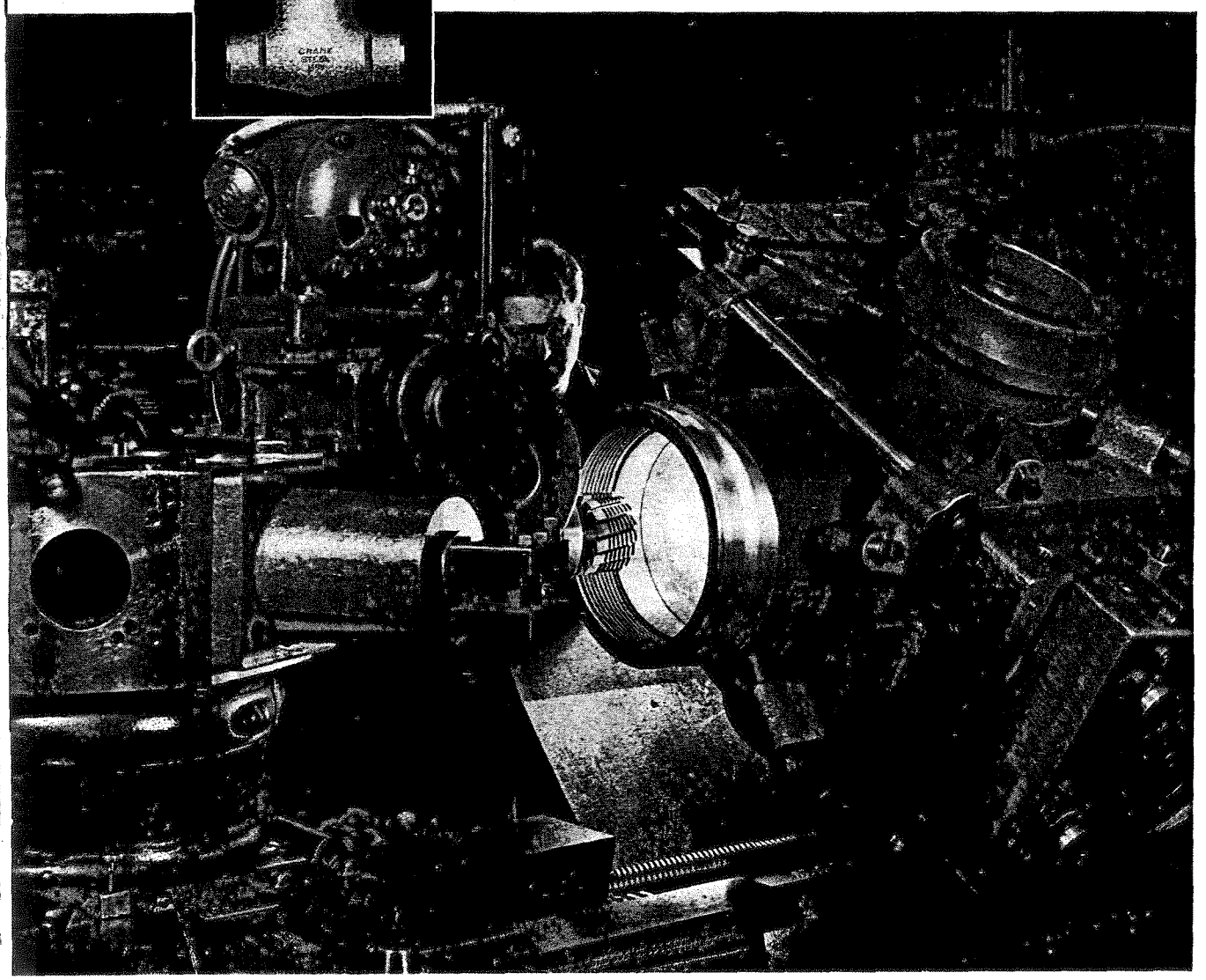
Crane shareholders would find much to interest them in a tour of the Chicago Works. For example, Crane foundry techniques are, we believe, the most modern to be found anywhere. Mechanization of plant transportation in scores of places has been instrumental in reducing the loss of time between successive manufacturing steps and helps to assure uniform flow of work. And in department after department, new machines and new ways of using old machines have made possible substantial increases in production per hour.

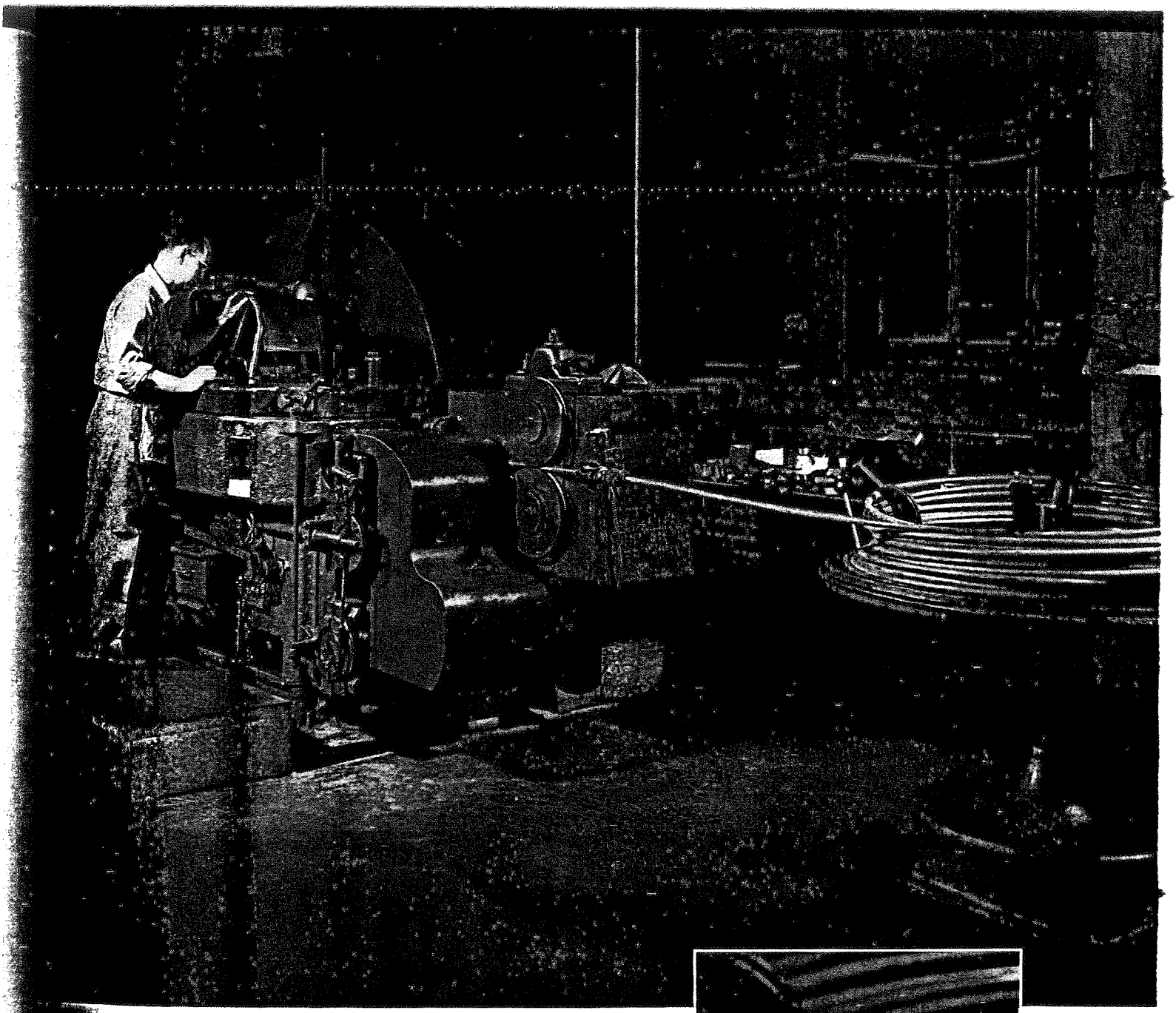
Illustrated on these pages are a few typical examples of machines which are helping Crane Co. meet the challenges of the times.

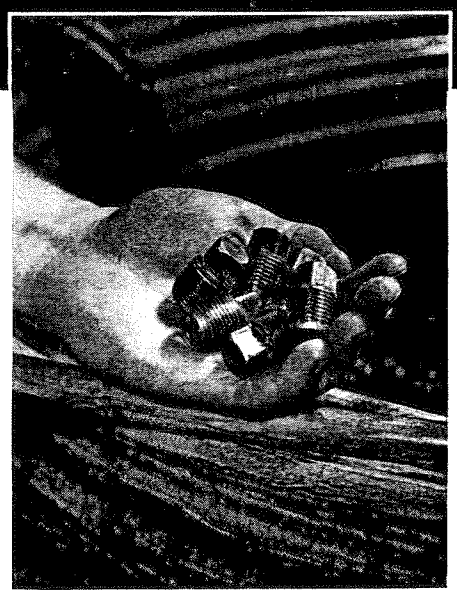
A NEW METHOD OF MACHINING

One of the outstanding Crane postwar developments is the Pressure Seal Valve which is meeting wide acceptance in high pressure steam service. Its production has inspired a number of innovations in metal cutting and other techniques. Illustrated here is the machine set-up for milling the thread in the bonnet end of the valve body. Anyone familiar with turret lathe tooling set-ups will recognize much ingenuity in this. The 3-ton chuck fixture in which the big valve is held was specially designed by Crane engineers; so was the multiple-tool cutting device which makes possible material reductions in the time required for this operation.



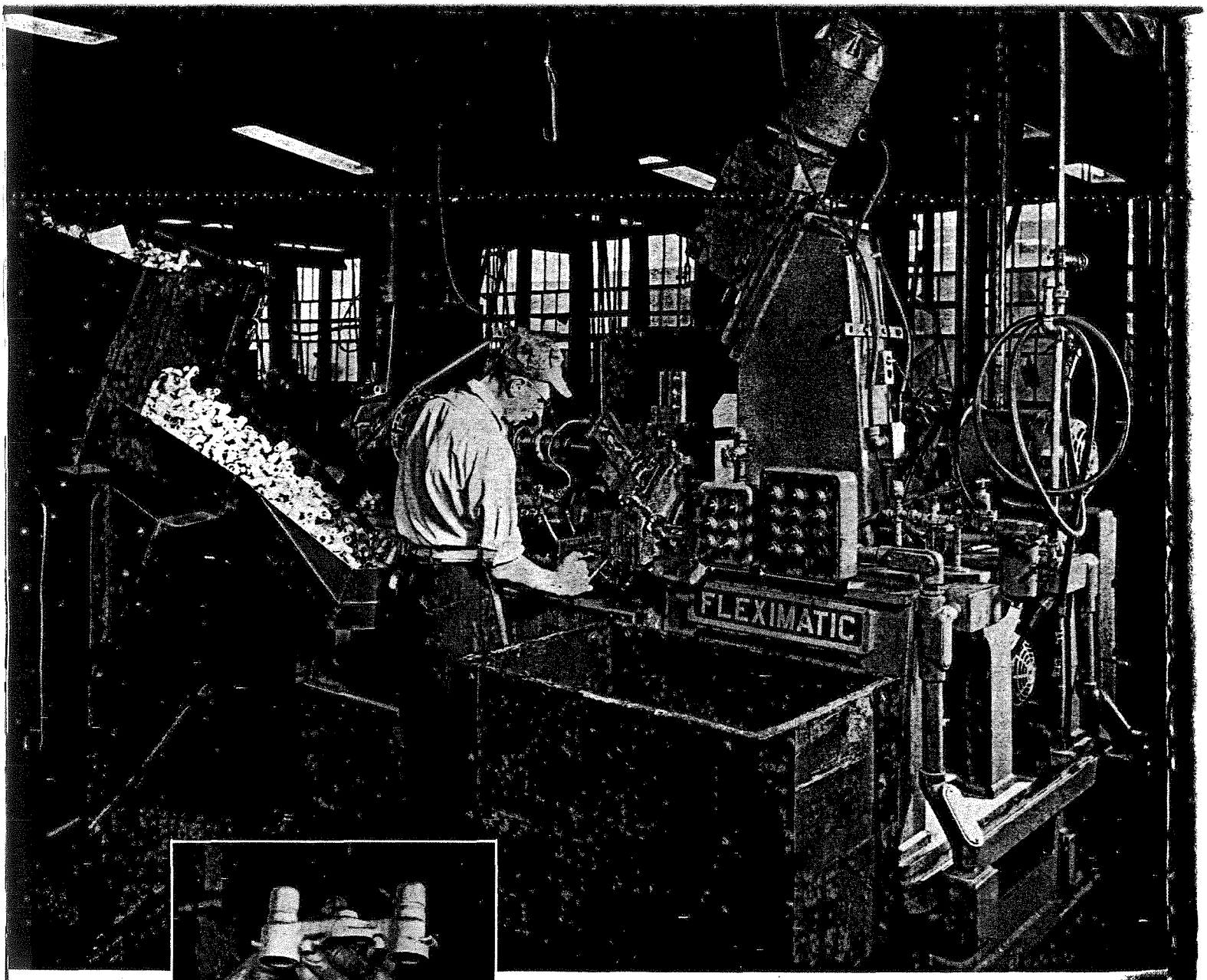






PLUG MAKING

This is one of the kinds of machines that make a job easy. Its purpose is to produce pipe plugs—you've undoubtedly seen them closing the ends of pipe. But it does this job at a rate of better than one per second, first biting off a section of half-inch steel rod, then performing three upsetting operations to form the square head, and finally rolling on a sharp accurate thread. Formerly, this part was cast and then went through several additional operations.







MULTIPLE OPERATION MACHINERY

Typical of the automaticity being introduced into so many phases of Crane production is this machine which is one of the new units used to produce *Dial-ese* faucets. The specific part here illustrated is the body of a *Dial-ese* mixing faucet such as you will find on new Crane lavatories. The rough brass casting must be machined and threaded at several points. All of these operations are performed at once in this machine which has 8 jaws, each of which is loaded with a rough part which is then revolved from station to station. 300 of these faucet parts are completed per hour.



COPPER TUBE PRESS

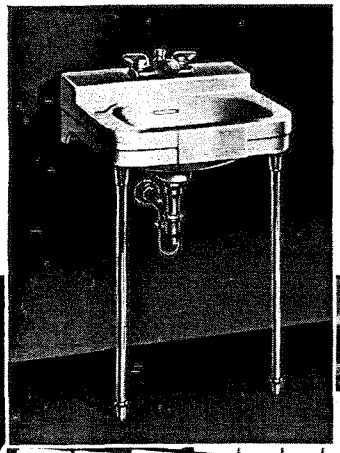
Note the two objects in this close-up view. One is a 2″ tube of copper; the other is a 2″ Tee. It is one unit in the new line of Crane solder-joint fittings for copper piping. The Tee was made from the straight piece of tube simply by pressure—but by pressure so great that it causes solid cold copper to "flow." The job is accomplished on this hydraulic press. A piece of tubing (with an inserted core of base metal) is placed in a die, clamped together with a force of 750 tons. Then two plungers come in from either side—each with a force of 300 tons—and force part of the metal out through an orifice in the die to form a "Tee." 700 half-inch Tees can be produced per hour.

New Developments in the TRENTON POTTERIES

FROM time immemorial the length of the period required to turn out a pottery product was determined primarily by the slow process of natural drying.

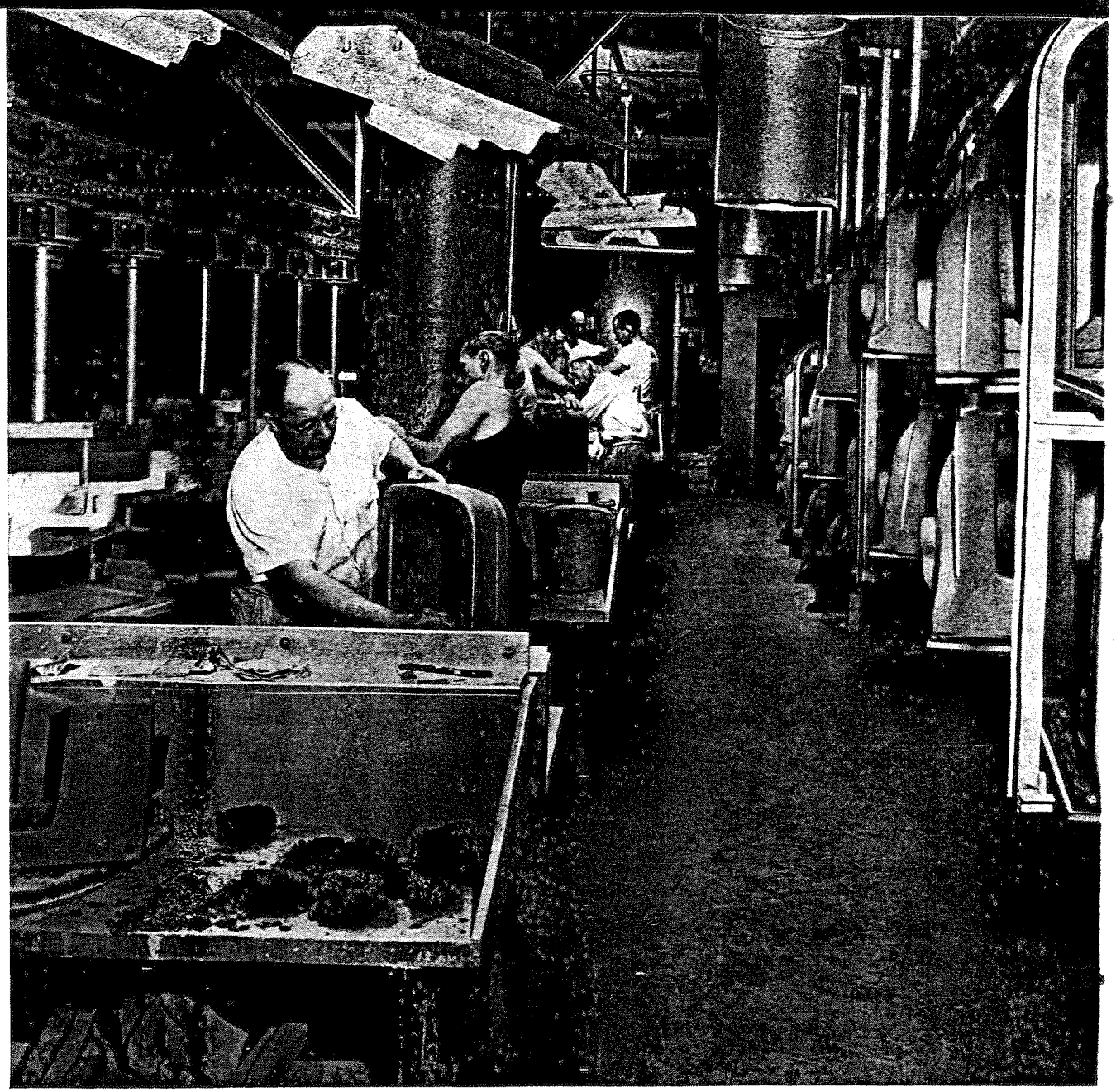
Now, however, substitutes for time have been found at Crane's Trenton potteries, and with these developments it has been possible to step up production. Now, for example, infra-red lamps, and other processes are used to accelerate nature's slower drying process.

In addition, Trenton now employs continuous conveyor line production. New techniques of utilizing to the fullest the skill of individual craftsmen — these and many more developments are today speeding Crane chinaware to the market in increased volume. Thus, they take their part in Crane's answer to the demand for more and better products.



CASTING LAVATORIES

One of the major new developments is conveyor casting. Molds for lavatories are mechanically pushed around this roller conveyor, the advance of each mold being timed for some particular operation. Here, for instance, the molds are being filled with fluid clay by the operator in the right foreground. At later stations on this "main line," the clay form of the lavatory, still in a plastic state, will be removed from the mold.

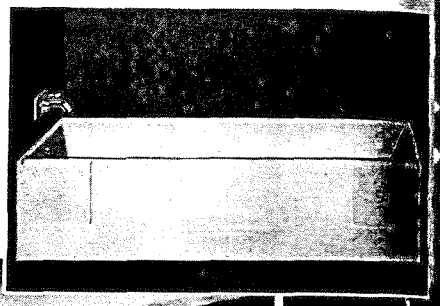


FINISHING

After removal from the molds, these semi-solid forms riding the cradles suspended from a continuous chain conveyor, pass through a preliminary dryer to the "finishers" who work over the entire surface to produce a satin-smooth finish. The piece is then placed on another conveyor entering the final drying chambers. The complete cycle from pouring to shipment is much shorter than was possible with former methods.

TUB DRYING

A Crane Duraclay bathtub under a battery of infra-red lamps. The tub being treated has been removed from the mold (examples of which can be seen in the background) and has been surface-finished. After the infra-red radiation, the tubs are ready for glazing and firing. At each step in the process, special handling and conveying equipment speeds up transfer and eases the job for Crane craftsmen.



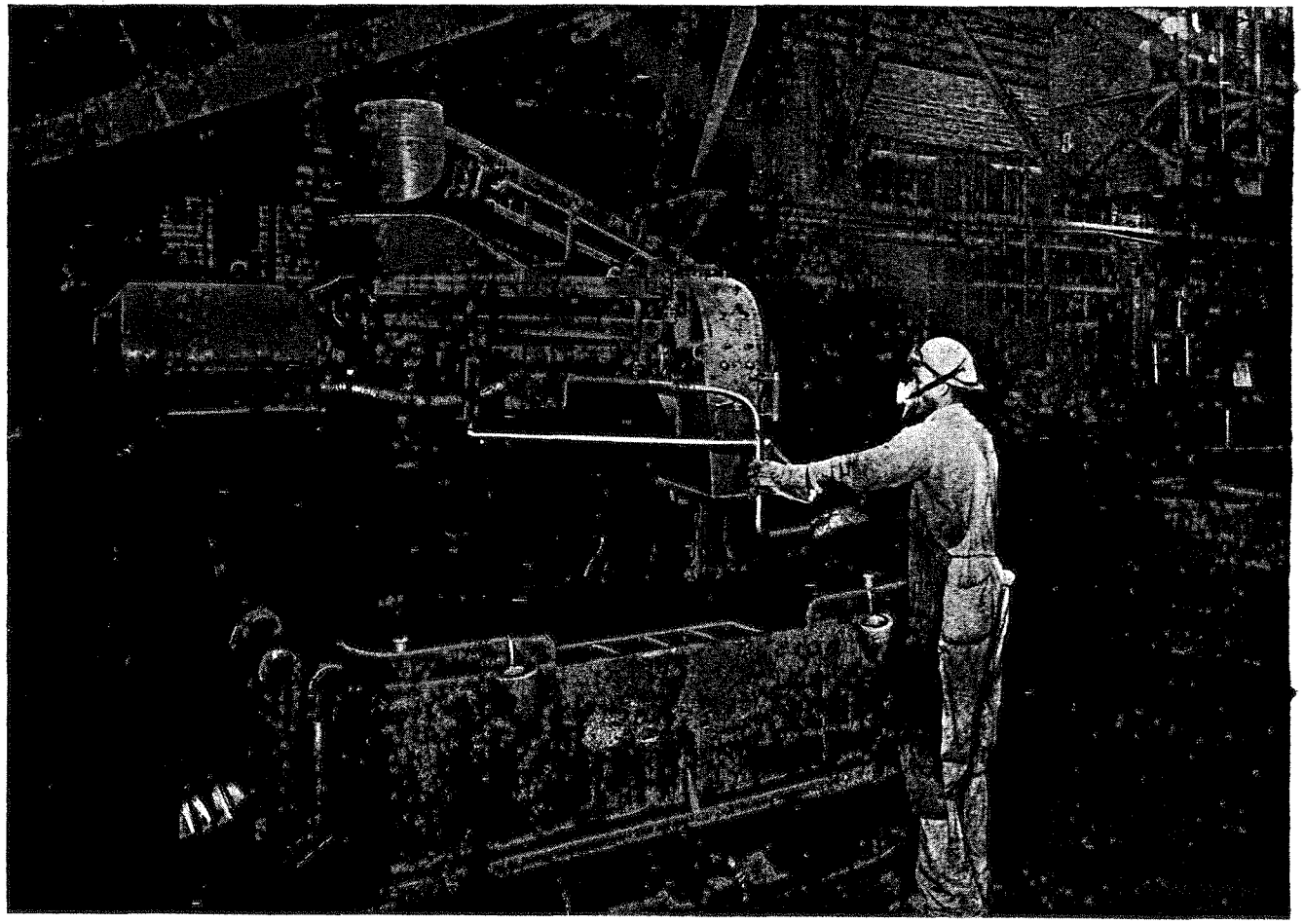
Speeding up Production of ENAMELED WARE *at Chattanooga*

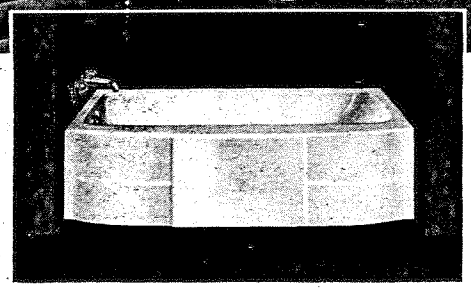
PORCELAIN enameled cast iron bathtubs, lavatories or sinks are not complex mechanisms. Yet, in spite of their comparative simplicity, Crane has found many means of stepping up output and combatting rising costs at the Chattanooga plant.

A major development over the years, but especially since the war, has been the "conveyorizing" of production, the mechanization of every conceivable handling operation. The result has been not only better jobs, more attractive jobs for our men, but greater efficiency and an increase in production.

SAND SLINGER

Nothing is more surprising to a layman getting his first look at a foundry than the tremendous volume of sand used. For, of course, most castings are made by pouring molten iron into a mold made of sand. For each casting a new mold is made. Here illustrated is a "Sand Slinger" that literally throws sand at a pattern in a special form—"ramming the cope half of a mold" in the foundryman's parlance. Another device used for smaller castings—such as lavatories—is a Jolt-Squeeze-Strip machine which, all but automatically, rams the sand mold into which the iron will be poured. Both these techniques assure not only better, smoother, more uniform castings, but a much higher production rate.



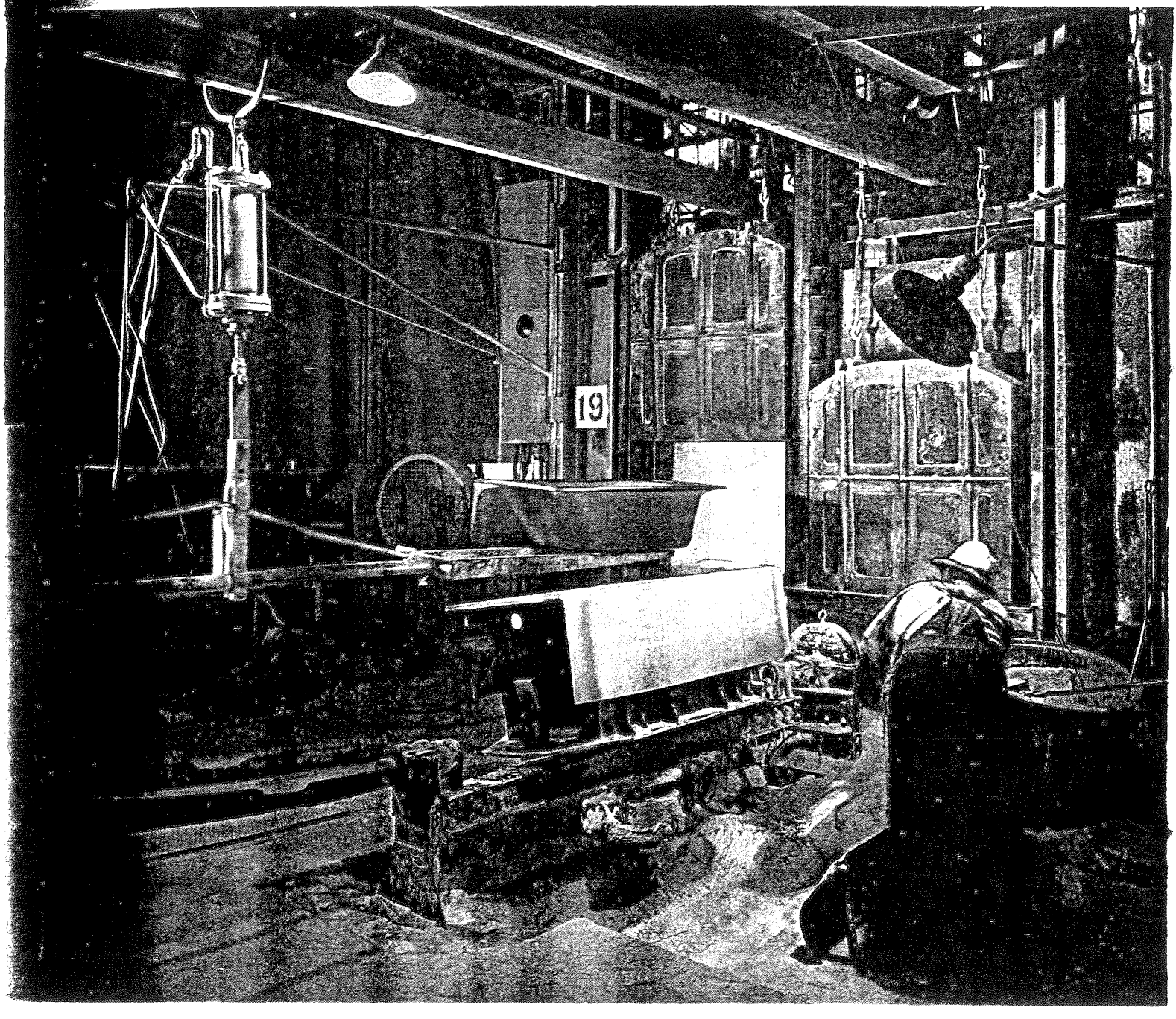


TUB FINISHING

After a tub has been cast (and shaken free of all clinging sand on special mechanical shakers), it is surface-dressed to provide a smooth, even surface for the subsequent enameling. But here, as in most operations at Chattanooga, the tubs never leave the conveyor. You can see them coming down the line at the left, from which they are "switched" to the work conveyor with no wasteful handling.

ENAMELING

Here's where a piece of gray cast iron is metamorphosed into the gleaming porcelain tub which you know. Basically the transformation is accomplished by coating the tub with a "frit" which when subjected to intense heat is vitrified onto the tub surface. Improvements on these operations and in the equipment have been directed at bettering of the finished product—in the appearance and quality of the vitrified porcelain enamel.

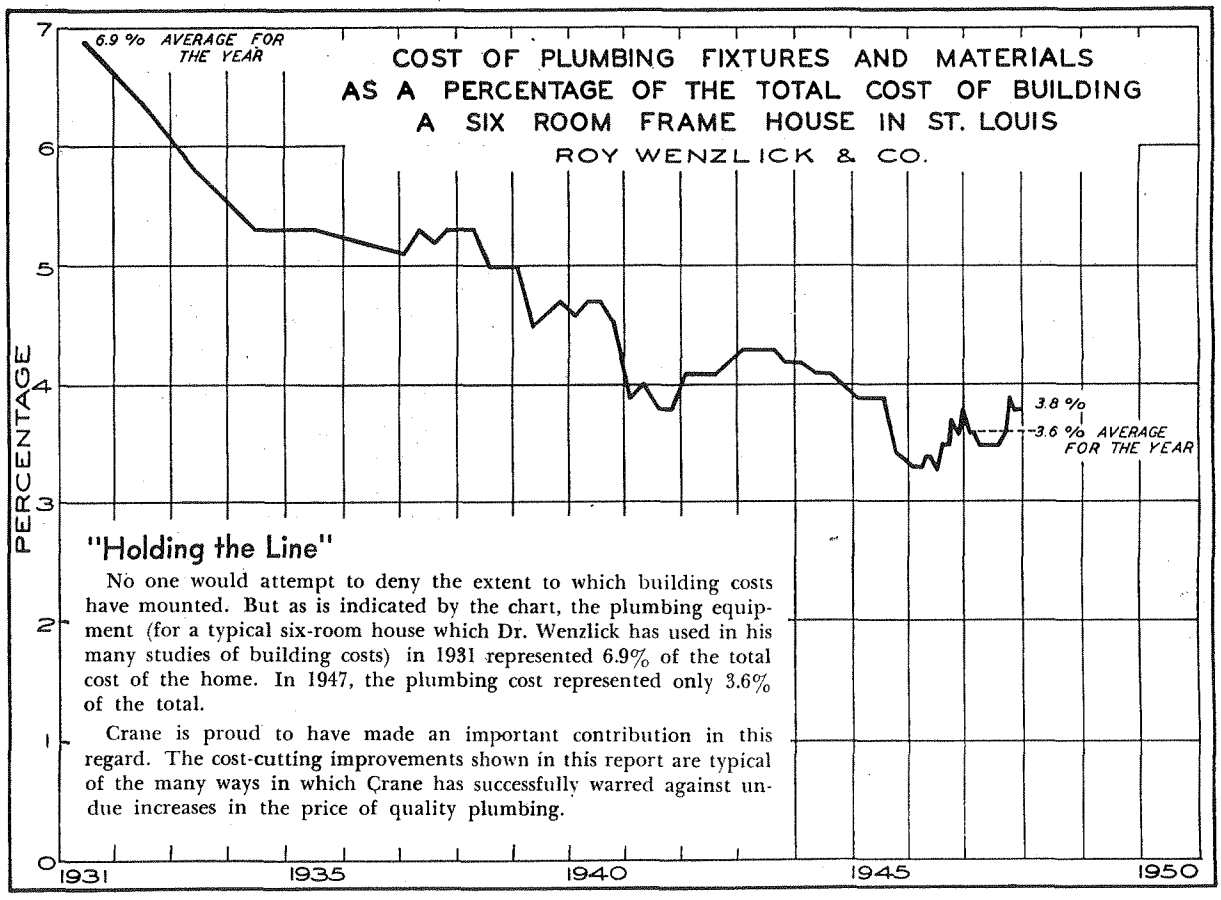


New Achievements in DISTRIBUTION

On the opposite page is a list of the 150 Crane Branches in this country and elsewhere. The list is clear evidence of the importance of distributive channels in serving markets as large and as diverse as are those for Crane products.

Through this branch system, as well as in manufacturing plants, Crane has sought to meet the challenge of increased demand and of holding costs in line. Improved mechanization in product handling and warehousing has been installed in certain branches, and the results are being carefully studied. The size, design and floor plan of branch buildings are under close inspection that new construction or remodeling projects which the Company undertakes may incorporate every facility for low-cost branch operation.

And on the human side, Crane's programs for the training of branch personnel are doing much to assure improvement in selling techniques, in the servicing of customers, and the efficiency of branch operation.



"Holding the Line"

No one would attempt to deny the extent to which building costs have mounted. But as is indicated by the chart, the plumbing equipment (for a typical six-room house which Dr. Wenzlick has used in his many studies of building costs) in 1931 represented 6.9% of the total cost of the home. In 1947, the plumbing cost represented only 3.6% of the total.

Crane is proud to have made an important contribution in this regard. The cost-cutting improvements shown in this report are typical of the many ways in which Crane has successfully warred against undue increases in the price of quality plumbing.

CRANE CO. BRANCHES

ALABAMA
BIRMINGHAM (3) . 2 S. Twentieth St.
MOBILE (3) . . . 300 N. Royal St.

ARIZONA
PHOENIX (1) . . 233 S. First Ave.
TUCSON . . . . 35 E. Toole Ave.

ARKANSAS
FT. SMITH . . . . 221 S. Ninth St.
LITTLE ROCK (10) 120 Commerce St.

CALIFORNIA
LONG BEACH (1) . . . . . 824 W. Anaheim St.
LOS ANGELES (54) 321 E. Third St.
OAKLAND (7) . . . 346 Ninth St.
SACRAMENTO (5) . 1227 Front St.
SAN BERNARDINO 110 South "E" St.
SAN DIEGO (1) . . 1138 India St.
SAN FRANCISCO (19) . . . . . 301 Brannan St.
SANTA ANA . . 919 Poinsettia St.

COLORADO
DENVER* (17) . 1631 Fifteenth St.
GRAND JUNCTION* . . . . . 601 Pitkin Ave.
PUEBLO* . . . . 216 W. Third St.

CONNECTICUT
BRIDGEPORT (3) . . 302 John St.
HARTFORD (5) . . 710 Windsor St.
NEW HAVEN (11) 365 Orchard St.

DISTRICT OF COLUMBIA
WASHINGTON (5) . . . . . 1225 Eye St. N. W.

FLORIDA
JACKSONVILLE (3) . . . . . 1007 W. Bay St.
MIAMI (30) . . 85 N. W. Tenth St.
TAMPA (1) . . . 1105 E. Twiggs St.
WEST PALM BEACH . 217 Fifth St.

GEORGIA
ATLANTA (3) Washington St. Viaduct
MACON . . . . . 500 Broadway
SAVANNAH . . . 14 W. Broad St.

IDAHO
BOISE . . . . . 214 S. Fifth St.
POCATELLO . . . 756 S. First Ave.

ILLINOIS
AURORA (A) . . . 544 S. Lake St.
CHICAGO (6) . 156 N. Jefferson St.
Southside branch (20) . . . . . 231 W. 79th St.
ROCKFORD . . . 800 S. Main St.
SPRINGFIELD . . 921 E. Monroe St.
WAUKEGAN . 1219 Glen Rock Ave.

INDIANA
EAST CHICAGO . . . . . 1004 E. Chicago Ave.
EVANSVILLE (6) . 118 S. Eighth St.
INDIANAPOLIS (6) . . . . . 333 W. Market St.
MUNCIE . . . 342 N. Pershing Dr.
SOUTH BEND (23) . . . . . 1616 S. Franklin St.
TERRE HAUTE . . 209 N. Ninth St.

IOWA
DAVENPORT (8) . 217 E. Second St.
SIOUX CITY (3) . . 223 Jackson St.

KANSAS
WICHITA (2) . . . 624 E. First St.

KENTUCKY
LEXINGTON (1) . 165 Midland Ave.

LOUISIANA
NEW ORLEANS (11) . . . . . .710 S. Broad St.
SHREVEPORT (92) 1320 Winston St.

MAINE
PORTLAND (4) . . 70 St. John St.

MARYLAND
BALTIMORE (1) . 626 W. Pratt St.

MASSACHUSETTS
BOSTON (27) . . . . . 48 W. First St., South Boston
SPRINGFIELD (3) . . 60 Cypress St.

MICHIGAN
DETROIT (26) . . 150 Randolph St.
FLINT (1) . . . . . 155 Lewis St.
GRAND RAPIDS (2) . . . . . 56 Grandville Ave., S. W.
JACKSON . . . . 409 Hupp Ave.

MINNESOTA
DULUTH** (2) . . 102 Lake Ave., S.
MANKATO** . . . 510 S. Pike St.
MINNEAPOLIS** (1) . . . . . .400 Third Ave., N.
ST. PAUL** (1) . . Broadway at 5th

MISSISSIPPI
JACKSON (111) . 176 N. Gallatin St.

MISSOURI
KANSAS CITY (7) . . . . . 1328 W. Twelfth St.
ST. LOUIS (3) . 30 S. Sixteenth St.

MONTANA
BILLINGS** 30th St. and First Ave., S.
GREAT FALLS** . . . . . .2 Third Ave., South

NEBRASKA
GRAND ISLAND . . 115 E. Front St.
OMAHA (8) . . . 323 S. Tenth St.
SCOTTSBLUFF* . . 1617 Avenue "A"

NEVADA
RENO . . . . . 401 E. Fourth St.

NEW JERSEY
NEWARK (5) . . . . 90 South St.
TRENTON (5) . . . 50 Escher St.

NEW MEXICO
ALBUQUERQUE* . . 612 N. First St.

NEW YORK
ALBANY (1) . . . North Broadway
BINGHAMTON (36) . . . . . 21 Washington St.
BUFFALO (5) . . . 201 Church St.
HEMPSTEAD . . . . 209 Main St.
LONG ISLAND CITY (1) . . . 47-30 Twenty-ninth St.
ROCHESTER (2) . . 200 South Ave.
SYRACUSE (1) . 760 W. Genesee St.
UTICA (2) . . . . .326 Broad St.

NORTH CAROLINA
ASHEVILLE . . . 531 McDowell St.
CHARLOTTE (1) . . . . . 1307 W. Morehead St.
GREENSBORO . . 205 S. Lyndon St.
ROCKY MOUNT . 300 N. Church St.

NORTH DAKOTA
Fargo** . . . . . 636 Northern Pacific Ave.

OHIO
AKRON (11) . . . 425 S. High St.
CANTON (2) . . . . . 210 Piedmont Ave., S. E.
CINCINNATI (1) . . 824 Broadway
CLEVELAND (3) 6215 Carnegie Ave.
COLUMBUS (15) . . 67 N. Front St.
DAYTON (2) . . . 901 S. Perry St.
LIMA . . . . 207 S. Central Ave.
TOLEDO (1) . . . 390 S. Erie St.

OKLAHOMA
MUSKOGEE . . 302 Commercial St.
OKLAHOMA CITY (2) . . . . . 705 W. Main St.
TULSA (1) . . . . 623 E. Third St.

OREGON
PORTLAND (8) . . . . . 710 N. W. Fourteenth Ave.

PENNSYLVANIA
PHILADELPHIA (22) . 245 Master St.
PITTSBURGH (30) . . . . . .40 Twenty-fourth St.
READING (5) . . . 407 N. Front St.

RHODE ISLAND
PROVIDENCE (3) . . . . . .245 W. Exchange St.

SOUTH CAROLINA
GREENVILLE . . 223 W. McBee Ave.

SOUTH DAKOTA
ABERDEEN** 324 Railroad Ave., S. E.
SIOUX FALLS** . 326 E. Eighth St.

TENNESSEE
CHATTANOOGA (1) . . . . . 1317 Chestnut St.
KNOXVILLE (1) 523 W. Jackson Ave.
MEMPHIS (1) . . . 254 Court Ave.
NASHVILLE (2) . . . . . 532 Eighth Ave., South

TEXAS
BEAUMONT . . . . 720 Fannin St.
CORPUS CHRISTI . . . . . .1212 N. Tancahua St.
DALLAS (2) . . . . 814 Young St.
EL PASO* . . . . 1609 Texas St.
HARLINGEN . . 201 West "C" St.
HOUSTON (1) . . 2204 Pease Ave.
SAN ANTONIO (6) . . . . . 1200 E. Houston St.

UTAH
OGDEN . . . . 2001 Wall Ave.
SALT LAKE CITY (11) . . . . . 307 W. Second South

VIRGINIA
NORFOLK (10) . . . . . 2 E. Twenty-second St.
RICHMOND (20) 1225 W. Broad St.

WASHINGTON
SEATTLE (14) . 419 Second Ave., S.
SPOKANE (8) . . . 126 S. Post St.
TACOMA (1) . . 1209 South "A" St.

WEST VIRGINIA
CHARLESTON (25) . 502 Broad St.

WISCONSIN
MADISON (3) . 641 Williamson St.
MILWAUKEE (2) . . . . . 2123 W. Michigan St.
OSHKOSH . . . . 37 Market St.

WYOMING
CASPER* (5) . . . 802 East "C" St.

CRANE Limited
GENERAL OFFICE
1170 Beaver Hall Square
Montreal, Que.

BRANCHES

ALBERTA
CALGARY . 602 Eleventh Ave., W.
EDMONTON Jasper Ave. & 109th St.

BRITISH COLUMBIA
VANCOUVER . . . 540 Beatty St.
VICTORIA . . 1010 Government St.

MANITOBA
WINNIPEG . . . . 93 Lombard St.

NEW BRUNSWICK
MONCTON . . 225 St. George St.

NEWFOUNDLAND
ST. JOHN'S . . . . . Hill O'Chips

NOVA SCOTIA
HALIFAX . . . . 131 W. Young St.

ONTARIO
FORT WILLIAM . . 600 Simpson St.
HAMILTON . . 40 Wellington St., N.
KINGSTON . . . . . 71 Brock St.
LONDON . . . . . 304 York St.
OTTAWA . . . . . 148 Bank St.
TORONTO . . . 306 Front St., W.

QUEBEC
MONTREAL . 1121 St. James St. W.
QUEBEC . . . . . 39 St. Roch St.

SASKATCHEWAN
REGINA . . . . . 1408 Broad St.
SASKATOON . . 359 First Ave., N.

CRANE LTD. (Great Britain)

ENGLAND
LONDON . . . . . 45–51, Leman St., London E. 1
BIRMINGHAM . . . . . 1277 Coventry Road, South Yardley
MANCHESTER . . . . . Westinghouse Road, Trafford Park
BRISTOL . . 1, Broadmead, Bristol, 1

SCOTLAND
GLASGOW . . . . . 94-100 Clyde Ferry St., Anderston

*(Crane-O'Fallon Co.)
**(Crane Co., Minnesota)