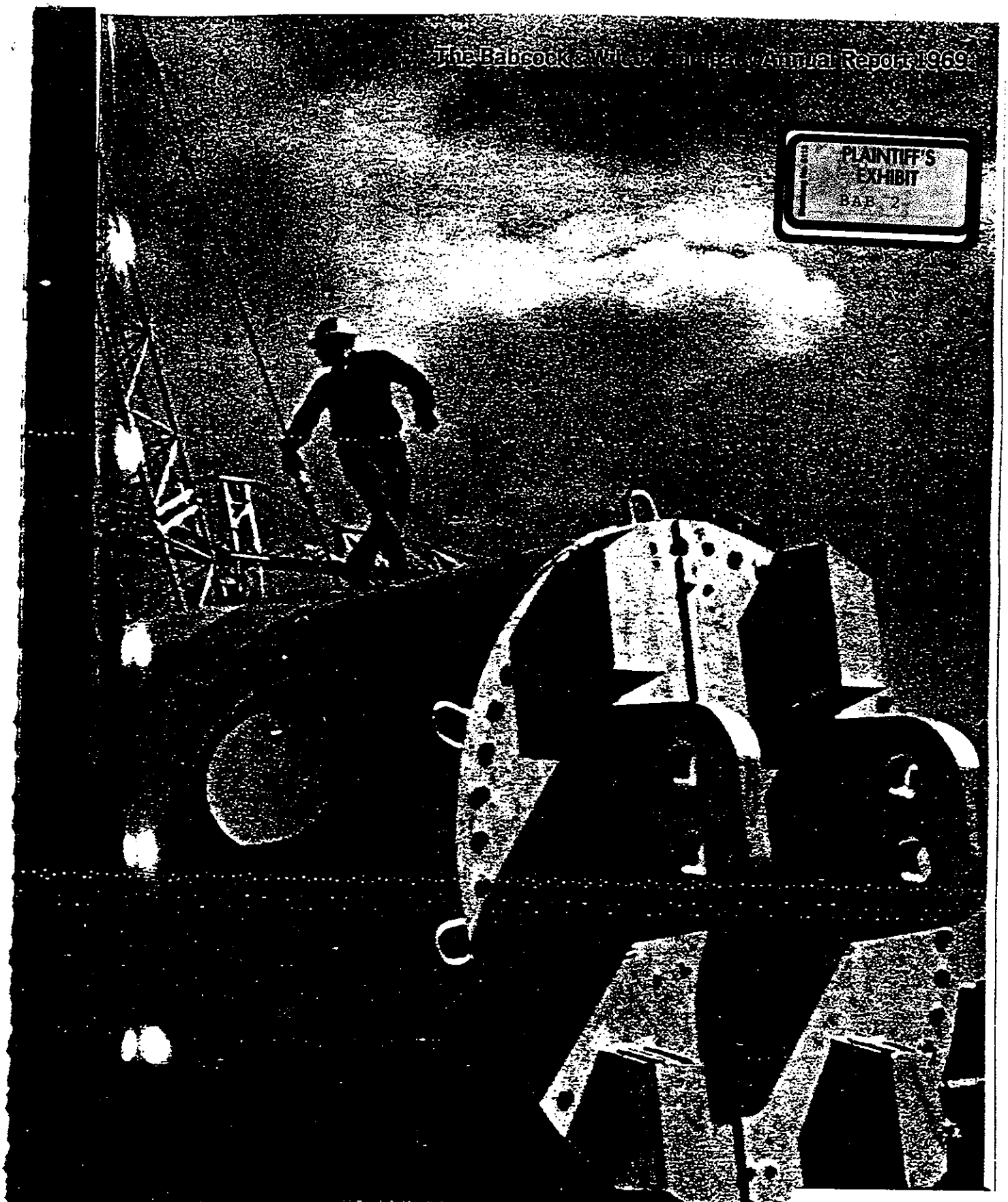
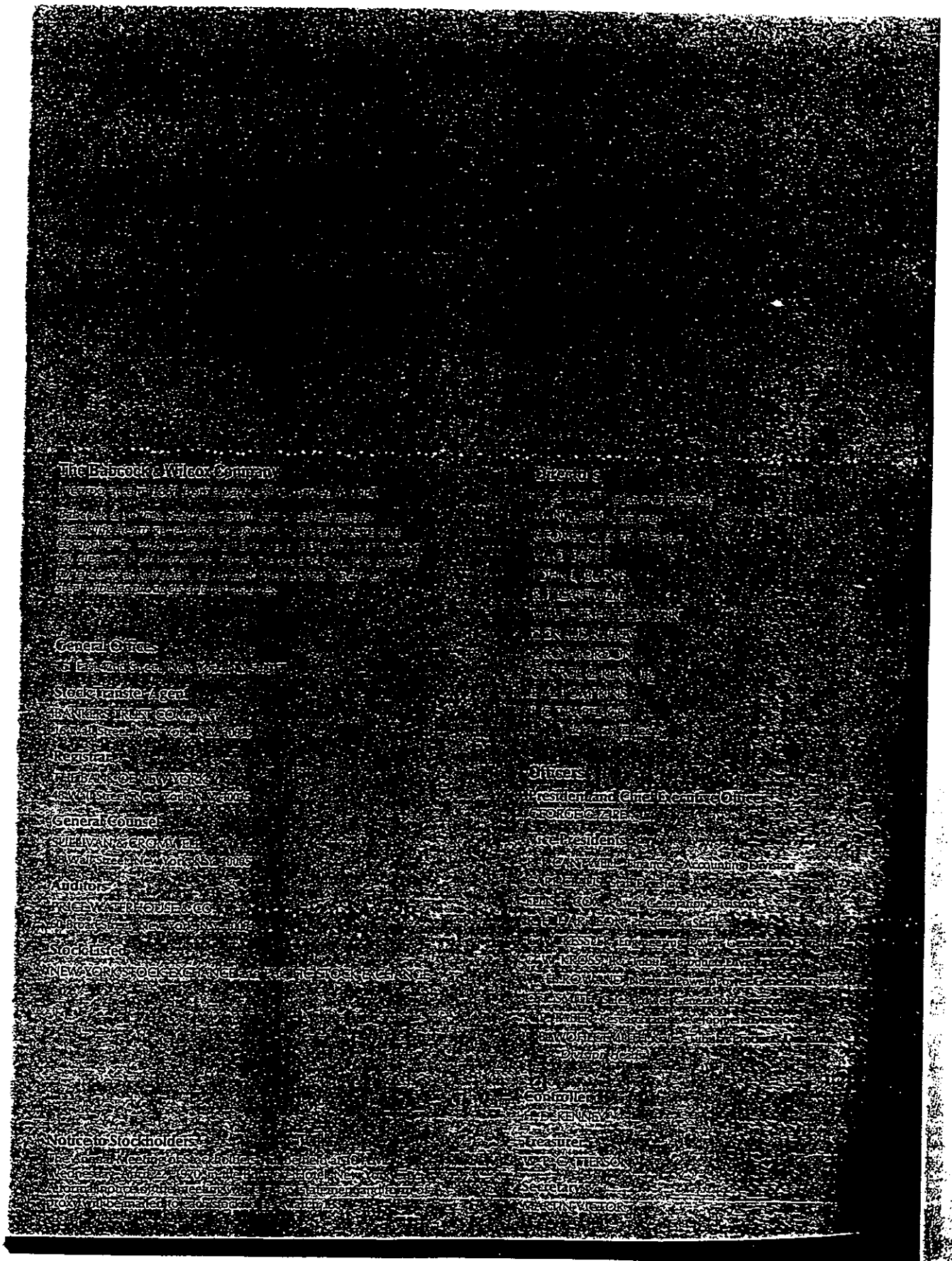




The Babcock & Wilcox Company

General Offices

Stock Transfer Agent

Registrar

General Counsel

Auditors

Stock Listed

Notice to Stockholders

Directors

Officers

Controller

Treasurer

Secretary

The Babcock & Wilcox Company Eig[illegible] Annual Report

for the year ended December 31, 1969

Cover Photo: Delivery of [illegible] steam generators and the pressure vessel for the first of three B&W nuclear steam systems for Duke Power Company's [illegible] station was completed during the year. Each of the steam generators contains [illegible] miles of special alloy tubing and weighs over 1,000,000 pounds. A steam generator is shown arriving at the site from B&W's Barberton, Ohio plant. The [illegible] mile trip was made by rail on a specially built 12-axle flat car with the last few miles over highway using another specially built [illegible] vehicle.

1969 Highlights

TOTALS	1969	1968
Orders received	$ 812,758,000	$ 911,082,000
Unfilled orders	1,747,787,000	1,653,595,000
Sales (on percentage of completion method for long-term contracts)	718,566,000	647,613,000
Net income for the year	5,725,000	25,242,000
Cash dividends declared	16,752,000	16,726,000
Expenditures for property, plant and equipment	50,523,000	37,388,000
Depreciation of plant and equipment	13,439,000	10,934,000
Working capital	141,205,000	214,728,000
Stockholders' equity	277,216,000	288,243,000
Number of employees at year end	35,118	32,371
Number of common stockholders at year end	31,419	26,269
Number of common shares issued at year end	12,366,626	12,366,626
PER COMMON SHARE ISSUED*		
Net income for the year	$ .46	$ 2.04
Cash dividends declared	1.36	1.36
Stockholders' equity	22.42	23.31

*Shares issued were unchanged during the periods.

Letter to Stockholders

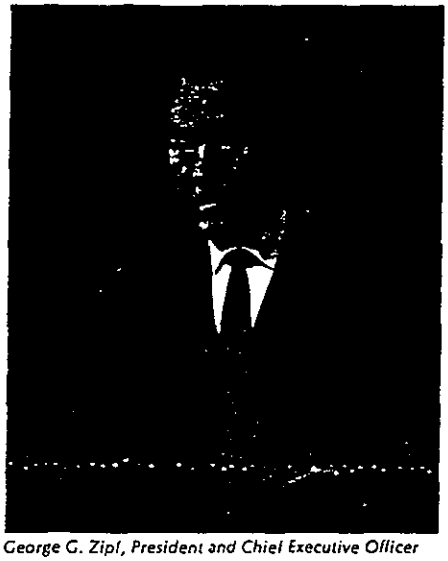
To The Stockholders of
The Babcock & Wilcox Company:

Earnings for 1969 were drastically affected by the substantial losses that were absorbed in the atomic energy business of the Power Generation division, together with reduced earnings from its fossil fuel business resulting from congested facilities caused by the nuclear work. For the rest of the Company's diversified product lines, the year was one of good performance with some equalling or exceeding their 1968 earnings.

The utilities' sudden and widespread demand for nuclear power plants in the period 1966-67, stimulated by expected operating economies, resulted in orders unprecedented in volume and scope of work for all the major suppliers. Delays have occurred and are expected to occur in many of the new plants for a variety of reasons in addition to manufacturing problems. These include delays in engineering and building construction, licensing procedures, transportation and handling problems, site selection, and the gaining of public confidence. In the case of B&W, the initial manufacturing problems caused by the rapid growth of the atomic business were further aggravated by a scarcity of skilled workers, strikes at various plants, and late delivery by vendors of critical machinery.

Many corrective steps have been and will continue to be taken by management in an effort to improve performance in the Power Generation division. New leadership has been provided and the division has been reorganized on the basis of product lines with redefined responsibilities and authority. Production capability has been improved by the addition of machinery and facilities, by continuous training programs aimed at providing the skilled craftsmen needed for high quality nuclear work, and by improvements in the manufacturing organization.

As noted in last year's Report, several of these corrective steps were initiated in 1968, particularly in respect to the reactor vessel situation at our Mount Vernon plant. While progress was made during 1969, it became apparent by mid-year that it would not be sufficient to alleviate the bottleneck which had developed because of initial delays. To improve this situation, orders for 14 vessels, in various stages of fabrication, are to be completed by other manufacturers, substantial costs in connection with which were absorbed by B&W in 1969. To date, Mount Vernon has manufactured and shipped six nuclear reactor vessels, three of them in 1969. Twenty reactor vessels for commercial and other nuclear applications remain on order, seven of which are scheduled to be shipped in 1970.



George G. Zipf, President and Chief Executive Officer

Work on B&W's 11 nuclear steam supply systems, where the Company is the prime contractor, is proceeding in accordance with revised schedules which reflect varying degrees of delay from original expectations. The reactor vessel and the two steam generators for Duke Power Company's first unit at Oconee were shipped during the year. Other major components will be shipped in 1970 and commercial operation of this plant remains scheduled by the customer for mid-1971.

Only eight nuclear reactor systems were ordered by U.S. utilities in 1969, compared with 17 in 1968 and 30 in 1967. While we did not receive any of the business placed in 1969, we are presently discussing proposals with several utilities which have plants under consideration. B&W intends to participate actively and profitably in what is expected to be a growing business. As the utility industry gains experience with nuclear power generation, and the many complex problems of siting, licensing, and public confidence are solved, orders for nuclear plants should resume their upward trend.

In addition to its commercial atomic energy work, the Company is also producing a substantial volume of nuclear power plant components and fuel for the Navy.

Except for major areas of atomic activity, all of the Company's product lines operated profitably in 1969, with shipments of refractories, machinery products, boiler cleaning equipment, instruments, control systems, and naval nuclear fuel significantly higher than in 1968. Tubular and steel products also concluded a very good year despite the effects of strikes at the Alliance and Milwaukee plants.

(continued)

Capital expenditures for all divisions and subsidiaries during 1969 totaled $50,523,000. The effects of these expenditures are expected to be reflected in improved schedules and production efficiency as well as in the manufacture of new products. It is estimated that 1970 capital expenditures will exceed $30,000,000.

The approximate distribution of our 1969 and 1968 shipments by industry was as follows:

	1969	1968
Electric Utilities	40%	43%
Government	18	13
Warehouse and Distributors	9	11
Machinery	9	10
Transportation	6	6
Primary Metals	4	4
Pulp and Paper	4	2
Fabricated Metal Products	3	2
Chemical and Petroleum	2	2
Miscellaneous	5	7
	100%	100%

All major product lines, with the exception of atomic energy, registered increased bookings in 1969 and new orders for the year totaled $812,758,000. The backlog at the end of the year rose to $1,747,787,000. Of the backlog, approximately one-half is for atomic energy work. A substantial part of the balance is for fossil fuel steam generating equipment scheduled for shipment in the next two years and the outlook for continuing business in this product line is excellent.

There have been many changes in Company management at all levels during the year. Ellis T. Cox joined the Company in September 1969 as Vice President in charge of the Power Generation division. He brings to this assignment a background of accomplishments in engineering and managerial capacities in various areas, including nuclear programs.

Paul S. Dickey retired as Chairman of Bailey Meter Company in April 1969 after a 44 year career with that subsidiary, which is under the direction of J. H. Dennis, President. R. A. Barr retired as a Vice President of the Company in June and R. P. Stuntz, General Manager, assumed his duties as head of the Refractories division.

M. Nielsen, who served as Chief Executive Officer from April 1957 to September 1968, retired as an active employee of the Company on May 1, 1969. He continues as Chairman of the Board of Directors. During his 45 years of active service, Mr. Nielsen made many significant contributions to the Company's progress.

Auguste G. Pratt, Chairman Emeritus and Honorary Director of the Company passed away on January 22, 1970. Mr. Pratt served the Company for 65 years. Its growth during that period is a tribute to his inspired leadership. We shall miss the counsel of this outstanding man.

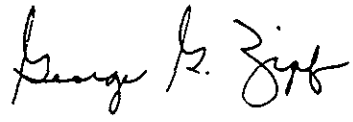
Donald N. Frey, President of General Cable Corporation, was elected a member of the Board of Directors on February 27, 1969. Samuel H. Wooley, Chairman of The Bank of New York, was elected a Director on January 29, 1970. The resignation of J. C. Traphagen, who has rendered distinguished service as a Board member since 1944, was accepted on January 29, and he has been appointed an Honorary Director.

The number of people owning stock in the Company increased steadily throughout 1969. On December 31, 1969, there were 31,419 stockholders, compared with 26,269 at the end of the previous year—an increase of 20 per cent.

The Company has been going through a lengthy period of identifying problems in an important area of its business and taking affirmative action to deal with them. There are uncertainties ahead such as the impact of labor negotiations, the effects of strikes which began on February 15 at five of our plants, and the general level of national economic activity. There also may be possible additional costs and expenses, including claims, resulting from delays in the atomic energy business, although management does not expect that amounts, if any, will be material. We believe that the basis has been established for a more profitable future and current indications are that results for 1970 will show a significant improvement over those for 1969.

At its February meeting the Board of Directors declared a regular quarterly dividend of 34 cents per share payable April 1 to shareholders of record on March 9, 1970.

Many dedicated and loyal employees throughout the organization are working to continue improving our operations, and I want to express my thanks for their efforts. The support of our many stockholders and customers is also very much appreciated.



George G. Zipf
President and Chief Executive Officer

February 26, 1970

Consolidated Statement of Income & Retained Earnings

	For the Calendar Year	
	1969	1968
Sales (on percentage of completion method for long-term contracts)	$718,565,944	$647,613,025
Costs and expenses:		
Costs and operating expenses	653,373,912	550,098,270
Selling, general and administrative expenses	36,737,530	34,424,700
Depreciation of plant and equipment (Note 4)	13,438,534	10,933,521
	703,549,976	595,456,491
Income from operations	15,015,968	52,156,534
Income from investments and marketable securities	505,447	928,571
Interest expense	(9,022,854)	(3,391,241)
Income before taxes and minority interests	6,498,561	49,693,864
U.S. and foreign taxes on income (Notes 2 and 4)	190,000	23,710,000
	6,308,561	25,983,864
Income applicable to minority interests	(583,803)	(741,635)
Net income for the year (per share—1969—$.46; 1968—$2.04) (Note 3)	5,724,758	25,242,229
Cash dividends declared	16,752,000	16,726,404
Remainder, to retained earnings	(11,027,242)	8,515,825
Retained earnings at beginning of year	205,911,752	197,395,927
Retained earnings at end of year	$194,884,510	$205,911,752

Consolidated Statement of Source and Application of Funds

	For the Calendar Year	
	1969	1968
WORKING CAPITAL AT BEGINNING OF YEAR	$214,728,409	$180,735,127
SOURCES:		
Net income	5,724,758	25,242,229
Depreciation	13,438,534	10,933,521
Net increase in noncurrent indebtedness		44,800,000
Net increase in noncurrent deferred income taxes	5,015,000	3,925,000
	24,178,292	84,900,750
APPLICATIONS:		
Additions to property, plant and equipment	50,523,415	37,388,445
Cash dividends declared	16,752,000	16,726,404
Net decrease in noncurrent indebtedness	31,200,000	
Other, net	(773,485)	(3,207,381)
	97,701,930	50,907,468
NET (DECREASE) INCREASE IN WORKING CAPITAL	(73,523,638)	33,993,282
WORKING CAPITAL AT END OF YEAR	$141,204,771	$214,728,409

Consolidated Balance Sheet

ASSETS	At December 31 1969	1968
CURRENT ASSETS		
Cash	$ 13,548,645	$ 16,198,612
Marketable securities, at cost (approximate market)	1,912,761	1,265,724
Accounts receivable	113,877,797	98,984,964
Unbilled sales (Note 2)	84,578,157	67,071,328
Inventories, including long-term contract costs (less advance payments on contracts) (Note 2)	170,151,565	160,300,471
TOTAL CURRENT ASSETS	384,068,925	343,821,099
NONCURRENT RECEIVABLES	1,348,245	2,016,649
INVESTMENTS, at cost	340,492	340,514
PROPERTY, PLANT AND EQUIPMENT, at cost less accumulated depreciation and amortization (Note 4)	202,647,504	165,637,835
PREPAID EXPENSES AND OTHER ASSETS	4,566,447	4,216,705
TOTAL ASSETS	$592,971,613	$516,032,802
LIABILITIES AND STOCKHOLDERS' EQUITY		
CURRENT LIABILITIES		
Notes payable (Note 5)	$ 86,339,851	$ 6,760,672
Accounts payable and accrued liabilities	139,366,858	98,228,746
Cash dividends payable	4,188,696	4,183,934
U.S. and foreign income taxes	12,968,749	19,919,338
TOTAL CURRENT LIABILITIES	242,864,154	129,092,690
NONCURRENT INDEBTEDNESS (Note 5)	56,000,000	87,200,000
DEFERRED INCOME TAXES	8,940,000	3,925,000
MINORITY INTERESTS IN SUBSIDIARY COMPANIES	7,951,522	7,571,933
TOTAL LIABILITIES	315,755,676	227,789,623
STOCKHOLDERS' EQUITY		
Capital Stock:		
Preferred, cumulative, no par; authorized and unissued 2,000,000 shares		
Common, par value $4.50; authorized 18,000,000 shares, issued 12,366,626 shares (amounts include $26,681,610 excess over par value-capital surplus)	82,331,427	82,331,427
Retained earnings	194,884,510	205,911,775
TOTAL STOCKHOLDERS' EQUITY	277,215,937	288,243,179
TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY	$592,971,613	$516,032,802

Opinion of Independent Accountants

To the Stockholders and Directors of The Babcock & Wilcox Company:

In our opinion, the accompanying consolidated balance sheet and statements of income and retained earnings and source and application of funds present fairly the financial position of The Babcock & Wilcox Company and its subsidiaries at December 31, 1969, the results of their operations and the supplementary information on funds for the year, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year. Our examination of these statements was made in accordance with generally accepted auditing standards and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

New York, N.Y., February 13, 1970

PRICE WATERHOUSE & CO.

Notes to Consolidated Financial Statements

Note 1—The financial statements include The Babcock & Wilcox Company and all subsidiary companies. The accounts of foreign subsidiaries have been translated to U.S. dollars at current rates of exchange, except for property, plant and equipment which has been translated at appropriate historical rates.

Note 2—The consolidated inventories at December 31 are summarized below:

	1969	1968
Raw materials and supplies	$ 74,423,000	$ 61,614,000
Work in process	140,245,000	134,534,000
Finished products	8,447,000	8,755,000
	223,115,000	204,903,000
Less: Advance payments	52,963,000	44,603,000
	$170,152,000	$160,300,000

Inventories are stated generally at the lower of cost or market. Other than for long-term contracts, cost is determined on the average or first-in, first-out basis for raw materials and supplies and accumulated production costs for work in process and finished products.

With respect to long-term contracts, the Company records sales and cost of sales by the percentage of completion method related principally to shipments or, in the case of nuclear contracts, to incurred direct labor. The costs recorded on uncompleted individual long-term contracts within each fiscal period are based upon estimates to complete. Cost estimates are reviewed periodically as the work progresses and adjustments, if any, proportionate to the percentage of completion are reflected in the period when such estimates are revised.

The completed contract method is followed for income tax purposes and provision is made currently for tax payments thereby delayed (1969—$8,963,000; 1968—$10,261,000).

Note 3—The 1969 results reflect costs and expenses incurred from certain actions taken to alleviate delays and the effects of delays in carrying out some long-term nuclear contracts. Additional costs and expenses, including claims, may result from delays but management does not expect that amounts, if any, will be material.

Note 4—Fixed assets which are carried at cost less accumulated depreciation may be summarized as follows:

	1969	1968
Land	$ 5,353,000	$ 4,838,000
Buildings	110,925,000	90,841,000
Machinery and Equipment	251,003,000	216,464,000
Construction in progress	16,074,000	22,413,000
	383,355,000	334,556,000
Accumulated depreciation	180,707,000	168,918,000
	$202,648,000	$165,638,000

For financial accounting purposes, the Company follows the straight-line method of computing depreciation while following accelerated methods for income tax purposes with appropriate deferral of income tax (1969—$7,615,000; 1968—$5,925,000). Provision for federal taxes on income reflect deductions for the tax investment credit of $2,923,000 in 1969 and $1,312,000 in 1968.

Note 5—Consolidated obligations consisted of the following:

	1969	1968
Current:		
Commercial paper	$ 21,613,000	$ —
Line of credit	55,000,000	—
Other	9,727,000	6,761,000
	86,340,000	6,761,000
Noncurrent:		
Bank loan agreement	46,000,000	75,000,000
Notes payable	10,000,000	12,200,000
	56,000,000	87,200,000
	$142,340,000	$93,961,000

The Company has the option to borrow at prime rate up to an aggregate of $150,000,000 from several banks under a bank loan agreement or on a line of credit. At December 31, 1969, $101,000,000 of this amount, as shown above, was borrowed. The outstanding amounts borrowed under the bank loan agreement are convertible upon election of the Company prior to December 31, 1970 into term loans payable quarterly over a 48 month period with interest at ¼ of 1% in excess of the then prime rate.

Certain of the agreements contain, among other things, requirements as to consolidated working capital, as defined, and dividend declarations. At December 31, 1969, all such requirements have been met.

Note 6—The Company has several pension plans, principally non-contributory, covering substantially all employees. The total pension expense funded and charged to income in 1969 was $8,366,000 which includes amortization of prior service cost over a period of forty years. The unfunded prior service cost at December 31, 1969 was approximately $40,000,000.

Note 7—Transactions in 1969 under the stock option plans approved by the stockholders in 1958 and 1963 are summarized as follows:

	Shares	
	1958 Plan	1963 Plan
Options outstanding on January 1, 1969	39,096	300,364
Options granted	—	—
Options exercised	(12,892)	(740)
Options lapsed	(500)	(92,024)
Options outstanding on December 31, 1969	25,704	207,600

No further options may be granted under either plan.

.come & Retained Earnings

ı-Year Comparison (in thousands of dollars) For the Calendar Year	1969	1968	1967	1966	
es (on percentage of completion method for long-term contracts)	$718,566	$647,613	$624,723	$561,627	548
sts and expenses except depreciation	690,111	584,522	545,935	485,628	41
preciation and amortization	13,439	10,934	16,436	14,778	1
	703,550	595,456	562,371	500,406	42
:ome from operations	15,016	52,157	62,352	61,221	5
:ome from investments and marketable securities	505	928	305	2,095	
erest expense	(9,022)	(3,391)	(1,412)	(838	
:ome before taxes and minority interests	6,499	49,694	61,245	62,478	5
;. and foreign taxes on income	190	23,710	27,260	28,710	2
	6,309	25,984	33,985	33,768	3
:ome applicable to minority interests	(584)	(742)	(770)	(766	
t income for the year	5,725	25,242	33,215	33,00	
uity in earnings of subsidiary prior to obtaining majority control					
	5,725	25,242	33,215	33,00	
sh dividends declared	16,752	16,726	16,681	15,3	
mainder added to retained earnings	(11,027)	8,516	16,534	17,6	
tained earnings at beginning of year	205,911	197,395	180,861	163,1	
tained earnings at end of year	$194,884	$205,911	$197,395	$180,8	16

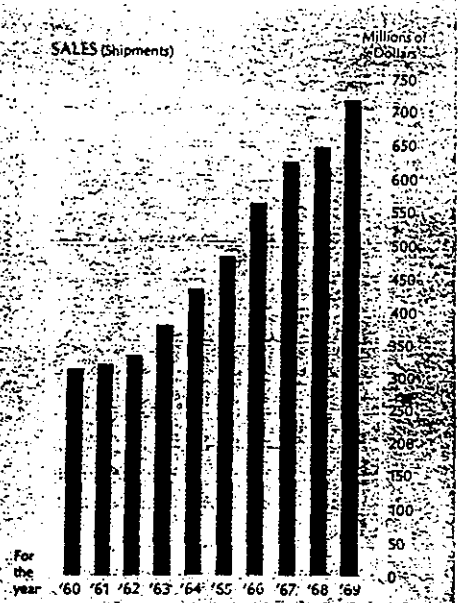
ource and Application of Funds

n-Year Comparison (in thousands of dollars) For the Calendar Year	1969	1968	1967	
ORKING CAPITAL AT BEGINNING OF YEAR	$214,728	$180,735	$156,721	$163
URCES:				
Net income	5,725	25,242	33,215	3
Depreciation and amortization	13,439	10,934	16,436	1
Net increase in noncurrent indebtedness		44,800	25,800	
Net increase in noncurrent deferred income taxes	5,015	3,925		
Working capital of subsidiary initially consolidated				
	24,179	84,901	75,451	
PLICATIONS:				
Additions to property, plant and equipment	50,523	37,388	33,509	
Cash dividends declared	16,752	16,726	16,681	
Net decrease in noncurrent indebtedness	31,200			
Net increase (decrease) in noncurrent receivables	(669)	(1,612)	1,547	
Other (net)	(104)	(1,594)	(300)	
	97,702	50,908	51,437	
ET INCREASE (DECREASE) IN WORKING CAPITAL	(73,523)	33,993	24,014	
ORKING CAPITAL AT END OF YEAR	$141,205	$214,728	$180,735	$

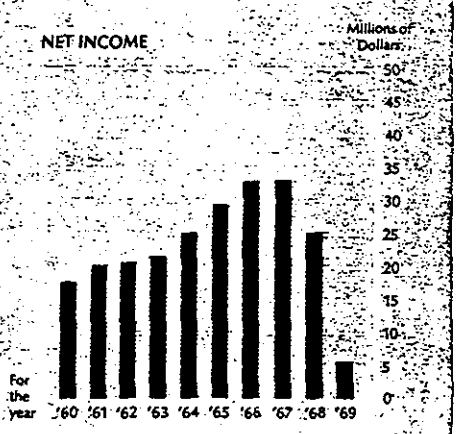
Statistics

	1969	1968	1967
ıcome from operations before taxes—% of sales	2.1%	8.1%	10.0%
et income for year—% stockholders' equity first of year	2.0%	9.0%	12.6%
Orders received—thousands of dollars	$ 812,758	$ 911,082	$1,099,295
Unfilled orders—thousands of dollars	$1,747,787	$1,653,595	$1,390,127
Common shares issued end of year	12,366,626	12,366,626	12,366,626
Per common share issued (adjusted for stock split—12,366,626 shares):			
Income for year	$ .46	$ 2.04	$ 2.69
Cash dividends declared	1.36	1.36	1.36
Stockholders' equity	22.42	23.31	22.62

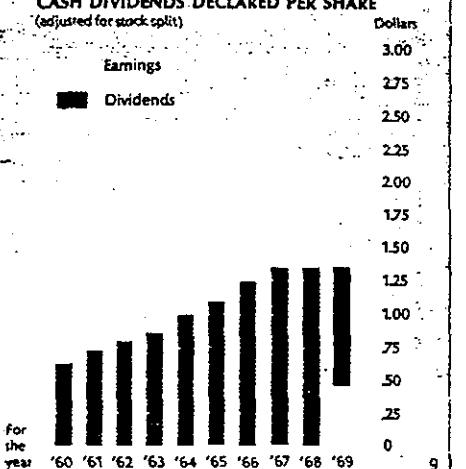
1965	1964	1963	1962	1961	1960
$481,600	$430,957	$377,684	$330,574	$319,353	$310,999
412,487	370,335	321,392	277,245	268,721	266,749
13,519	12,825	11,227	10,335	8,673	8,543
426,006	383,160	332,619	287,580	277,394	275,292
55,594	47,797	45,065	42,994	41,959	35,707
1,461	2,224	2,035	2,068	2,283	2,011
(715)	(750)	(834)	(952)	(1,120)	(1,218)
56,340	49,271	46,266	44,110	43,122	36,500
26,060	23,480	24,240	23,000	22,580	18,380
30,280	25,791	22,026	21,110	20,542	18,120
(830)	(595)	(279)	(250)	(301)	(303)
29,450	25,196	21,747	20,860	20,241	17,817
	1,030				
29,450	26,226	21,747	20,860	20,241	17,817
13,458	12,211	10,480	9,759	8,849	7,632
15,992	14,015	11,267	11,101	11,392	10,185
147,180	133,165	121,898	110,797	99,405	89,220
$163,172	$147,180	$133,165	$121,898	$110,797	$ 99,405



1965	1964	1963	1962	1961	1960
710	$119,851	$129,873	$146,524	$137,164	$127,453
450	25,196	21,747	20,860	20,241	17,817
519	12,825	11,227	10,335	8,673	8,543
	5,084				
969	43,105	32,974	31,195	28,914	26,360
610	12,265	23,101	25,662	6,188	6,105
458	12,211	10,480	9,759	8,849	7,632
	2,200	2,200	2,200	4,400	2,200
535)	(1,877)	6,072	9,727		
254)	447	1,143	498	117	712
279	25,246	42,996	47,846	19,554	16,649
690	17,859	(10,022)	(16,651)	9,360	9,711
400	$137,710	$119,851	$129,873	$146,524	$137,164



1965	1964	1963	1962	1961	1960
	11.1%	11.9%	13.0%	13.1%	11.5%
%	11.7%	10.6%	10.8%	11.1%	10.4%
195	$525,814	$398,990	$348,907	$361,285	$301,146
418	$467,523	$372,666	$351,360	$333,027	$291,095
26	12,366,626	6,183,313	6,183,313	6,183,313	6,183,313
	$ 2.04	$ 1.76	$ 1.69	$ 1.64	$ 1.44
	1.00	.86	.80	.73	.63
	18.56	17.43	16.51	15.62	14.70



Balance Sheets

Ten-Year Comparison (in thousands of dollars)

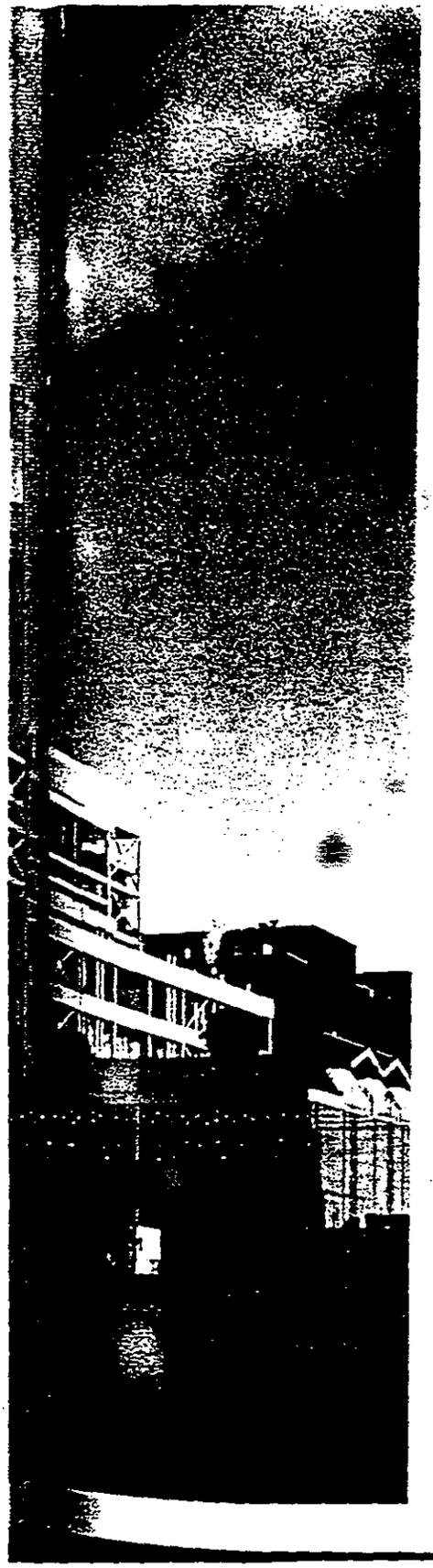
At December 31	1969	1968	1967	
ASSETS				
CURRENT ASSETS				
Cash	$ 13,549	$ 16,199	$ 12,839	$ 15
Marketable securities	1,912	1,266	5,297	16
Accounts receivable	113,878	98,985	85,525	75
Unbilled sales	84,578	67,071	47,841	35
Inventories, net of advance payments	170,152	160,300	138,625	119
TOTAL CURRENT ASSETS	384,069	343,821	290,127	262
NONCURRENT RECEIVABLES	1,348	2,017	3,629	2
INVESTMENTS	340	340	341	
PROPERTY, PLANT AND EQUIPMENT	202,648	165,638	139,415	122
PREPAID EXPENSES AND OTHER ASSETS	4,567	4,217	5,157	4
TOTAL ASSETS	$592,972	$516,033	$438,669	$392
LIABILITIES AND STOCKHOLDERS' EQUITY				
CURRENT LIABILITIES				
Notes payable	$ 86,340	$ 6,761	$ 3,658	$ 5
Accounts payable and accrued liabilities	139,367	98,229	80,281	77
Cash dividends payable	4,188	4,184	4,176	
U.S. and foreign income taxes	12,969	19,919	21,277	23
TOTAL CURRENT LIABILITIES	242,864	129,093	109,392	105
NONCURRENT INDEBTEDNESS	56,000	87,200	42,400	16
DEFERRED INCOME TAXES	8,940	3,925		
MINORITY INTERESTS IN SUBSIDIARY COMPANIES	7,952	7,572	7,150	
TOTAL LIABILITIES	315,756	227,790	158,942	129
STOCKHOLDERS' EQUITY				
Preferred stock authorized and unissued				
Common stock including capital surplus	82,332	82,332	82,332	
Retained earnings	194,884	205,911	197,395	18
TOTAL STOCKHOLDERS' EQUITY	277,216	288,243	279,727	29
TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY	$592,972	$516,033	$438,669	$3

Property, Plant & Equipment

Ten-Year Comparison (in thousands of dollars)

For the Calendar Year	1969	1968	1967
COST			
At beginning of year	$334,556	$298,317	$266,404
Expenditures during year	50,523	37,388	33,509
Other additions—initial consolidation of subsidiaries			444
Retired or sold during year	(1,724)	(1,149)	(2,040)
At end of year	383,355	334,556	298,317
DEPRECIATION AND AMORTIZATION			
At beginning of year	168,918	158,902	144,012
Charged to operations during year	13,439	10,934	16,436
Accumulated—initial consolidation of subsidiaries			247
Accumulated on property retired or sold during year	(1,650)	(918)	(1,793)
At end of year	180,707	168,918	158,902
NET BOOK VALUE	$202,648	$165,638	$139,415

12



Fossil fuels provide a major portion of the steam used to generate electricity. Three B&W units with a combined capacity of 2,500,000 kilowatts are in operation at TVA's Paradise station in western Kentucky. The largest of the three, a 1,150,000 kilowatt unit, went on line in 1969.

Review of operations

Steam generating equipment

The heavy demand for all types of electric power generation equipment except nuclear continued during 1969. However, the continuing utility interest in nuclear plants indicates that this form of power generation will in time resume a steady growth pattern and the Company expects to be an important participant in this developing business.

Work on the 11 nuclear steam supply systems which utilities have ordered from B&W is progressing. During the year, the pressure vessel and two steam generators for the first of three nuclear steam supply systems for the Duke Power Company were shipped and installation at the site is underway. Bailey Meter will supply integrated control systems for the reactors, steam generators and turbines, as well as emergency reactor protection equipment and extensive instrumentation. Control rod drives and special closed-circuit television cameras will be furnished by Diamond Power.

Earlier in this Report, the production problems involved in nuclear work were discussed in the President's letter.

At present the Company has a full order book for large utility-type fossil-fueled steam generating units scheduled for shipment through 1971, and there is every reason to expect that the demand for this equipment will continue into the future.

A/ B&W Canada has perfected the forming of header and drum nozzles by the electroslag welding process. This advanced technique has increased the quality and productivity of nozzle fabrication.

B/ Machining is a critical aspect of fabrication on nuclear components. A section for one of the 11 nuclear steam systems B&W has sold to utilities is checked at a new $10 million machining center opened this year.

Seven B&W Universal Pressure steam generators ordered by utilities in 1969 included four 1,300,000 kilowatt units purchased by American Electric Power Company which are the largest units ever sold. Detroit Edison ordered a fourth 800,000 kilowatt B&W Universal Pressure boiler for its Monroe station which will rank it among the world's largest power plants.

Erection was completed during the year on 11 Universal Pressure boilers and nine Radiant boilers totalling more than 8,300,000 kilowatts, versus 7,000,000 kilowatts installed by B&W during the preceding year.

Boiler sales for a wide variety of industrial applications continued at the high level of the past several years. Package boilers, assembled by B&W in the shop for shipment, found new applications in diverse industrial and commercial environments.

In 1969 B&W sold eight process recovery boilers to the rapidly expanding pulp and paper industry, a large user of steam power. Three of the four units sold for installation overseas were designed to control odor emission through a process developed by B&W which replaces accessory equipment responsible for much of the odor associated with kraft paper manufacture. The process also increases boiler efficiency.

Further evidence of the success of B&W boiler designs is the interest of foreign utilities. Three boilers of B&W's Radiant type are being built for two Spanish electric companies. These units, of 566,000 kilowatts each, are the largest Radiant boilers B&W has designed. Italian utility purchases last year brought to 18 the number of Universal Pressure steam generators sold in Italy since 1962. B&W Canada Ltd. registered its largest single export order to date with the sale of two Radiant boilers to Israel Electric. B&W had sold identical units to the utility in 1966 and 1967.

B&W Canada Ltd. also increased sales by expanding its line of pumps to include utility applications and by broadening its market to include pump sales in the United States.

To meet current and future demand for steam generating equipment the Company concentrated a major percentage of its $50 million 1969 capital facilities program on expanding and modernizing manufacturing capabilities within the Power Generation division. Acquisition of a Canton, Ohio, plant in early 196[illegible] increased the division's manufacturing space by almost 600,000 square feet and added more than 800 skilled men to B&W's work force. Production at Canton is now approaching capacity. At Wilmington, North Carolina, 48,000 square feet of manufacturing space was added this year to help meet the growing need for shop assembled boilers. Additions or modernizations at every other manufacturing facility in the Power Generation division were completed in 1969 or are presently underway.

A

Steel products

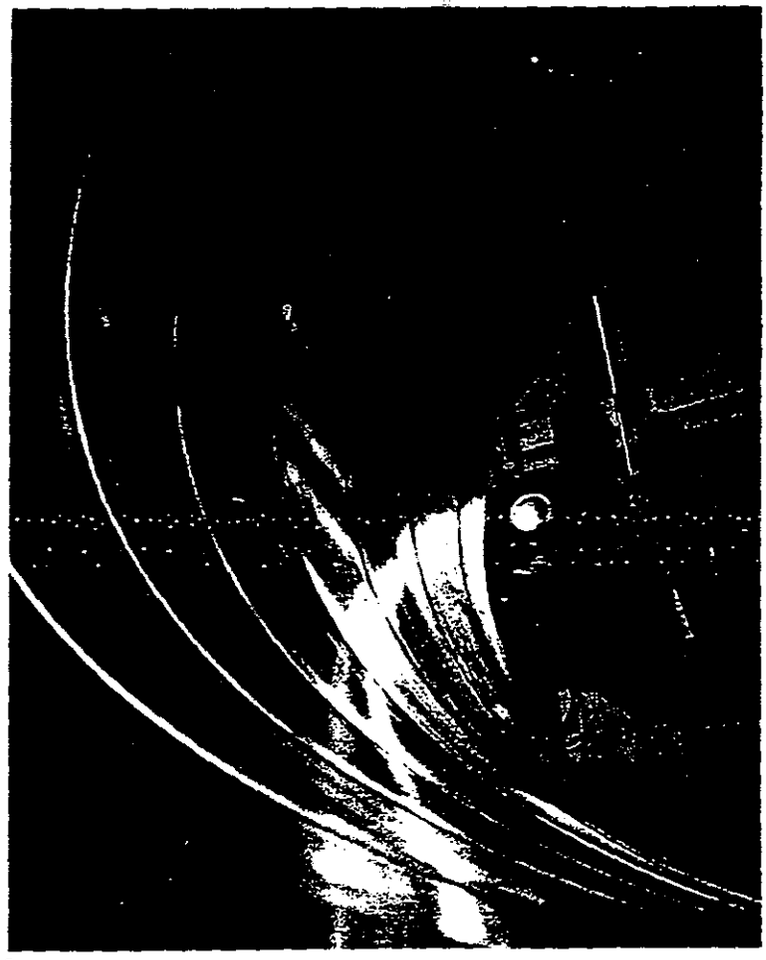
Sales of steel and tubular products compared favorably with 1968 performance. There was a high level of demand for both mechanical and pressure tubing, and orders throughout the range of products required near maximum use of production capacity.

B&W tubular products find application where high quality is required in such diversified markets as the transportation, machinery, construction, metalworking, oil, gas and chemical industries. The division employs integrated production facilities to achieve efficiency and quality goals.

One important application of tubing is in the heat exchangers used extensively in most process industries. In 1969, the Tubular Products division began manufacture of integral finned tubing which permits the use of smaller heat exchangers by increasing heat absorbing efficiency. Market acceptance for this product is growing steadily.

The Company also extended its product line to include the high-alloy, small-diameter tubing used in nuclear steam generators and a plant has been completed at Beaver Falls, Pennsylvania, to manufacture the large quantities of tubing required for this application.

B&W has tested and perfected a technique for the manufacture of seamless tubing which results in bore straightness previously unattainable by the industry. This achievement promises



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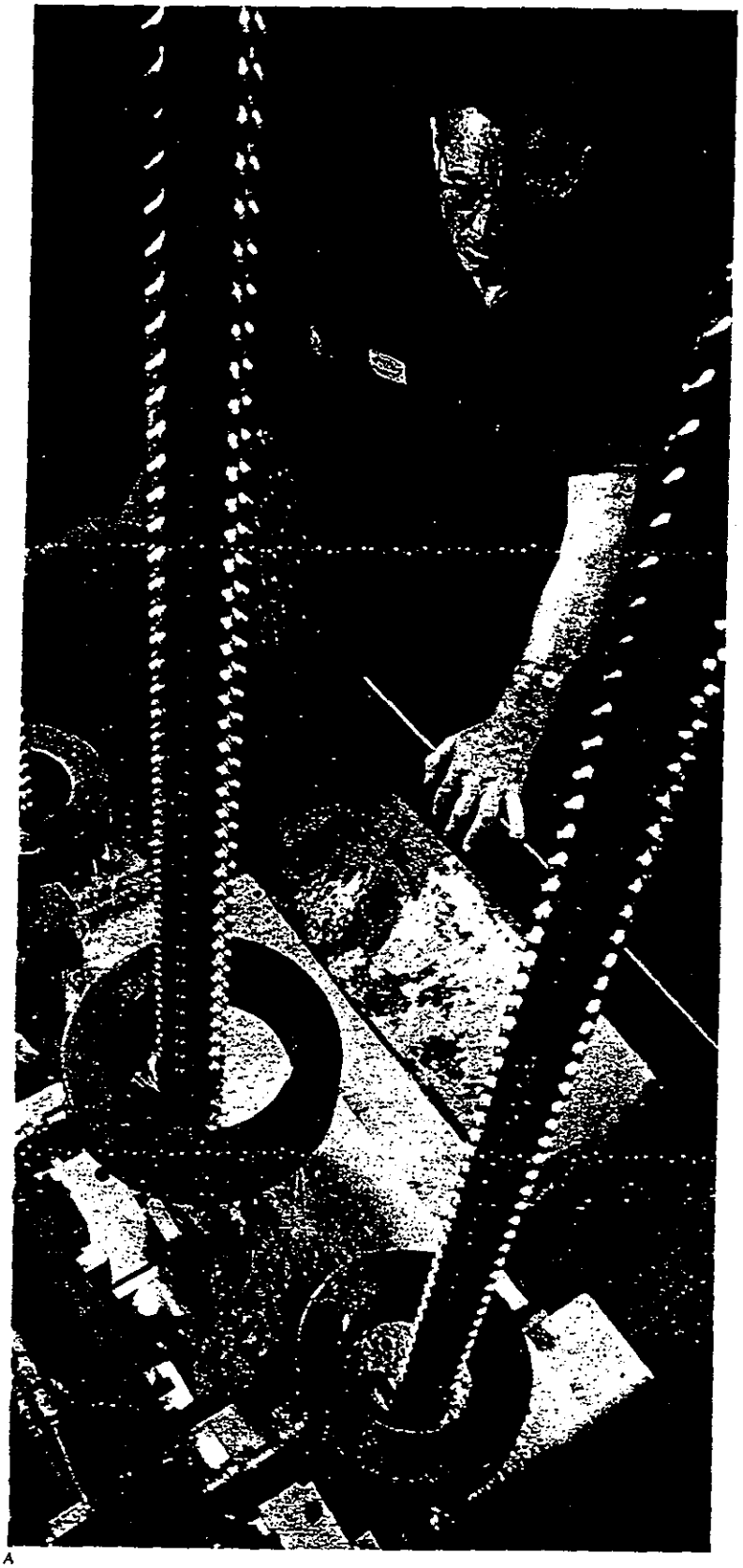

A

B

to reduce long-standing maintenance and repair problems for heavy equipment customers producing hydraulic cylinders from tubing.

Production machinery

Despite a general slackening of orders in the machine tool industry during the year, the existing and new products of the Automated Machine division were well received and total sales and backlog increased.

Long a supplier of mass production machinery widely used in automobile production, the division is increasing its emphasis on the manufacture of more versatile machine tools to serve a wide range of industries. At the same time the division is working in close cooperation with Bailey Meter to develop complete integrated metalworking systems. Such systems will include machines to do the work, machines to handle and move the work, and computers to control the machines.

A major achievement in this effort was the introduction to the automotive industry of a transfer line which is controlled by a fixed program system. It includes a computer which is capable of detecting more than 85 percent of machine and control malfunctions frequently before they occur.

During the year, Bailey sold a high percentage of the continuous broaching machines built

A/ Broaching is the fastest precision metal cutting method known. These three exposed broaching tools are designed with a graduated series of teeth—each removing a little more metal as it is pulled over or through the part being cut. Sales of B&W broaching machines and tools were at record levels in 1969.

B/ The Tubular Products division supplied over four miles of casing tubing for one of the deepest and highest-pressure gas wells in the world—known as "#1 Green" —in western Oklahoma.

by U.S. industry. One of the largest was built for a farm equipment manufacturer to perform nine separate operations on 180 parts per hour. Previously this would have required eight vertical broaching machines.

Since entering the large surface broaching machine field two years ago, B&W has made significant marketing progress. In 1969, the Company accounted for a sizable share of these machines shipped in the U.S. The broaches used in broaching machines must be replaced periodically and represent a growing source of business. In 1969 the division established record broach sales, and constructed a new manufacturing facility in Puerto Rico to handle some of this expanding business.

Principally through its experience with hydrostatic bearings and complex electronic systems, the Automated Machine division has gained a reputation for being able to supply the high precision equipment increasingly in demand. This skill was demonstrated during the year by the manufacture of three of the largest, high precision internal grinders ever built. Orders were received for two similar grinders for the jumbo-jet aircraft production program. Notable shipments included an all-hydrostatic machine for boring V-8 engine blocks and the first of nine computer-controlled gages using laser technology to measure dimensions within a few millionths of an inch.

Computers and control equipment

New opportunities have been created for Bailey Meter with the emergence of the digital control computer as an accepted, sought-after tool for the process control engineer.

This new computer field offers a potential for growth far beyond that available with Bailey's traditional products. The subsidiary is moving to exploit these opportunities in both new and established markets. The Bailey 855 computer has already established itself in utility power plants and models are being added to the computer line that are geared to the smaller process control jobs. One of the 19 Bailey 855 systems sold to date will control and document testing of truck engines coming off a production line. This installation is expected to help the customer improve quality, increase production and reduce costs.

Fluidic devices using flowing air rather than electric current as a medium of control have been developed by Bailey engineers to extend control capability. Having no moving parts, fluidic components are ideally suited for the input and output functions of automatic machinery where their high reliability and low maintenance under severe operating conditions cannot be matched by standard electrical equipment.

A

A/ Extensive in-plant check-out of Bailey Meter's new 855 digital computer systems assures the high reliability for effective on-line control of modern industrial processes.

B/ Manufacturers are finding new ways to use B&W's ceramic fiber insulation, Kaowool; but its basic use continues to be as furnace lining for the metals producing industry. It is one-quarter the weight of brick and one-half the thickness, yet it keeps more heat in the furnace.

Diamond closed-circuit television system are aiding traffic control, prison surveillanc navigation, training and education, as well a a variety of other activities.

A Diamond Power closed-circuit televisio system monitored the epic voyage of the Manhattan as she cleared her way through Arctic ice of the Northwest Passage. Diamo cameras mounted on the bow and stern of tanker recorded the patterns of polar ice broke under the weight of the ship.

Refractories

Refractories sales increased during the ye a result of the introduction of new pro and the penetration of new markets with ing products.

The perfection of two high-alumina tory brick extremely resistant to abrasi chemical attack promises longer refract

A/ New B&W engineers undergo an intensive company-wide orientation program. In 1969, over 100 who will be part of the management nucleus of the 'seventies and 'eighties took the course.

B/ Fuel elements for nuclear reactor cores are assembled at the Power Generation division's new commercial nuclear fuel plant in Lynchburg, Va.

C/ Reactor operators will be trained on industry's first pressurized water reactor simulator at the Lynchburg, Virginia, headquarters of the nuclear power generation department.

Progress through training

Technology is advancing so rapidly that those adequately trained only a few years ago are in danger of becoming victims of educational obsolescence. Planned re-training of employees is essential if a company is to contribute to the continuing advancement of technology.

Training is also important to B&W as a method of filling its need for people with greater and more specialized skills. It is becoming increasingly difficult to obtain from outside the Company the large numbers of highly qualified people needed to assure continued progress in highly complex and specialized fields. Training people from within is thus an important policy for B&W and attractive to our employees. The Company's extensive training efforts for employees at all levels include both on-the-job and in-class programs. Among others, a significant and effective training activity is currently underway at the Naval Nuclear Fuel division, where each new employee spends four weeks in an intensified formal training program prior to assignment.

Because of the growing sophistication of its products, B&W has initiated a number of customer training programs. A Bailey school offers instructions in programming and computer applications. Utilities which have purchased B&W nuclear systems will soon be sending prospective reactor operators to train on a nuclear reactor simulator housed in the Company's new engineering building at Lynchburg, Virginia. The simulator is capable of qualifying up to 200 reactor operators per year.

Progress through research

B&W progresses through research on two fronts. At separate research facilities in Alliance, Ohio, and Lynchburg, Virginia, specialized facilities, and professional personnel are devoted to development of new technologies which can be brought to bear on the needs and goals of operating units. At the same time, operating divisions and subsidiaries maintain in-plant programs designed to improve products and processes and broaden their application.

The work at both levels is complementary and efforts are closely coordinated. Some outstanding results of this combined research activity include B&W's nuclear steam generating system, the 855 computer series, a new coal analyzer, and a silicon transducer for pressure measurement.

Company scientists and engineers are advancing the capability of many current products including the B&W nuclear steam system. A five-year R&D program to define the limits of reactor performance is expected to permit significant increase in system power ratings. Modifications in the internal arrangements of the reactor and the steam generator

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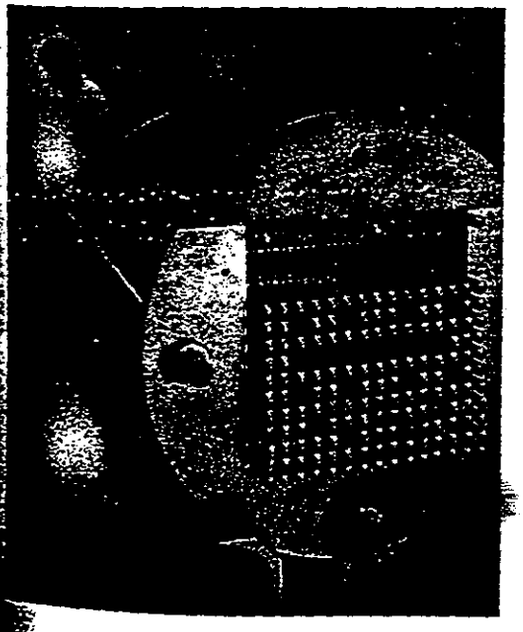

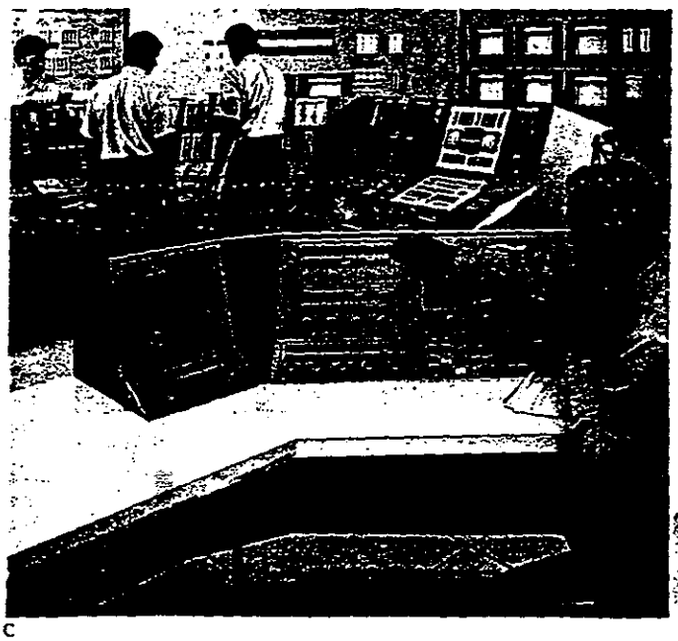

C

A/ *At the Alliance Research Center the properties of Kaowool, a Refractories division product, are investigated and developed, leading to new product forms and applications.*

B/ *Researchers at Alliance, Ohio, probe the inner structure of metals and ceramics with an electron microscope to uncover problem causes and improve product performance.*

C/ *The special strengths of analog and digital computers are combined at the Alliance Research Center in a hybrid computer, bringing maximum problem solving capability to bear on countless engineering problems.*

D/ *Grindability of various coals and performance of coal pulverizer designs are analyzed at the Alliance Research Center.*

A

B

including additional alterations, should result in further power upgrading.

Technology is advancing at an ever-increasing rate on all fronts. Large-scale use of electricity for heating, transportation and industrial automation, in addition to population growth, will cause our consumption of electric power to double about every 10 years into the next century. Nuclear power will meet a sizable share of this demand for energy, freeing more fossil fuels for conversion to petrochemicals, fluid fuels, and other organic products.

Changes in B&W's other areas of activity will be equally dramatic. The trend to fully integrated control of machine tools will accelerate. In the process control field, computer functions will be extended to higher levels of process optimization and new forms of adaptive control. Refractory and steel products will become increasingly specialized as routine applications become the exception.

B&W has traditionally sought out involvement in fields of business that pose a considerable technological challenge and a correspondingly high reward for success. Today virtually every aspect of the Company's operation offers significant opportunity to meet the challenge of changing technology with superior products, systems and services.

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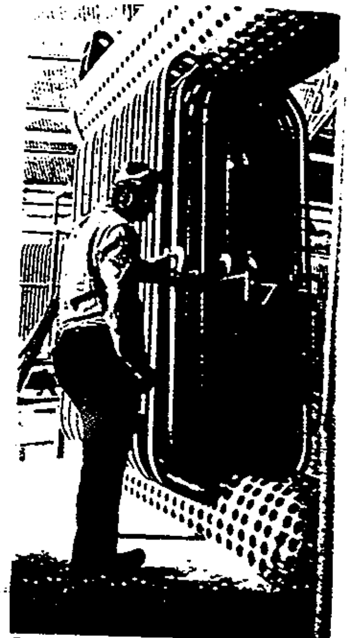


C

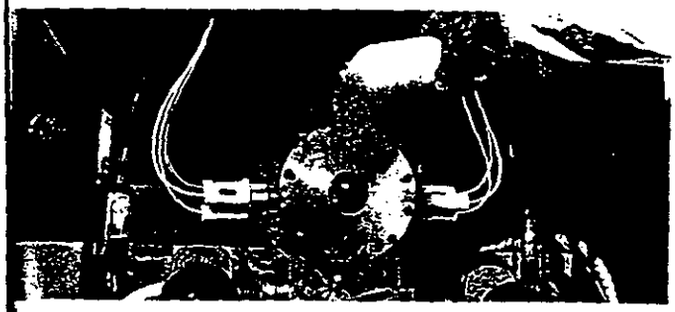
D

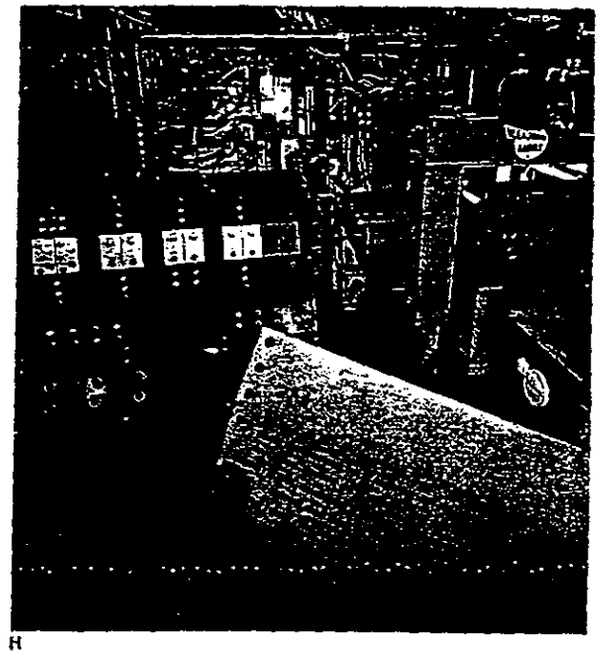
[illegible] to improve heat transfer performance are welded on heat exchanger tubing at [illegible] Point, Mississippi. [illegible] one of [illegible] equipped with Bailey Meter automation systems [illegible] C/ Shop-assembled package boilers are [illegible] [illegible]ton, N[illegible] plant for B&W customers who require power ready for start-up. D/ A [illegible]-foot-long header for a Radiant boiler [illegible]'s rec[illegible] [illegible], Ohio, plant.

The Babcock & Wilcox Company

Facilities

Products





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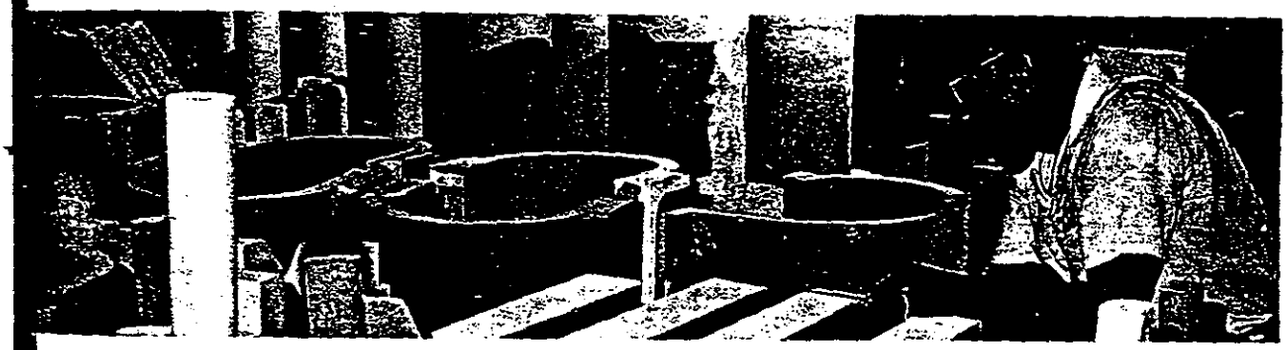

...mass spectrometer at the Nuclear Development Center in Lynchburg aids in the development of nuclear fuels for advanced reactor designs. F/ Diamond Power sootblowers, used in boilers of various size and design, result in more efficient boiler operation. G/ Carox shapes made by B&W at Augusta, used in the steel, ceramic and process industries in pre-fired shapes. H/ A B&W designed closed-circuit transfer machine was sold to a major auto... system will monitor machine performance and reduce downtime by pinpointing trouble area.

Babcock & Wilcox
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