BARRINGER RESEARCH

ANNUAL REPORT 1971

Officers:

DR. ANTHONY R. BARRINGER, President

DR. D. RICHARD CLEWS, Executive Vice President

DAVID A. WHITEMAN, Vice President

ROBERT J. ARMSTRONG, Secretary

WILLIAM S. BECKETT, Controller

Directors:

ROBERT J. ARMSTRONG

DR. ANTHONY R. BARRINGER

DANIEL R. BERESKIN

DR. D. RICHARD CLEWS

SHOLLY KAGAN

THURNE PARKS

ROGER C. WILSON

Transfer Agents:

CHEMICAL BANK, 277 Park Avenue, New York, New York 10017

Auditors:

DELOITTE, HASKINS & SELLS, Toronto-Dominion Centre, Toronto 111, Ontario, Canada

Corporate Counsels:

BLACKWELL, LAW, TREADGOLD & ARMSTRONG, Suite 1501, 110 Younge Street, Toronto 1, Ontario, Canada
SATTERLEE & STEPHENS, 277 Park Avenue, New York, New York 10017

Corporate Offices:

BARRINGER RESEARCH, 304 Carlingview Drive, Metropolitan Toronto, REXDALE, Ontario, Canada
Phone: (416) 677-2491 Cable: Baresearch, Toronto
TWX: (610) 492-4244 Telex: 06-217893

Dear Shareholder:

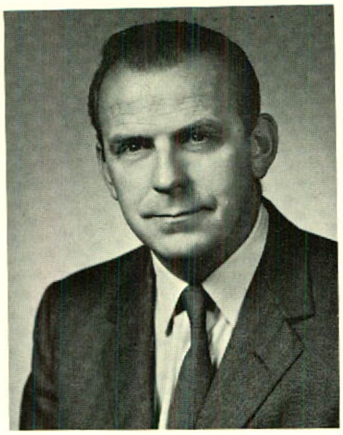
PROGRESS in joint-venture exploration and growth in sales mark 1971 as a fair year for Barringer Research. The system upon which the Company was founded, the INPUT® or INduced PUlse Transient Airborne Prospecting System, continues to show significant growth in application; royalties increased, as they have done over the past seven years, by a substantial amount, reaching a figure in the vicinity of $380,000. Further advances in the system are in hand, and there are good reasons to anticipate a significant and continuing growth from this important source of corporate income.

The success being achieved with our INPUT System in locating ore bodies during contract surveys flown by our licensees is a spur to your Company's own efforts in joint-venture mineral exploration. Extensive work continues on these programs which draw upon the full capabilities of the Company in both instrumentation and technical know-how. They carry a potential for major future financial gains in the event of a discovery.

We are confident that our planned expanding participation in joint-venture exploration operations will lead to ultimate success. At the same time, we have maintained our policy of manufacturing small production runs of advanced instruments and have utilized outside-supported research and development to maintain our research facility and to keep our technological lead in our chosen field.

The Company's activities have resulted in sales of $3,557,000 in 1971, an increase of $304,000 over 1970. While net earnings show a small loss for the year, this figure reflects *real* earnings of $220,000. Against this, $276,000 was amortized from Company-funded research and development of prior years. As previously announced, Company-funded research and development ceased in June 1970. As a result, each year overhead expenses, previously deferred with the R & D, are now directly charged; in 1971, this amounted to $82,000. During the year working capital increased from $18,000 to $284,000, and our backlog increased from $893,700 to $1,353,890. The recession in mining activities resulted in a decrease in contract services from $695,000 to $398,000 in 1971. If present trends continue; these services should increase in 1972.

At year's end, 40 *target sites* (favorable geological settings where positive geological, geophysical and geochemical signatures coincide) had been identified for diamond drilling. Financing was arranged for the development of 26 of these: 8 were optioned to a Cleveland consortium consisting of the Hanna Mining Company; Cliffs of Canada Limited, a subsidiary of the Cleveland Cliffs Mining Company; Pickens Mather and Company, a subsidiary of Diamond

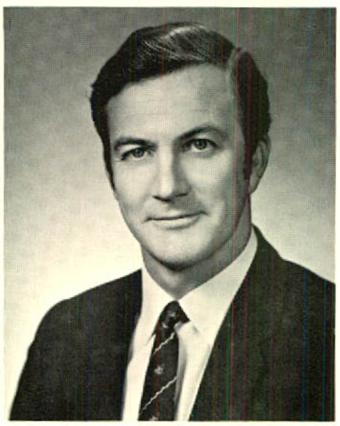


A. R. Barringer
President

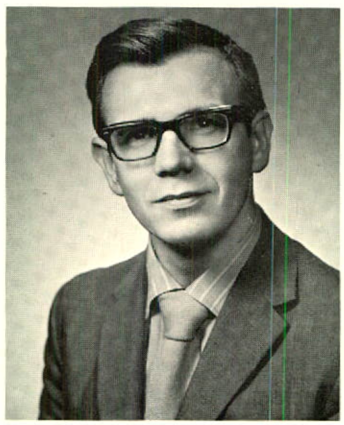
W. S. Beckett
Controller

D. R. Clews, Ph.D.
Executive Vice President

D. A. Whiteman
Vice President



J. L. Walker
General Manager
Exploration Division



J. H. Davies
General Manager
Research & Instrumentation Division

Shamrock Corporation; and Ogleday Norton Company. Eighteen were optioned to McIntyre-Porcupine Mines Limited. Together with our Canadian Joint Venture partner, TRW's Omar Explorations Limited, the Company will share a significant portion of any ore found.

Likewise, in Fiji, in partnership with Roan Selection Trust, exploration continues. Results to date have been promising and drilling targets have been identified. The application of Barringer combined geological, geochemical and geophysical reconnaissance techniques, which has lead to the selection of these drill targets, has proven an effective approach in Fiji where the geological potential for copper mineralization is high. We have confidence that the approach being employed in Fiji will give the best possible coverage of the islands that is available with today's technology.

Exploration joint ventures, financed by partners, are undertaken by the Company where the field activities and program management are Barringer responsibilities. In Canada, this work is accomplished at cost plus an overhead which recovers part of the amortization of unfunded R & D and a 10% profit. In addition, the Company takes a sizeable position of any findings; these positions which range up to 33% are a "hidden profit." In 1971, 37% of the year's sales were related to joint-venture work. The balance of the sales were in outside-supported research and development, instrument sales and royalty payments on proprietary licenses.

Supported research and development doubled in 1971, to an amount in excess of $1,000,000. Notable was the technical success of *COPE*, the Carbon Monoxide Pollution Experiment supported by NASA under a subcontract to Barringer Research from the General Electric Company. This small sophisticated electro-optical instrument is designed for use from space as a monitor of the distribution of poisonous carbon monoxide on a world-wide scale. Prototype equipment, extensively tested in 1971, proved the design concept, and two flight engineering models were ordered. As one of the first space-borne pollution monitors, this Barringer equipment seeks to determine the fate of carbon monoxide, generated in large quantities in the atmosphere: the location of such a "carbon-monoxide sink" is unidentified at present.

The COSPEC™ Remote Sensing Correlation Spectrometer found excellent acceptance during the year. Ten units were delivered to Japan and the United States, and an initial purchase order was received from the United Kingdom. The use of these innovative electro-optical measurement devices for determining the distribution and amount of key pollutants in the atmosphere has been steadily gaining full scientific acceptance as a new and unique means of understanding adverse air quality and tracking pollutant sources.

A production run of liquid analysers for monitoring heavy water in Canada's nuclear power plants was initiated, based on receipt of an order for ten. Barringer Research thus insured its position as a prominent contributor to the specialized application of electro-optical methods for measuring the chemical content of liquid or air.

A new application for use of Barringer's proprietary E-PHASE® Geophysical System gained acceptance in 1971. This unique airborne electric measuring instrument located commercial gravel deposits for the first time by airborne geophysical methods. These initial successes are regarded as very significant in view of the increasing requirements for gravel near expanding metropolitan areas. Furthermore, the system is proving to be valuable in the search for commercial sand and china-clay deposits. It is not usually recognized that these industrial minerals can represent very rich finds, and they may be developed in a shorter time and for much less money than metallic mines. The E-PHASE System has been protected by world-wide patents, which are already starting to issue in key countries. Commercial application has only just begun, and an increasing usage is forecast during the forth-coming decade.

In airborne exploration for metallic ore, Barringer's INPUT Airborne Prospecting System, as previously mentioned, returned $380,000 in rentals and royalties. 1971's return was 24% over 1970's. The manner in which the INPUT System has become firmly established in a preeminent position in airborne exploration for metallic ores provides an example which we hope to emulate with some of our other systems.

In Australia, Barringer Geosurveys Pty. Limited, incorporated in late 1970, negotiated an exclusive license with an existing Australian contracting company to undertake exploration. Funds were supplied to develop advances in our proprietary suite of exploration sensors.

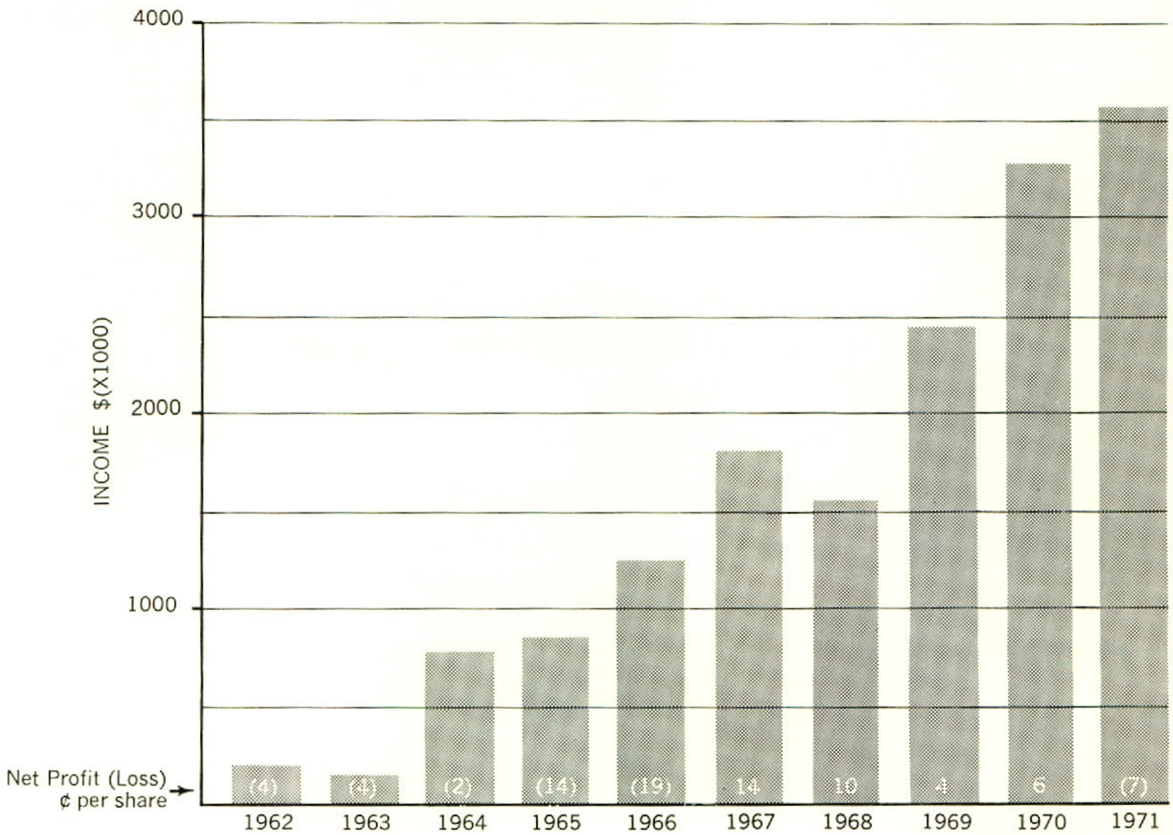
I have outlined the progress of the Company in 1971. The results at year's end were very encouraging when viewed against the activities of the year. In April, Barringer Research entered its second decade. As reviewed in the fall issue of our journal, *Barringer Research*, the first ten years demonstrated a healthy growth and established the Company as an important contributor to the earth and atmospheric sciences. 1971's progress shows the trend continuing.

Sincerely

A. R. Barringer

A. R. BARRINGER

BARRINGER RESEARCH GROSS INCOME & NET PROFIT



A REVIEW OF 1971 IN PHOTOGRAPHS*

EXPLORATION

Row 1: Data digitizing in Toronto; Dr. Barringer conducting field tests; geochemistry party in Fiji; Geoterrex INPUT® installation on Canso; field party fording Fijian stream.

Row 2: Geochemistry laboratory analyses; geology crew in Fiji; E-PHASE® installation showing sensor location; gathering ground geophysical data in Brazil; field laboratory in Arizona; combined geophysical system wth electromagnetic "bird" in England.

RESEARCH AND INSTRUMENTS

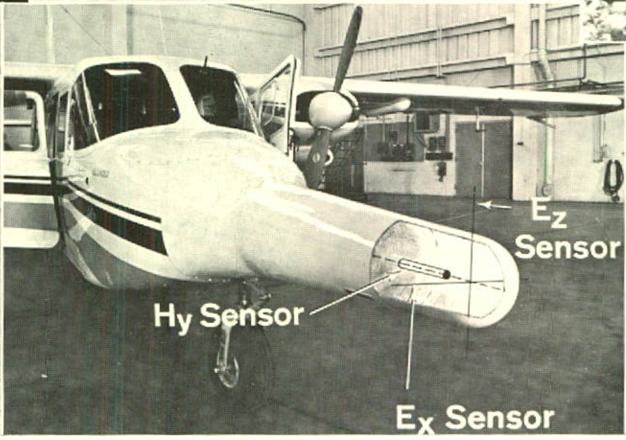
Row 3: Testing infrared analyzer for heavy water detection; carbon monoxide pollution experiment (COPE) prototype system; COSPEC™ measuring pollution with distant light; precision mechanical custom work, Toronto; xenon light source at rural test site, Illinois; engineering meeting for precession magnetometer.

Row 4: Optical assembly for correlation spectrometer; COSPEC installation for mobile traversing; in-house custom fabrication; detail of COPE interferometer scheduled for spacecraft use; measuring stacks for NO_2 and SO_2 emissions.

*Four rows of pictures on following two pages; captions read from left to right.

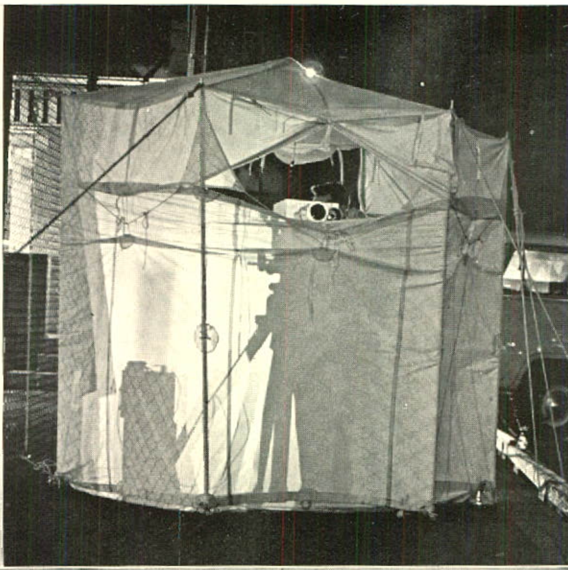
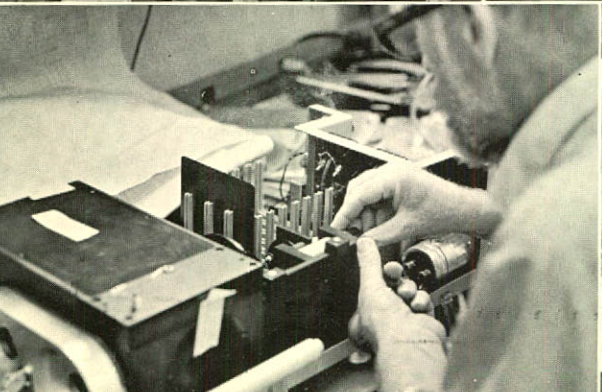


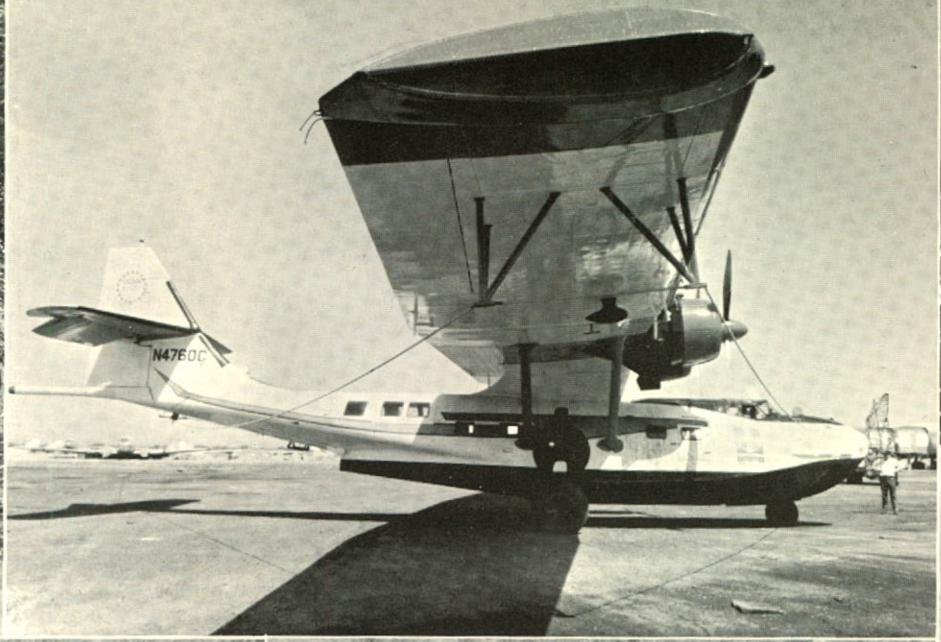


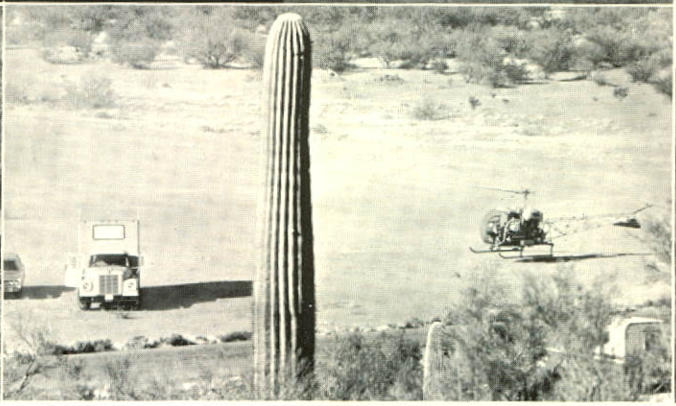



Services — Techniques — Instruments — Development

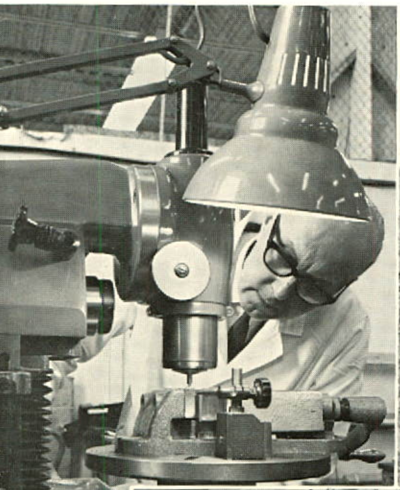


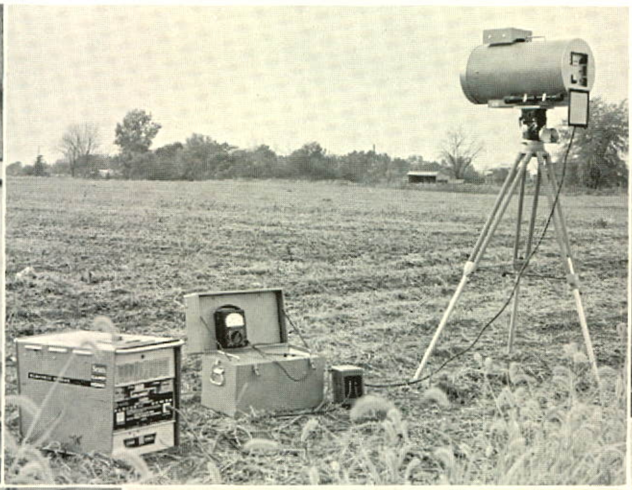



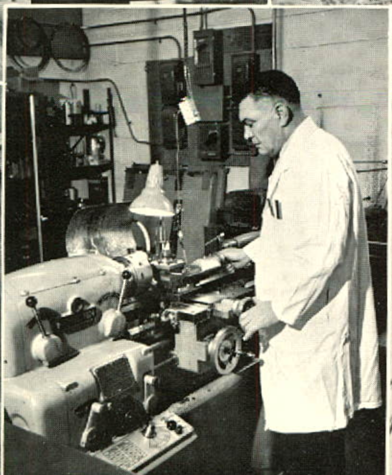



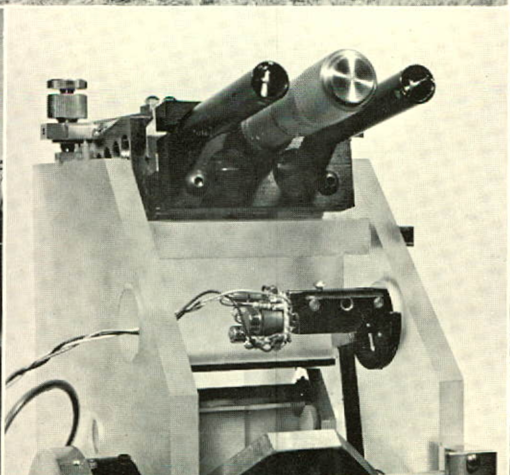


Advanced Work in Earth Sciences and the Environment









BARRINGER RESEARCH INC. AND CONSOLIDATED SUBSIDIARIES

CONSOLIDATED BALANCE SHEET AS AT DECEMBER 31, 1971
(with 1970 figures for comparison)

ASSETS

	1971	1970
CURRENT ASSETS:		
Cash	$ 29,453	$ 27,889
Short-term deposit	125,000	—
Accounts receivable—trade (less allowance for doubtful accounts, 1971—$45,169; 1970—$27,084)	565,168	493,793
Inventories (Note 2)	447,777	193,113
Deposits, advances and prepaid expenses	30,170	21,775
Total current assets	1,197,568	736,570
INVESTMENTS AND ADVANCES:		
Subsidiaries not consolidated (Note 1)	27,522	10,352
Associated companies	—	4,541
Non-associated companies—at cost (Note 3)	645,572	845,456
Total investments and advances	673,094	860,349
FIXED ASSETS—at cost (Note 4)	732,591	697,506
Less accumulated depreciation and amortization	422,083	422,395
Net fixed assets	310,508	275,111
OTHER ASSETS—at cost less amortization (Note 5):		
Patents and trademarks	82,275	67,719
Research and development expenditures	809,889	1,052,807
Total other assets	892,164	1,120,526
TOTAL	$3,073,334	$2,992,556

The accompanying notes are an integral part of the financial statements.

LIABILITIES AND STOCKHOLDERS' EQUITY

	1971	1970
CURRENT LIABILITIES:		
Bank indebtedness (Note 6)	$ 97,340	$ —
Debenture instalments due within one year	—	49,500
Convertible subordinated promissory notes due within one year	120,000	60,000
Accounts payable and accrued charges	695,757	608,433
Total current liabilities	913,097	717,933
LONG-TERM DEBT (Note 7)—less amounts included in current liabilities:		
Convertible subordinated promissory notes	365,000	425,000
COMMITMENTS AND CONTINGENT LIABILITIES (Note 11)		
STOCKHOLDERS' EQUITY:		
Capital stock (Notes 8 and 9):		
Authorized:		
2,000,000 shares of common stock of 1¢ par value each		
Issued and fully paid:		
855,000 shares	8,550	8,550
Paid-in surplus (no transactions during the year)	1,832,112	1,832,112
(Deficit) retained earnings	(38,878)	15,508
	1,801,784	1,856,170
Less common stock in Treasury—at cost—90,400 shares	6,547	6,547
Total stockholders' equity	1,795,237	1,849,623
TOTAL	$3,073,334	$2,992,556

The accompanying notes are an integral part of the financial statements.

CONSOLIDATED STATEMENT OF LOSS AND DEFICIT
FOR THE YEAR ENDED DECEMBER 31, 1971
(with 1970 figures for comparison)

	1971	1970
NET SALES	$2,544,075	$2,755,769
REVENUES FROM RESEARCH CONTRACTS	1,013,158	497,513
Total revenue	3,557,233	3,253,282
COST OF SALES	1,785,419	1,897,866
COST OF RESEARCH CONTRACTS	747,936	399,446
SELLING, GENERAL AND ADMINISTRATIVE EXPENSES	843,776	625,215
AMORTIZATION OF RESEARCH AND DEVELOPMENT EXPENDITURES (Note 5)	276,305	217,670
Total costs and expenses	3,653,436	3,140,197
OPERATING (LOSS) INCOME	(96,203)	113,085
OTHER INCOME (CHARGES):		
Gain on disposals of fixed assets and investments	99,061	2,209
Loss on sale of common shares in non-associated company	(32,907)	–
Interest expense:		
Long-term debt	(34,200)	(53,987)
Other—net	–	(7,544)
Increase in provision for losses of non-consolidated subsidiaries and associated companies (Note 1)	(4,424)	(144)
Other	14,287	–
Net other income (charges)	41,817	(59,466)
(LOSS) INCOME BEFORE INCOME TAXES AND EXTRAORDINARY CREDIT	(54,386)	53,619
INCOME TAXES (Note 10)	4,500	47,000
(LOSS) INCOME BEFORE EXTRAORDINARY CREDIT	(58,886)	6,619
BENEFIT OF TAX LOSS CARRYFORWARD (Note 10)	4,500	47,000
(LOSS) NET INCOME FOR THE YEAR	(54,386)	53,619
RETAINED EARNINGS (DEFICIT) AT BEGINNING OF THE YEAR	15,508	(38,111)
(DEFICIT) RETAINED EARNINGS AT END OF THE YEAR	$ (38,878)	$ 15,508
EARNINGS PER SHARE:*		
(Loss) income before extraordinary credit	$ (0.077)	$ 0.008
Extraordinary credit	0.006	0.056
(Loss) net income for the year	$ (0.071)	$ 0.064

*Earnings per share are based on the average number of shares outstanding during the year, with shares issuable upon exercise of options and warrants being considered using the treasury stock method. Shares issuable upon conversion of the convertible promissory notes are not included since such conversion would have an anti-dilutive effect upon earnings per share.

The accompanying notes are an integral part of the financial statements.

CONSOLIDATED STATEMENT OF CHANGES IN FINANCIAL POSITION
FOR THE YEAR ENDED DECEMBER 31, 1971
(with 1970 figures for comparison)

	1971	1970
FUNDS PROVIDED:		
From operations:		
(Loss) net income for the year	$ (54,386)	$ 53,619
Operating items not involving an outlay of funds:		
Depreciation and amortization	377,763	312,751
Gain on disposals of fixed assets and investments (net)	(66,152)	—
Other	4,425	965
Funds provided from operations	261,650	367,335
Sale of investments	167,093	—
Sale of patents	—	6,547
Disposal of fixed assets	99,148	1,537
Total funds provided	527,891	375,419
FUNDS APPLIED:		
Investments and advances	17,170	462
Deferred research and development expenditures	33,386	306,932
Additions to fixed assets	133,248	92,607
Reduction in long-term debt	60,000	106,500
Additions to patents and trademarks	18,253	7,523
Treasury stock acquired	—	6,547
Total funds applied	262,057	520,571
INCREASE (DECREASE) IN WORKING CAPITAL	$ 265,834	$ (145,152)
REPRESENTED BY:		
Increase (decrease) in cash	$ 1,564	$ (206,388)
Increase in short-term deposit	125,000	—
Increase (decrease) in receivables	71,375	(65,685)
Increase in other current assets	263,059	81,262
(Increase) decrease in bank indebtedness	(97,340)	232,500
Increase in debt instalments	(10,500)	(1,500)
Increase in other current liabilities	(87,324)	(185,341)
Increase (decrease) in working capital	$ 265,834	$ (145,152)

The accompanying notes are an integral part of the financial statements.

BARRINGER RESEARCH INC. AND CONSOLIDATED SUBSIDIARIES
NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS
DECEMBER 31, 1971

1. Principles of Consolidation

The accompanying consolidated financial statements comprise the accounts of the Company and its wholly-owned subsidiary companies, Barringer Research Limited (Limited), a Canadian company, and Barringer Instruments Inc. Inactive subsidiaries of Limited, none of which is significant, have not been consolidated. Investments in and advances to these subsidiaries are accounted for on the equity method.

Amounts applicable to Limited have been translated into United States dollars from Canadian dollars at rates approximating the prevailing free rates of exchange.

2. Inventories

The major categories of inventories are as follows:

	December 31, 1971	December 31, 1970
Finished goods	$ 81,123	$ 93,457
Work in progress	33,973	14,741
Materials and supplies	4,289	2,965
Contracts in progress	328,392	81,950
Total	$447,777	$193,113

Inventories other than contracts in progress are stated at the lower of average cost or net realizable value for finished goods and work in progress, and at the lower of average cost or replacement cost for materials and supplies. The percentage-of-completion method of accruing profit on contracts in progress is used, with anticipated losses being provided for in full.

3. Non-associated Companies

Investment in non-associated companies includes unregistered shares, at cost of $620,000, of Combustion Equipment Associates, Inc., a company whose stock is traded publicly. The quoted market value of a like number of registered shares of this company as at December 31, 1971 was $689,750, and as at March 24, 1972, $930,000.

In 1971, the Company sold shares with an average cost of $200,000 at a loss of $32,907.

The balance of the investment in non-associated companies is represented by stock in closely-held companies.

4. Fixed Assets

The major categories of fixed assets are as follows:

	December 31, 1971	December 31, 1970
Rental equipment	$173,237	$215,878
Survey equipment	184,841	180,020
Laboratory equipment	198,316	179,384
Other	176,197	122,224
Total	$732,591	$697,506

Depreciation is provided on the straight-line basis over the estimated useful lives of the assets, principally four to ten years. Depreciation so provided and charged in the accompanying consolidated statement of loss and deficit amounted to $97,761 (1970—$91,996).

5. Other Assets

Patents and trademarks are amortized over their related lives, which range from five to seventeen years. Amortization charged in the accompanying consolidated statement of loss and deficit amounted to $3,697 (1970—$3,085).

Research and development costs incurred during the year (other than in connection with research contracts) in excess of government grants and other outside support therefor are amortized over the following five years. These costs include all applicable overhead expenses.

6. Bank Indebtedness

The bank indebtedness is secured by a general assignment of accounts receivable.

7. Long-term Debt

The convertible subordinated promissory notes were payable in semi-annual instalments of $30,000. Interest is payable at fluctuating rates, the rate as at December 31, 1971 being 6½% per annum. These notes are convertible on the basis (subject to adjustment under certain conditions) of $20 principle amount of notes for one share of common stock.

The noteholder is party to a licensing agreement with Limited and, while negotiations to amend the note agreement and the licensing agreement are being conducted, a mutual extension of both agreements was granted. Accordingly, the note payments due on June 30, 1971 and December 31, 1971 were not made. However, these notes and those falling due in 1972 have been classified as current liabilities.

8. Capital Stock

Shares of common stock reserved for issuance as at December 31, 1971 were as follows:

For stock options:	
Options outstanding	59,600
Available for granting future options	10,400
For warrants	25,000
For conversion of promissory notes	24,250
Total	119,250

9. Stock Options and Warrants

On March 14, 1968, the Company adopted a Qualified Stock Option Plan covering 30,000 shares of common stock of the Company. Options may be granted to key employees of the Company or its subsidiaries at a price not less than the market value of the common stock at the time of the grant of the option. Each option is exercisable two years from the date of the grant, providing the employee remains in the continuous employ of the Company or a subsidiary, and expires five years from the date of the grant. Information with respect to this Stock Option Plan is summarized as follows:

	Shares	Amount
Options outstanding, December 31, 1970 ($2.00 to $8.00 per share)	29,850	$133,487
Changes during 1971:		
Options granted ($5.50 per share)	350	1,925
Options cancelled ($2.00 per share)	(400)	(800)
Options outstanding, December 31, 1971 ($2.00 to $8.00 per share)	29,800	$134,612

Under two employment agreements dated October 1, 1967, the Company has also granted, as options not under the Plan, rights to purchase an aggregate of 10,000 shares of common stock of the Company at a price of $5.00 per share during the period from October 1, 1969 to September 30, 1972. The agreements contain other provisions relating to options similar to those contained in the Qualified Stock Option Plan. As at December 31, 1971, these options have not been exercised, and are outstanding.

On May 13, 1970, the Company adopted the 1970 Qualified Stock Option Plan covering 30,000 shares of common stock of the Company. Options may be granted to directors, officers, and other key employees of the Company or its subsidiaries at a price not less than the market value of the common stock at the time of the grant of the option. Each option is exercisable two years from the date of the grant, provided the optionee continues as a director or remains in the employ of the Company or a subsidiary, and expires five years from the date of the grant. No optionee may exercise an option while there is outstanding any other stock option previously granted to the optionee. Information with respect to this Stock Option Plan is summarized as follows:

	Shares	Amount
Options outstanding, December 31, 1970		
($2.00 to $3.00 per share)	20,700	$50,400
Changes during 1971:		
Options granted ($2.00 per share)	100	200
Options cancelled ($2.00 per share)	(1,000)	(2,000)
Options outstanding, December 31, 1971		
($2.00 to $3.00 per share)	19,800	$48,600

Warrants to purchase 25,000 shares of common stock of the Company were issued in 1968. The warrants are exercisable at any time up to March 31, 1975 at prices ranging from $7.00 to $7.50 per share, depending upon the time of exercise.

10. Income Tax

(a) Canadian Income Taxes:

Income taxes otherwise payable by Limited have been eliminated by the application of prior years' loss carryforwards. As at December 31, 1971, loss carryforwards of approximately $885,000 were available for application against taxable income of future years. These losses expire $552,000 in 1973 and $333,000 in 1974.

As at December 31, 1971, the net book value of Limited's fixed assets, patents, and research and development expenditures exceeded their unclaimed value for tax purposes by approximately $712,000. Since this excess of book values over tax values is offset by available tax loss carryforwards, no provision for deferred income taxes has been made.

(b) United States Income Taxes:

No liability for United States income taxes has been incurred to date. As at December 31, 1971, loss carryforwards of approximately $187,000 are available for application against taxable income of future years. These losses expire $5,500 in 1973, $67,000 in 1974, $75,000 in 1975, and $39,500 in 1976. In addition, as at December 31, 1971, foreign income taxes paid of $33,682 are available for credit against future U. S. income taxes, and expire $2,773 in 1973, $6,960 in 1974, $11,794 in 1975, and $12,155 in 1976.

Retained earnings of Limited ($342,402 Cdn.) are considered to be permanently invested and not available for distribution to the Company. Accordingly, no provision has been made for United States income taxes thereon.

11. Commitments and Contingent Liabilities

Limited has participated in a program under which a portion of the cost of research and development projects involving the development of two instruments for the sensing of air pollution is borne by the Canadian Government, subject to repayment, as explained below, to the extent that the instruments prove to be commercially successful. Contributions of approximately $113,460 were received from the government in prior years, and have been accounted for in accordance with the regular practice with respect to research and development projects (see Note 5). Repayments are being made at a fixed rate per instrument sold or rented; the aggregate amount of such repayments is not to exceed the contributions received with interest thereon. A total of $2,580 has been repaid to date. Such repayments are an element of cost of sales, and are deductible in computing taxable income.

An annual rental of $16,500 Canadian is payable under a lease which expires January 14, 1986.

12. Pension Plan

Total expense with respect to Limited's insured pension plan for senior employees was $3,579 for the year (1970 - $8,734). Pension costs are funded, and there was no unfunded liability as at December 31, 1971.

OPINION OF INDEPENDENT CHARTERED ACCOUNTANTS

DELOITTE, HASKINS & SELLS
Chartered Accountants

Toronto-Dominion Centre
Toronto 111, Ontario, Canada

To the Directors and Stockholders of
Barringer Research Inc.:

We have examined the consolidated balance sheet of Barringer Research Inc. and Consolidated Subsidiaries as at December 31, 1971 and the related consolidated statements of loss and deficit and changes in financial position for the year then ended. Our examination 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.

In our opinion, subject to the ultimate recovery of the deferred research and development expenditures (see Note 5), the consolidated financial statements present fairly the financial position of the Companies as at December 31, 1971 and the results of their operations and the changes in their financial position for the year then ended, in accordance with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

Deloitte, Haskins & Sells

March 24, 1972

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