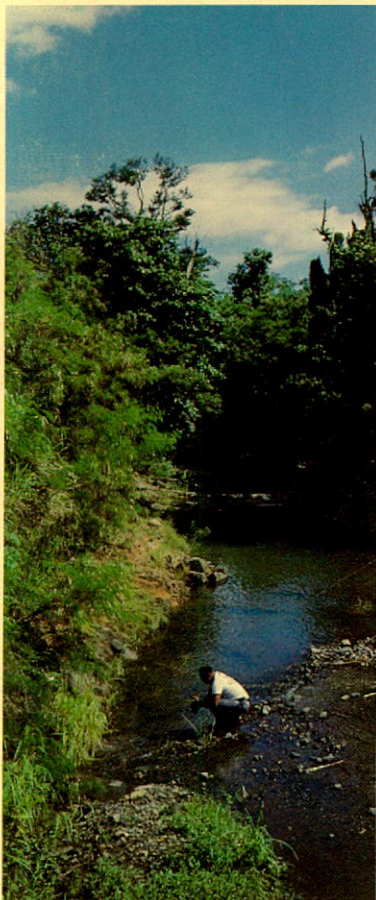


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# BARRINGER RESEARCH



## 1978 annual report



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McGILL UNIVERSITY

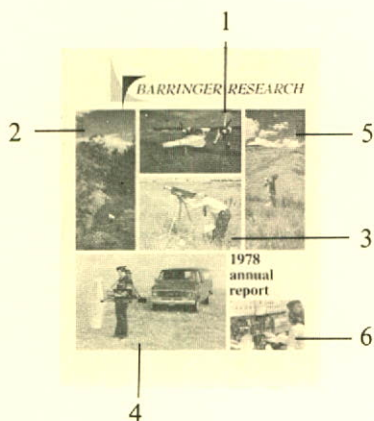
# Barringer Research Inc.

## ANNUAL REPORT 1978

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Once again Barringer Research is including in the Annual Report a copy of the S.E.C. Form 10-K. This form, filed each year by all publicly owned companies, contains more detailed information than is given in a typical annual report. Our intention in presenting it is to give all present and prospective shareholders a comprehensive picture of Barringer Research's business and financial condition. However, to avoid repetition, the formal financial statements, notes, and auditors' opinion, consisting of pages 15 to 26 and page 31 of the 10-K Report, which are reproduced in their traditional position in the annual report, as pages 6 to 18 following the Chairman's Letter, have not been repeated in the 10-K section.



#### Front Cover

- 1 E PHASE installation in Brittan Norman Islander
- 2 Stream sediment sampling in Fiji
- 3 COSPEC IV monitoring air pollution in the atmosphere
- 4 COTRAN military range clearance equipment
- 5 SURTRACE back-pack hydrocarbon survey in U.S.A.
- 6 Atomic absorption equipment for geochemical analysis

**BARRINGER RESEARCH INC.**

304 Carlingview Drive  
Metropolitan Toronto, Rexdale  
Ontario, Canada,  
M9W 5G2

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**NOTICE OF ANNUAL MEETING OF STOCKHOLDERS**

**May 9, 1979**

*To the Stockholders of*  
BARRINGER RESEARCH INC.:

Notice is hereby given that the 1979 Annual Meeting of Stockholders of Barringer Research Inc., a Delaware corporation, will be held at the offices of the Corporation, 304 Carlingview Drive, Metropolitan Toronto, Rexdale, Ontario, Canada, on Wednesday, May 9, 1979, at 10:00 A.M., Toronto time, for the following purposes:

- (1) To elect a Board of Directors to serve until their successors shall be elected and shall qualify;
- (2) To ratify or reject the Board's selection of Coopers and Lybrand as independent public accountants; and
- (3) To transact such other business as may properly come before the meeting or any adjournment(s) thereof.

The Board of Directors has fixed the close of business on April 2, 1979, as the record date for the determination of stockholders entitled to notice of and to vote at said meeting.

A copy of the Annual Report for the year 1978 is enclosed.

A complete list of stockholders entitled to vote at said meeting will be available and open for examination by any stockholder during ordinary business hours from and after April 25, 1979, at the offices of the Corporation, 304 Carlingview Drive, Metropolitan Toronto, Rexdale, Ontario, Canada.

You are cordially invited to attend the meeting. If you do not expect to be present in person, you are requested to please fill in, date, sign and return the enclosed proxy for any shares of Common Stock which you hold in order that your shares will be represented at the meeting.

By Order of the Board of Directors,

ROBERT J. ARMSTRONG  
*Secretary*

Toronto, Ontario  
April 9, 1979.

# **BARRINGER RESEARCH INC.**

**304 Carlingview Drive,  
Metropolitan Toronto, Rexdale,  
Ontario, Canada  
M9W 5G2**

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## **PROXY STATEMENT ANNUAL MEETING OF STOCKHOLDERS May 9, 1979**

This Proxy Statement is furnished in connection with the solicitation of proxies by the management of Barringer Research Inc., a Delaware corporation (the "Corporation"), to be voted at the 1979 Annual Meeting of Stockholders of the Corporation to be held on Wednesday, May 9, 1979. Any such proxy may be revoked at any time before the exercise thereof. Unrevoked proxies will be voted at the meeting in accordance with the specifications made or otherwise as provided therein.

It is anticipated that this Proxy Statement and the enclosed proxy will be first sent to stockholders on or about April 9, 1979.

On April 2, 1979, the record date for the determination of stockholders entitled to notice of and to vote at the meeting, the Corporation had outstanding 885,300 shares of Common Stock. Holders of Common Stock on the record date are entitled to one vote per share on all matters properly presented to the meeting.

### **ELECTION OF DIRECTORS**

Six directors are to be elected by the holders of Common Stock, to serve until the next annual meeting of stockholders and until their successors shall be elected and shall qualify. It is the intention of the persons named in the enclosed proxy to vote the shares represented thereby for the election as directors of the following persons, each of whom is now serving as a director, has been a director at least from the beginning of fiscal 1978 and was elected to his present term of office at the 1978 Annual Meeting of Stockholders. The management knows of no reason why any of these nominees will be unavailable to serve at the time of the meeting, but, in the event of any such unavailability, the proxy or proxies received will be voted for such substitute nominees as the management may recommend. Information regarding the nominees is as follows:

	Director Since	Number of Board of Director Meetings Attended 3 held in 1978	Shares of Common Stock Owned Beneficially as of April 2, 1979
Dr. Anthony R. Barringer, 53, President of the Corporation, President and a Director of Barringer Research Limited, Chairman of the Board of Directors of Barringer Magenta Limited. . . . .	1967	3	149,277
Dr. D. Richard Clews, 57, Executive Vice President of the Corporation, Executive Vice President and a director of Barringer Research Limited, President and director of Barringer Magenta Limited. . . . .	1967	3	30,577
Robert J. Armstrong, 48, Secretary of the Corporation, Secretary and a director of Barringer Research Limited, director of Barringer Magenta Limited, Barrister and Solicitor, Partner of Messrs. Blackwell, Law, Spratt, Armstrong & Grass, General Counsel to Barringer Research Limited and Barringer Magenta Limited. . .	1967	2	8,000
Daniel R. Bereskin, 41, Director of Barringer Research Limited, Barrister and Solicitor, Partner of Messrs. Rogers, Bereskin & Parr. Patent Counsel to Barringer Research Inc., Barringer Research Limited and Barringer Magenta Limited. . . . .	1967	3	100
Brandon W. Sweitzer, 37, Director of Barringer Research Limited, Vice President of the Corporation and of Barringer Research Limited to June 1975; Counsellor of the Embassy and Deputy Chief of Mission in United States Embassy in Yugoslavia to December, 1976. Investment Banker, Wood Gundy Limited to January, 1979 where he is currently Vice President and Treasurer. . . . .	1974	2	10,400
Roger C. Wilson, 63, Director of Barringer Research Limited, Vice President of Noranda Sales Corporation.	1969	2	300

- 
- (1) Dr. Barringer and Dr. Clews can be deemed controlling persons of the issuer.
  - (2) The Corporation has no standing audit, nominating, or compensation committees of the Board of Directors or committees performing similar functions.
  - (3) No stock options have been granted to the above nominees.

## SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS

Title of Class	Name and Address of Beneficial Owner	Amount and Nature of Beneficial Ownership	Percent of Class
Common Stock \$.01 par value	Dr. A. R. Barringer 1912 Mount Zion Dr. Golden, Colorado	149,277 shares	16.9%
Common Stock \$.01 par value	A. R. Barringer Investments Limited (1) 304 Carlingview Drive Rexdale, Ontario	250,000 shares	28.2%
Common Stock \$.01 par value	Dr. D. R. Clews 11 Wincott Dr., Weston, Ontario	30,577 shares	3.5%
Common Stock \$.01 par value	D. R. Clews Limited (2) 304 Carlingview Drive Rexdale, Ontario	96,990 shares	11.0%
Common Stock \$.01 par value	Combustion Equipment Associates 555 Madison Avenue New York, N.Y.	50,000 shares	5.6%

- (1) Dr. Barringer is the holder of all of the voting preference stock of A. R. Barringer Investments Limited, representing approximately 60% of the voting power of that Corporation. All of the common stock of A. R. Barringer Investments Limited is owned by a trust of which the members of Dr. Barringer's family are beneficiaries. Dr. Barringer disclaims any beneficial interest in such trust or said 250,000 shares of Common Stock.
- (2) Dr. Clews is the holder of all of the voting preference stock of D. R. Clews Limited, representing 60% of the voting power of that corporation. All of the common stock of D. R. Clews Limited is owned by a trust of which the members of D. R. Clews' family are beneficiaries. Dr. Clews disclaims any beneficial interest in such trust or said 96,990 shares of Common Stock.

## DIRECTORS AND OFFICERS

### Remuneration

The following table shows the remuneration for services paid during 1978 by the Corporation and its subsidiaries to each director and to each of the five highest paid officers whose direct aggregate remuneration exceeded \$50,000 and to all directors and officers of the Corporation as a Group.

Name of individual or group	Capacities in which served	Cash & Cash Equivalent forms of Remuneration*		Aggregate of contingent forms of remuneration (5)
		Salaries	Personal Benefits	
Dr. Anthony R. Barringer(1) . . .	Executive Officer of the Corporation and of Barringer Research Limited and Barringer Magenta Limited	\$ 85,000(1)	\$ 7,000	\$ —
Dr. D. Richard Clews(2) . . . . .	Executive Officer of the Corporation and of Barringer Research Limited and Barringer Magenta Limited	\$ 54,400(2)	\$ 6,670	\$ 1,920
All Directors and Officers as a group consisting of nine persons . . . . .		\$239,800(3) (4)	\$15,630	\$ 4,960

NOTES:

- (1) An Employment Agreement, dated as of June 23, 1975, between Dr. Barringer and the Corporation, provides for the payment to Dr. Barringer as compensation the amount of \$75,000 (Canadian Dollars) per year during the period of June 1, 1976 until September 30, 1977, and the amount of \$85,000 (Canadian Dollars) per year from October 1, 1977 through June 30, 1980. An amendment to this employment agreement was made on September 1, 1977 providing for payment in U.S. Dollars. An amendment to this employment agreement was made on December 21, 1978 providing for compensation of \$110,000 per year effective January 1, 1979. The Corporation maintains at an annual cost to the corporation of approximately \$5,900, a five-year term policy on the life of Dr. Barringer in the face amount of \$510,000, payable to the Corporation in the event of Dr. Barringer's death. The proceeds of such policy would be available for use by the Corporation to purchase from his estate shares of Common Stock of the Corporation. See "Interest of Management in Certain Transactions" regarding an amendment to Dr. Barringer's Employment Agreement, dated as of June 30, 1975, pursuant to which Dr. Barringer purchased from the Corporation 100,000 shares of Common Stock at a price of \$1.00 per share.
- (2) An Employment Agreement, dated as of October 1, 1977, between Dr. Clews and the Corporation, provides for the payment to Dr. Clews as compensation the amount of \$64,000 (Canadian Dollars) per year until March 31, 1980, and an amount equal to 80% of the gross annual remuneration paid to the Corporation's President, from April 1, 1980 through September 30, 1982. An amendment to this employment agreement was made on December 21, 1978 providing for compensation of \$88,000 (Canadian Dollars) effective January 1, 1979.

- (3) Does not include fees in the amount of \$10,185 paid to Messrs. Blackwell, Law, Spratt, Armstrong & Grass, Counsel to Barringer Research Limited, for legal services in 1978. Robert J. Armstrong, Secretary and a director of the Corporation is a partner of that firm. Does not include fees in the amount of \$27,325 paid to Messrs. Rogers, Bereskin & Parr, Patent Counsel to Barringer Research Limited, for legal services in 1978. Daniel R. Bereskin, a director of the Corporation is a partner of that firm.
  - (4) No remuneration was paid to non-officer directors.
  - (5) Estimated annual benefits upon retirement, at age 65, payable under pension plans of Barringer Research Limited and Barringer Magenta Limited for Dr. Barringer is \$5,750, for Dr. Clews is \$13,400 and for all directors and officers as a group is \$67,600.
- \* All amounts converted to U.S. dollars at a rate of .85 Canadian, unless otherwise specified.

### **Stock Options**

As of April 2, 1979, no options were outstanding under the Corporation's 1968 Qualified Stock Option Plan or 1970 Qualified Stock Option Plan.

As of April 2, 1979, options were outstanding under the Corporation's 1972 Unqualified Stock Option Plan to purchase an aggregate of 50,400 shares of Common Stock of the Corporation held by twenty persons at an option price of \$1.00 to \$2.25 per share including options on 35,000 shares held by four officers at an option price of \$1.00 to \$2.25 per share. During the year an option to purchase 5,000 shares of Common Stock was exercised at an option price of \$1.00 per share. 32,800 shares were optioned during the year at an option price of \$1.25 to \$2.25 per share including 22,000 shares optioned to officers at an option price of \$1.25 to \$2.25 per share. A total of 37,400 shares are exercisable within 60 days from April 2, 1979. No other options were granted or exercised during the year. The option price under this plan is equal to the market price on the date the option is granted.

The exercise of options is subject to the optionee remaining in the continuous employ or as director of the Corporation during the term of the option, except options which could be exercised at the time of the termination of the employment or term of office of the optionee may be exercised by such optionee within three months following such termination.

### **Interest of Management in Certain Transactions**

In connection with the Amendment to the Employment Agreement (the "Agreement") between the Corporation and Dr. Anthony R. Barringer, on June 30, 1975, the Corporation sold to Dr. Barringer 100,000 shares of Common Stock \$.01 par value (the "Shares") at a price of \$1.00 per share or an aggregate of \$100,000. Pursuant to the Agreement, the purchase price for the Shares was to be paid in cash at the time of purchase. Concurrently with the execution of the Agreement, the Corporation and Dr. Barringer entered into a Loan Agreement providing for the loan by the Corporation to Dr. Barringer of \$100,000, the full purchase price for the shares, against delivery by Dr. Barringer to the Corporation of his promissory note. The note matures and is payable on June 30, 1985, and bears interest at the rate of 4% per annum, payable quarterly. Payment of the principal and interest of the note is secured by the pledge of the Shares. The Loan Agreement provides that the Corporation will, from time to time, release from the lien of such pledge Shares, in increments of 10,000 shares, upon payment of 10% of the principal of the loan plus accrued interest. As of April 2, 1979, the principal amount of the loan outstanding was \$100,000.



## APPOINTMENT OF INDEPENDENT PUBLIC ACCOUNTANTS

The Board of Directors of the Corporation has appointed the firm of Coopers & Lybrand, independent public accountants, to audit the accounts of the Corporation for the calendar year 1979, subject to ratification by stockholders. So far as the management is aware, neither the firm nor any of its partners, has any direct or material financial interest in the Corporation, nor has the firm or any such partner had any connection during the past three years with the Corporation in the capacity of promoter, underwriter, voting trustee, director, officer or employee, and hence Coopers and Lybrand are deemed to be independent of management.

A representative of Coopers & Lybrand will be present at the meeting with the opportunity to make a statement if he desires to do so and will be available to respond to appropriate questions from stockholders present. This representative was present at the 1978 meeting.

### **Auditors' Services and Fees**

Services provided by the independent public accountants were primarily in connection with the audit of the Corporation and its wholly owned foreign subsidiaries and included review and assistance with S.E.C. filings. These examinations were made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as they considered necessary in the circumstances.

The independent public accountants also provided non-audit services of which the aggregate fees to the audit fees was 46%, broken down as follows:

- (1) Assistance and preparation of income tax returns for the Corporation and its wholly owned foreign subsidiaries – 11%.
- (2) Advice and assistance regarding reorganization of foreign subsidiaries – 20%.
- (3) All other accounting advice, tax consultation and sundry non-audit services, each item representing less than 3% of the audit fees – 15%.

The Board of Directors does not approve each non-audit service prior to it being rendered. These services are provided at the discretion of management with the approval of Corporate Officers.

### MISCELLANEOUS

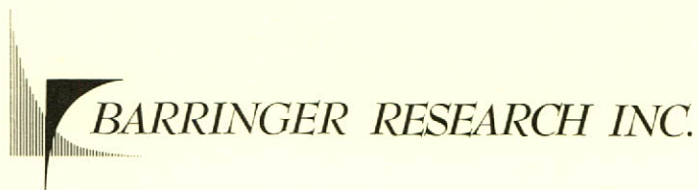
The expense of solicitation of proxies and cost of forwarding soliciting material to record owners of stock will be borne by the Corporation. In addition, the Corporation will request brokerage houses and other custodians, nominees and fiduciaries to forward soliciting material to the beneficial owners of stock held of record by such persons.

No business other than that described above is expected by management to come before the meeting. Should other matters requiring the vote of stockholders arise, of which management does not receive notice a reasonable time prior to this solicitation, the proxy holders will vote thereon according to their best judgement in the interest of the Corporation.

By Order of the Board of Directors,

ROBERT J. ARMSTRONG,  
*Secretary.*





**OFFICERS:**

**Dr. Anthony R. Barringer**, President  
**Dr. D. Richard Clews**, Executive Vice President  
**John H. Davies**, Vice President  
**Dr. Peter M. D. Bradshaw**, Vice President  
**Dr. W. Timothy Meyer**, Vice President  
**Kenneth H. Dalton**, Controller  
**Robert J. Armstrong**, Secretary

**DIRECTORS:**

**Robert J. Armstrong**  
**Dr. Anthony R. Barringer**  
**Daniel R. Bereskin**  
**Dr. D. Richard Clews**  
**Brandon W. Sweitzer**  
**Roger C. Wilson**

**TRANSFER AGENT:**

**Chemical Bank**, 20 Pine Street,  
New York, New York 10015

**CORPORATE COUNSEL:**

**Blackwell, Law, Spratt, Armstrong & Grass**  
Suite 1501, 110 Yonge Street,  
Toronto, Ontario, Canada M5C 1V2  
**Bradley, Campbell & Carney**,  
1717 Washington Avenue,  
Golden, Colorado 80401

**AUDITORS:**

**Coopers & Lybrand**,  
Chartered Accountants,  
145 King Street West,  
Toronto, Ontario, Canada M5H 1V8

**CORPORATE OFFICES:**

**Head Office**  
**Barringer Research**,  
304 Carlingview Drive,  
Metropolitan Toronto, Rexdale,  
Ontario, Canada M9W 5G2  
Phone: (416) 675-3870  
Cable: Baresearch, Toronto  
Telex: 06-989183

**United States Office (Denver)**  
1536 Cole Blvd., Suite 330  
Golden, Colorado 80401  
Phone: (303) 232-8811 Telex: 45810  
**Geochemical Laboratory:**  
6869 South Emporia Street  
Englewood, Colorado 80110  
Phone: (303) 770-1990 Telex: 45810

**TRADEMARKS**

INPUT, COTRAN, COSPEC, GASPEC,  
RADIOPHASE, E-PHASE, AIRTRACE,  
SURTRACE, LASERTRACE, VAPOURTRACE  
are trademarks of Barringer Research



*A. R. Barringer*

## Chairman's Letter

### Dear Shareholder:

I am pleased to present to you the financial statement and report for 1978. It will be noted that although gross revenues increased by nearly 14%, the net earnings for 1978 have increased five-fold compared to 1977. This net profitability was achieved despite a substantial increase, from about \$300,000 (1977) to \$400,000 (1978), in the allocation of income to the development of geophysical and geochemical exploration methods for oil and metals.

In last year's letter, I reported that \$200,000 from income was invested in the SURTRACE® Geochemical System and that this activity was considered to be an important new growth area for your company. It is gratifying to inform you that some \$100,000 in revenue was generated during 1978 from Surtrace related surveys and significantly more is expected in 1979.

In 1978, one of our more important internal investments was in the COTRAN® airborne electromagnetic system. COTRAN is a new airborne geophysical system utilizing, for the first time, high speed digital computing to detect the presence of ore bodies by pattern recognition and classification against a series of stored reference wave forms. Test flights early in 1979 have been judged to be outstandingly successful and we confidently expect future revenues from this source to become increasingly important.

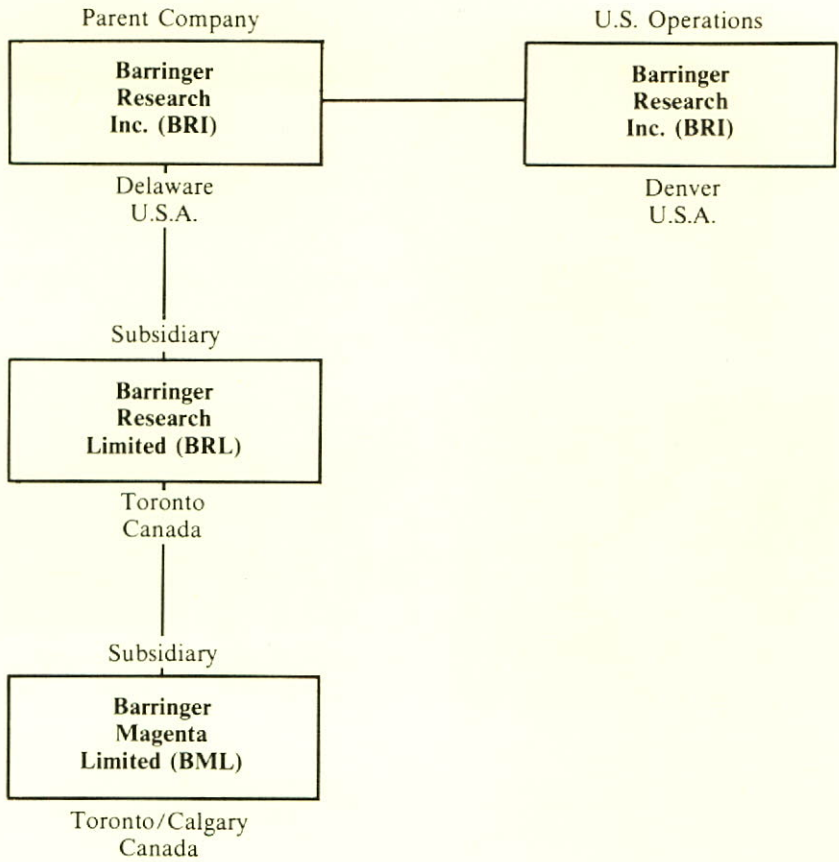
In Barringer's Denver operation, activities in oil and gas exploration are increasing and in 1978 we carried out surveys in a number of sedimentary basins in the United States and Canada. During 1979, we will be opening up new laboratories and office facilities in Denver and will be further expanding your company's commitment to hydrocarbon exploration.

I announced in the Fall that Barringer Research had concluded a joint venture agreement with Pacific Energy & Minerals Ltd. to explore the Denver basin for oil and gas. This program is underway and shareholders will be kept informed of developments.

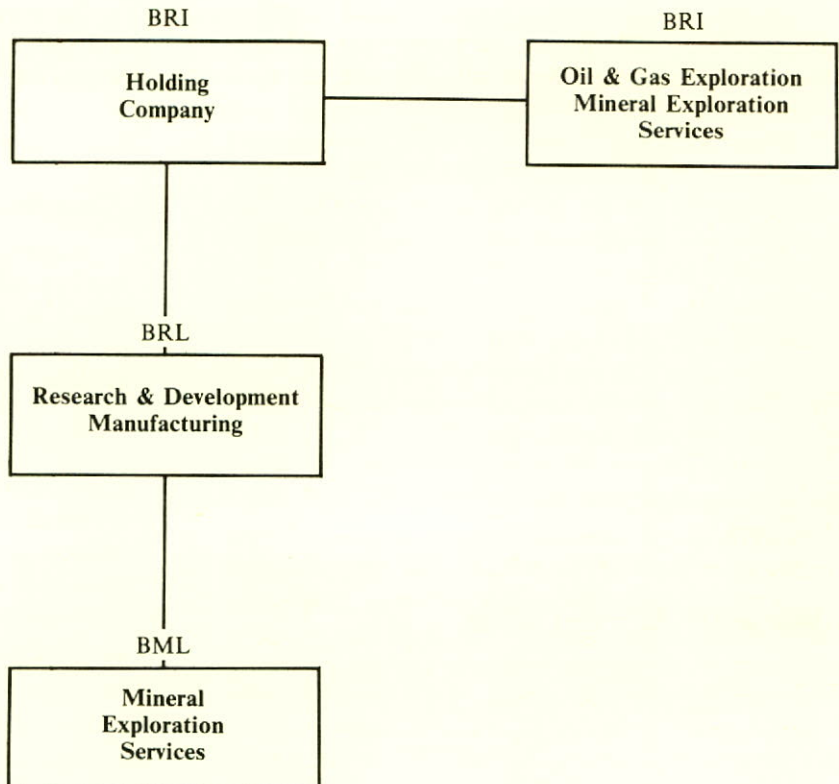
In July 1978, Barringer completed a reorganization within the Canadian operations by transferring all exploration and analytical services to an autonomous corporate entity, Barringer Magenta Limited. This reorganization has provided customers with expanded and more efficient services as well as allowing better management control over operations.

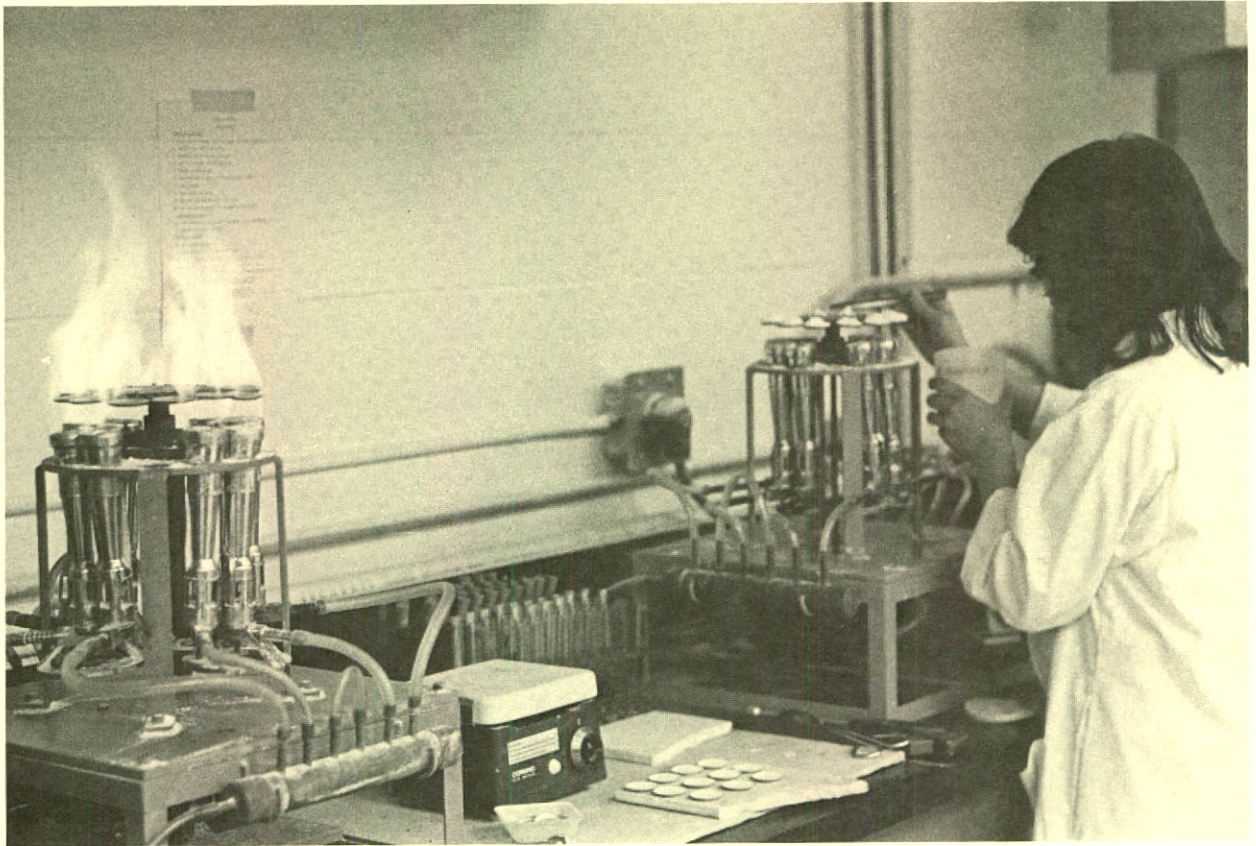
In 1978, we opened a new geochemical laboratory in Calgary and towards year-end an assaying capability was added to this facility. These operations exceeded budget for the year in both revenue and profitability and revenue from this branch is projected to double in 1979.

# THE BARRINGER GROUP

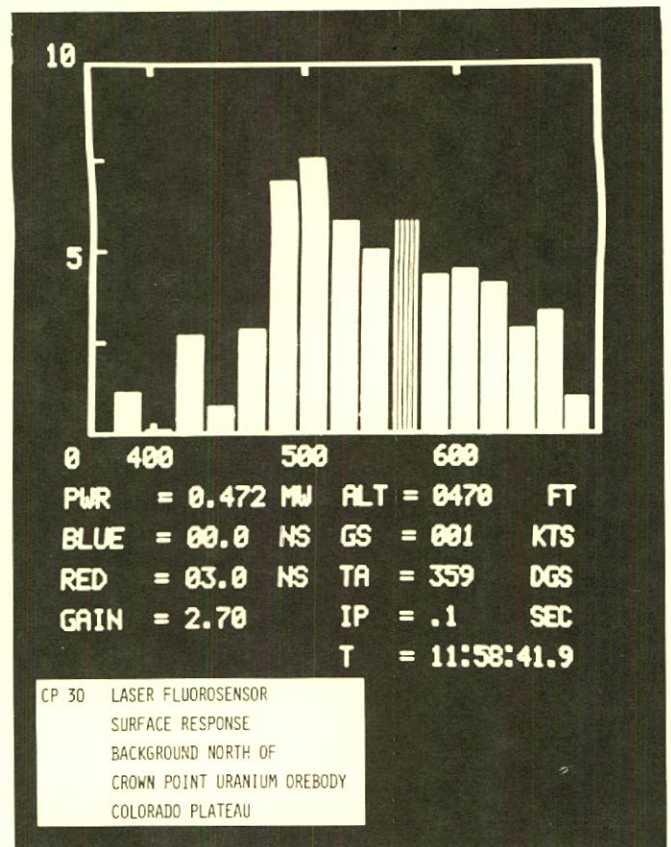
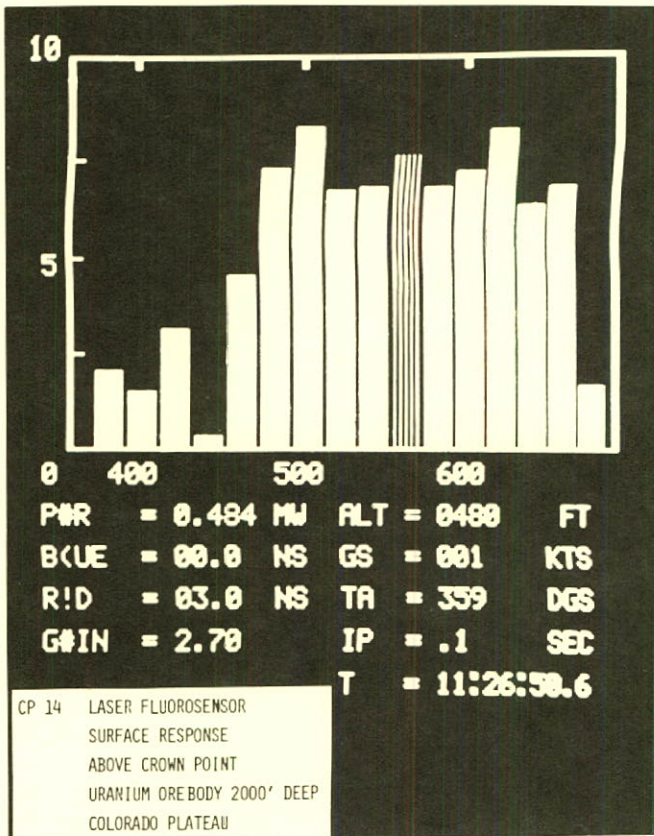


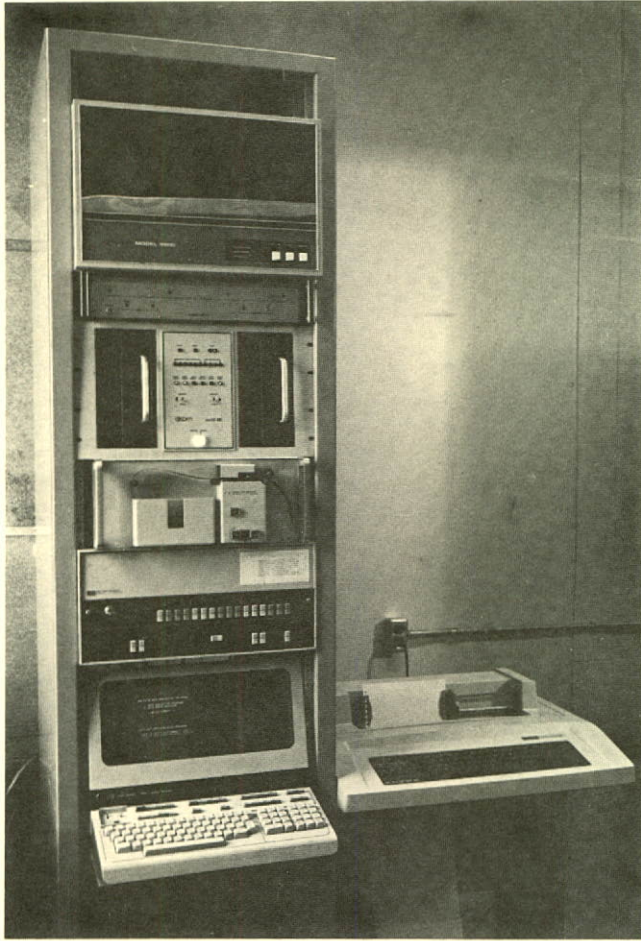
# COMPANY ACTIVITIES





Assay and geochemical laboratory facilities in Calgary.





*COTRAN digital processing system.*

Manufacturing operations continued to produce excellent results and a significant increase in income is projected for 1979. Purchase orders in excess of \$675,000 have been received in 1979 for the manufacture of heavy water monitors. Barringer's sales staff has been increased considerably and manufacturing operations have been strengthened by reorganization and the addition of new engineers and technicians.

The Barringer INPUT® airborne electromagnetic system increased its world leadership position by flying 70% of the total world commercial electromagnetic surveys in 1977 compared to 50% in 1976.

It is also gratifying to report increased utilization of the SENTRIE electromagnetic security system at airports throughout the USA and Europe. The SENTRIE system is manufactured by Intex, Inc. under license from Barringer Research and protected by Barringer's electromagnetic patents.

During the year Barringer delivered to the Canadian Centre for Remote Sensing an airborne laser fluorosensor system for oil spill detection and classification. Successful airborne tests were conducted in the Atlantic offshore from New York State. This laser fluorosensor also has application to airborne prospecting for deposits of uranium, oil and gas.

Finally, it is with considerable pride that I inform shareholders of the selection of Barringer's patented GASPEC® technology for space experiments. The best 250 space experiments available in the USA were reviewed by NASA with the objective of selecting 5 for the first series of space shuttle flights in 1980. Barringer's GASPEC system, developed in collaboration with TRW, Inc., was selected as one of the five! This system is an electro-optical remote sensor which detects and measures gases such as carbon monoxide, sulphur dioxide and ammonia. The GASPEC system has also been selected by NASA for installation in its Convair aircraft for a global atmospheric research program in the Middle and Far East.

A. R. Barringer

**Barringer Research Inc.****CONSOLIDATED BALANCE SHEETS***As at December 31, 1978 and 1977*

	1978	1977
<b>ASSETS</b>		
<b>Current assets</b>		
Cash	\$ 6,575	\$ 35,385
Accounts receivable – (note 7)		
Trade, less allowance for doubtful accounts, 1978 – \$22,752; 1977 – \$29,230	710,173	640,988
Corporate joint ventures	–	106,262
Inventories (note 4)	514,496	373,606
Deposits, advances and prepaid expenses	35,304	33,029
Income taxes recoverable	–	21,528
	<u>1,266,548</u>	<u>1,210,798</u>
<b>Investments (note 5)</b>	<u>45,647</u>	<u>45,346</u>
<b>Fixed assets (note 6)</b>		
At cost	2,061,502	1,630,818
Less: Accumulated depreciation and amortization	<u>1,376,529</u>	<u>1,229,123</u>
	<u>684,973</u>	<u>401,695</u>
<b>Patents and trademarks (note 1d)</b>		
At cost	233,878	214,761
Less: Accumulated amortization	<u>60,176</u>	<u>50,702</u>
	<u>173,702</u>	<u>164,059</u>
<b>Other assets</b>		
Cash surrender value of life insurance policies (note 13)	42,380	36,797
	<u>\$2,213,250</u>	<u>\$1,858,695</u>



## LIABILITIES

	1978	1977
<b>Current liabilities</b>		
Bank indebtedness (note 7)	\$ 212,099	\$ —
Current portion of long-term debt	—	85,480
Accounts payable	187,223	246,262
Accrued liabilities	95,647	31,551
Excess of billings over selling price of contracts in progress	49,251	4,809
	<u>544,220</u>	<u>368,102</u>

## SHAREHOLDERS' EQUITY

<b>Common stock</b> (notes 8 and 9)		
Authorized —		
2,000,000 shares of common stock of 1¢ par value each		
Issued and fully paid —		
984,400 shares (1977 — 979,400 shares)	9,844	9,794
<b>Paid-in surplus</b> (note 8)	2,029,974	2,025,024
<b>Deficit</b>	(251,088)	(412,938)
	<u>1,788,730</u>	<u>1,621,880</u>
Less: Common stock in treasury — at cost, 98,600 shares	20,421	20,421
Due from shareholder (note 16)	79,000	79,000
Deferred compensation (note 16)	20,279	31,866
	<u>119,700</u>	<u>131,287</u>
	<u>1,669,030</u>	<u>1,490,593</u>
	<u>\$2,213,250</u>	<u>\$1,858,695</u>

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

**Barringer Research Inc.****CONSOLIDATED STATEMENTS OF EARNINGS AND DEFICIT***For the years ended December 31, 1978 and 1977*

	1978	1977
<b>Revenue</b> (note 15)	<u>\$3,880,108</u>	<u>\$3,406,739</u>
<b>Cost and expenses</b>		
Cost of goods sold (including royalties of \$38,820; 1977 \$58,380)	2,449,771	2,182,084
General and administrative	857,160	815,843
Research and development	<u>395,780</u>	<u>294,555</u>
	<u>3,702,711</u>	<u>3,292,482</u>
<b>Operating income</b>	<u>177,397</u>	<u>114,257</u>
<b>Other expenses (income)</b>		
Gain on disposal of subsidiary company (note 5(c) (ii) )	(16,865)	—
Interest —		
Long-term debt	5,406	9,353
Other — net	511	13,349
Other	<u>26,495</u>	<u>57,133</u>
	<u>15,547</u>	<u>79,835</u>
<b>Earnings before income taxes and extraordinary item</b>	161,850	34,422
<b>Income tax provision</b>	<u>125,000</u>	<u>112,560</u>
<b>Earnings (loss) before extraordinary item</b>	36,850	(78,138)
<b>Extraordinary item</b>		
Benefit of tax losses and timing differences brought forward (note 10)	<u>125,000</u>	<u>112,560</u>
<b>Net earnings for the year</b>	<u>161,850</u>	<u>34,422</u>
<b>Deficit — beginning of year</b>		
As previously stated	(412,938)	(474,157)
Prior period adjustment —		
Cash surrender value of life insurance policies (note 13)	—	26,797
<b>Revised deficit — beginning of year</b>	<u>(412,938)</u>	<u>(447,360)</u>
<b>Deficit — end of year</b>	<u>\$ (251,088)</u>	<u>\$ (412,938)</u>
<b>Weighted average number of shares outstanding</b> (note 14)	<u>896,434</u>	<u>893,280</u>
<b>Earnings (loss) per share</b> (note 14)		
Earnings (loss) before extraordinary item	\$0.04	\$(0.09)
Extraordinary item	<u>\$0.14</u>	<u>\$ 0.13</u>
<b>Net earnings for the year</b>	<u>\$0.18</u>	<u>\$ 0.04</u>

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

**Barringer Research Inc.****CONSOLIDATED STATEMENTS OF CHANGES IN FINANCIAL POSITION***For the years ended December 31, 1978 and 1977*

	1978	1977
<b>Funds provided</b>		
From operations –		
Earnings (loss) before extraordinary item	\$ 36,850	\$ (78,138)
Items not involving funds		
Benefit of tax losses and timing differences brought forward	125,000	112,560
Depreciation and amortization	156,880	156,982
Amortization of deferred compensation (note 16)	11,587	9,257
Gain on sale of fixed assets	–	(2,543)
	<u>330,317</u>	<u>198,118</u>
Issue of shares of common stock	5,000	1,500
Net proceeds on disposals of fixed assets	–	11,705
	<u>335,317</u>	<u>211,323</u>
<b>Funds applied</b>		
Investments	301	29,683
Reduction in long-term debt	–	87,404
Additions to patents and trademarks	19,117	20,382
Purchases of fixed assets	430,684	171,105
Increase in cash surrender value of life insurance	5,583	10,000
	<u>455,685</u>	<u>318,574</u>
<b>Decrease in funds</b>	<u>\$ 120,368</u>	<u>\$ 107,251</u>
<b>Changes in components of working capital</b>		
<b>Working capital – beginning of year</b>	<u>\$ 842,696</u>	<u>\$ 949,947</u>
(Decrease) in cash	(28,810)	(196,035)
Increase (decrease) in inventories	140,890	(10,708)
(Decrease) in receivables	(37,077)	(144,569)
(Decrease) in other current assets	(19,253)	(23,679)
(Increase) decrease in bank indebtedness	(212,099)	319,493
(Increase) decrease in other current liabilities	35,981	(51,753)
<b>Decrease in working capital</b>	<u>120,368</u>	<u>107,251</u>
<b>Working capital – end of year</b>	<u>\$ 722,328</u>	<u>\$ 842,696</u>
<b>Funds represented by:</b>		
Current assets	\$1,266,548	\$1,210,798
Current liabilities	544,220	368,102
	<u>\$ 722,328</u>	<u>\$ 842,696</u>

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

## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

For the years ended December 31, 1978 and 1977

### 1. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

#### (a) Principles of consolidation

The accompanying consolidated financial statements comprise the accounts of the company and its active subsidiary companies. All intercompany transactions have been eliminated.

#### (b) Principles of translation

The accounts of the foreign subsidiaries have been translated into United States dollars on the following basis:

- (i) Income and expenses (other than depreciation and amortization) – at the average rate for the year.
- (ii) Depreciation and amortization – at historic rates applicable to the related asset accounts.
- (iii) Current assets and liabilities at year-end rates.
- (iv) Other assets – at historic rates.

A loss on translation of \$26,495 (1977 – \$50,336) has been charged against earnings.

#### (c) Inventory policies and depreciation

See notes 4 and 6 respectively.

#### (d) Amortization of intangibles

Patents and trademarks are amortized over seventeen years which approximates their useful lives. Amortization amounted to \$9,474 in 1978 (1977 – \$9,608).

#### (e) Maintenance and repairs

Maintenance and repairs of \$78,082 (1977 – \$39,501) were charged to expense as incurred; renewals and betterments are capitalized, with adjustment made for the cost of property retired and replaced less accumulated depreciation and salvage recovered.

### 2. FOREIGN OPERATIONS

Amounts relating to foreign operations included in the consolidated financial statements are as follows:

	1978	1977
Working capital	\$ 651,407	\$ 909,384
Investments	35,647	35,346
Fixed assets	560,765	345,168
Other assets	216,082	200,856
Net foreign assets	<u>\$1,463,901</u>	<u>\$1,490,754</u>
Net earnings from foreign operations	<u>\$ 309,357</u>	<u>\$ 172,572</u>

The company's net foreign assets are primarily located in Canada.

## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

### 3. INFORMATION CONCERNING THE COMPANY'S PRINCIPAL ACTIVITIES

The company engages in three principal activities as disclosed in item 1(c) of Form 10-K which accompanies these financial statements.

A summary of the company's operations by principal activity for the year ended December 31, 1978 follows:

Principal activity	Revenues	Operating income (loss)	Identifiable assets	Depreciation and amortization expense	Capital expenditures
Research, development and instrument manufacture	\$1,395,054	\$ 81,778	\$ 829,783	\$ 23,470	\$ 30,795
Exploration ventures and analytical services	1,867,448	(316,855)	744,457	83,322	169,670
Licensing of patented proprietary products	617,606	412,474	509,104	40,614	230,219
General corporate	—	—	129,906	—	—
Consolidated totals	<u>\$3,880,108</u>	<u>\$ 177,397</u>	<u>\$2,213,250</u>	<u>\$ 147,406</u>	<u>\$ 430,684</u>

A summary of the company's operations by principal activity for the year ended December 31, 1977 follows:

Principal activity	Revenues	Operating income (loss)	Identifiable assets	Depreciation and amortization expense	Capital expenditures
Research, development and instrument manufacture	\$1,185,163	\$ (15,047)	\$ 611,039	\$ 29,848	\$ 22,312
Exploration ventures and analytical services	1,554,379	(370,288)	563,238	64,746	93,274
Licensing of patented proprietary products	667,197	499,592	512,333	52,782	55,519
General corporate	—	—	172,085	—	—
Consolidated totals	<u>\$3,406,739</u>	<u>\$ 114,257</u>	<u>\$1,858,695</u>	<u>\$ 147,376</u>	<u>\$ 171,105</u>

Identifiable assets are those assets used in the operations of each activity. General corporate assets are cash, prepaid expenses, income tax recoverable and investments.

A summary of the company's operations by geographic areas for the year ended December 31, 1978 follows:

Geographic area	Revenues	Transfers between areas	Total revenues	Operating income (loss)	Identifiable assets
United States	\$ 660,129	\$ 430,545	\$1,090,674	\$ (74,746)	\$ 253,003
Canada	3,219,979	(814,103)	2,405,876	222,453	1,960,247
Europe	—	205,315	205,315	18,064	—
Other	—	178,243	178,243	11,626	—
Consolidated totals	<u>\$3,880,108</u>	<u>\$ —</u>	<u>\$3,880,108</u>	<u>\$ 177,397</u>	<u>\$2,213,250</u>

A summary of the company's operations by geographic areas for the year ended December 31, 1977 follows:

Geographic area	Revenues	Transfers between areas	Total revenues	Operating income (loss)	Identifiable assets
United States	\$ 345,351	\$ 310,887	\$ 656,238	\$ (80,085)	\$ 159,770
Canada	3,061,388	(693,473)	2,367,915	170,665	1,698,925
Europe	—	240,132	240,132	17,273	—
Other	—	142,454	142,454	6,404	—
Consolidated totals	<u>\$3,406,739</u>	<u>\$ —</u>	<u>\$3,406,739</u>	<u>\$ 114,257</u>	<u>\$1,858,695</u>

## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

### 4. INVENTORIES

The major categories of inventories are as follows:

	1978	1977
Finished goods	\$ 94,981	\$ 75,446
Work in progress	76,086	63,423
Materials and supplies	42,737	41,590
Selling price of contracts in progress, less billings	300,692	193,147
	<u>\$ 514,496</u>	<u>\$ 373,606</u>

Finished goods and work in progress inventories are stated at the lower of average cost and net realizable value. Materials and supplies are stated at their actual cost. The percentage-of-completion method of accruing profit on fixed price contracts in progress is used, with anticipated losses being provided for in full.

### 5. INVESTMENTS

Investments are summarized as follows:

	1978	1977
<b>(a) Shares or interest recorded at cost, or cost less amounts written off –</b>		
HSA Reactors Limited – 216,700 shares (an 11.9% interest)	\$25,297	\$25,297
Royex Sturgex Mining Limited – a 3.6% interest in B-Zone Mining Claims operated by O'Brien Gold Mines Limited – no quoted value	9,000	9,000
Petro Nuclear Exploration Inc. – 40,000 shares (a 4.4% interest) – no quoted value	10,000	10,000
Other investments	1,350	1,049
	<u>\$45,647</u>	<u>\$45,346</u>

#### (b) Acquisitions

- (i) In 1977 the company acquired a 4.4% interest in Petro Nuclear Explorations Inc. for \$10,000. Petro Nuclear is engaged in hydrocarbon exploration activities.
- (ii) In 1977 a subsidiary acquired a 3.6% interest in the B-zone mining claims operated by O'Brien Gold Mines Limited from Royex Sturgex Mining Limited for \$9,000.
- (iii) In 1978 the company entered into a joint venture agreement with Pacific Energy & Minerals Ltd. to explore the Denver basin for oil and gas. All exploration costs incurred on behalf of the joint venture by the company were expensed during the year.

#### (c) Disposals

- (i) At the commencement of 1978 a subsidiary had a contingent liability in connection with the participating interest in the Fiji Namosi Project. During 1978 an action was instituted in Fiji against the subsidiary, which action was settled by the abandonment of the interest in the property by the subsidiary and a withdrawal of all claims against the subsidiary.
- (ii) During 1978 the company diluted its equity position in Barringer Hydrocarbons Limited ("Hydrocarbons") from 51 percent to 30 percent in exchange for further funding. Subsequently Hydrocarbons amalgamated with Minsearch Surveys Limited ("Minsearch") and the company received 10,960 Class B shares in Minsearch increasing its holding to 25,960 shares. These shares are included in other investments. At the time of this exchange the company recognized a gain of \$16,865 on disposal of shares in respect of losses attributable to the minority shareholders of Hydrocarbons which had previously been provided for by the company.

## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

### 6. FIXED ASSETS

The major categories of fixed assets are as follows:

	1978	1977
Office furniture and equipment	\$ 156,838	\$ 139,917
Plant and machinery	716,740	638,776
Exploration equipment	465,221	361,310
Equipment for lease	559,800	361,662
Leasehold improvements	162,903	129,153
	<u>2,061,502</u>	<u>1,630,818</u>
Accumulated depreciation and amortization	1,376,529	1,229,123
Net book value	<u>\$ 684,973</u>	<u>\$ 401,695</u>

Depreciation is provided on the straight-line basis over the estimated useful lives of the assets, principally four to ten years. Leasehold improvements are being amortized over the terms of the company's leases principally three to twenty years. Depreciation and amortization for the year amounted to \$147,406 (1977 - \$147,376).

### 7. BANK INDEBTEDNESS

The bank indebtedness is collateralized by a general assignment of accounts receivable and a floating charge debenture on all the assets of the company.

The weighted average interest rate during the year was 8.6% (1977 - 11.33%) calculated by dividing the interest paid by the average borrowings. At year-end, the average interest rate was 10.6% (1977 - 8.75%). The maximum and average short-term borrowings outstanding during the year were \$239,441 (1977 - \$287,070) and \$49,353 (1977 - \$97,049) respectively.

### 8. COMMON STOCK AND PAID-IN SURPLUS

	Common stock		Paid-in surplus	
	1978	1977	1978	1977
Balance - beginning of year	\$9,794	\$9,784	\$2,025,024	\$2,023,534
5,000 shares issued to an employee of the company on exercise of an option for a consideration of \$5,000 (1977 - \$1,500)	<u>50</u>	<u>10</u>	<u>4,950</u>	<u>1,490</u>
Balance - end of year	<u>\$9,844</u>	<u>\$9,794</u>	<u>\$2,029,974</u>	<u>\$2,025,024</u>

Shares of common stock reserved for issuance are as follows:

	1978	1977
For stock options -		
Options outstanding and exercisable	57,900	51,000
Available for granting future options	42,700	89,600
For conversion of promissory notes	-	3,250
	<u>100,600</u>	<u>143,850</u>

## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

### 9. STOCK OPTIONS

#### (a) 1968 qualified stock option plan

In 1968 the company adopted the 1968 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 granted subsequent to 1968 and exercisable at December 31, 1976 (\$1.25 to \$5.50 per share)	7,350	\$ 27,675
Changes during 1977 – options cancelled and expired	(4,350)	(23,925)
	<u>3,000</u>	<u>3,750</u>
Options outstanding and exercisable at December 31, 1977 (\$1.25 per share)	3,000	3,750
Changes during 1978 – options cancelled and expired	(3,000)	\$ (3,750)
Options outstanding and exercisable at December 31, 1978	<u>Nil</u>	<u>Nil</u>

#### (b) 1970 qualified stock option plan

On May 31, 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 any other outstanding stock option previously granted to the optionee. No options were outstanding at December 31, 1977 and 1978.

#### (c) 1972 unqualified stock option plan

In 1972 the company adopted an unqualified stock option plan covering 95,000 shares of common stock of the company and was reduced in 1978 to 60,000 shares of common stock. 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 grant of the option. These options are exercisable at varying times from date of grant, provided the optionee continues as a director or remains in the employ of the company or subsidiary, and expire five years from the date of the grant. The company has first right of refusal to reacquire shares purchased under this option plan at a formula price equivalent to 75% of quoted value of the shares. Information with respect to this stock option plan is summarized as follows:

	Shares	Amount
Options granted subsequent to 1972 and outstanding and exercisable at December 31, 1976 (\$1.00 to \$5.00 per share)	54,500	\$115,000
Changes during 1977 –		
Options exercised (\$1.50 per share at market value \$1.63)	(1,000)	(1,500)
Options cancelled and expired	(15,500)	(75,500)
Options outstanding (of which 36,000 were exercisable) at December 31, 1977 (\$1.00 per share)	38,000	38,000
Changes during 1978 –		
Options granted at market value (\$1.25 to \$1.50 per share)	32,800	48,950
Options exercised (\$1.00 per share; market value \$1.75)	(5,000)	(5,000)
Options cancelled and expired	(19,900)	(20,400)
Options outstanding (of which 39,900 were exercisable) at December 31, 1978 (\$1.00 to \$1.50 per share)	<u>45,900</u>	<u>\$ 61,550</u>



## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

### (d) Other stock options

The company also grants stock options to consultants as authorized by the Board of Directors from shares available under existing plans. These options are exercisable two years from the date of grant and expire five years from the date of grant. As at December 31, 1978, options on 12,000 shares (1977 – 10,000 shares) were outstanding at prices of \$2.50 per share (1977 – \$1.50 per share) for 10,000 shares and \$1.38 per share for 2,000 shares.

## 10. INCOME TAXES

### (a) Canadian income taxes

As at December 31, 1978, the Canadian subsidiaries have recorded in the accounts depreciation and amortization and other miscellaneous write-offs totalling \$160,000 (1977 – \$400,000) in excess of that claimed for tax purposes.

In 1977 a subsidiary was successful in appealing an assessment from Revenue Canada, Taxation with the effect of increasing tax losses available by \$178,259. These losses were fully utilized to reduce the tax liability in 1977.

A subsidiary has certain timing differences arising from exploration expenditures that are available to reduce taxable income in future years. The amount of these expenses is approximately \$800,000 (1977 – \$1,000,000).

### (b) U.S. income taxes

There are no U.S. income taxes payable as at December 31, 1978 or 1977. The company has losses for income tax purposes of approximately \$312,000 (1977 – \$200,000) that can be used to reduce taxable U.S. income in future years. These losses will expire from 1983 to 1985.

### (c) Tax rate on earnings

The 1978 provision calculated to a rate of 77% on earnings before income taxes. The rate of provision is significantly greater than the normal U.S. federal tax rate of 48% because the company's foreign operations earned profits on which Canadian taxes would have otherwise been payable had there been no benefit from the use of certain timing differences to reduce taxable income to nil (refer note 10(a)).

The 1977 provision calculated to a rate of 461% on earnings before income taxes. The rate of provision is significantly greater than the normal U.S. Federal tax rate of 48% because the company's foreign operations earned profits on which Canadian taxes would have otherwise been payable had there been no benefit from the carry forward of a tax loss (refer note 10(a)).

## 11. COMMITMENTS AND CONTINGENT LIABILITIES

### (a) Contingent liabilities

- (i) A subsidiary 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 was borne by the Canadian Government, subject to repayment, as explained below, to the extent that the instruments proved 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 company's regular practice with respect to research and development projects. 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 \$14,268 (1977 – \$13,845) has been repaid to date. Such repayments are an element of cost of sales.
- (ii) An action has commenced against a subsidiary for damages for wrongful dismissal, or for damages for breach of contract of employment. It is not possible to give an estimate of the amount for which this action may be settled. The subsidiary made a payment at the time of question which it feels covers very reasonably any damages suffered by the other party. The company intends to defend this action vigorously.

## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

- (iii) The company and a third party have entered into an agreement relating to the development of one of its new exploration systems. In return for current funding, the company has undertaken to further develop this system and lease it to an airborne survey company when operational. The third party shall receive a share of the company's license fees from the system.

To date the company has received \$130,000 which has been taken into income in 1978 to partially meet the funding to date of the development work on the system.

The terms of the agreement provide that under certain circumstances the company has the option of treating as a loan (to be repaid at the rate of \$85,000 per annum) any such funds received up to a maximum of \$420,000 in consideration for the cancellation of the licensing agreement and the return of any payments made thereunder.

### (b) Commitments

In September 1978, the company agreed in principle to proposed terms with Pacific Energy & Minerals Ltd., whereby both firms will exchange ten percent of their respective issued stock. The terms of the agreement have not been finalized and are subject to approval by the Board of Directors of the company.

### (c) Rental expense and lease commitments

- (i) Rental and lease expenses for the year amounted to \$93,110 (1977 - \$97,400).
- (ii) The aggregate minimum lease commitments for all operating leases on rented premises over the next five years is \$175,153 payable as follows:  
1979 - \$57,522; 1980 - \$40,525; 1981 - \$30,775; 1982 - \$22,997; 1983 - \$23,334. Thereafter the aggregate lease commitment for the remaining three years of the leases to 1986 is \$43,500.
- (iii) In addition to the above leases the company entered into a lease for premises amounting to \$25,000 per annum. The company has not occupied the premises or made any monthly payments due to alleged misrepresentation on the part of the landlord. To date, no action has taken place and the company considers that any liability arising from this dispute will not be significant.
- (iv) The aggregate lease commitment on equipment and automobile rentals over the next 3 years is \$117,726.

## 12. PENSION PLANS

In 1972, a subsidiary converted its insured pension plan for senior employees to a plan that provides retirement benefits for any employee, equal to 2% of annual salary for each year of employment under the plan. The aggregate cost of the plan was \$27,868 in 1978 (1977 - \$36,713). Pension costs are funded, and there was no unfunded liability as at December 31, 1978.

## 13. LIFE INSURANCE POLICIES

Previously life insurance premiums on policies for key officers of the company were expensed without any recognition of cash surrender values. The cash surrender value of these policies has now been reflected in the financial statements of the company and accordingly prior years figures have been restated.

If the cash surrender value of the life insurance policies had not been recognized as an asset, the earnings of the company and earnings per share would have been as follows:

	1978	1977
	\$	\$
Earnings (Loss) Before Extraordinary Item	<u>31,267</u>	<u>(88,138)</u>
Earnings (Loss) Per Common Share Before Extraordinary Item (note 14)	<u>0.03</u>	<u>(0.10)</u>
Net Earnings	<u>156,257</u>	<u>24,422</u>
Earnings per common share	<u>0.17</u>	<u>0.03</u>

The premiums on these insurance policies were not allowable as a deduction for income tax purposes and previously had been treated as a permanent difference. Consequently this restatement does not affect corporate income taxes.

## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

### 14. EARNINGS (LOSS) PER SHARE

Earnings (loss) per share are based on the weighted average number of shares outstanding, with shares issuable upon exercise of options, where applicable, during a year being included using the treasury stock method.

### 15. RELATED PARTY TRANSACTIONS

The company included in earnings, revenue of \$242,550 (1977 – \$752,270) from Minsearch Surveys Limited, a company in which the company owns 25,960 Class B shares (1977 – 15,000 shares).

### 16. DUE FROM SHAREHOLDER

An employment agreement between Dr. A. R. Barringer and the company was resolved by the Board of Directors on June 23, 1975. The agreement provides for an extended term of employment, an increase in remuneration, purchase of common stock and a loan.

The company sold to Dr. A. R. Barringer 100,000 unregistered shares of common stock (\$.01 par value) at a price of \$1.00 per share. The consideration for the shares was in the form of a 4% promissory note maturing on June 30, 1985. Payment of the principal and interest of the note is secured by a pledge of the shares which the company holds as collateral.

The quoted market value of the shares issued amounted to \$137,500.

The Board of Directors determined that the fair market value of the shares was \$100,000 and that the interest rate on the note of 4% is fair and just since Dr. A. R. Barringer is restricted by the terms of his employment contract. The shares are also restricted as to resale since they are unregistered and since Dr. A. R. Barringer is both an insider and forms part of control. However, generally accepted accounting principles provide for the inclusion in deferred compensation of \$37,500 being the difference between the quoted market price and issue price of the shares and an amount attributable to an imputed interest rate of 8½% rather than the 4% indicated rate.

The amount of deferred compensation of \$60,830 so determined is being amortized over the term of Dr. Barringer's employment agreement. The amortization for 1978 was \$11,587 (1977 – \$9,257).

### 17. COMPARATIVE FIGURES

The figures for 1977 have been reclassified from those previously reported on to conform to the 1978 presentation.

# OPINION OF THE INDEPENDENT PUBLIC ACCOUNTANTS

## COOPERS & LYBRAND

CHARTERED ACCOUNTANTS

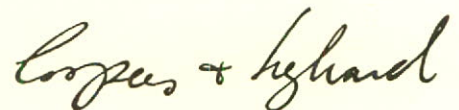
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To the Shareholders,  
Barringer Research Inc.

We have examined the consolidated balance sheets of Barringer Research Inc. as at December 31, 1978 and 1977 and the related consolidated statements of earnings and deficit and changes in financial position for the years then ended and the supporting schedules. Our examinations were 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, the consolidated financial statements referred to above present fairly the financial position of Barringer Research Inc. as at December 31, 1978 and 1977 and the results of its operations and the changes in its financial position for the years then ended and the supporting schedules present fairly the information required to be set forth therein, all, in conformity with generally accepted accounting principles applied on a consistent basis.



CHARTERED ACCOUNTANTS

Toronto, Ontario, Canada,  
March 2, 1979.

**SECURITIES AND EXCHANGE COMMISSION**  
WASHINGTON, D.C. 20549

**Form 10-K**

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15 (d)  
OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 1978

Commission File No. 0-3207

**Barringer Research Inc.**

*(Exact name of registrant as specified in its charter)*

**Delaware**

*(State or other jurisdiction of  
incorporation or organization)*

**84-072-0473**

*(IRS Employer Identification  
Number)*

**Barringer Research Limited**

*(Exact name of registrant as specified in its charter)*

**Ontario, Canada**

*(State or other jurisdiction of  
incorporation or organization)*

—

*(IRS Employer Identification  
Number)*

**304 Carlingview Drive,  
Metropolitan Toronto,  
Rexdale, Ontario, Canada**

*(Address of principal executive offices)*

**M9W 5G2**

*(Postal Code)*

**Registrant's telephone number, include area code: (416) 675-3870**

**Securities registered pursuant to Section 12 (b) of the Act:**

**NONE**

**Securities registered pursuant to Section 12 (g) of the Act:**

**Common Stock, \$ .01 par value, Barringer Research Inc.**

*(Title of Class)*

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days.

Yes  No

Number of shares outstanding as of December 31, 1978 — 984,400 of Common Stock \$.01 par value.

This Form 10-K Report has not been approved or disapproved by the Securities and Exchange Commission nor has the Commission passed on the accuracy or adequacy of the data included herein.

# BARRINGER RESEARCH INC.

## FORM 10-K

### PART I

#### ITEM 1. DESCRIPTION OF BUSINESS

##### (a) DEVELOPMENT OF BUSINESS SINCE JANUARY 1, 1978

- (i) In July 1978, Barringer completed a reorganization within the Canadian operations by transferring all exploration and analytical services to an autonomous corporate entity, Barringer Magenta Limited. This reorganization has provided customers with expanded and more efficient services as well as allowing better management control over operations.
- (ii) In August 1978, Barringer concluded a joint venture agreement with Pacific Energy & Minerals Ltd. to explore the Denver basin for oil and gas. Both firms are contributing funds to the exploration program and Barringer will benefit directly by obtaining a percentage in any oil and gas production which results.

(b) (d) Reference is made to note 3 of the accompanying financial statements.

##### (c) NARRATIVE DESCRIPTION OF BUSINESS

Barringer Research Inc., a Delaware Corporation (the "Registrant"), through its Denver operation and its wholly-owned subsidiaries Barringer Research Limited and Barringer Magenta Limited, Ontario Corporations, engages in three principal activities:

(1) Research, Development, and Instrument Manufacture: (2) Exploration Ventures and Analytical Services: (3) Licensing of Patented Proprietary Products.

##### (1) RESEARCH, DEVELOPMENT, AND INSTRUMENT MANUFACTURE

Barringer's Research and Development operation comprises a staff of professional scientists and engineers plus technologists and technicians (12 university graduates) that undertakes R & D work for industrial and government agency clients in the following disciplines: (i) electro-optics; (ii) electromagnetics; (iii) magnetics; and (iv) atmospheric physics. Barringer's R & D policy is to undertake projects and programs whose results can be transformed into patented or proprietary commercial products and systems. Generally such projects include design engineering and construction of prototype instruments and systems. Due to Barringer's patent protection for significant instruments and instrument systems, and the know-how obtained from previous R & D work associated with these patents, a portion of the Company's 1978 R & D work was carried out pursuant to agreements funded by major mining and oil companies. These systems are licensed for commercial operations to the joint companies.

Major clients for projects underway in 1978 included private and government organizations, among them:

General Electric Space Science Laboratories (USA)	TRW Systems (USA)
National Research Council (Canada)	Atomic Energy of Canada Limited
Canadian Centre for Remote Sensing	Geological Survey of Canada
Defence Research Establishment Suffield (Canada)	Canadian Commercial Corporation
Department of Supply & Services (Canada)	Rexnord, Milwaukee (USA)
Department of National Defence (Canada)	United States Air Force
Minsearch Surveys Ltd. (Canada)	Elf Aquitaine (France)

From its R & D projects Barringer has developed instruments, instrument systems and techniques in the fields of: (a) airborne exploration, (b) ground exploration and (c) environmental monitoring and process control.

**(a) Airborne Exploration Systems**

- (i) **INPUT:** Barringer began as a company with the scientific and commercial success of an R & D effort, the airborne electromagnetic INduced Pulse Transient technique (INPUT). This commercially licensed system now provides Barringer with an annual royalty and rental income from its survey applications that are flown under license to Geoterrex Limited (Ottawa) and Questor Surveys Limited (Toronto). During 1978 further refinements were made to improve the operational status of the INPUT System. INPUT receiver birds are manufactured and sold by Barringer.
- (ii) **COTRAN:** Significant progress took place during 1978 in the development of COTRAN, an advanced airborne electromagnetic system based on CORrelation TRANsient waveform matching. This system is a proprietary patented system. Computer modelling was undertaken, special algorithms developed, a hardware flight prototype unit built and flight tests initiated. Flight tests over known geophysical ground truth are planned for early 1979.
- (iii) **AIRTRACE:** In 1972 Barringer began active field testing of a new, patented and proprietary geochemical exploration system – AIRTRACE. In 1973 this program continued, and license agreements for commercial use of the system were concluded with Gold Fields of South Africa in certain Limited geographic areas. In 1974 Barringer formed a joint company, Minsearch Surveys Limited (Minsearch), licensed by Barringer to exploit AIRTRACE commercially on a worldwide basis, subject to the prior-existing agreements. Orientation surveys continued in 1978 in the U.S.
- (iv) **SURTRACE:** This is a surficial geochemical sampling technique that can be employed in the air from low flying helicopters as well as on the ground with a back-pack model. In 1978 Barringer continued development of this technique for operations in semi-arid terrains.

**(b) Ground Exploration**

- (i) **SURTRACE** surface microlayer back-pack surveys were undertaken during 1978 for mining and hydrocarbon clients. The technique provides ground truth quite similar to that obtained indirectly by AIRTRACE and closely replicates the airborne SURTRACE results.
- (ii) The development program to investigate COTRAN application to military range clearance was completed in late 1978. This program indicates the applicability of COTRAN to ground geophysical measurements and further efforts in this direction are planned for 1979. The application of COTRAN to detection of tramp metal on conveyor belts was investigated and a new development program initiated for Rexnord of Milwaukee. A minicomputer COTRAN system will be developed for evaluation; this unit is to be delivered in late 1979.
- (iii) **Geophysical Instruments:** The M-123 magnetometer was first marketed in 1975 for airborne, oceanographic and ground applications and during 1978 sales were made, particularly to the shallow water marine salvage industry. Sales of the GM 122 ground portable magnetometer were made from inventory.

**(c) Environmental Monitoring/Process Control**

- (i) Electro-optical techniques for air pollution monitoring include the SO<sub>2</sub>/NO<sub>2</sub> Correlation Spectrometers designated COSPEC II and III and a higher sensitivity unit, the single gas COSPEC IV. Barringer originally developed correlation spectrometric techniques in the ultra-violet for application in the remote sensing of gases and earth resource exploration. In 1967 the company recognized the air pollution monitoring applications of this technique and began producing an instrument line – the COSPEC series – designated to measure SO<sub>2</sub> and/or NO<sub>2</sub> continuously in the atmosphere. Barringer sells these instruments directly from its Toronto location and also has agency agreements with several companies to sell the COSPEC series in Japan, Southeast Asia, and various European countries. The COSPEC has received growing acceptance throughout the world with more than 75 units in use in 23 countries.
- (ii) The Barringer GAs filter cell correlation Spectrometer, GASPEC, is capable of remote detection of trace gases in the atmosphere. Barringer has specialized in the infrared spectral region for the GASPEC, and development work continued during 1978 for a variety of customers.
- (iii) The Barringer-patented correlation interferometer for the remote sensing of trace gases was completed during 1978 under subcontract to General Electric Space Science Laboratories for NASA Langley Research Centre. This work involves the development of a space unit with multi-gas detection capabilities.
- (iv) During the year Barringer continued a program to develop an airborne laser fluorosensor unit for oil spill detection and classification. This instrument was developed under contract to the Canadian Centre for Remote Sensing. The sensor underwent further test flights during 1978 and further instrument improvements were initiated in 1978 to enhance its capabilities.
- (v) Nuclear Process Control: Since 1971 Barringer has produced and sold three different kinds of heavy water (D<sub>2</sub>O) process control instruments. These have been designed for Canadian CANDU-type reactors in nuclear power plants and the heavy water industry to monitor ratios of heavy and light water and detect trace concentrations of heavy water. Development work continued during 1978 in co-operation with Atomic Energy of Canada, Limited. The Barringer resident site engineer at the Chalk River Nuclear laboratories was removed in late 1978 indicating the steady progress made in this general technology area.

Revenues amounted to \$1,395,000 in 1978 (\$1,185,000 in 1977).

**(2) EXPLORATION VENTURES AND ANALYTICAL SERVICES**

Barringer's policy in the exploration and analytical service field continues to be one of undertaking contract programs for mineral exploration (including uranium) as well as assuming a direct economic participation in oil and gas exploration. These programs incorporate generally available exploration techniques as well as the company's most advanced airborne and ground systems, techniques and expertise, as appropriate. Barringer uses its combined professional experience in geology, geochemistry, geophysics and data processing, combined with laboratory competence in analytical chemistry, to undertake large and small exploration programs. During 1978, Barringer's staff of professionals provided exploration consulting, field and airborne services, and also undertook surveys under contract. The exploration staff has also supported specialized research and development in new instruments and remote sensing technology and research for hydrocarbons, uranium and base metal exploration.

Following the merger of the analytical chemistry and biology division with the exploration division in 1977, the integrated use of these services has been stressed. In addition, analytical services are also offered on a contract basis in the geochemical, environmental and metal-testing fields. In 1978, assay facilities were also added to Barringer's capabilities and these services are expected to add to the volume of work in the laboratories.



In the Spring of 1978, Barringer opened a new laboratory in Calgary. This laboratory is ideally suited to capitalize on the vastly expanded work in mineral exploration in Canada, notably in Saskatchewan, Alberta and the Northwest Territories. The laboratory is housed in a new building with ample space for expansion. Some equipment for the laboratory was moved from the Whitehorse facility which is presently used for expediting samples from the Yukon Territory to Barringer's laboratories in Toronto and Calgary.

Barringer continues to be the sole Canadian distributor for the liquid ion chromatograph manufactured by Dionex Corporation. In addition, use of this equipment has allowed Barringer to offer unique analytical services, particularly in the environmental and geochemical fields. Furthermore, contract research and development work has been undertaken for the Geological Survey of Canada using this instrumentation. One contract was successfully completed in 1978 and a second contract is continuing in 1979.

Multi-element analysis by radio frequency induction coupled plasma continues to provide increased sources of revenue. This technique is now being used on a routine basis by many customers for analysis of geochemical and environmental samples and also for materials testing. Because of the increased use of this system, expanded computing facilities are planned for early 1979 so that output from this instrument can be expanded. Barringer also continues to use its unique instrumentation for analysis of solid samples (LASERTRACE). This instrumentation was developed as an integral part of the airborne geochemical surveys.

With the ongoing interest in uranium exploration in 1978, Barringer continues to provide analysis to very low levels by the use of the fission track analytical system coupled with the use of an image analyser. This system is used for analysis of uranium samples collected during airborne geochemical exploration.

In 1978, Barringer significantly expanded its services in hydrocarbon exploration. Efforts in this field have principally revolved around two areas; (1) field and laboratory services and (2) research and development into more cost effective geochemical and geophysical methods of exploration. In the first area, Barringer has undertaken contract geochemical surveys in both the United States and Canada primarily using its own developed methods of sample collection with analysis for hydrocarbons and related elements.

In the area of research and development, Barringer has been investigating both new geophysical and geochemical techniques. Research work commenced in the early '70s to characterize the "geochemical fingerprint" in surface soils over hydrocarbon deposits has continued. While some of the techniques developed are offered on a routine contract basis, research is continuing into the investigation of more advanced methods. In the field of hydrocarbons, Barringer has reserved the right to participate in hydrocarbon exploration on a joint venture basis.

During 1978 the Barringer group of specialists in exploration technology provided consulting, technical services and analytical services to a large number of organizations including:—

Riofinex (Saudi Arabia, Brazil)	Anglo American Corporation (South Africa)
E & B Exploration (Canada)	Rioamex (U.S.A.)
Alpar Resources (U.S.A.)	Rocky Mountain Energy (U.S.A.)
United States Geological Survey	Saskatchewan Department of Highways (Canada)
Kelvin Energy (Canada)	Chevron Standard (Canada, U.S.A.)
Geological Survey of Canada	Gulf Minerals (Canada, U.S.A.)
Uranerz Mining (Canada, U.S.A.)	Asamera Oil (Canada)

Barringer Fiji Limited: Barringer is currently involved in a mineral exploration program in the Fiji Islands through Barringer Fiji Limited (BFL) in a joint venture with Australian Anglo American Company Limited and AMAX. Barringer incorporated BFL in connection with an agreement with the Government of Fiji for exclusive prospecting rights on the two main Fiji islands, covering all ground except that subject to lease of claims as at July 31st, 1969. BFL was incorporated to assume the rights and responsibilities under such agreement and to carry out the exploration program. AMAX managed the program from 1973 to 1974. Barringer initially acted as technical manager of the program, which was funded by Contifinance S.A. (an affiliate of Roan Selection Trust) in return for an 80 percent interest in BFL to Contifinance.

Under terms of an agreement with Australian Anglo American et al., concluded in 1974, Barringer relinquished 10 percent of its 20 percent interest in BFL areas. Exploration on BFL ground began in late 1974 and continued through 1978. Results of the exploration to date are not considered encouraging but work is continuing. Barringer has no financial obligations for the BFL program.

Royex Sturgex Mining Limited: Barringer holds 228,095 shares of Royex Sturgex. In March 1977, Royex Sturgex sold to Barringer 20 percent of its 18 percent interest in a gold property for \$9,000. The purchase price is payable in 20 equal quarterly installments starting April 1977. Barringer has the right to return to the company the said 20 percent interest at any time, in which case Barringer's obligation to pay the unpaid portion of the purchase price shall cease and Royex Sturgex shall be entitled to keep the portion of the purchase price paid up to that time.

Pacific Energy & Minerals Ltd.: In August 1978 Barringer concluded a joint venture agreement with Pacific Energy & Minerals Ltd. (PEM), to explore the Denver basin for hydrocarbons. PEM also controls several million acres of prospective oil and gas concession in off-shore Fiji and Barringer plans to assist PEM in exploring these concessions using some of its proprietary methods. In September 1978, Barringer and PEM agreed in principal to a reciprocal exchange of 10% of their respective issued stock, subject to the approval of the Board of Directors of the company.

Revenues from the division's operations in 1978 amounted to \$1,867,000 (\$1,554,000 in 1977).

### **(3) LICENSING OF PATENTED PROPRIETARY PRODUCTS**

Barringer grants licenses for the right to use, manufacture and/or sell certain proprietary techniques and instrumentation developed by Barringer and on which the company holds patents or other rights.

#### **INPUT System Agreements**

Barringer has a worldwide exclusive license granted by the purchaser of Barringer INPUT patents to manufacture this airborne geophysical system and to jointly grant sublicenses to others for their use. In 1978, five systems were licensed to two companies engaged in providing contract airborne exploration surveys. A sixth system commenced survey operations in early 1979. The two licensees paid Barringer rental for the equipment as well as license fees for every mile flown on survey.

According to data compiled by the Society of Exploration Geophysicists, INPUT surveys represent approximately 70% of the total worldwide commercial survey mileage flown in 1977 using electromagnetic techniques.

#### **AIRTRACE Exploration Survey Company Joint Ventures**

During 1973 and 1974 Barringer entered into agreements establishing three airborne exploration survey companies licensed to operate the Barringer-developed and patented AIRTRACE system. These companies and their locations are: Barringer Surveys Limited (BSL), Johannesburg; Minsearch Surveys Limited (Minsearch), Toronto; and Barringer Hydrocarbons Limited (BHL); Toronto, Canada.

BSL was incorporated in April 1973 in partnership with Gold Fields of South Africa. Barringer holds a 22 percent interest in BSL, which was granted an exclusive license to use Barringer's AIRTRACE airborne geochemical prospecting system in Southern Africa for mineral and hydrocarbon exploration.

Minsearch Surveys Limited was incorporated in February 1974 in partnership with members of the Anglo American Group of Companies. Minsearch was granted a worldwide exclusive license for the commercial exploitation of AIRTRACE, except for Southern Africa.

Barringer also formed a joint company — Barringer Hydrocarbons Limited — with the same Anglo American companies. BHL was granted a license to use the AIRTRACE system for hydrocarbon and geothermal resource exploration. BHL was inactive in 1978.

Under the terms of its agreement with Minsearch, BSL and BHL, Barringer will receive a royalty based on the number of survey line miles flown with the AIRTRACE system when the companies begin commercial operation. The policy of each joint company is expected to be either to negotiate (a) a combination of service fee and participation in any discoveries made; or (b) a participation in any discoveries; or (c) a higher rate of fee in lieu of participation. Minsearch's and Barringer's ability to obtain the most favourable fee and participation terms will be a function of conditions prevailing in the mineral exploration industry and the technical strength of the AIRTRACE and its related systems.

In December 1978 Minsearch and BHL were merged into a single corporate entity in which Barringer owns 25,960 Class B shares. Negotiations are currently in progress to define the future operations and objectives of the newly merged organization.

### **Metal Detecting Devices**

During 1978 Barringer had two licensees under its patents for detecting metallic objects, viz. Intec Inc. for airport and other security devices (the SENTRIE system) and Envirotech Corporation for tramp metal detection on conveyor belts in mines.

Revenue to Barringer in 1978 from its licenses amounted to \$618,000 (\$667,000 in 1977).

### **COMPETITION**

There are no companies that compete directly with Barringer with instrumentation similar to the patented INPUT, COTRAN, SURTRACE and AIRTRACE systems. However many companies have other electromagnetic techniques and methods that do compete in the airborne exploration market. Likewise, there are numerous companies engaged in the manufacture of geophysical instruments that compete with various products of Barringer and that provide exploration and analytical chemical services similar to those Barringer offers.

Similarly there are numerous pollution monitoring devices available on the market. These do not provide instantaneous specific and continuous readings available by use of Barringer's patented electro-optical methods. These devices do, however, compete in the same area of use as Barringer's instruments and Barringer is not a major manufacturer in the production of pollution monitoring devices.

### **DEPENDENCY ON LIMITED NUMBER OF CUSTOMERS**

No single customer accounted for more than 10 percent of total revenue in 1978. In 1977, Minsearch Surveys Limited accounted for 23 percent of total revenue.

### **BACKLOG**

The following table sets forth the backlog of work on hand as at December 31, 1977 and December 31, 1978.

	As at Dec. 31/77	As at Dec. 31/78
(1) Research, Development and Instrument Manufacture	\$ 355,000	\$ 234,000
(2) Exploration Ventures and Analytical Services	147,000	427,000
(3) Licensing of Patented Proprietary Products	186,000	185,000
TOTAL	<u>\$ 688,000</u>	<u>\$ 846,000</u>

It is estimated that all of the backlog work on hand as at December 31, 1978 will be filled during the current fiscal year. In early 1979, contracts for \$675,000 were awarded to Barringer for instrument manufacture.

## SOURCES AND AVAILABILITY OF RAW MATERIALS

Barringer's manufactured products are basically comprised of assembled components. The items purchased by Barringer are of a standardized nature and are available from numerous sources. Barringer has no long-term agreement or requirement contract for any of the items purchased by it and apart from delays in the delivery of some components caused by often extremely tight supply conditions prevailing in the market does not anticipate any problem in obtaining the necessary materials or parts for manufacture of the equipment it produces.

## PATENTS AND LICENSING

Barringer has 36 United States patents issued and 3 pending relating to its equipment and systems. An aggregate of 331 patents and patent applications have been issued or are pending in countries other than the United States. One United States patent owned by Barringer expired in 1978. Although Barringer regards its patents and patent applications to be of value, it does not deem its business as a whole to be materially dependent on any one or more patents or patent applications.

## EMPLOYEES

As of December 31, 1978, there were 113 persons (1977 - 93 persons), including officers, in the regular employ of the Registrant and its wholly owned subsidiary.

## SEASONAL BUSINESS

None of a material nature to the Company's operations.

## INFORMATION AS TO LINES OF BUSINESS AND CLASSES OF SIMILAR PRODUCTS AND SERVICES

Total sales and revenues for the years 1974 through 1978 for the major lines of business and classes of products and services, expressed in percent of total revenue as shown in the consolidated statement of operations herein were as follows:

	<b>1974</b>	<b>1975</b>	<b>1976</b>	<b>1977</b>	<b>1978</b>
Research, Development and Instrument Manufacture	44	51	43	35	36
Exploration Ventures and Analytical Services	36	33	35	46	48
Licensing of Patented Proprietary Products	20	16	22	19	16
	<u>100%</u>	<u>100%</u>	<u>100%</u>	<u>100%</u>	<u>100%</u>

The major lines of business contributed to income from operations as follows:

	<b>1974</b>	<b>1975</b>	<b>1976</b>	<b>1977</b>	<b>1978</b>
Research, Development and Instrument Manufacture	32	33	29	32	40
Exploration Ventures and Analytical Services	23	28	24	21	23
Licensing of Patented Proprietary Products	45	39	47	47	37
	<u>100%</u>	<u>100%</u>	<u>100%</u>	<u>100%</u>	<u>100%</u>

Contributions to the results of operations by line of business, as presented above, are based on income before application of the common or corporate costs of general and administrative activities, research and development expenditures, and before income taxes and extraordinary items as shown in the consolidated statement of earnings.

**Barringer Research Inc.**

**CONSOLIDATED STATEMENT OF EARNINGS**

*For the five years ended December 31, 1978*

**ITEM 2. SUMMARY OF OPERATIONS**

	<b>1974</b>	<b>1975</b>	<b>1976</b>	<b>1977</b>	<b>1978</b>
<b>Revenue</b>	\$3,807,331	\$4,252,621	\$4,797,843	\$3,406,739	\$3,880,108
<b>Cost and expenses</b>					
Cost of goods sold	2,514,019	2,866,170	2,840,106	2,182,084	2,449,771
General and administrative	918,166	887,537	799,425	815,843	857,160
Research and development	85,295	124,895	81,458	294,555	395,780
	<u>3,517,480</u>	<u>3,878,602</u>	<u>3,720,989</u>	<u>3,292,482</u>	<u>3,702,711</u>
<b>Operating income</b>	<u>289,851</u>	<u>374,019</u>	<u>1,076,854</u>	<u>114,257</u>	<u>177,397</u>
<b>Other expenses (income)</b>					
Write-down of investments	—	77,672	22,125	—	—
Write-down of advances	211,487	125,000	702,159	—	—
Loss on sale of shares in non-associated companies	3,003	—	—	—	—
Gain on sale of subsidiary company	(112,897)	—	(112,897)	—	(16,865)
Interest —					
Long-term debt	33,131	20,251	11,598	9,353	5,406
Other — net	95,187	67,801	44,830	13,349	511
Other	18,858	10,268	30,403	57,133	26,495
	<u>248,769</u>	<u>300,992</u>	<u>698,218</u>	<u>79,835</u>	<u>15,547</u>
<b>Earnings before income taxes and extraordinary item</b>	41,082	73,027	378,636	34,422	161,850
<b>Income tax provision</b>	10,000	88,645	212,220	112,560	125,000
<b>Earnings (loss) before extraordinary item and minority interest</b>	31,082	(15,618)	166,416	(78,138)	36,850
<b>Minority interest in loss</b>	—	221	—	—	—
	<u>31,082</u>	<u>(15,397)</u>	<u>166,416</u>	<u>(78,138)</u>	<u>36,850</u>
<b>Extraordinary item</b>					
Benefit of tax losses and timing differences brought forward	20,000	105,300	212,192	112,560	125,000
<b>Net earnings for the year</b>	<u>\$ 51,082</u>	<u>\$ 89,903</u>	<u>\$ 378,608</u>	<u>\$ 34,422</u>	<u>\$ 161,850</u>
<b>Weighted average number of shares outstanding</b>	<u>781,087</u>	<u>847,107</u>	<u>899,163</u>	<u>893,280</u>	<u>896,434</u>
<b>Earnings (loss) per share</b>					
Earnings (loss) before extraordinary item	\$0.04	(\$0.02)	\$0.19	(\$0.09)	\$0.04
Extraordinary item	\$0.02	\$0.13	\$0.23	\$0.13	\$0.14
Net earnings for the year	<u>\$0.06</u>	<u>\$0.11</u>	<u>\$0.42</u>	<u>\$0.04</u>	<u>\$0.18</u>

## MANAGEMENT'S DISCUSSION AND ANALYSIS OF THE CONSOLIDATED STATEMENT OF EARNINGS

The following information is provided to further explain certain financial information as shown in the Consolidated Statement of Earnings. (See note 1 of the Notes to Consolidated Financial Statements for a summary of the accounting policies that are significant in evaluating the results of Barringer's operations.)

### REVENUES

The growth in revenues from 1974 to 1976 is due in major part to license fees and R & D programs undertaken for the joint venture companies (Minsearch Surveys Limited, Barringer Surveys Limited) that are funded by third parties. In 1976, \$609,794 that had been classified as deferred income arising from previous transactions was brought into current income. In 1977 total corporate revenues were down from the corresponding period due to the conclusion of several major contracts in late 1976; among them being manufacturing and installation of equipment in a Trislander aircraft, geochemical ground survey in Brazil, development of an electrochemical reactor and production of a laserfluorosensor. The increase in 1978 is basically attributable to increased geochemical analyses performed in the companies' three laboratories.

### COSTS AND EXPENSES

*The cost of goods sold* has been relatively constant as a percentage of total revenues during the last 5 years (i.e. approximately 64%). In 1976 the cost of goods sold dropped to 59% due to the inclusion in revenues of the income previously deferred.

*Selling general and administrative expenses* declined from 1974 to 1975 chiefly because of the cessation of Barringer's Australian subsidiary. The decrease in 1976 resulted from a reorganization of senior management as well as increasing management attention to this cost area. Despite inflationary trends, this expense increased only marginally in 1977 and 1978.

*Research and Development expenditures.* Barringer supports inhouse funding of important proprietary and patent oriented R & D work that enables the company to secure licensing and royalty fees for certain of its exploration systems. R & D costs incurred relate partially to the unrecovered costs associated with personnel who are in part funded by government grants and do basic R & D activities. In 1975, R & D funding by Barringer Hydrocarbons Limited was directed towards aspects of the Airtrace hydrocarbon program. The large increases in 1977 and 1978 were primarily due to inhouse funding directed towards the continued development of geochemical and geophysical exploration techniques for oils and minerals.

### OTHER INCOME AND EXPENSES

*The write-down of advances* in 1974 and 1975 represents a disposition of the advances to a mineral exploration venture (Magenta Exploration Limited) that Barringer had entered into the years 1969 to 1972. One small exploration program was terminated in 1976 without success. Barringer management believed it desirable to write down the balance of the advances because exploration programs were no longer being undertaken.

The write-down in 1976 represents advances made to Minsearch in prior periods. As payment is dependent upon Minsearch achieving profitable operations and repaying other long-term debts, management deemed it prudent to provide in full for such advances.

*The write-down of investments* in 1975 related primarily to the disposition of the net book value of the Namosi project. In view of the uncertain future of the project, Barringer deemed it prudent to write-down this investment.

In 1976, Barringer wrote-down its investment in Royex Sturgex Mining as the claims were being held on a care and maintenance basis due to the then depressed market for gold.

*Gain on sale of subsidiary company* pertained to the profit arising on the sale of Barringer Geosurveys Pty. Limited to Minsearch Surveys Limited. Half of the gain was brought into income at the time of the sale, the other half was deferred until 1976.

In 1978, Barringer recognized a gain of \$16,865 on disposal of shares in respect of losses attributable to the minority shareholders of Barringer Hydrocarbons Limited which had previously been provided for by the company.

Interest expenses continued to decline from 1974 due to the stronger profitability of the company and consequently a reduction in bank loans. Due to the continued decline of the Canadian dollar in 1978, a loss on translation of \$26,495 (1977 – \$50,336) was included in other expense.

### EXTRAORDINARY ITEMS

Benefit of tax losses and timing differences brought forward from previous periods have been utilized to offset income taxes otherwise payable.

### MARKET AND DIVIDEND INFORMATION

The principal market for the corporation's securities is the over-the-counter market. Prices for these securities are quoted in NASDAQ (National Association of Securities Dealers, Inc.).

SUMMARY OF MARKET PRICES	1977		1978	
	High	Low	High	Low
First Quarter	\$2.00	\$0.75	\$2.38	\$1.50
Second Quarter	2.25	0.75	2.38	1.25
Third Quarter	2.00	1.00	3.38	1.25
Fourth Quarter	2.63	1.00	3.25	1.25

There were no dividends paid during 1978 or 1977.

### ITEM 3. PROPERTIES

Location	Square Footage	Annual Lease	Lease Expiry
304 Carlingview Drive, Rexdale, Ontario	15,000	\$16,500	Jan. '86
44 Fasken Drive, Rexdale, Ontario	13,000	19,800	May '79*
3750 19th St. N.E., Calgary, Alberta	2,900	12,000	May '83
6869 S. Emporia, Englewood, Colorado	1,500	8,250	July '81
	1,500	10,500	Dec. '79
1536 Cole Blvd., Golden, Colorado	1,200	9,750	July '80

\*these premises are currently being sub-leased.

### ITEM 4. PARENT AND SUBSIDIARIES

Name	State, Province or County of Incorporation	Percentage Voting Securities Owned or Controlled
Dr. Anthony R. Barringer	—	17%
A. R. Barringer Investments Limited (1)	—	28%
Dr. D. Richard Clews	—	4%
D. R. Clews Limited (2)	—	11%
Barringer Research Inc.	Delaware — U.S.A.	
Subsidiary of Barringer Research Inc.		
Barringer Research Limited (BRL)	Canada	100%
Subsidiaries of "BRL"		
Barringer Magenta Limited	Canada	100%
Barringer Research South Africa (Pty) Limited	South Africa	100%

- (1) Dr. Barringer is the holder of all of the voting preference stock of A. R. Barringer Investments Limited, representing approximately 60% of the voting power of that Corporation. All of the common stock of A. R. Barringer Investments Limited is owned by a trust of which the members of Dr. Barringer's family are beneficiaries. Dr. Barringer disclaims any beneficial interest in such trust or said 250,000 shares of Common Stock.
- (2) Dr. Clews is the holder of all of the voting preference stock of D. R. Clews Limited, representing 60% of the voting power of that corporation. All of the common stock of D. R. Clews Limited is owned by a trust of which the members of D. R. Clews' family are beneficiaries. Dr. Clews disclaims any beneficial interest in such trust or said 96,990 shares of Common Stock.

## ITEM 5. PENDING LEGAL PROCEDURES

None of a material nature.

## ITEM 6. INCREASES AND DECREASES IN OUTSTANDING EQUITY SECURITIES

- (a) (1) (i) Number of shares of Common Stock outstanding at December 31, 1977 was 979,400  
(ii) Number of shares of Common Stock outstanding at December 31, 1978 was 984,400

(See note to the Consolidated Statements.)

## ITEM 7. — CHANGES IN SECURITIES AND CHANGES IN SECURITY FOR REGISTERED SECURITIES

Not Applicable

## ITEM 8. — DEFAULTS UPON SENIOR SECURITIES

Not Applicable

## ITEM 9. APPROXIMATE NUMBER OF EQUITY SECURITY HOLDERS

### BARRINGER RESEARCH INC.

(A)	(B)
Title of Class	Approximate Number of Record Holders December 31, 1978
Common Stock (par value \$.01 per share)	720

## ITEM 10. — SUBMISSION OF MATTERS TO A VOTE OF SECURITY HOLDERS

Not Applicable

## ITEM 11. INDEMNIFICATION OF DIRECTORS AND OFFICERS

Section 145 of the General Corporation Law of Delaware provides for indemnification of directors, officers, employees and agents against expenses, judgements, fines and settlements where such persons act in a manner not opposed to the best interest of the Corporation and without reason to believe his conduct was unlawful. In actions by or in the right of the Corporation, such indemnification is limited to expenses. Determination that the applicable standard of conduct has been met is made by disinterested directors, independent legal counsel, or the stockholders. The Corporation is empowered to insure such persons against such liability, but no such insurance has been obtained.

The Certificate of Incorporation of the Registrant provides that directors and officers shall be indemnified to the full extent permitted under the General Corporation Law of the State of Delaware.

## ITEM 12. FINANCIAL STATEMENTS, EXHIBIT AND REPORTS ON FORM 8-K.

### (a) FINANCIAL STATEMENTS

Consolidated:

Balance Sheets as at December 31, 1978 and 1977

Statements of Earnings and Deficit for the two years ended December 31, 1978

Statements of Changes in Financial Position for the two years ended December 31, 1978.

## NOTES TO FINANCIAL STATEMENTS

### SCHEDULES:\*

For the two years ended December 31, 1978:

- V Fixed Assets
- VI Accumulated Depreciation and Amortization of Fixed Assets
- VII Intangible Assets
- VIII Accumulated Amortization of Intangible Assets
- XII Reserves



## OPINION OF THE INDEPENDENT PUBLIC ACCOUNTANTS

### (b) EXHIBIT

Statements of Calculation of Earnings per Share

### (c) FORM 8-K

No reports on Form 8-K were filed for the three months ended December 31, 1978

*\*All other schedules are omitted because of the absence of the conditions under which they are required, or because the information called for is included in the financial statements or notes thereto.*

The financial statements of Barringer Research Inc., the parent company, are omitted since it is primarily an operating company and the consolidated subsidiary does not have a minority equity interest and/or outside debt in excess of 5 per cent of total consolidated assets at December 31, 1978.

## PART II

### ITEMS 13 and 15 – REFER TO PROXY MATERIAL

#### ITEM 14. EXECUTIVE OFFICERS OF THE REGISTRANT

The names, ages and positions of all the executive officers of the Company as of March 23, 1979 are listed below, along with their business experience during the past five years. Officers are appointed annually by the Board of Directors at the annual meeting of directors immediately following the annual meeting of shareholders. There are no family relationships among these officers, nor any arrangement or understanding between any officer and any other person pursuant to which the officer was selected.

Name, Age and Position	Business Experience During Past Five Years
Dr. Anthony R. Barringer, 53 <i>President</i>	President of Barringer Research Inc., and of Barringer Research Limited, Chairman of the Board of Barringer Magenta Limited since July, 1978.
Dr. D. Richard Clews, 57 <i>Executive Vice President</i>	Executive Vice President of Barringer Research Inc. and of Barringer Research Limited, President of Barringer Magenta Limited since July, 1978.
John H. Davies, 42 <i>Vice President</i>	Manager, Research and Development Division, Barringer Research Limited, to September 1975; Vice President of Barringer Research Inc. and of Barringer Research Limited since September, 1975.
Dr. W. Timothy Meyer, 38 <i>Vice President</i>	Lecturer at Imperial College of Science and Technology to 1974; Chief Exploration Geochemist, Cities Service Company to December 1977, Senior Geochemist Barringer Research Inc. to December 1978, Vice President of Barringer Research Inc., since January 1979.
Dr. Peter M.D. Bradshaw, 40 <i>Vice President</i>	Chief Geochemist at Barringer Research Limited to January 1976; Manager, Exploration Division, Barringer Research Limited to January 1978; Vice President of Barringer Research Limited from January 1978 to July 1978, Vice President of Barringer Research Inc. since January 1978, Vice President of Barringer Magenta Limited since July, 1978.
Kenneth H. Dalton, 35 <i>Controller</i>	Controller of Design Lithographers Limited to July 1974; Controller of Barringer Research Inc. and of Barringer Research Limited since July 1974, Secretary-Treasurer of Barringer Magenta Limited since July 1978.
Robert J. Armstrong, 48 <i>Secretary</i>	Barrister and Solicitor, Partner of Messrs. Blackwell, Law, Spratt, Armstrong & Grass, Secretary of Barringer Research Inc. and Barringer Research Limited.

**SIGNATURES**

Pursuant to the requirements of Section 13 or 15 (d) of the Securities Exchange Act of 1934, the Registrants have duly caused this report to be signed on their behalf by the undersigned, thereunto duly authorized.

BARRINGER RESEARCH INC.  
(Registrant)

by D. Richard Clews  
*Executive Vice President*

BARRINGER RESEARCH LIMITED  
(Registrant)

by D. Richard Clews  
*Executive Vice President*

DATED: March 23, 1979.

## SCHEDULE V

**Barringer Research Inc.**

### FIXED ASSETS

*For the two years ended December 31, 1978 and 1977*

Classification	Balance at beginning of year	Additions at cost	Retirements or sales	Balance at close of year
<b>Year ended December 31, 1977:</b>				
Office furniture and equipment	\$ 122,610	\$ 17,307	\$ —	\$ 139,917
Plant and machinery	569,652	70,027	903	638,776
Exploration equipment	337,925	23,385	—	361,310
Equipment for lease	323,477	38,185	—	361,662
Leasehold improvements	111,022	22,201	4,070	129,153
Total	<u>\$1,464,686</u>	<u>\$ 171,105</u>	<u>\$ 4,973</u>	<u>\$1,630,818</u>
<b>Year ended December 31, 1978:</b>				
Office furniture and equipment	\$ 139,917	\$ 15,974	\$ —	\$ 155,891
Plant and machinery	638,776	181,875	—	820,651
Exploration equipment	361,310	—	—	361,310
Equipment for lease	361,662	199,466	381	560,747
Leasehold improvements	129,153	33,750	—	162,903
Total	<u>\$1,630,818</u>	<u>\$ 431,065</u>	<u>\$ 381</u>	<u>\$2,061,502</u>

## SCHEDULE VI

Barringer Research Inc.

### ACCUMULATED DEPRECIATION AND AMORTIZATION OF FIXED ASSETS

For the two years ended December 31, 1978 and 1977.

Classification	Balance at beginning of year	Charged to costs and expenses	Retirements renewals, and replacements	Balance at close of year
<b>Year ended December 31, 1977:</b>				
Office furniture and equipments	\$ 90,253	\$ 9,314	\$ —	\$ 99,567
Plant and machinery	385,930	74,872	—	460,802
Exploration equipment	313,908	9,837	—	323,745
Equipment for lease	252,376	42,722	—	295,098
Leasehold improvements	39,280	10,631	—	49,911
Total	<u>\$1,081,747</u>	<u>\$ 147,376</u>	<u>\$ —</u>	<u>\$1,229,123</u>
<b>Year ended December 31, 1978:</b>				
Office furniture and equipment	\$ 99,567	\$ 9,508	\$ —	\$ 109,075
Plant and machinery	460,802	\$ 79,423	—	540,225
Exploration equipment	323,745	—	—	323,745
Equipment for lease	295,098	46,542	76	341,564
Leasehold improvements	49,911	12,009	—	61,920
Total	<u>\$1,229,123</u>	<u>\$ 147,482</u>	<u>\$ 76</u>	<u>\$1,376,529</u>

## SCHEDULE VII

### Barringer Research Inc.

#### INTANGIBLE ASSETS

For the two years ended December 31, 1978 and 1977.

Description	Balance at beginning of year	Additions at cost	Disposals	Balance at close of year
<b>Year ended December 31, 1977:</b>				
Patents and trademarks	<u>\$ 198,568</u>	<u>\$ 20,382</u>	<u>\$ 4,189</u>	<u>\$ 214,761</u>
<b>Year ended December 31, 1978:</b>				
Patents and trademarks	<u>\$ 214,761</u>	<u>\$ 19,117</u>	<u>\$ —</u>	<u>\$ 233,878</u>

## SCHEDULE VIII

### Barringer Research Inc.

#### ACCUMULATED AMORTIZATION OF INTANGIBLE ASSETS

For the two years ended December 31, 1978 and 1977:

Description	Balance at beginning of year	Charged to costs and expenses	Deductions	Balance at close of year
<b>Year ended December 31, 1977:</b>				
Patents and trademarks	<u>\$ 41,096</u>	<u>\$ 9,606</u>	<u>\$ —</u>	<u>\$ 50,702</u>
<b>Year ended December 31, 1978:</b>				
Patents and trademarks	<u>\$ 50,702</u>	<u>\$ 9,474</u>	<u>\$ —</u>	<u>\$ 60,176</u>

## SCHEDULE XII

### Barringer Research Inc.

#### RESERVES

For the two years ended December 31, 1978 and 1977.

Description	Balance at beginning of year	Additions(1)	Deductions(2)	Balance at close of year(3)
<b>Year ended December 31, 1977:</b>				
Allowance for doubtful accounts	\$ 31,686	\$ 1,017	\$ 3,473	\$ 29,230
<b>Year ended December 31, 1978:</b>				
Allowance for doubtful accounts	\$ 29,230	\$ 347	\$ 6,825	\$ 22,752

(1) Charged to costs and expenses

(2) Uncollectible accounts written off

(3) Deducted from accounts receivable

**Barringer Research Inc.**

**WORKING PAPER OF EARNINGS PER SHARE**

*For the five years ended December 31, 1978*

	1978	1977	1976	1975	1974
<b>Average market value per share of common stock</b>	<u>\$1.95</u>	<u>\$1.50</u>	<u>\$1.80</u>	<u>\$1.40</u>	<u>\$2.50</u>
<b>Weighted average number of shares outstanding, excluding common stock equivalents</b>	980,233	978,900	977,900	922,400	867,400
<b>Common stock equivalents:</b>					
Options:					
Employment Agreements	— (2)	— (2)	— (1)	— (1)	— (1)
1968 Stock Option Plan	— (2)	483	917	107	1,087
1970 Stock Option Plan	— (2)	— (2)	— (2)	— (2)	1,000
1972 Stock Option Plan	14,231	12,497	17,279	13,000	— (1)
Other Stock Option Plans	570	— (1)	1,667	— (1)	— (2)
<b>Treasury stock acquired</b>	<u>(98,600)</u>	<u>(98,600)</u>	<u>(98,600)</u>	<u>(88,400)</u>	<u>(88,400)</u>
<b>Weighted average number of shares outstanding</b>	<u>896,434</u>	<u>893,280</u>	<u>899,163</u>	<u>847,107</u>	<u>781,087</u>
<b>Earnings (loss) before extraordinary item</b>	\$ 36,850	\$ (78,138)	\$ 166,416	\$ (15,397)	\$ 31,082
<b>Extraordinary item</b>	<u>125,000</u>	<u>112,560</u>	<u>212,192</u>	<u>105,300</u>	<u>20,000</u>
<b>Net earnings for year</b>	<u>\$ 161,850</u>	<u>\$ 34,422</u>	<u>\$ 378,608</u>	<u>\$ 89,903</u>	<u>\$ 51,082</u>
<b>Earnings per share</b>					
<b>Earnings (loss) before extraordinary item</b>	\$ 0.04	\$ (0.09)	\$ 0.19	\$ (0.02)	\$ 0.04
<b>Extraordinary item</b>	<u>0.14</u>	<u>0.13</u>	<u>0.23</u>	<u>0.13</u>	<u>0.02</u>
<b>Net earnings for year</b>	<u>\$ 0.18</u>	<u>\$ 0.04</u>	<u>\$ 0.42</u>	<u>\$ 0.11</u>	<u>\$ 0.06</u>

(1) The option price is higher than the average market value per share of common stock.

(2) No options outstanding at year end.



