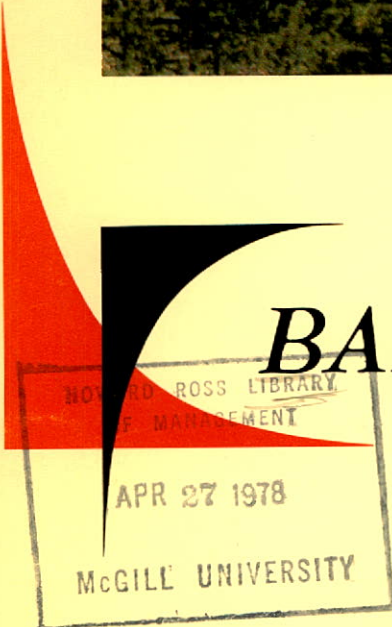


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BARRINGER RESEARCH

annual report 1977

Barringer Research Inc.

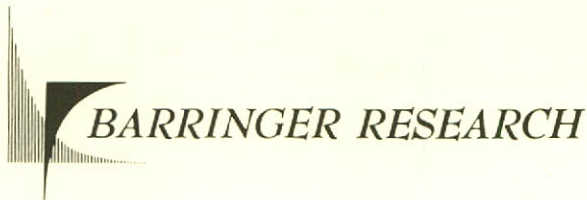
ANNUAL REPORT 1977

Contents

Officers and Directors	1
Chairman's Letter	3
Financial Statements	10
Notes to Financial Statements	14
Auditors' Opinion	22
S.E.C. Form 10-K Report	23

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 17 to 28 and page 35 of the 10-K Report, which are reproduced in their traditional position in the annual report, as pages 10 to 22 following the Chairman's Letter, have not been repeated in the 10-K section.

Cover photo: SURTRACE equipped helicopter on survey in U.S.



OFFICERS:

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

DIRECTORS:

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

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TRADEMARKS

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



Dr. A.R. Barringer, President and Ms. Y.M. Hazeldene, Chief Analyst, with Dr. Wm. T. Meyer, Chief Geochemist, and Dr. P.M.D. Bradshaw, Vice-President, at Prospectors and Developers Convention in Toronto, Canada.



Geochemical laboratory facilities in Denver.

Chairman's Letter

Dear Shareholder,

The profitability of Barringer Research that has marked recent years was maintained in 1977. Overall, net earnings were \$24,422 in 1977 versus \$378,608 in 1976. Some \$300,000 of income generated from operations was applied to two important new growth areas within the company. Costs for these areas were expensed as incurred, thus conforming to requirements of regulatory authorities. The importance of the use of these operating profits is described later.

During the year, Barringer's financial position improved as evidenced by the year-end 1977 working capital ratio of 3.6 versus 2.5 in 1976. This position was obtained despite the fact that Barringer depended solely on internally-generated sources of financing for operations since May of this past year. It is also significant to note that the Company is in a positive cash position at year-end, compared with a deficit position in previous years. Long-term debt has been eliminated completely in 1977. Finally, despite inflationary pressures, General and Administrative expenses increased only by 3.5 percent for the year.

Profits for 1977 were obtained despite a lower gross revenue than that obtained in 1976. Factors that

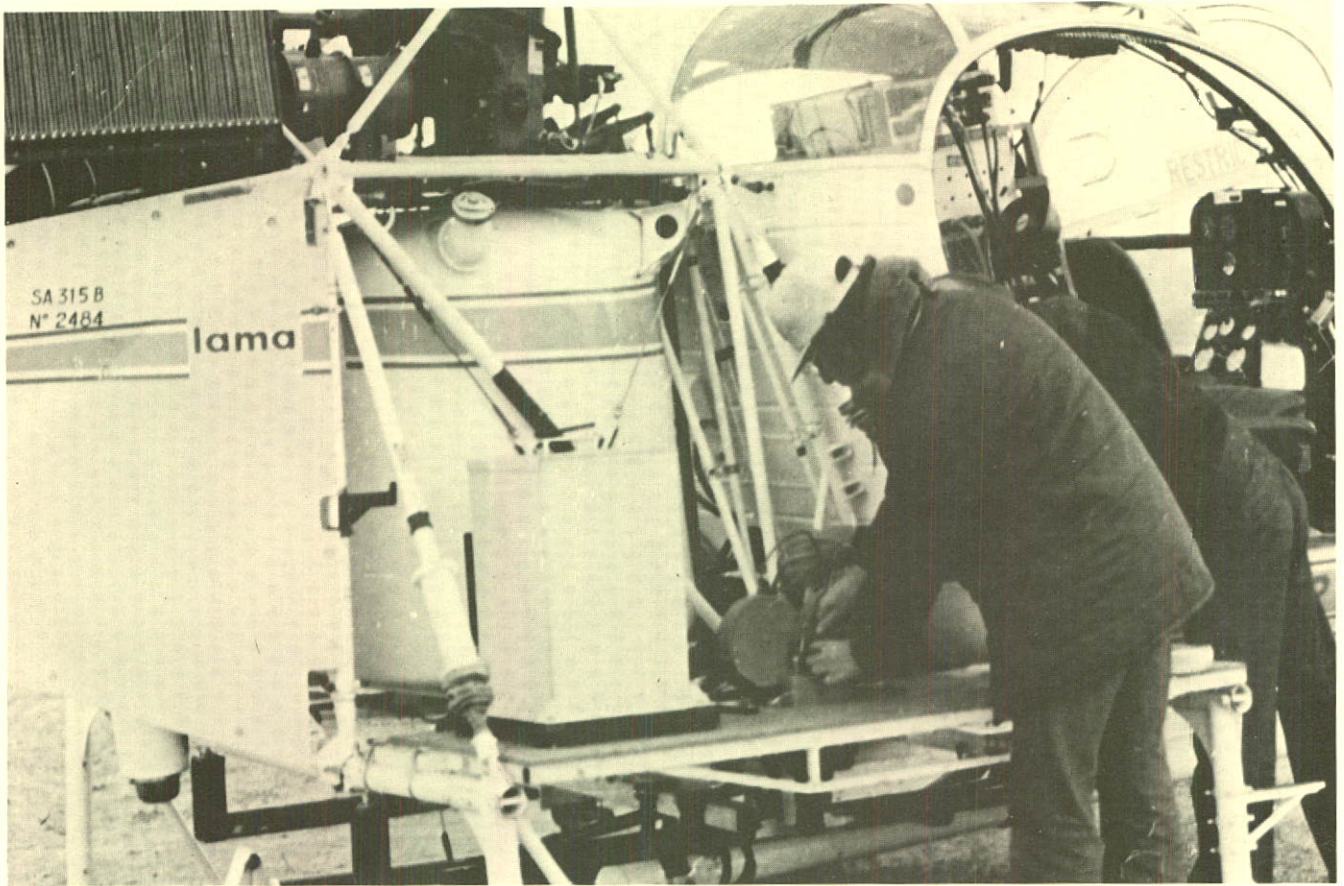
affected the revenue downturn included the one-time inclusion in 1976 income of \$600,000, and a reduction on conversion of Canadian to U.S. dollars in 1977 of \$200,000.

Barringer's senior management is gratified with this year's results, which reflect the success of the introduction of measures to improve profit performance reported previously.

The two new and important growth areas mentioned above are the Denver Operations and the development of the SURTRACE Geochemical System, which were respectively allocated \$100,000 and \$200,000 from income. These will be described first before reporting on other highlights for the year.

Denver Operations

The reasons for commencing operations in the U.S.A. were outlined in last year's report to Shareholders. As stated, I personally established residence in the Denver area in June of this past year, although I continue to spend considerable time on technical and managerial issues involving BRL Toronto. Geochemical analyses, field services and airborne surveys have been supplied to the Mining Industry and associated Government Agencies.



Installing equipment in helicopter prior to SURTRACE survey in U.S.A.



On survey in U.S.A. with back-pack version of SURTRACE.



Production run of heavy water (D_2O) liquid analysers.

From the small beginnings in 1976, revenues increased five-fold in 1977. Based on 1977 levels, the Denver operation projects a two-fold increase in 1978. These operations are expected to be financially self-sustaining and profitable by year-end.

One of the motivations behind the establishment of the Denver operation has been to provide a base for the use of new methods in searching for oil and gas fields. Development is underway on a novel combination of geophysical, geological and geochemical techniques with which it is hoped to establish a position in this hydrocarbon area. Encouraging results have been obtained and every effort will be made to exploit this technology during 1978.

The SURTRACE Geochemical System

As a result of Barringer's considerable activities in ground and airborne geochemistry (AIRTRACE), the Company's technical programs have revealed much about a third dimension in this field — the surface microlayer which is the interface between ground and air. The surface microlayer was found to have unique characteristics that in part relate to the nature of airborne particles, in part reflect the character of soils and in part correlate with surface characteristics of vegetation.

During the course of the past year Barringer's staff conducted research toward understanding the significance of the surface microlayer, and developed new ground and airborne collection and sampling techniques. A vigorous patenting program to protect this new technology was continued, including registration of the trademark SURTRACE.

The SURTRACE geochemical techniques are considered to have important applications in exploration for metals as well as in the energy field for uranium, oil and gas. To date Barringer has developed and demonstrated the above application in the arid and semi-arid environments of the U.S.A. and other areas. Yet to be developed is application of the SURTRACE method to vegetated regions.

Senior management is carefully evaluating the various alternatives for funding limited additional development of SURTRACE for expanding its fields of applicability. In the meantime, active marketing of surveys with the system has commenced.

Research and Development Services & Manufacturing

During 1977, development continued on COTRAN (CORrelation of TRANsients), Barringer's new airborne electromagnetic exploration system. This system is the

IR 100

Award presented to

Barringer Research Limited

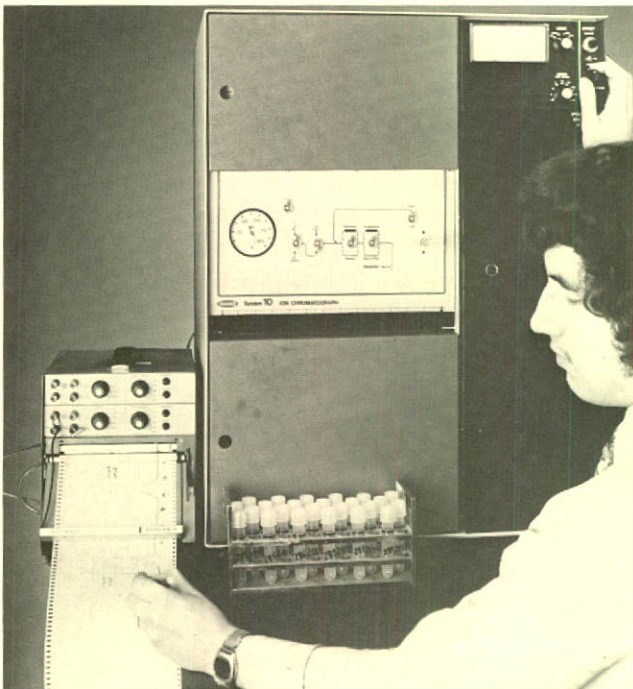
by *Industrial Research Magazine*
for the development of

COTRAN[®]

Selected by *Industrial Research*
as *One of the 100 Most-Significant
New Technical Products of the Year*

1976 *Tin Bunkelovec*
publisher

Barringer received its sixth IR100 award since 1969. The latest award was received for COTRAN.



Operating the Dionex Ion Chromatography unit.

first entirely digital airborne prospecting system that follows the tradition established in our highly successful INPUT system, of breaking with existing technology and providing a conceptually new approach. The COTRAN system depends entirely on high speed digital computing to detect the presence of ore bodies by pattern recognition and classification against a series of stored reference wave forms. Contractual support has been obtained for development of both exploration and military prototypes and construction was well underway during 1977 in preparation for test flights during 1978.

Contract R & D services continued throughout the year, and a variety of contracts were undertaken in electro-optics, electro-mechanics and electro-magnetics. R & D continued to provide engineering support to the Manufacturing activities.



Demonstrating the Barringer M-123 Magnetometer.

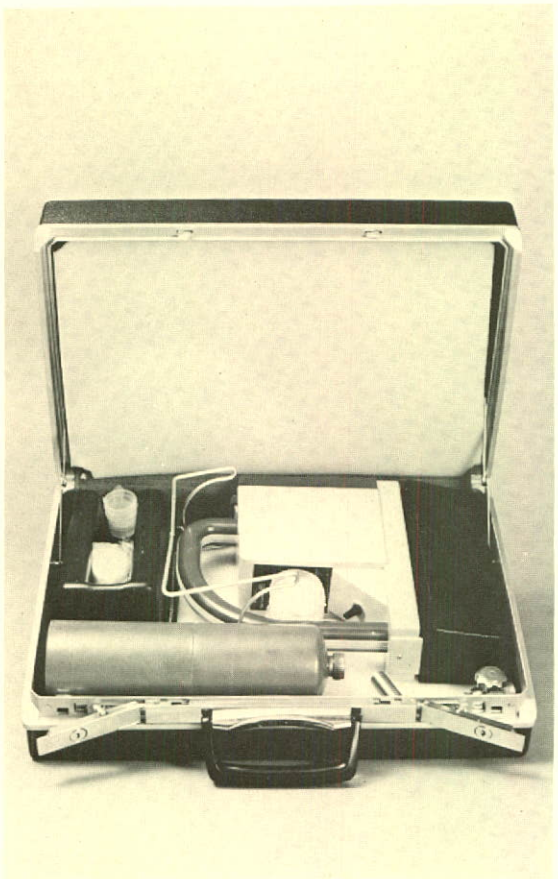
The manufacturing department once again produced excellent results with a profit improvement on the previous year's operations. The future for manufacturing looks promising, and management are strengthening the overall commercial products activities. An expanded effort in liquid analyser manufacturing is expected to increase the business volume for Barringer's manufacturing department in the forthcoming year, and work is underway to further enhance its capabilities and business opportunities.

Exploration and Chemistry

As a continuation of streamlining corporate operations the Chemistry and Exploration Departments were merged. By year-end the reorganization was complete. The effectiveness of this decision was demonstrated by increased income from operations in these departments. This trend is expected to show continued improvement in 1978.

Barringer Research continued to consolidate its position as a leader both in conventional analytical techniques and as a pioneer in new technology. During the year the Company introduced an improved method of measuring uranium in natural waters by fission track analysis and also developed a new product — a portable field kit for measuring uranium in geological samples. Additionally a new method for analyzing anions by ion chromatography was introduced that utilizes the award-winning chromatograph developed by the Dionex Corporation of California. Barringer Research is also exclusive sales agent for the Dionex chromatograph in Canada.

A complete range of computer routines have been developed by Barringer scientists for handling analytical data and the Company's team of geologists/geochemists continue to be among the world's leading group of consultants with an international clientele.



Barringer's Uranium Field Kit, designed for rapid analysis of samples in the field.



Helicopter equipped with AIRTRACE and Magnetometer on survey in Australia.



Trislander aircraft equipped with Barringer's INPUT system.

AIRTRACE

Surveys were carried out with our AIRTRACE airborne geochemical system during 1977 in Australia, Fiji and the United States. These surveys were mainly in the nature of test and evaluation checks over known mineralization and they have indicated good correlation with ground data.

INPUT

The Barringer INPUT system continued to maintain its position as the world's leading airborne electromagnetic prospecting system. According to the latest data compiled by the Society of Exploration Geophysicists, the INPUT system flew approximately half of the total world surveys flown. During 1977 further refinements were made to improve the operational status of INPUT. In 1977, five systems were leased to

two licencees, Geoterrex Limited (Ottawa), and Questor Surveys Limited (Toronto). A sixth system is scheduled to go into operational surveys in 1978.

* * * * *

In summary, despite the many adverse conditions in the North American economy, 1977 was a year of continued improvement of financial performance matched by technical excellence.

A. R. Barringer

Barringer Research Inc.**CONSOLIDATED BALANCE SHEETS***As at December 31, 1977 and 1976*

	1977	1976
Current assets		
Cash	\$ 35,385	\$ 231,420
Accounts receivable —		
Trade, less allowance for doubtful accounts, 1977 — \$29,230; 1976 — \$31,686	640,988	423,649
Corporate joint ventures	106,262	468,170
Inventories (note 4)	373,606	384,314
Deposits, advances and prepaid expenses	33,029	36,973
Income taxes recoverable	21,528	41,263
	<u>1,210,798</u>	<u>1,585,789</u>
 Investments (notes 5 and 16)	 <u>45,346</u>	 <u>15,663</u>
 Fixed assets (note 6)		
At cost	1,630,818	1,464,686
Less: accumulated depreciation and amortization	1,229,123	1,081,747
	<u>401,695</u>	<u>382,939</u>
 Other assets — at cost, less amortization (note 1(d))		
Patents and trade marks	164,059	157,472
	 <u><u>\$1,821,898</u></u>	 <u><u>\$2,141,863</u></u>

LIABILITIES

	1977	1976
Current liabilities		
Bank indebtedness (note 7)	\$ —	\$ 319,493
Current portion of long-term debt	65,000	60,000
Accounts payable	246,262	213,642
Accrued liabilities	31,551	34,182
Excess of billings over selling price of contracts in progress	4,809	8,525
	347,622	635,842
Long-term debt (note 8)		
Convertible subordinated promissory notes, less amount included in current liabilities	—	65,000
Non-interest bearing loan payable (no fixed maturity)	20,480	22,404
	368,102	723,246

SHAREHOLDERS' EQUITY

Common stock (notes 9 and 10)		
Authorized		
2,000,000 shares of common stock of 1¢ par value each		
Issued and fully paid —		
979,400 shares (1976 — 978,400 shares)	9,794	9,784
Paid-in surplus (note 9)	2,025,024	2,023,534
Deficit	(449,735)	(474,157)
	1,585,083	1,559,161
Less: Common stock in treasury — at cost, 98,600 shares		
(1976 — 98,600 shares)	20,421	20,421
Due from shareholder (notes 9 and 18)	79,000	76,670
Deferred compensation (notes 9 and 18)	31,866	43,453
	131,287	140,544
	1,453,796	1,418,617
	\$1,821,898	\$2,141,863

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, 1977 and 1976*

	1977	1976
Revenue (notes 16 and 17)	<u>\$3,406,739</u>	<u>\$4,797,843</u>
Costs and expenses		
Cost of goods sold (including royalties of \$58,380; 1976 \$60,274)	2,182,084	2,840,106
General and administrative expenses	825,843	799,425
Research and development expenditures (note 1(e))	294,555	81,458
	<u>3,302,482</u>	<u>3,720,989</u>
Operating income	<u>104,257</u>	<u>1,076,854</u>
Other expenses (income)		
Write-down of investments	—	22,125
Write-down of advances (note 16)	—	702,159
Gain on sale of subsidiary company previously deferred (note 16)	—	(112,897)
Interest —		
Long-term debt	9,353	11,598
Other — net	13,349	44,830
Other	57,133	30,403
	<u>79,835</u>	<u>698,218</u>
Earnings before income taxes and extraordinary item	24,422	378,636
Income tax provision	<u>112,560</u>	<u>212,220</u>
Earnings (loss) before extraordinary item	(88,138)	166,416
Extraordinary item		
Benefit of tax losses and timing differences brought forward	112,560	212,192
Net earnings for the year	24,422	378,608
Deficit — beginning of year	(474,157)	(852,765)
Deficit — end of year	<u>\$ (449,735)</u>	<u>\$ (474,157)</u>
Weighted average number of shares outstanding (note 15)	<u>893,280</u>	<u>899,163</u>
Earnings (loss) per share (note 15)		
Earnings (loss) before extraordinary item	(\$0.10)	\$0.19
Extraordinary item	\$0.13	\$0.23
Net earnings for the year	<u>\$0.03</u>	<u>\$0.42</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, 1977 and 1976*

	1977	1976
Funds provided		
From operations —		
Earnings (loss) before extraordinary item	\$ (88,138)	\$ 166,416
Items not involving funds —		
Benefit of tax losses and timing differences brought forward	112,560	212,192
Deferred income (note 16)	—	(722,691)
Depreciation and amortization	156,982	161,509
Amortization of deferred compensation (note 18)	9,257	17,377
Write-down of investments	—	22,058
Write-down of advances	—	702,159
Gain on sale of fixed assets	(2,543)	—
Other	—	203
	<u>188,118</u>	<u>559,223</u>
Issue of shares of common stock	1,500	1,000
Net proceeds on disposals of fixed assets	11,705	15,398
	<u>201,323</u>	<u>575,621</u>
Funds applied		
Investments and advances	29,683	14,614
Reduction in long-term debt	66,924	60,000
Additions to patents and trademarks	20,382	14,431
Purchases of fixed assets	171,105	110,842
Purchase of treasury shares	—	14,019
	<u>288,094</u>	<u>213,906</u>
Increase (decrease) in funds	<u>\$ (86,771)</u>	<u>\$ 361,715</u>
Changes in components of working capital		
Working capital — beginning of year	<u>\$ 949,947</u>	<u>\$ 588,232</u>
Increase (decrease) in cash	(196,035)	210,808
(Decrease) in inventories	(10,708)	(160,691)
(Decrease) in receivables	(144,569)	(85,423)
Increase (decrease) in other current assets	(23,679)	29,028
Decrease in bank indebtedness	319,493	116,850
(Increase) decrease in other current liabilities	(31,273)	251,143
Increase (decrease) in working capital	<u>(86,771)</u>	<u>361,715</u>
Working capital — end of year	<u>\$ 863,176</u>	<u>\$ 949,947</u>
Funds represented by:		
Current assets	\$1,210,798	\$1,585,789
Current liabilities	347,622	635,842
	<u>\$ 863,176</u>	<u>\$ 949,947</u>

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

Barringer Research Inc.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

For the years ended December 31, 1977 and 1976

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 account.
- (iii) Current assets and liabilities at year-end rates.
- (iv) Other assets — at historic rates.

A loss on translation of \$50,336 (1976 — \$12,416) 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 \$9,606 in 1977 (1976 — \$8,168).

(e) Recognition of income and expense

The company's research and development expenditures are primarily of a continuing nature and are written off as incurred.

(f) Maintenance and repairs

Maintenance and repairs are charged to expense as incurred; renewals and betterments are capitalized, with adjustment made for the cost of property retired or replaced, less accumulated depreciation and salvage recovered.

(g) Holdbacks receivable

Holdbacks receivable relating to contracts in progress which are billed and unpaid are included in accounts receivable and are expected to be collected within one year.

2. FOREIGN OPERATIONS

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

	1977	1976
Working capital	\$ 909,384	\$ 941,178
Investments	35,346	15,663
Fixed assets	345,168	357,614
Other assets	164,059	157,472
Long-term debt	(20,480)	(22,404)
Net foreign assets	<u>\$1,433,477</u>	<u>\$1,449,523</u>
Net earnings from foreign operations	<u>\$ 151,780</u>	<u>\$ 496,444</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 five principal activities as disclosed in item 1 (a) 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, 1977 follows:

Principal Activity	Revenues	Operating Income (Loss)	Identifiable Assets	Depreciation & Amortization Expense	Capital Expenditures
Research and Development Services	\$ 651,249	\$ (72,156)	\$ 186,695	\$ 28,002	\$ 19,454
Commercial Products:					
Instrument Manufacture	533,914	57,109	424,344	1,846	2,858
Natural Resource Exploration Ventures and Services	650,705	(190,852)	149,771	12,132	28,066
Analytical Chemistry and Biology Services	903,674	(179,436)	413,467	52,614	65,208
Licensing of Patented Proprietary Products	667,197	489,592	512,333	52,782	55,519
General Corporate	—	—	135,288	—	—
Consolidated Totals	<u>\$3,406,739</u>	<u>\$ 104,257</u>	<u>\$1,821,898</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, 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	160,665	1,662,128
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>\$ 104,257</u>	<u>\$1,821,898</u>

4. INVENTORIES

The major categories of inventories are as follows:

	1977	1976
Finished goods	\$ 75,446	\$ 31,017
Work in progress	63,423	149,758
Materials and supplies	41,590	58,059
Selling price of contracts in progress, less billings	193,147	145,480
	<u>\$373,606</u>	<u>\$384,314</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.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

5. INVESTMENTS

Investments are summarized as follows:

	1977	1976
(a) Shares or interest recorded at cost, or cost less amounts written off —		
Barringer Fiji Limited — 42 shares (a 10% interest) — no quoted value	\$ 50	\$ 50
Royex Sturgex Mining Limited — 136,395 registered shares and 91,700 unregistered shares (a 14% interest)	1	1
Barringer Surveys Limited — 490 shares (a 22% interest) — no quoted value	700	700
HSA Reactors Limited — 216,700 shares (a 11.9% interest)	25,297	14,614
Fiji Namosi Project — Unincorporated (less than a 2½% interest) (note 12(a)(ii))	1	1
Minsearch Surveys Limited — 15,000 Class B shares — no quoted value	297	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	—
Petro Nuclear Exploration Inc. — 40,000 shares (a 4.4% interest) — no quoted value	10,000	—
	<u>\$45,346</u>	<u>\$15,663</u>

(b) Acquisitions

- (i) In 1976 a subsidiary acquired 51,395 shares of Royex Sturgex Mining Limited ("Royex Sturgex") on conversion of a promissory note for \$5,059 increasing its ownership to 14%. The subsidiary's investment in Royex Sturgex has been written down to a nominal value of \$1.
- (ii) In 1976 a subsidiary acquired 194,950 shares of HSA Reactors Limited ("HSA"), a 15% interest, for \$14,614. In 1977 the subsidiary acquired a further 21,750 shares of HSA for \$10,683. Subsequent to the purchase, the subsidiary's interest was diluted to 11.9% by a further issuance of shares to the other participating shareholders. HSA is in the process of developing an electro-chemical cell.
- (iii) During 1976 the interest in Barringer Surveys Limited ("BSL") was diluted to 22% by the issuance of shares to the other participating shareholder. The company accounts for its investment in BSL on the cost basis as it does not feel it exercises a significant influence over the operating and financial policies of BSL.
- (iv) In 1977 the company acquired a 4.4% interest in Petro Nuclear Exploration Inc. for \$10,000. Petro Nuclear Exploration Inc. is engaged in hydrocarbon exploration activities.
- (v) 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.

6. FIXED ASSETS

The major categories of fixed assets are as follows:

	1977	1976
Office furniture and equipment	\$ 139,917	\$ 122,610
Plant and machinery	638,776	569,652
Exploration equipment	361,310	337,925
Equipment for lease	361,662	323,477
Leasehold improvements	129,153	111,022
	<u>1,630,818</u>	<u>1,464,686</u>
Accumulated depreciation and amortization	1,229,123	1,081,747
Net book value	<u>\$ 401,695</u>	<u>\$ 382,939</u>

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

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 \$147,376 (1976 - \$153,341).

7. BANK LINE OF CREDIT

The bank line of credit is collateralized by a general assignment of accounts receivable, a floating charge debenture on all the assets of the company, and 51,500 of the company's shares of Royex Sturgex Mining Limited.

The weighted average interest rate during the year was 11.33% (1976 - 11.71%) calculated by dividing the interest paid by the average borrowings. At year-end, the average interest rate was 8.75% (1976 - 9.75%). The maximum and average short-term borrowings outstanding during the year were \$287,070 (1976 - \$425,000) and \$97,049 (1976 - \$331,403) respectively.

8. LONG-TERM DEBT

The convertible subordinated promissory notes mature serially in semi-annual instalments of \$30,000 to December 31, 1978 with the final payment on that date being \$35,000. Interest is payable at fluctuating rates, the rate as at December 31, 1977 being 8.75% (1976 - 6%) per annum. These notes are convertible on the basis (subject to adjustment under certain conditions) of \$20 principal amount of notes for one share of common stock.

9. COMMON STOCK AND PAID-IN SURPLUS

	Common stock		Paid-in surplus	
	1977	1976	1977	1976
Balance - beginning of year	\$9,784	\$9,774	\$2,023,534	\$1,985,044
(i) Deferred compensation arising on the excess of market value over cost of shares acquired by an officer and director of the company (note 18)	-	-	-	37,500
(ii) 1,000 shares issued to an employee of the company on exercise of an option for a consideration of \$1,500 (1976 - \$1,000)	10	10	1,490	990
Balance - end of year	<u>\$9,794</u>	<u>\$9,784</u>	<u>\$2,025,024</u>	<u>\$2,023,534</u>

Shares of common stock reserved for issuance are as follows:

	1977	1976
For stock options -		
Options outstanding and exercisable	51,000	82,550
Available for granting future options	99,600	69,050
For conversion of promissory notes	3,250	6,250
	<u>153,850</u>	<u>157,850</u>

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

10. 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 outstanding at December 31, 1975 (\$1.25 to \$5.50 per share)	5,350	\$ 25,175
Changes during 1976 –		
Options granted at market value (\$1.25 per share)	<u>2,000</u>	<u>2,500</u>
Options outstanding and exercisable at December 31, 1976 (\$1.25 to \$5.50 per share)	7,350	27,675
Changes during 1977 –		
Options cancelled and expired	<u>(4,350)</u>	<u>(23,925)</u>
Options outstanding and exercisable at December 31, 1977 (\$1.25 per share)	<u>3,000</u>	<u>\$ 3,750</u>

(b) 1970 Qualified Stock Option Plan

On May 13, 1970 the company adopted the 1970 Qualified Stock Option Plan covering 30,000 shares of common stock of the company. Options may be granted to directors, officers and other key employees of the company or its subsidiaries at a price not less than the market value of the common stock at the time of the grant of the option. Each option is exercisable two years from the date of the grant, provided the optionee continues as a director or remains in the employ of the company or a subsidiary, and expires five years from the date of the grant. No optionee may exercise an option while there is any other outstanding stock option previously granted to the optionee. No options were outstanding at December 31, 1976 and 1977.

(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. 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:

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

	Shares	Amount
Options granted subsequent to 1972 and outstanding and exercisable at December 31, 1975 (\$1.00 to \$5.00 per share)	60,500	\$120,500
Changes during 1976 –		
Options granted at market value (\$1.50 per share)	1,000	1,500
Options exercised (\$1.00 per share; market value \$1.63)	(1,000)	(1,000)
Options cancelled and expired	(6,000)	(6,000)
Options 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; market value \$1.63)	(1,000)	(1,500)
Options cancelled and expired	(15,500)	(75,500)
Options outstanding and exercisable at December 31, 1977 (\$1.00 per share)	<u>38,000</u>	<u>\$ 38,000</u>

(d) Options under employment agreements

Under two employment agreements dated October 1, 1972, the company granted options, not under the option plans, to purchase an aggregate of 10,000 shares common stock of the company at a price of \$5.00 per share during the period from October 1, 1972 to September 30, 1977 at which date these options expired.

(e) 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 three to five years from the date of grant. As at December 31, 1977, options on 10,000 shares (1976 – 10,700) were outstanding at a price of \$1.50 per share.

11. INCOME TAXES

(a) Canadian income taxes

As at December 31, 1977, a subsidiary has recorded in the accounts depreciation and amortization and other miscellaneous write-offs totalling \$400,000 in excess of that claimed for tax purposes.

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.

(b) Canadian income taxes – Barringer Hydrocarbons Limited and Magenta Explorations Limited

Both Barringer Hydrocarbons Limited and Magenta Explorations Limited have certain research and development and exploration expenses that can be used to reduce taxable income in future years. The amount of these expenses are approximately \$71,000 and \$1,000,000 respectively.

Utilization of these expenses is dependent on these companies attaining profitable operations in the future.

(c) U.S. income taxes

There are no U.S. income taxes payable as at December 31, 1977 or 1976. The company has losses for income tax purposes of approximately \$200,000 that can be used to reduce taxable U.S. income in future years.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

(d) Tax rate on earnings

The 1977 provision calculates 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 11(a)).

The 1976 provision calculates to a rate of 56% on earnings before income taxes. The rate differs from the normal U.S. Federal tax rate of 48% because the company incurred expenses which are non-deductible for tax purposes.

12. 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 \$13,845 (1976 - \$12,265) has been repaid to date. Such repayments are an element of cost of sales.
- (ii) Fiji Namosi Project
A subsidiary company held a 5% participating interest, subject to dilution, which was pledged to another participant to secure a loan of \$167,362. After dilution to date, the subsidiary computes that its interest amounts to fractionally less than 2.5%. The subsidiary did not repay the loan and the pledge of the subsidiary's interest may be realized upon by the lender, in which case the subsidiary will be entitled to an accounting and there may be a contingent liability for any deficiency upon realization. The lender claims that the subsidiary's interest was forfeited for non-payment which the subsidiary disputes. The subsidiary has no liability if the interest is forfeited; if the subsidiary's position is upheld and the security is realized upon, there may be a contingent liability for any deficiency upon realization.

(b) Rental expense and lease commitments

- (i) Rental and lease expenses for the year amounted to \$97,400 (1976 - \$88,600).
- (ii) The aggregate minimum lease commitments for all operating leases on rented premises over the next five years are as follows:
1978 - \$54,300; 1979 - \$42,750; 1980 - \$29,625; 1981 - \$20,725; 1982 - \$16,500.
Thereafter the aggregate lease commitment for the remaining three years of the leases to 1985 is \$49,500.
- (iii) The aggregate lease commitment on equipment and automobile rentals over the next 3 years is \$86,700.

13. 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 \$36,713 in 1977 (1976 - \$38,831). Pension costs are funded, and there was no unfunded liability as at December 31, 1977.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

14. MINORITY INTEREST

Minority interest in the loss of a subsidiary was \$43 (1976 - \$57). Losses attributable to minority interest in excess of their portion of paid-up capital in the amount of \$22,010 have been absorbed as an expense. This amount will be recovered in future years if there are profitable operations of Barringer Hydrocarbons Limited.

15. 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. Shares issuable upon conversion of the convertible promissory notes are not included since such conversion would have an anti-dilutive effect.

16. JOINT VENTURE AGREEMENT

In 1976 the company exchanged its holdings of common stock in Minsearch Surveys Limited (Minsearch) for non-voting convertible Class B shares. Thus, the company ceased to exercise any significant influence over the operations of Minsearch. Accordingly, in 1976 \$722,691 (including a gain of \$112,897 on the sale of a subsidiary) that had previously been classified as deferred income arising from previous transactions with Minsearch, was brought into current income.

In 1976 management determined that advances made to Minsearch in prior years were no longer certain of collection since such collection is dependent on Minsearch achieving profitable operations and repaying other long-term debt. Therefore management deemed it prudent to provide in full for the potential loss of \$702,159 on such advances.

17. RELATED PARTY TRANSACTIONS

The company included in earnings, income of \$752,270 (1976 - \$1,613,425 of which \$722,691 represented previously deferred income) from Minsearch Surveys Limited, a company in which the company used to own common stock but now owns 15,000 Class B shares. Sales to Barringer Surveys Limited, in which the company holds 22% of the common shares, amounted to \$73,726 (1976 - \$609,260).

18. 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 1977 was \$9,257. The amortization for 1976 of \$17,377 included an amount of \$5,790 representing 1975 amortization not reflected in that year's financial statements.

OPINION OF THE INDEPENDENT PUBLIC ACCOUNTANTS

COOPERS & LYBRAND

CHARTERED ACCOUNTANTS

OFFICES THROUGHOUT CANADA
AND IN PRINCIPAL AREAS
OF THE WORLD

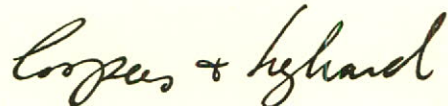
TELEPHONE (416) 869-1130
CABLES COLYBRAND
TELEX 06-23590
145 KING STREET WEST
TORONTO, ONTARIO, CANADA M5H 1V8

To the Shareholders,
Barringer Research Inc.

We have examined the consolidated balance sheets of Barringer Research Inc. as at December 31, 1977 and 1976 and the related consolidated statements of earnings, deficit, changes in financial position and the accompanying schedules, which are being filed as part of the Annual Report (Form 10-K) to the Securities and Exchange Commission, for the years then ended. 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:

- (a) The consolidated financial statements referred to above present fairly the financial position of Barringer Research Inc. as at December 31, 1977 and 1976 and the results of its operations and the changes in its financial position for the years then ended, in accordance with generally accepted accounting principles applied on a consistent basis.
- (b) The accompanying schedules referred to above present fairly the information required to be set forth therein as at December 31, 1977 and 1976, in conformity with generally accepted accounting principles applied on a consistent basis.



CHARTERED ACCOUNTANTS

Toronto, Ontario, Canada,
February 23, 1978.

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, 1977

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, 1977 – 979,400 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

ITEM 1. BUSINESS

Item 1. (a) PRINCIPAL PRODUCTS AND SERVICES

Barringer Research Inc., a Delaware Corporation (the "Registrant"), through both its Denver operation and its wholly-owned subsidiary Barringer Research Limited, an Ontario Corporation ("BRL") engages in five principal activities: (1) Research and Development Services; (2) Commercial Products: Instrument Manufacture; (3) Natural Resource Exploration Ventures and Services; (4) Analytical Chemistry and Biology Services; (5) Licensing of Patented Proprietary Products.

(1) RESEARCH AND DEVELOPMENT SERVICES

BRL's Research and Development Division comprises a staff of professional scientists and engineers plus technologists and technicians (7 University graduates) that undertakes R & D work for industrial and Government agency clients in the following disciplines: (i) electro-optics; (ii) electro-magnetics; (iii) magnetics; and (iv) atmospheric physics. BRL'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 BRL's patent protection for significant instruments and instrument systems, and the know-how obtained from previous R & D work associated with these patents, a large portion of the Company's 1977 R & D work was carried out pursuant to agreements funded by major mining and mining-finance companies with which BRL is also partner in joint ventures. These systems are licensed for commercial operations to the joint companies (See Sections 1 (a) and 5.)

Major clients for R & D projects underway in 1977 included private and government organizations, among them:

- Bendix Field Engineering Services for U.S. Dept. of Energy (USA)
- General Electric Space Science Laboratories (USA)
- TRW Systems (USA)
- Atomic Energy of Canada Limited (Canada)
- Department of Energy, Mines and Resources (Canada)
- National Research Council (Canada)
- Department of the Environment (Canada)
- Department of Supply & Services (Canada)
- Department of National Defence (Canada)
- Minsearch Surveys Ltd. (Canada)
- United States Geological Survey (USA)

R & D revenues amounted to \$651,000 in 1977 (\$1,486,000 in 1976).

R & D Products and Techniques

From its R & D projects BRL 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*: BRL 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 BRL with a substantial annual royalty and rental income from its survey applications that are flown under license to Geoterrex Limited (Ottawa) and Questor Surveys Limited (Toronto). During 1977 further refinements were made to improve the operational status of the INPUT System (See section 5).
- (ii) *COTRAN*: Significant progress took place during 1977 in the development of COTRAN, an advanced CORrelation TRANsient waveform matching system which is a further advance on INPUT and a proprietary patented system. Computer modelling was undertaken, special algorithms developed and a hardware flight prototype unit is being built for flight tests in early 1978.
- (iii) *AIRTRACE*: In 1972 BRL 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 BRL formed a joint company, Minsearch Surveys Limited (Minsearch), licensed by BRL to exploit AIRTRACE commercially on a worldwide basis, subject to the prior-existing agreements. Orientation Surveys continued through 1977 in the U.S., Australia, Fiji and South Africa (See Section 5).

During 1977 an evaluation program was conducted in Wyoming for Bendix Field Engineering Services on behalf of the U.S. Department of Energy to assess the applicability of AIRTRACE and SURTRACE for uranium exploration. (See iv below.) Furthermore, assessment of the application of AIRTRACE to oil exploration was undertaken by U.S. Geological Survey. Analysis of the results continued at the year end and will be completed in the Spring of 1978.

- (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 1977 BRL allocated some \$200,000 to complete the development of this technique for operations in semi-arid terrains. Field evaluation of SURTRACE was undertaken by BRL, Bendix Field Engineering Services and U.S.G.S., in semi-arid environments.

(b) Ground Exploration

- (i) During 1977 BRL introduced a man portable version of SURTRACE, a geochemical sampling system. Consequently, SURTRACE is available in both a helicopter and ground portable version. Surface microlayer sampling tests were undertaken during 1977 for a limited number of clients. The technique provides ground truth quite similar to that obtained indirectly by AIRTRACE and closely replicates the airborne SURTRACE results.
- (ii) A development program to investigate COTRAN application to military range clearance was initiated in late 1977. This program indicates the applicability of COTRAN to ground geophysical measurements and further efforts in this direction are planned for 1978.

(c) Environmental Monitoring/Process Control

BRL's R & D in these fields has produced four techniques and products that are manufactured and sold by BRL.

- (i) *Electro-optical techniques for air pollution monitoring*, including the SO₂/NO₂ COrelation SPECtrometers designated COSPEC II and III and a higher sensitivity unit, the single gas COSPEC IV. (See Section 2C). The single gas COSPEC IV was in production during 1977.
- (ii) *The Barringer GAs filter cell correlation SPECtrometer*, GASPEC, which is capable of remote detection of trace gases in the atmosphere. BRL has specialized in the infrared spectral region for the GASPEC, and development work continued during 1977 for a variety of customers.
- (iii) *The Barringer-patented correlation interferometer* for the remote sensing of trace gases, continued during 1977 under subcontract to General Electric (GE) Space Science Laboratories (Philadelphia) for NASA Langley Research Centre. This work involves the development of a space unit with multi-gas detection capabilities. On site field engineering support provided by BRL to GE terminated in the fall of 1977.
- (iv) *During the year* BRL continued a program to develop an airborne laser fluorosensor unit for oil spill detection and classification. This instrument is being developed under contract to the Canadian Centre for Remote Sensing. The sensor was test flown in the spring of 1977 and further instrument improvements initiated in late 1977 to enhance its capabilities in readiness for further flight tests in the spring of 1978.

(2) COMMERCIAL PRODUCTS: INSTRUMENT MANUFACTURE

BRL manufactures and markets specialized instrument systems that have been generated by the company's R & D activities.

The principal markets for BRL products are Canada, the United States and Europe. Revenues from instrument sales and rentals in 1977 amounted to approximately \$534,000 (\$576,000 in 1976).

- (a) *Geophysical Instruments*: The M-123 magnetometer was first marketed in 1975 for airborne, oceanographic and ground applications and during 1977 sales were made, particularly to the shallow water marine salvage industry. The new eight-channel light-weight recorder for airborne geophysical applications, the CR900, was removed from production and licensed to a Canadian geophysical company specializing in support peripherals for the geophysics industry. Sales of the GM122 ground portable magnetometer were made from inventory. All INPUT receiver birds are now manufactured by BRL; previously a major portion of the INPUT bird work was sub-contracted out.
- (b) *Nuclear Process Control*: Since 1971 BRL has produced and sold three different kinds of heavy water (D₂O) 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 1977 in co-operation with Atomic Energy of Canada, Ltd., with BRL providing a resident site engineer to the Chalk River Nuclear laboratories.
- (c) *Air Pollution/Environmental Monitoring*: BRL originally developed correlation spectrometric techniques 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 BRL began producing an instrument line – the COSPEC series – designated to measure SO₂ and/or NO₂ continuously in the atmosphere. BRL 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 approximately 75 units in use in 22 countries.

(3) NATURAL RESOURCE EXPLORATION VENTURES AND SERVICES

Barringer Research's (BR) current exploration policy continues to be one of undertaking contract programs for minerals and hydrocarbons. These programs incorporate generally available exploration techniques but also utilize the company's most advanced airborne and ground system, techniques and expertise as appropriate. BR uses its combined professional experience in geology, geochemistry, geophysics, photogeology and data processing, backed with laboratory competence in analytical chemistry to undertake large and small mineral exploration programs. During 1977, BR's staff of professionals provided exploration consulting, field and airborne services, training of personnel for the mineral industry and undertaking services under contract. The exploration staff has also supported specialized R & D in new instrument and remote sensing technology and research for hydrocarbon, uranium and base metal exploration.

BR further consolidated its activities in consulting and analytical services in North America by expanding the Denver laboratory facilities opened in 1976. Through 1977 BR professionals actively provided consulting services for mineral exploration programs in Canada, the United States, South Africa and Brazil.

On behalf of Minsearch Surveys Limited BR operated and managed AIRTRACE airborne surveys in 1977. Surveys were conducted over a number of areas in Australia & Fiji for Anglo American Corp. BR as prime contractor, conducted an AIRTRACE survey over a known uranium area in Wyoming for the U.S. Energy Research and Development Agency (now Department of Energy).

In 1977 BR commenced commercial survey work using the SURTRACE system. This technique collects a sample from the surface micro-layer of the ground using equipment mounted in a low flying helicopter or a ground system contained in a back-pack carried by a man. Airborne and ground tests were conducted at various locations in semi-arid regions of the United States and elsewhere. Commercial surveys were completed for the U.S. Energy Research and Development Agency (now Department of Energy) over known uranium mineralization in Wyoming, for Minsearch Surveys Limited over 10 test areas in South Africa and for other customers. The airborne SURTRACE equipment was also leased to the United States Geological Survey for use in an evaluation program examining the surface geochemical expression of oil and gas fields.

During 1977 the BR group of specialists in exploration technology provided consulting and technical services to a large number of organizations including:—

- Energy Research and Development Agency (U.S.A.)
- Noranda Explorations (Canada)
- B.P. Eastern (Canada)
- Camflo Mines (Canada)
- Uranerz Mining (Canada)
- Anglo American Corp. (South Africa, Brazil)
- Rio Tinto Group (Brazil, U.S.A., South Africa)
- Rocky Mountain Energy (U.S.A.)
- Minsearch Surveys (Canada)
- Chevron Standard (Canada, U.S.A.)
- Imperial Oil (Canada)
- Union Carbide (Canada)

Fiji Program: BRL is currently involved in mineral exploration programs in the Fiji Islands through two vehicles: (1) Barringer Fiji Limited and (2) a joint venture with Australian Anglo American Company Limited (AAA) and American Metal Climax, Inc. (AMAX) (the "Namosi Project").

1. *Barringer Fiji Limited (BFL):* BRL 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 leave 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. American Metal Climax, Inc. managed the program from 1975 to the present. BRL 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, BRL relinquished 10 percent of its 20 percent interest in BFL areas. BRL received a fee for its services in assisting conclusion of the agreement. Exploration on BFL ground began in late 1974 and continued through 1975, 1976 and 1977. Results of the exploration to date are not considered encouraging but work is continuing. BRL has no financial obligations for the BFL program.

2. *Australian Anglo American Limited (Namosi Project)*: In March 1973 BRL acquired a 4.5 percent interest in a separate Fijian porphyry copper property in the Namosi area of Fiji from AAA. Under terms of the 1974 BFL agreement (See above), BRL received an additional 0.5 percent equity interest in the Namosi project. The project is being managed by AMAX. In light of the recent low copper prices and inability to project significant price increases in the near or medium term future the results of the drilling are not considered encouraging by BRL. BRL did not contribute to its pro rated share of exploration expenses and as a result retains less than 2.5 percent interest. This interest will continue to dilute if BRL does not contribute to future exploration costs. In view of the uncertain future of this project BRL deemed it prudent in 1975 to write-off the book value assigned to the Namosi project.

Canadian Program: In August 1968, BRL entered into an agreement with TRW, Inc. (TRW) that established a joint venture exploration program between BRL and TRW in a large area within the Canadian Provinces of Manitoba, Saskatchewan, Alberta and portions of the Northwest Territories. TRW ceased funding the program in 1972, after reconnaissance and subsequent exploration phases up to but not including diamond drilling.

After termination of funding by TRW, BRL continued acting in 1973 and 1974 on behalf of a Canadian company, Magenta Explorations Limited (Magenta) to secure funding partners for further development work on several drill targets in the Magenta claim areas. Magenta was formed in December 1971 by BRL and OMAR Explorations, Inc., a Delaware corporation (OMAR) to which TRW had assigned all its exploration rights. After formation of Magenta, BRL's and OMAR's rights and interests were assigned to Magenta in return for shares of stock. BRL received a total of 1 million of the 4.5 million shares issued in this exchange.

During 1975 TRW offered BRL the opportunity to purchase all of the shares of OMAR. OMAR's major asset was 205,486 shares of Royex Mining Limited (See below) and BRL's management offered \$15,000 for the purchase of OMAR. The offer was accepted and after acquiring ownership of the Royex shares BRL wound up the affairs of OMAR and surrendered its charter. As a result of the purchase of OMAR, BRL now owns 100 percent equity in Magenta. A third party completed a small exploration program on one Magenta Property with negative results. In view of this and taking into consideration the economic and political conditions prevalent in the Canadian mineral exploration industry and industry's response to these conditions, BRL's management decided to write-off its assigned book value in Magenta in 1974 and 1975.

BRL, through its joint venture with OMAR, obtained shares in an Ontario company, Royex Mining Limited (Royex). Royex holds interests in a gold property in the Northwest Territories. BRL previously held 147,914 shares in Royex and this was increased to 353,400 as a result of acquiring OMAR. In 1974 the management of Royex and another company, Sturgex Mines Limited (Sturgex) amalgamated the two companies under a new name, Royex Sturgex Mining Limited (Royex Sturgex). Royex shares were exchanged for Royex Sturgex shares on the basis of 2 Royex shares for 1 Royex Sturgex share. Thus BRL held 176,700 Royex Sturgex shares, which represented approximately 12 percent of the outstanding shares. During 1976 BRL acquired an additional 51,395 shares on conversion of a promissory note, increasing its equity to 14%.

Royex Sturgex holds approximately 18 percent interest of which 10 percent is free carried, in a gold property in the Northwest Territories. Some \$1.6 million was spent by a third party on underground development on this property in 1975. This underground work confirmed previous drill results that a moderate tonnage of gold ore is present on the property. At the present time the claims are being held on a care and maintenance basis and in view of the previously depressed market for gold, Barringer deemed it prudent in 1976 to write down its investment to \$1.00.

In March 1977 Royex Sturgex sold to BRL 20% of its 18% interest in this gold property for \$9,000 U.S. 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% 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.

Total revenues obtained from resource exploration consulting, field operations and R & D contract activities in 1977 amounted to \$651,000 (\$748,000 in 1976).

(4) ANALYTICAL CHEMISTRY AND BIOLOGY SERVICES

During the past year BRL's Analytical Chemistry and Biology Division was merged with the Exploration Division. This merger resulted in a greater thrust in marketing of geochemical services, and in improved communications and technical support in geochemical airborne operations. A number of areas dominated the division's work during the year:

- (i) Multi-element analysis by the radio frequency induction coupled plasma has provided increased sources of revenue from solution and solid sample analysis (LASERTRACE). BRL has gained a reputation for its expertise of multi-element analysis of pollution and geochemical-related materials. BRL has also developed solid sample analysis by LASERTRACE where small amounts of material can be analysed off tape. This service has been used extensively in airborne geochemistry and has been responsible for generating increased revenues.
- (ii) Ion chromatography has added a new dimension to the analytical services. This system is capable of multi-ion analysis of anions (fluoride, chloride, sulfate, nitrate, phosphate and nitrite). BRL has become the sole Canadian distributor for Dionex Corporation and revenues were generated by sales of Dionex instruments.
- (iii) The continued interest in uranium exploration has resulted in the introduction of a new analytical service (fission track analysis) which is capable of detection of low levels of uranium in both solids and solutions. This service has provided a means for analysis of uranium in airborne geochemical exploration using SURTRACE and AIRTRACE and has been responsible for obtaining survey contracts. It is anticipated that sales in the forthcoming year will expand in this area with the increased interest of partial extraction geochemistry for exploration.
- (iv) The extensive marketing of geochemical services in the U.S.A. has resulted in a large increase in sales in 1977 and an expansion in early 1978 of the Denver facility.

The division continued to perform analyses on samples submitted by customers on a custom-oriented production basis. In 1977, clients for this service work included major Canadian and international mining and exploration companies, together with several Canadian Provincial and Federal resource agencies. Considerable penetration of the U.S. market for analytical work was also accomplished both in the private and public sectors. The division continued to provide substantial analytical research support for the AIRTRACE programs on behalf of the company's joint venture partners.

Revenues from the division's operations in 1977 amounted to \$904,000 (\$904,000 in 1976).

5. LICENSING OF PATENTED PROPRIETARY PRODUCTS

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

Revenue to BRL in 1977 from its licenses amounted to \$667,000 (\$1,084,000 in 1976). The major component of these license fees was derived from agreements regarding the BRL INPUT system.

INPUT System Agreement

BRL has a worldwide exclusive license granted by the purchaser of BRL's INPUT patents to manufacture this airborne geophysical system and to jointly grant sublicenses to others for their use. In 1977, five systems were licensed to two companies engaged in providing contract airborne exploration surveys. The two licensees paid BRL 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 one half of the total worldwide survey mileage flown in 1976 using electro-magnetic techniques.

AIRTRACE Exploration Survey Company Joint Ventures

During 1973 and 1974 BRL entered into agreements establishing three airborne exploration survey companies licensed to operate the BRL-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. BRL holds a 22 percent interest in BSL, which was granted an exclusive license to use BRL's AIRTRACE airborne geochemical prospecting system in Southern Africa for mineral and hydrocarbon exploration. After a forced landing and damage sustained by the equipment in 1976, BSL decided to repair the damaged AIRTRACE equipment. BRL completed the repairs in 1977 and shipped the equipment to South Africa. When BSL sells surveys in South Africa, BRL will operate the equipment and will receive royalty income from every line mile of survey flown.

Minsearch Surveys Limited was incorporated in February 1976 in partnership with Anglo American Corporation of Canada Limited (Amcan), Hudson Bay Mining and Smelting Co., Limited (HBMS), and Minerals and Resources Corporation Limited (Minorco). Minsearch was granted a worldwide exclusive license for the commercial exploitation of AIRTRACE, except for Southern Africa. In consideration for the grant of license and know-how rights to Minsearch, BRL received cash in the amount of \$550,000 in 1974, \$500,000 in 1975 and \$50,000 in 1976. In addition, BRL is to receive royalties from commercial operations of Minsearch based on the number of line miles flown. Minsearch performed substantial test flying in 1975, 1976 and 1977. In addition, BRL in 1974 transferred to Minsearch the shares of its wholly-owned Australian subsidiary company Barringer Geosurveys Pty. Ltd. (BGS) and will be compensated for this transfer from future net cash flows in Minsearch. The non-exclusive agreement that BGS has with Allstate Exploration Pty., Ltd. in Australia for mineral exploration remains in force. Any equity interest received by BGS in deposits discovered using BRL's airborne systems will be held in trust for Minsearch.

BRL also formed a joint company – Barringer Hydrocarbons Limited – with Amcan, HBMS, and Minorco. BHL was granted a license to use the AIRTRACE system for hydrocarbon and geothermal resource exploration. BRL has a 51 percent interest in BHL. BHL was inactive in 1977, but R & D funding was directed towards aspects of the AIRTRACE hydrocarbon R & D program.

Under the terms of its agreement with Minsearch, BSL and BHL, BRL 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 BRL'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.

Item 1. (b) (1) COMPETITION

There are no companies that compete directly with BR 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 BR and that provide exploration and analytical chemical services similar to those BR 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 BR's patented electro-optical methods. These devices do, however, compete in the same area of use as BR's instruments and BR is not a major manufacturer in the production of pollution monitoring devices.

Item 1. (b) (2) DEPENDENCY ON LIMITED NUMBER OF CUSTOMERS

With the exception of Minsearch Surveys Limited, which accounted for 23 percent, no single customer accounted for more than 10 percent of total revenue in 1977.

Item 1. (b) (3) BACKLOG

The following table sets forth the backlog of work on hand as at December 31, 1976 and December 31, 1977.

	As at Dec. 31/77	As at Dec. 31/76
(1) Research and Development Services	\$ 207,000	\$ 115,000
(2) Natural Resource Exploration Ventures and Services	82,000	53,000
(3) Commercial Products: Instrument Manufacture	148,000	64,000
(4) Analytical Chemistry and Biology Services	65,000	29,000
(5) Licensing of Patented Proprietary Products	186,000	185,000
TOTAL	<u>\$ 688,000</u>	<u>\$ 446,000</u>

It is estimated that all of the backlog work on hand as at December 31, 1977 will be filled during the current fiscal year.

Item 1. (b) (4) SOURCES AND AVAILABILITY OF RAW MATERIALS

BRL's manufactured products are basically comprised of assembled components. The items purchased by BRL are of a standardized nature and are available from numerous sources. BRL 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.

Item 1. (b) (5) PATENTS AND LICENSING

BRL has 30 United States patents relating to its equipment and systems. An aggregate of 254 patents and patent applications have been issued or are pending in countries other than the United States. One United States patent owned by BRL will expire in 1978. Although BRL 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.

Item 1. (b) (6) RESEARCH AND DEVELOPMENT

Reference is made to Item 1. (a) PRINCIPAL PRODUCTS AND SERVICES and (1) RESEARCH AND DEVELOPMENT SERVICES.

Item 1. (b) (7) DISCHARGE OF MATERIALS INTO THE ENVIRONMENT

Not applicable.

Item 1. (b) (8) EMPLOYEES

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

Item 1. (b) (9) SEASONAL BUSINESS

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

Item 1. (c) INFORMATION AS TO LINES OF BUSINESS AND CLASSES OF SIMILAR PRODUCTS AND SERVICES

Total sales and revenues for the years 1973 through 1977 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:

	1973	1974	1975	1976	1977
Research and Development Services	15	27	38	31	19
Natural Resource Exploration Ventures and Services	37	22	19	16	19
Commercial Products: Instrument Manufacture	17	17	13	12	16
Analytical Chemistry and Biology	6	14	14	19	27
Licensing of Patented Proprietary Products	25	20	16	22	19
	<u>100%</u>	<u>100%</u>	<u>100%</u>	<u>100%</u>	<u>100%</u>

The major lines of business contributed to the results of operations as follows:

	1973	1974	1975	1976	1977
Research and Development Services	2	17	26	17	14
Natural Resource Exploration Ventures and Services	16	9	17	9	7
Commercial Products: Instrument Manufacture	6	15	7	12	18
Analytical Chemistry and Biology	7	14	11	15	14
Licensing of Patented Proprietary Products	69	45	39	47	47
	<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 (LOSS)

For the five years ended December 31, 1977

ITEM 2. SUMMARY OF OPERATIONS

	1973	1974	1975	1976	1977
Revenue	\$3,361,067	\$3,807,331	\$4,252,621	\$4,797,843	\$3,406,739
Costs and expenses					
Cost of goods sold	2,220,613	2,514,019	2,866,170	2,840,106	2,182,084
General and administrative expenses	1,059,163	918,166	887,537	799,425	825,843
Research and development expenditures	489,643	85,295	124,895	81,458	294,555
	<u>3,769,419</u>	<u>3,517,480</u>	<u>3,878,602</u>	<u>3,720,989</u>	<u>3,302,482</u>
Operating income (loss)	<u>(408,352)</u>	<u>289,851</u>	<u>374,019</u>	<u>1,076,854</u>	<u>104,257</u>
Other expenses (income)					
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	19,246	3,003	—	—	—
Gain on sale of subsidiary company	—	(112,897)	—	(112,897)	—
Interest —					
Long-term debt	30,552	33,131	20,251	11,598	9,353
Other — net	48,900	95,187	67,801	44,830	13,349
Other	(10,254)	18,858	10,268	30,403	57,133
	<u>88,444</u>	<u>248,769</u>	<u>300,992</u>	<u>698,218</u>	<u>79,835</u>
Earnings (loss) before income taxes and extraordinary items	<u>(496,796)</u>	<u>41,082</u>	<u>73,027</u>	<u>378,636</u>	<u>24,422</u>
Income tax provision (recovered)	<u>(11,000)</u>	<u>10,000</u>	<u>88,645</u>	<u>212,220</u>	<u>112,560</u>
Earnings (loss) before extraordinary items and minority interest	<u>(485,796)</u>	<u>31,082</u>	<u>(15,618)</u>	<u>166,416</u>	<u>(88,138)</u>
Minority interest in loss	<u>—</u>	<u>—</u>	<u>221</u>	<u>—</u>	<u>—</u>
	<u>(485,796)</u>	<u>31,082</u>	<u>(15,397)</u>	<u>166,416</u>	<u>(88,138)</u>
Extraordinary items					
Benefit of tax losses and timing differences brought forward	—	20,000	105,300	212,192	112,560
Gain on sale of investment in non-associated company, less income taxes	26,000	—	—	—	—
	<u>26,000</u>	<u>20,000</u>	<u>105,300</u>	<u>212,192</u>	<u>112,560</u>
Net earnings (loss) for the year	<u>\$ (459,796)</u>	<u>\$ 51,082</u>	<u>\$ 89,903</u>	<u>\$ 378,608</u>	<u>\$ 24,422</u>
Weighted average number of shares outstanding	<u>772,624</u>	<u>781,087</u>	<u>847,107</u>	<u>899,163</u>	<u>893,280</u>
Earnings (loss) per share					
Earnings (loss) before extraordinary items	(\$0.62)	\$0.04	(\$0.02)	\$0.19	(\$0.10)
Extraordinary items	\$0.03	\$0.02	\$0.13	\$0.23	\$0.13
Net earnings (loss) for the year	<u>(\$0.59)</u>	<u>\$0.06</u>	<u>\$0.11</u>	<u>\$0.42</u>	<u>\$0.03</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 1973 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.

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 1973 to 1975 both absolutely and as a percentage of gross revenues chiefly because of the cessation of Barringer's Australian subsidiary. The decrease in 1976 and 1977 resulted from a reorganization of senior management as well as increasing management attention to this cost area.

Research and Development expenditures declined substantially from 1973 through to 1976. This decline reflected the completion in 1973 of substantial inhouse funding of important proprietary and patent oriented R & D work that enabled the company to secure licensing and royalty fees for certain of its exploration systems. In addition in 1975 R & D funding by Barringer Hydrocarbons Limited was directed towards aspects of the Airtrace Hydrocarbon program. The large increase in 1977 was primarily due to inhouse funding directed towards development of the Surtrace system. Research and Development 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 that Barringer management believes important to its future patenting position. This work is not yet funded by third parties although it is Barringer's policy to secure outside funding wherever it can be negotiated.

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. There is now some indication of interest by exploration companies of future program activation.

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, BRL deemed it prudent to write-down this investment.

In 1976 BRL 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.

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 1977, a loss on translation of \$50,336 (1976, \$12,416) 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		1976	
	High	Low	High	Low
First Quarter	\$2.00	\$0.75	\$3.25	\$1.33
Second Quarter	2.25	0.75	2.75	1.50
Third Quarter	2.00	1.00	2.00	1.00
Fourth Quarter	2.63	1.00	2.00	1.00

There were no dividends paid during 1977 or 1976.

ITEM 3. PROPERTIES

BRL's offices, laboratories and manufacturing facilities are located at 304 Carlingview Drive, Metropolitan Toronto, Rexdale, Ontario, Canada, M9W 5G2, in a building containing 15,000 square feet of floor area constructed in 1965. BRL occupies the building under lease expiring in January 1986 at a rental of \$16,500 per year.

BRL also leases approximately 13,000 square feet of floor space at 44 Fasken Drive, about one block away from the 304 Carlingview Drive headquarters. BRL occupies the building under lease expiring May, 1979 at a rental of \$19,800 per year. Approximately half of these premises are currently being sub-leased.

BRI leases approximately 1,500 square feet of floor space containing a geochemical laboratory at 6869 South Emporia St., Englewood, Colorado. BRI occupies the building under lease expiring July, 1981 at a rental of \$8,250 per year.

BRI also leases approximately 1,200 square feet of office space at 1536 Cole Blvd., Golden, Colorado. BRI occupies the building under lease expiring July, 1980 at a rental of \$9,750 per annum.

ITEM 4. PARENT AND SUBSIDIARIES

Name	State, Province or County of Incorporation	Percentage Voting Securities Owned or Controlled
Dr. Anthony R. Barringer	—	45% Including Trust
Dr. D. Richard Clews	—	14% Including Trust
Barringer Research Inc.	Delaware — U.S.A.	
Subsidiary of Barringer Research Inc.		
Barringer Research Limited (BRL)	Canada	100%
Subsidiaries of "BRL"		
Barringer Hydrocarbons Limited	Canada	51%
Magenta Explorations Limited	Canada	100%
Barringer Research South Africa (Pty) Limited	South Africa	100%

ITEM 5. PENDING LEGAL PROCEDURES

None of a material nature as at December 31, 1977.

ITEM 6. INCREASES AND DECREASES IN OUTSTANDING EQUITY SECURITIES

(a) (1) (i) Number of shares of Common Stock outstanding at December 31, 1976 was 978,400

(ii) Number of shares of Common Stock outstanding at December 31, 1977 was 979,400

(See note 9 to the Consolidated Statements).

ITEM 7. — NOT APPLICABLE

ITEM 8. — 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, 1977
Convertible Subordinated Promissory Notes due serially to December 31, 1978	1
Common Stock (par value \$.01 per share)	760

ITEM 10. – NOT APPLICABLE**ITEM 11. EXECUTIVE OFFICERS OF THE REGISTRANT**

The names, ages and positions of all of the executive officers of the Company as of March 23, 1978 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, 52 <i>President</i>	President of the Barringer Research Inc. and Barringer Research Limited
Dr. D. Richard Clews, 56 <i>Executive Vice President</i>	Executive Vice President of the Barringer Research Inc. and Barringer Research Limited
John H. Davies, 41 <i>Vice President</i>	Manager, Research and Development Division, Barringer Research Limited to September 1975; Vice President of Barringer Research Inc. and Barringer Research Limited since September 1975
Dr. Michael D. Silvester, 34 <i>Vice President</i>	Chief Chemist at Barringer Research Limited to April 1974; Manager, Analytical Chemistry and Biology Division, Barringer Research to November 1974; Vice President of Barringer Research Inc. and Barringer Research Limited since November 1974
Dr. Peter M.D. Bradshaw, 39 <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 Inc. and Barringer Research Limited since January 1978.
Kenneth H. Dalton, 34 <i>Controller</i>	Controller of Design Lithographers Limited to July 1974; Controller of Barringer Research Inc. and Barringer Research Limited since July 1974.
Robert J. Armstrong, 47 <i>Secretary</i>	Barrister and Solicitor, Partner of Messrs. Blackwell, Law, Spratt, Armstrong & Grass, Secretary of Barringer Research Inc. and Barringer Research Limited.

ITEM 12. 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 13. FINANCIAL STATEMENTS, EXHIBIT AND REPORTS ON FORM 8-K.

(a) FINANCIAL STATEMENTS:

Consolidated:

Balance Sheets as at December 31, 1977 and 1976

Statements of Earnings for the two years ended December 31, 1977

Statements of Deficit for the two years ended December 31, 1977

Statements of Changes in Financial Position for the two years ended December 31, 1977

NOTES TO FINANCIAL STATEMENTS

SCHEDULES:*

For the two years ended December 31, 1977:

III Investments

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, 1977

**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, 1977.

ITEMS 14 - 18 - REFER TO PROXY MATERIAL

PART II

Omitted Pursuant to Instruction H, Form 10-K.

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, 1978

SCHEDULE III

Barringer Research Inc.

INVESTMENTS

For the year ended December 31, 1976

Name of issuer and descriptions of investment	Balance as at December 31, 1975		Additions during year		Deductions during year		Balance at December 31, 1976	
	Number of shares	Dollars	Number of shares	Dollars	Number of shares	Dollars	Number of shares	Dollars
Barringer Fiji Limited — common stock	42	\$ 50	—	\$ —	—	\$ —	42	\$ 50
Magenta Explorations Limited — common stock	4,500,000	—	—	—	—	—	4,500,000	—
Royex Sturgex Mining Limited — common stock	353,400	17,000	51,395	5,059	176,700 ⁽¹⁾	22,058 ⁽²⁾	228,095	1
Royex Sturgex Mining Limited — advances	—	5,059	—	—	—	5,059	—	—
Barringer Surveys Limited — common stock	490	700	—	—	—	—	490	700
Namosi Project — Fiji — 2½% interest	—	1	—	—	—	—	—	1
HSA Reactors Limited — common stock	—	—	194,950	14,614	—	—	194,950	14,614
Minsearch Surveys Limited — common shares	25,000	500	—	—	25,000	500	—	—
— class B shares	—	—	15,000	297	—	—	15,000	297
Minsearch Surveys Limited — advances	—	<u>314,534</u>	—	<u>—</u>	—	<u>314,534⁽³⁾</u>	—	<u>—</u>
Totals		<u>\$337,844</u>		<u>\$ 19,970</u>		<u>\$342,151</u>		<u>\$ 15,663</u>

(1) Reflects a two for one stock exchange

(2) Reflects a write-down of the value of the shares

(3) Provided for in full

INVESTMENTS

For the year ended December 31, 1977

Name of issuer and descriptions of investment	Balance as at December 31, 1976		Additions during year		Deductions during year		Balance at December 31, 1977	
	Number of shares	Dollars	Number of shares	Dollars	Number of shares	Dollars	Number of shares	Dollars
Barringer Fiji Limited – common stock	42	\$ 50	–	\$ –	–	\$ –	42	\$ 50
Magenta Explorations Limited – common stock	4,500,000	–	–	–	–	–	4,500,000	–
Royex Sturgex Mining Limited – common stock	228,095	1	–	–	–	–	228,095	1
Barringer Surveys Limited – common stock	490	700	–	–	–	–	490	700
Namosi Project – Fiji – 2½% interest	–	1	–	–	–	–	–	1
HSA Reactors Limited – common stock	194,950	14,614	21,750	10,683	–	–	216,700	25,297
Minsearch Surveys Limited – class B stock	15,000	297	–	–	–	–	15,000	297
Royex Sturgex Mining Limited – 3.6% interest in B-Zone Mining Claims operated by O'Brien Gold Mines Limited	–	–	N/A	9,000	–	–	N/A	9,000
Petro Nuclear Exploration Inc. – common stock	–	–	40,000	10,000	–	–	40,000	10,000
Totals		<u>\$ 15,663</u>		<u>\$ 29,683</u>		<u>\$ –</u>		<u>\$ 45,346</u>

SCHEDULE V

Barringer Research Inc.

FIXED ASSETS

For the two years ended December 31, 1977 and 1976

Classification	Balance at beginning of year	Additions at cost	Retirements or sales	Balance at close of year
Year ended December 31, 1976:				
Office furniture and equipment	\$ 119,852	\$ 9,278	\$ 6,520	\$ 122,610
Plant and machinery	490,617	85,616	6,581	569,652
Exploration equipment	337,954	273	302	337,925
Equipment for lease	319,920	3,557	—	323,477
Leasehold improvements	98,904	12,118	—	111,022
Total	<u>\$1,367,247</u>	<u>\$ 110,842</u>	<u>\$ 13,403</u>	<u>\$1,464,686</u>
Year ended December 31, 1977:				
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>

SCHEDULE VI

Barringer Research Inc.

ACCUMULATED DEPRECIATION AND AMORTIZATION OF FIXED ASSETS

For the two years ended December 31, 1977 and 1976

Classification	Balance at beginning of year	Charged to costs and expenses	Retirements, renewals, and replacements	Balance at close of year
Year ended December 31, 1976:				
Office furniture and equipment	\$ 81,217	\$ 9,036	\$ —	\$ 90,253
Plant and machinery	321,027	70,789	5,886	385,930
Exploration equipment	283,602	30,608	302	313,908
Equipment for lease	218,567	33,809	—	252,376
Leasehold improvements	30,181	9,099	—	39,280
Total	<u>\$ 934,594</u>	<u>\$ 153,341</u>	<u>\$ 6,188</u>	<u>\$1,081,747</u>
Year ended December 31, 1977:				
Office furniture and equipment	\$ 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>

SCHEDULE VII

Barringer Research Inc.

INTANGIBLE ASSETS

For the two years ended December 31, 1977 and 1976

Description	Balance at beginning of year	Additions at cost	Disposals	Balance at close of year
Year ended December 31, 1976:				
Patents and trademarks	\$ 192,320	\$ 14,431	\$ 8,183	\$ 198,568
Year ended December 31, 1977:				
Patents and trademarks	\$ 198,568	\$ 20,382	\$ 4,189	\$ 214,761

SCHEDULE VIII

Barringer Research Inc.

ACCUMULATED AMORTIZATION OF INTANGIBLE ASSETS

For the two years ended December 31, 1977 and 1976

Description	Balance at beginning of year	Charged to costs and expenses	Deductions	Balance at close of year
Year ended December 31, 1976:				
Patent and trademarks	\$ 32,928	\$ 8,168	\$ —	\$ 41,096
Year ended December 31, 1977:				
Patents and trademarks	\$ 41,096	\$ 9,606	\$ —	\$ 50,702

SCHEDULE XII

Barringer Research Inc.

RESERVES

For the two years ended December 31, 1977 and 1976

Description	Balance at beginning of year	Additions	Deductions	Balance at close of year
Year ended December 31, 1976:				
Allowance for doubtful accounts	\$ 31,975	\$ —	\$ 289 (2)	\$ 31,686 (4)
Deferred income	722,691	—	722,691 (3)	—
Year ended December 31, 1977:				
Allowance for doubtful accounts	\$ 31,686	\$ 1,017 (1)	\$ 3,473 (2)	\$ 29,230 (4)
Deferred income	—	—	—	—

(1) Charged to costs and expenses

(2) Uncollectible accounts written off

(3) Transfer to income of the balance of deferred income regarding Minsearch Surveys Limited.

(4) Deducted from accounts receivable

Barringer Research Inc.

WORKING PAPER OF EARNINGS PER SHARE

For the five years ended December 31, 1977

	1977	1976	1975	1974	1973
Average market value per share of common stock	<u>\$1.50</u>	<u>\$1.80</u>	<u>\$1.40</u>	<u>\$2.50</u>	<u>\$6.00</u>
Weighted average number of shares outstanding, excluding common stock equivalents	978,900	977,900	922,400	867,400	863,024
Common stock equivalents:					
Options:					
Employment Agreements	— (2)	— (1)	— (1)	— (1)	— (3)
1968 Stock Option Plan	483	917	107	1,087	— (3)
1970 Stock Option Plan	— (2)	— (2)	— (2)	1,000	— (3)
1972 Stock Option Plan	12,497	17,279	13,000	— (1)	— (3)
Other Stock Option Plans	— (1)	1,667	— (1)	— (2)	— (2)
Treasury stock acquired	<u>(98,600)</u>	<u>(98,600)</u>	<u>(88,400)</u>	<u>(88,400)</u>	<u>(90,400)</u>
Weighted average number of shares outstanding	<u>893,280</u>	<u>899,163</u>	<u>847,107</u>	<u>781,087</u>	<u>772,624</u>
Earnings (loss) before extraordinary items	\$ (88,138)	\$ 166,416	\$ (15,397)	\$ 31,082	\$ (485,796)
Extraordinary items	<u>112,560</u>	<u>212,192</u>	<u>105,300</u>	<u>20,000</u>	<u>26,000</u>
Net earnings (loss) for year	<u>\$ 24,422</u>	<u>\$ 378,608</u>	<u>\$ 89,903</u>	<u>\$ 51,082</u>	<u>\$ (459,796)</u>
Earnings per share					
Earnings (loss) before extraordinary items	\$(0.10)	\$ 0.19	\$(0.02)	\$ 0.04	\$(0.62)
Extraordinary items	<u>0.13</u>	<u>0.23</u>	<u>0.13</u>	<u>0.02</u>	<u>0.03</u>
Net earnings (loss) for year	<u>\$ 0.03</u>	<u>\$ 0.42</u>	<u>\$ 0.11</u>	<u>\$ 0.06</u>	<u>\$(0.59)</u>

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

(2) No options outstanding at year end.

(3) Excluded due to the fact that inclusion would be anti-dilutive in a loss year.

(4) The effect of converting the outstanding subordinated promissory notes to common stock is anti-dilutive and consequently is excluded.

