

**PEOPLE AND  
PROGRESS**

# Highlights 1983

Lumonics Inc.

- 56% increase in sales and 54% increase in earnings following 61% and 39% increases in 1982.
- Further strengthening of the balance sheet by the addition of \$10 million to the Company treasury in January 1983, through a share issue to institutional investors.
- 2 for 1 stock split in December 1983.
- 250% increase in orders in North America for Lumonics subsidiary, JK Lasers Limited.
- Decisions to construct modern new plant at Rugby, England and plant extension at Tempe, Arizona.
- \$9.4 million (U.S.) agreement to supply medical laser systems; design, construction and delivery of the first two.
- New high power industrial YAG laser introduced.
- Expanded LaserMark® capability: programmable, large area, bar code, and test handler interface.
- Excimer laser voted one of the "Best Products of the Year" by "Lasers and Applications" magazine.
- Extension of industrial holographic applications.

## 5-Year Financial Summary

	1983	1982	1981	1980	1979
	(thousands of Canadian dollars)				
<b>Operating results:</b>					
Sales	\$22,778	\$14,607	\$ 9,088	\$ 7,357	\$ 5,864
Net earnings	3,262	2,119	1,520	1,037	749
Earnings per share* (dollars)	.42	.35	.28	.23	.19
Research and development gross spending	3,049	2,863	1,770	940	1,301
<b>Financial data:</b>					
Working capital	25,136	12,037	9,466	8,188	1,736
Current ratio	6.3:1	4.7:1	4.9:1	8.9:1	2.1:1
Fixed assets — net	4,489	4,088	2,109	2,140	1,588
Shareholders equity	35,527	22,160	11,648	10,128	2,607
<b>Share data:</b> *					
Average number of outstanding common shares (thousands)	7,826	6,072	5,382	4,512	4,060

\* After giving retroactive effect to 2 for 1 stock splits on July 10, 1980 and December 19, 1983.

## Company Profile

Developing and manufacturing a variety of lasers for industrial, medical and scientific uses, Lumonics Inc. is now the world's third largest company specializing in laser products. This 1983 Annual Report salutes the talents and progress of the Lumonics employees located throughout the world.

*Front cover and below: The steady corporate growth of the Company, mainly due to the significant contribution of people and technological progress, is depicted symbolically with JK laser precision cut stainless steel plates.*

*Inset right: JK applications specialists, Mike Adamson, Andy Anderson and Chris Barrett discuss cost-saving solutions to manufacturing problems.*

*Right: JK laser in an industrial application performing a precision cutting operation.*

®LaserMark is a Registered Trademark of Lumonics Inc.

# PEOPLE AND PROGRESS



# Report to Shareholders

Lumonics Inc.

In 1983, Lumonics experienced its 12th consecutive year of gains in sales, net income and earnings per share. It was a year in which events went much as forecast in our letter to you in the 1982 Annual Report. Sales increased 56.0% to \$22,778,000. Net income rose 53.9% to \$3,262,000. Earnings per share increased 20.0% to \$.42. This latter increase was narrower due to the increase of 1,754,000 average outstanding treasury shares during the year.

Lumonics' unbroken succession of record sales and earnings remained intact through a period of unstable business conditions. This is indicative of the Company's technological and marketing strengths as well as the dedication and commitment to quality by its people.

We are pleased to report that these overall results were achieved from strong operating performances in all divisions throughout the Lumonics

group. Kanata continued its traditionally strong sales and earnings contribution and Lumonics Corporation, established in mid 1982 in Tempe, Arizona, exceeded its planned objectives during the past year. In addition to handling the Company's LaserMark product in the United States, the Tempe operation assumed responsibility for JK Lasers' industrial product line and achieved significant early sales. An 11,000 square foot facility expansion is currently underway to double Tempe's existing production capacity.

Our U.K. member, JK Lasers Limited, experienced very rapid growth during 1983, with output increasing by 60% over 1982 — also exceeding expectations. As predicted, the association with JK Lasers has proven to be most positive and beneficial. In order to handle JK's increasing volume, construction of a new 50,000 square foot facility is underway. Following relocation in the latter part of 1984, this will double JK's production capacity.

During 1983 Lumonics spent a total of \$3,780,000 on research and development programs and contracts. New products introduced include a laser-based ophthalmic surgical system, a computer numerical controlled (CNC) laser machining centre and several sophisticated LaserMark beam delivery systems for new applications such as large area marking and machine readable bar code marking. In addition, we continued to give a high priority to the enhancement of existing products through the addition of new features and increased performance, thereby maintaining our market leadership position.

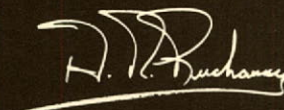
Lumonics is a successful Company because of its people. We depend on their intellect, skills, dedication and loyalty to the Company and its customers. We would like to take this opportunity to thank all employees for making 1983 another very successful year for Lumonics.

We enter 1984 in an excellent operating and financial condition. With a cash position in excess of \$16,000,000 and a very strong balance sheet, we are in a favourable position to support growth opportunities in our existing businesses and to make strategic acquisitions. The Company's order backlog is at an all time high and we are confident that the past pattern of solid growth will continue in 1984, with record sales and earnings being achieved once again.

Sincerely,



R.J. Atkinson  
President and  
Chief Executive Officer

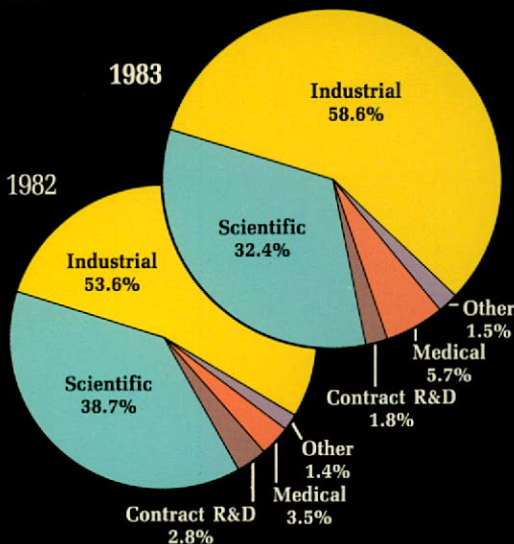


A.R. Buchanan  
Chairman

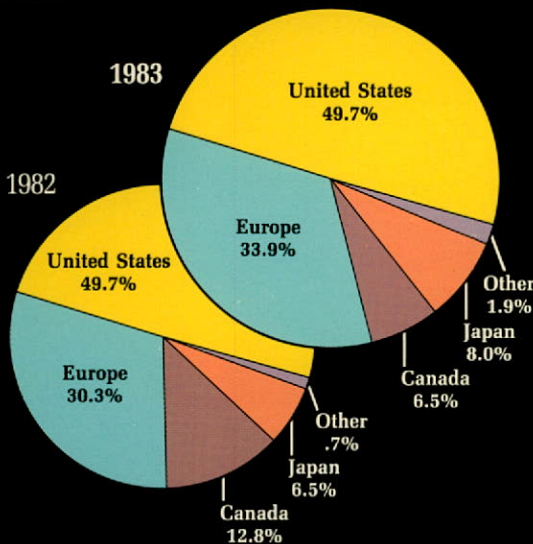
March, 1984

## Sales

### Product Mix



### Geographical Base



*Right:*  
A significant contribution to the efficiency and profitability of Lumonics has been the introduction over the past 7 years of a custom-designed Management Information System in the Kanata facility. It encompasses most of the Company's operations including materials requirement planning and the handling of up to 10 international currencies. The system has proven itself as a time and money saver in the demanding and complex high growth environment at Lumonics. Following its success in Kanata, the system is now operating in Tempe, Arizona and will be introduced to the Rugby, England facility in 1984. In addition, the system software is being sold to and used by outside groups.

*Inset right:*  
Kit Moulard, MIS Manager, discusses the system with Doug Crowder, Comptroller at Kanata, and Brian Creber, Director of Production at Kanata.



**'It is only when you are pursued that you become swift' (Kahlil Gibran)**

It is a business cliché to say that companies do not compete, groups of people do. What does this really mean to individuals in a Company like Lumonics? Are employees sensitive to customers and competitors? Is personal creativity important? These questions are addressed here as they impact on the people of Lumonics while showing their relevance to the interests of shareholders.

In the beginning there is the challenge of identifying product opportunities. All subsequent activity flows from this — development, marketing, production, service, administration. Defining products that will be successful in the marketplace is crucial. Success rates are not high. Involved are complex "guessing games" which presume a full understanding of the competition, customer needs and ability to pay, and the degree to which state-of-the-art technology can be extended.

**'Creativity is the quality of a person, not of the job he holds' (Norman G. Shidle)**

At Lumonics these "guessing games" are proceeding simultaneously on several new products, new product improvements and accessories, and new laser application processes at any point in time.

Creative? You bet! Creative, competitive and swift.

Two examples from 1983 will illustrate the business results achieved through creative thinking by Lumonics people.

In England, Rolls Royce was attempting to drill precise holes by a laser and encountered problems of taper, off-round holes and metallurgical defects. JK Lasers people conceived a complex optical method of moving the laser beam under computer control to solve the problem. Results: a substantial order from Rolls

Royce, other important orders from multi-national corporations, a strongly competitive edge for future similar procurements, and incidentally, the ability to drill square, triangular, oval or any other shaped hole.

In Phoenix, a leading semiconductor manufacturer wanted to mark identification information, by laser, on a new semiconductor product. Lumonics and a larger company, which had been seriously attempting to compete with LaserMark, recognized that the mark was too large to be produced by one laser pulse — three would be needed. The competitor proposed three lasers. Lumonics people, through innovative thinking, conceived a spinning mirror system which took advantage of complex, low-cost computer electronics. Results: Lumonics proposed a single LaserMark system with the spinning mirror accessory and won the order and a major new customer. More importantly, Lumonics has a new accessory capable of expanding LaserMark markets into many other large area mark applications.

**'Professionalism is good business' (J. William Lawson)**

After the development of imaginative devices and techniques, professionalism in marketing becomes vital. Major changes in Lumonics marketing activity were introduced in 1983 to accommodate the significant growth of the past few years and to exploit the obvious synergy between Lumonics in North America and JK Lasers Limited in the European Common Market area.

**'Becoming well organized is a goal seldom reached in one lifetime' (Arnold Glasgow)**

The fruits of the successful labours of development and marketing people fall into the laps of production people. The complexities of Lumonics production — the wide product range, the variety of manual

skills required, the logistical problems of identifying, buying, storing, controlling, issuing and assembling thousands of different parts, demands people who "become well organized" quickly.

Lumonics production is not high volume. People carrying out the wide variety of assembly and test operations must be unusually adaptable, flexible and talented. The logistics considerations mentioned above involve people in design, production planning and control, purchasing, stores, finance and administration. Their activities had become so well organized with a computer based material requirements planning (MRP) system, that by 1983 Lumonics saw an outside market for the software package — laboriously developed by interpersonal cooperation over several years. The results of this cooperation: an efficient production capability, infrequent material shortages, minimal inventory levels, timely information, excellent control, and a rapid expansion capability. JK Lasers will start to share these benefits in 1984.

The flow of Lumonics activities from product creation to reporting the company's operating results touches everyone. People at Lumonics have a sensitivity to maximizing results with minimum effort. The most modern equipment is made readily available to encourage and assist in this. The result is a pleasant and productive working atmosphere — so productive in fact, that Lumonics productivity reached an enviable \$90,000 in sales per employee in 1983.

## Outlook

In view of the steady and increasing rate of Lumonics growth — with all major product lines apparently many years from market saturation — the best indication of the future is the past. The annual compounded growth rate in sales over the past five years is in excess of 40% and over the past two years is about 56%. While the latter increases have been heavily influenced by the acquisition of JK Lasers, Lumonics management has every expectation that further acquisitions will have a significant — although challenging to forecast — effect on growth.

Earnings in the first half of 1983 were under pressure, as forecast in last year's "Report to Shareholders". The latter half, however, saw the recovery in earnings which was also forecast. A continuation of net earnings at close to historically high levels as a percentage of sales appears likely, but could soften somewhat if severe competition appears.

Substantial cash assets make it unlikely that sale of treasury stock for cash will increase dilution of per share earnings in the foreseeable future. Acquisitions involving an exchange of shares could of course create dilution, but it is a strategic objective that the

*Right: Large area laser marking, one of the latest LaserMark innovations, is applicable to a number of products and allows machine readable bar codes as well as alphanumeric information to be produced.*

*Inset right: Ken Morand, Applications Engineer and Jeff Grainger, Technical Support Specialist, examine a stainless steel test plate which was custom-made by JK lasers for the front cover of this Annual Report.*

earnings of an acquired company will be sufficient to minimize dilution of earnings per share in the short term and to improve earnings per share within the first two years.

The possibility of saturation of markets for current Company products and applications is

an important consideration to Lumonics shareholders. As laser technology is still relatively new, management firmly believes that the industrial application of Company products has so far achieved only a tiny penetration of massive potential markets. Sale of medical

equipment to date has represented only 5.7% of Company sales and short term growth potential at a high rate appears likely. In addition, the Company remains well positioned in the scientific laser market.

Barring major dislocation of world economics then, it appears that Lumonics will sustain its past pattern of growth in 1984 and in the foreseeable years beyond.



Achieving a 56% increase in sales over 1982 would, in itself, justify calling 1983 a highly successful year for the Lumonics sales/marketing team. It was also however, a year in which the product distribution system was greatly strengthened and in which a number of new application areas for existing products were opened up. The year also saw the envisaged benefits of the Lumonics/JK Lasers merger beginning to become apparent. JK's North American orders increased 250% over 1982. A solid foundation for growth has been established.

## LaserMark®

During 1982 and 1983, hardware was developed allowing the laser to produce larger marks than was previously possible, by the use of multiple laser pulses, each marking a fraction of the overall area. A number of such systems have been sold for marking integrated circuits, electrical meters, glassware and beer canister labels.

The new low cost, lower speed Model 930 laser was successfully introduced to the packaging industry. To improve Lumonics margins and market penetration, further models in this series will be introduced in 1984.

The year saw linkages with integrated circuit test handlers increase dramatically. In these instances, the component manufacturer attempts to eliminate a manufacturing step by combining marking and testing of components. This concept requires increased sophistication in the LaserMark system and the interface with the automatic component tester, since it requires that the mark produced reflect the results of the tests made on the component. This trend towards automation is expected to continue and to be an important area for LaserMark.

## Industrial

The improved version of JK Lasers MS-300 high power materials working laser is a great success, with 1983 sales more than double those of 1982. Orders for large jet engine component drilling systems based on this laser continued in 1983, to a total value, just after year-end, in excess of one million pounds sterling. It is planned that JK's success in Europe with these large systems will be duplicated in the much larger American market over the next one to two years, through the establishment of associations or business arrangements with suitable partners. The opening of a major JK Lasers application laboratory at Lumonics' Tempe, Arizona facility in 1983 was a first step in this direction.

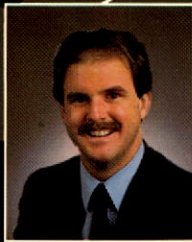
For the first time 1983 saw a significant number of JK holographic systems sold for industrial purposes. Four major European auto manufacturers were supplied such systems for use in analyzing the causes of vibration in motor vehicles so that designs can be improved. Other systems were sold for the purpose of producing holographic reproductions on a high volume basis for commercial use. The simplicity and ease of operation of JK Lasers' holographic system have been proven in these installations, where they are operated by personnel without special skills. Industrial holography will become increasingly important as an engineering and quality control tool in the coming years. For a brief explanation of holography see the technical note on page 10.

In 1983 there was a significant increase in experimentation and trial usage of excimer lasers for semiconductor manufacture. In fact, Lumonics excimer systems are being used on a full production basis, in a confidential application by a major semiconductor manufacturer.

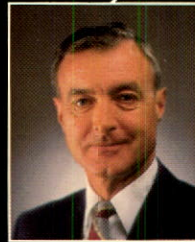
**Benny Chin**  
Japanese Liaison Office  
Lumonics Inc.  
Tokyo, Japan



Throughout the world Lumonics sales and marketing personnel are dedicated to providing service to existing customers and to seeking out new customers and new applications for Lumonics products.



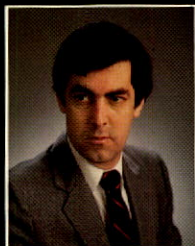
**Owen J. Jones III**  
Western Regional  
Sales Manager  
Lumonics Corporation  
Long Beach, California, USA



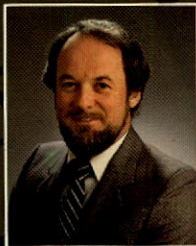
**Scott Walker**  
National Sales Manager  
LaserMark Products  
Lumonics Corporation  
Tempe (Phoenix)  
Arizona, USA



**Roger Sandwell**  
Director of Marketing  
Scientific Laser Products  
Lumonics Inc.  
Kanata (Ottawa)  
Ontario, Canada



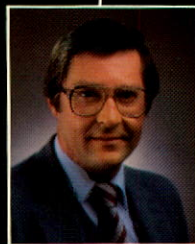
**Bob Wilson**  
Director of Marketing  
Industrial Products  
Lumonics Inc.  
Kanata (Ottawa)  
Ontario, Canada



**Jim Higgins**  
Marketing Director  
JK Lasers Limited  
Brussels, Belgium



**Hans Schuerer**  
Managing Director  
JK Lasers Deutschland GmbH  
Munich, West Germany



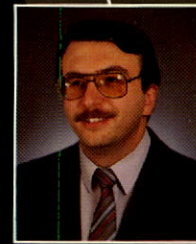
**Jim Dreiling**  
Southwestern Regional  
Sales Manager  
Lumonics Corporation  
Tempe (Phoenix)  
Arizona, USA



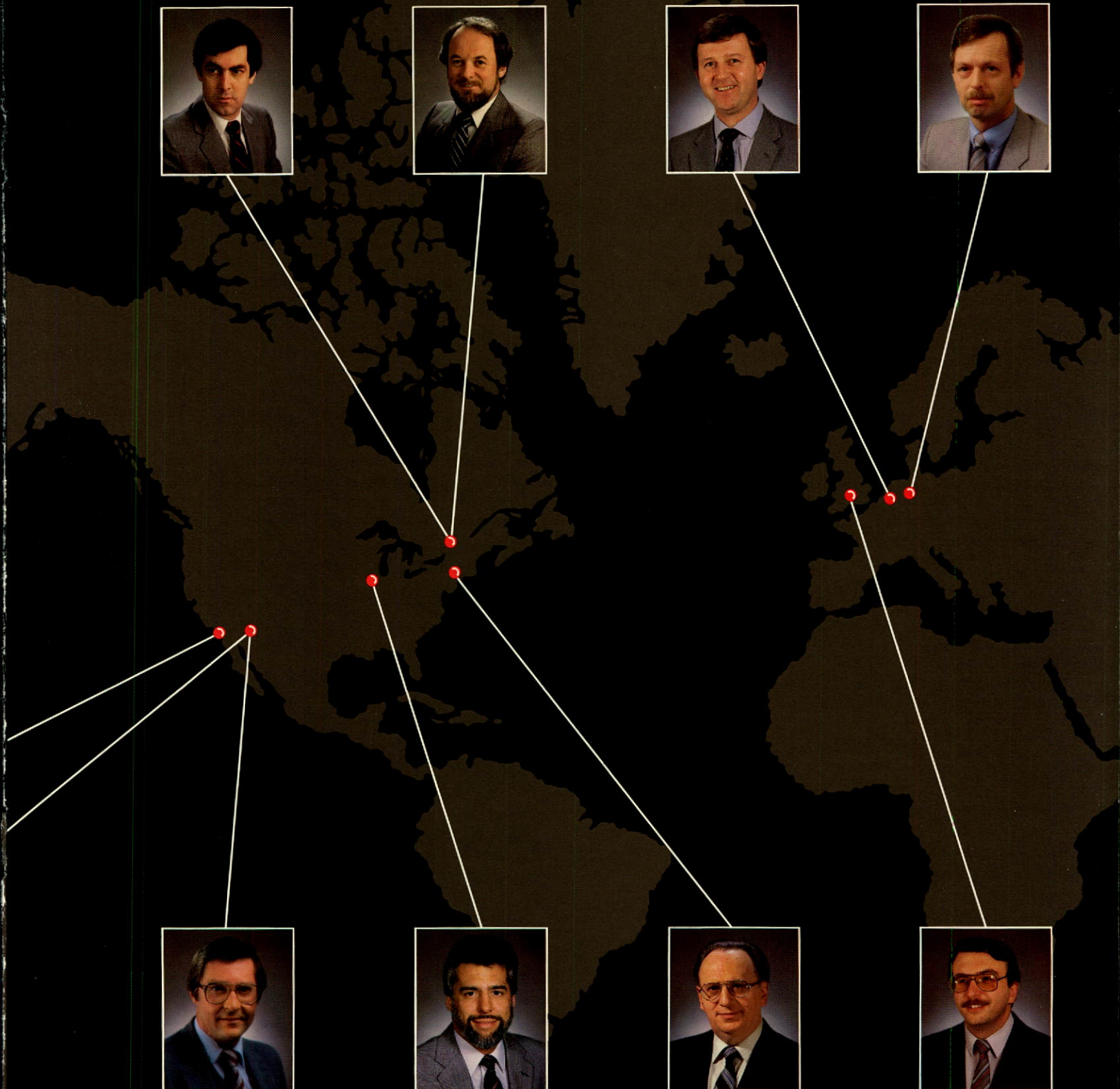
**Pete Ogden**  
Midwestern Regional  
Sales Manager  
Lumonics Corporation  
Des Plaines (Chicago)  
Illinois, USA



**Jim Lilly**  
Eastern Regional  
Sales Manager  
Lumonics Corporation  
Mineola, New York, USA



**Nigel Jinks**  
Marketing Manager  
JK Lasers Limited  
Rugby, Warwickshire  
England



## Scientific

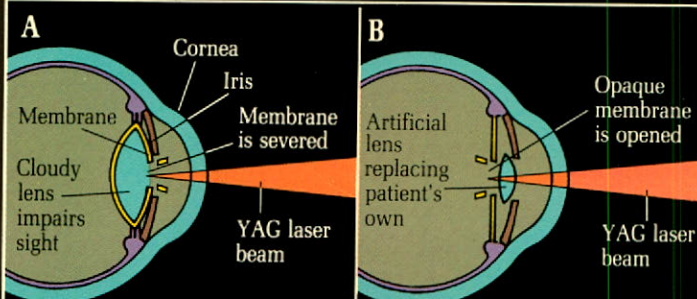
The scientific market generally continues to be extremely competitive, with traditional competitors still present and with new companies entering the market. In spite of this, sales of the high power TE-860-4 excimer laser series were up 76% over 1982, as a result of product improvements and a stronger field sales force. Efforts in Japan were particularly noteworthy with scientific product sales up 49% over 1982. Major new excimer and dye products are planned for introduction in mid 1984, which are expected to further improve market share.

## Medical

In August 1983, the Company announced the signing of an agreement with an American distributor, Medical Lasers Inc. (formerly Meditec Inc.). The agreement calls for Lumonics to develop a complete solid state laser system for ophthalmological surgery and to deliver quantities of such systems to the distributor in 1984 and 1985 valued at approximately \$9.4 million (U.S.).

Two prototype systems, using JK lasers, were developed in Kanata and delivered on schedule. They have completely met or exceeded all of the customer's expectations. As was also announced, delivery of the full quantity of systems is dependent upon initially gaining an Investigational Device Exemption and later, a Premarket Approval from the

## Revolutionizing cataract surgery with the YAG laser

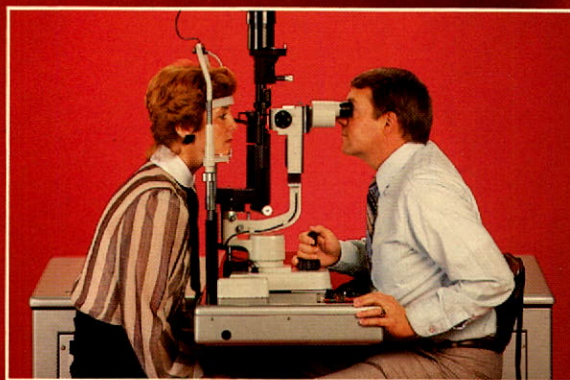
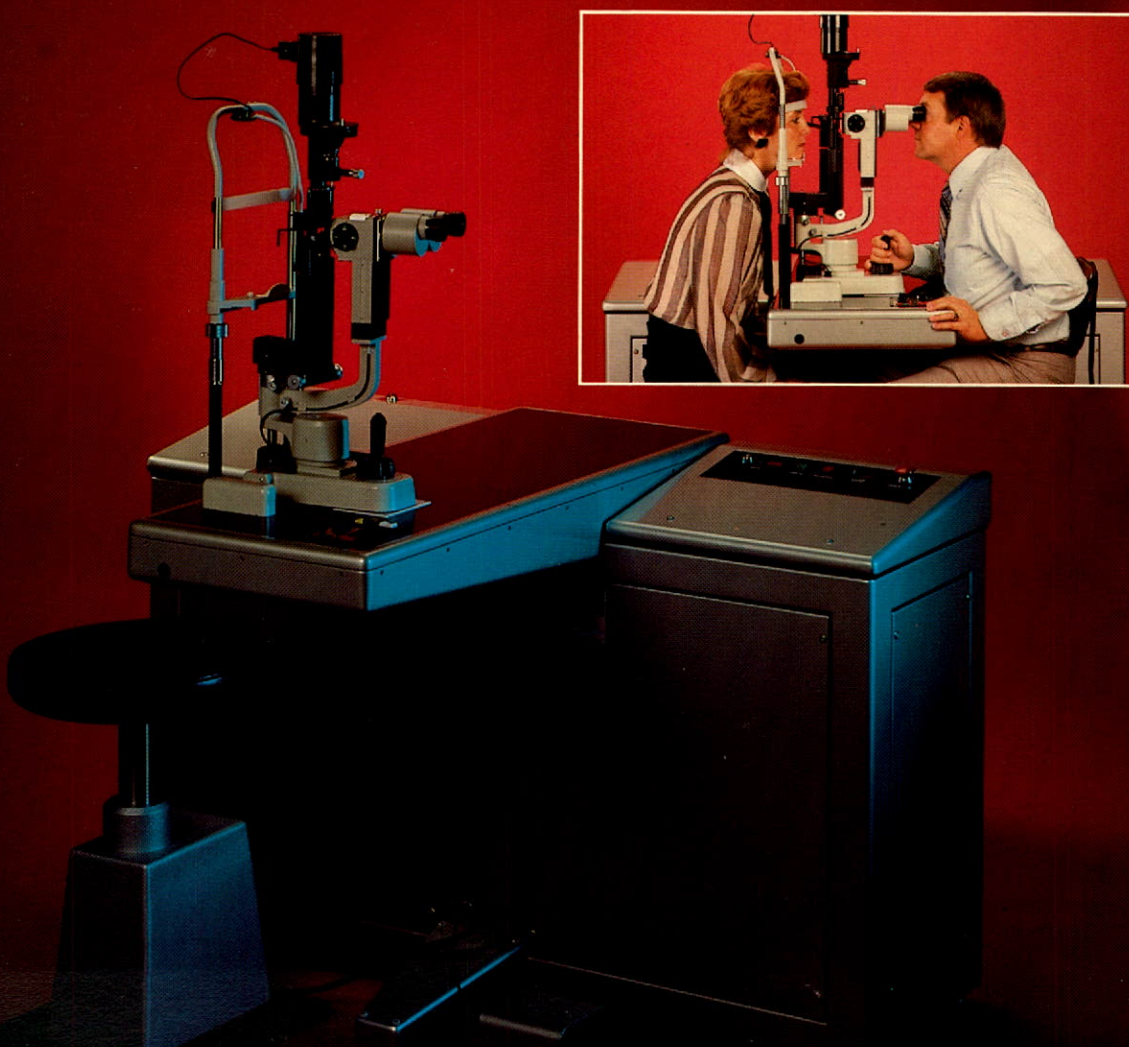


YAG lasers can be used at two stages in cataract surgery: firstly, (A) to sever membranes in front of a cloudy eye lens allowing removal and implantation of an artificial lens; secondly, (B) to sever membranes behind the new lens

that often become opaque after cataract surgery. This last operation can be performed as an outpatient procedure in a matter of minutes, replacing delicate surgery that once took up to four hours.

U.S. Food and Drug Administration. The Investigational Device Exemption was received by Medical Lasers Inc., in February 1984, allowing approximately \$1 million (U.S.) of systems to be manufactured and delivered. Lumonics is working very closely

with Medical Lasers Inc., to assist in obtaining the broader Premarket Approval which will allow virtually unlimited quantities of systems to be offered for sale. Although there is no guarantee that such approval will be granted, it is expected during the latter half of 1984. No competitor has obtained such approval to date and there is a very large, pent-up demand by ophthalmologists and hospitals for this type of equipment. Should Medical Lasers Inc., be among the first to obtain Premarket Approval, this will be an extremely significant area for Lumonics in 1984 and 1985.



Left:  
The Lumonics solid state laser system for ophthalmological surgery, developed in cooperation with Medical Lasers Inc.

Inset left:  
Two Lumonics employees, Kerry Shorey and Dick Hall, pose as patient and doctor.

The past year was the first complete twelve month fiscal period of consolidated operations of Lumonics and its wholly owned subsidiary companies, Lumonics Corporation, of Tempe, Arizona and JK Lasers Limited, of Rugby, England.

The consolidated results for 1983 indicate that integration of the group has progressed satisfactorily and that the synergies of our association have begun to materialize. Both new and joint product development and further exploitation of new markets is continuing in 1984.

## Sales

Sales again reached a record level in 1983 at \$22,778,000 compared to 1982 at \$14,607,000; an increase of 56%. Of this increase, 30% resulted from a year over year increase in traditional product lines and 26% from consolidation of the full year's operations of the subsidiaries. Greater market penetration was experienced in all traditional product market areas and new medical laser products were delivered during the year.

## Cost of Goods Sold

Cost of goods sold as a percentage of sales was reduced during the year by 1.4 percentage points to 72%. Costs were \$16,434,000 compared to \$10,748,000 in 1982. This improvement was accomplished in spite of the ongoing investment in marketing, selling and general and administrative expenses relating to the establishment of Tempe and the integration of JK Lasers products. In fact, these indirect costs in total increased only 28% while sales increased 56%.

## Gross Profit

Gross profits were up by 64% to \$6,344,000 compared to \$3,859,000 in 1982. As a percentage of sales this is 28% compared to 26% last year.

## Research and Development

Gross research and development spending reached \$3,049,000 for the year, an increase of 6.5% over last year's level of \$2,863,000. R&D spending was 13% of sales compared to 20% in 1982, however more fully funded contract R&D was carried out. Contract R&D totalled \$731,000 in 1983, an increase of 79% over \$409,000 in 1982.

The Company continues to comply with the Canadian Institute of Chartered Accountants Handbook in that development costs will only be deferred when pertaining to products where clearly defined and relatively near term markets exist. The Company has an internal policy of reviewing amortization of prior year's deferred costs on an annual basis which may result in acceleration of this amortization depending on current technology and market developments. The review in 1983 resulted in an additional write-off of \$200,000. The Company again has conservatively deferred only 15% of total R&D expenses compared to 16% in 1982. Had R&D costs in all years been written off against net income as incurred, the restated earnings per share would have been unchanged in 1983 and reduced by \$.02 in 1982.

Net research and development expenses charged to income for the year were up 35% to \$2,689,000 compared to \$1,995,000 in 1982.

## Interest Income

Interest income (net of \$95,000 and \$80,000 expense in 1983 and 1982 respectively) was up from 1982 interest income of \$841,000 by 57% at \$1,323,000. The increase is

mainly due to the interest earned on the investment of the \$10,095,000 proceeds from a January private placement. Interest rates were relatively stable throughout the year and the average return on the amount invested in short term investments was 9.5%. Investments were placed in low risk treasury bills, bankers acceptances, bank mortgages, commercial paper and bank term deposits.

## Income Taxes

Income taxes have been provided for at an average rate of 34.4% after giving effect to the manufacturing and processing tax reduction, business investment tax credits, the scientific research allowance, inventory credits and a deduction for the share issue expenses, all of which have combined to bring down the statutory combined rates.

## Net Income

Net income increased by 54% to \$3,262,000 from \$2,119,000 in 1982. Earnings per share, based on the average number

of common shares outstanding, amounted to \$.42 compared to \$.35 in 1982.

The average number of shares outstanding were up by 29% at 7,826,176 compared to 6,071,328 in 1982. This year's average reflects the full dilution effect of the JK Lasers acquisition in mid 1982 and the private placement in late January 1983.

## Share Data

The common shares of the Company are listed on the Toronto Stock Exchange (Symbol LUM). At December 31, 1983 there were 1,393 registered common shareholders holding 7,869,008 shares. On December 19, 1983, at a Special Meeting, the shareholders approved a two for one subdivision of the Company's common shares in order to place the stock at a more affordable level for a broader range of investors.

All references to numbers of shares and prices of shares in this report take this stock split into account.

## Sales by product line

	1983	%	1982	%
	(thousands of Canadian dollars)			
Scientific	\$ 7,382	32	\$ 5,655	39
Industrial	13,341	59	7,826	54
Medical	1,309	6	506	3
Contract R&D and Other	746	3	620	4
Total Corporate	\$22,778	100	\$14,607	100

## Price range of the shares in 1983 compared to 1982

	1983	1982
High	\$ 17.50	\$ 10.50
Low	10.00	6.00
Close	16.25	10.00
Volume	2,702,767	2,071,626

## Currency Translation

In 1983 the newly issued, generally accepted accounting principles in relation to the translation of foreign currencies were implemented by the Company. As our UK subsidiary met the criteria of a self-sustaining foreign operation, this gave rise to an accumulated foreign currency translation debit adjustment to the shareholders equity account on our balance sheet of \$561,000. This is adjusted as the UK pound sterling fluctuates and the value of the UK assets and liabilities changes. The differences are not required to flow through the income statement unlike the adjustments for foreign currency translation of an integrated foreign operation, such as our U.S. subsidiary.

## Working Capital

Working capital more than doubled from \$12,037,000 last year to \$25,136,000. Of the increase, \$10,666,000 was raised through the issue of shares, 1,000,000 in a private placement in January 1983 and 99,386 to employees under employee stock option plans and the net balance of \$2,433,000 was generated from other company activities. The current position is up 109% from December 1982 and the current ratio was 6.3:1 at December 31, 1983. This very strong position enables the Company to

readily finance current facilities expansion, new product endeavours and acquisition opportunities.

## Inventories

The Company investment in inventory increased to \$5,444,000 compared to \$4,540,000 last year. This 20% increase compares to a 56% sales volume increase and a 27% increase in the Company backlog.

## Capital Equipment

Major additions to property, plant and equipment during the year included the purchase of 1.2 acres of land in Tempe for \$211,000, 6.5 acres of additional land in Kanata for \$350,000, both adjacent to existing facilities, and a \$95,000 computer system for JK Lasers. The remainder of the additions of \$517,000 is comprised of engineering and production equipment for development, production and test facilities in all three plants. Facility expansions costing approximately \$3,000,000 are now underway both in Rugby, England and Tempe, Arizona.

## Personnel

At December 31, 1983 there were 253 employees compared to 223 at December 31, 1982. This represents an increase of only 13% compared to the 56% increase in sales.

## Technical Note

### What is holography?

Photography is a technique so familiar to all of us through our frequent viewing of photographs and printed reproductions, that few of us stop to wonder how a simple piece of paper can be made to appear, to the eye, almost identical to a real life subject or scene. In fact, the photographic process has caused every point on the paper photo to reflect light rays of each colour in exactly the same amounts as the corresponding points on the original subject and has thus "fooled" the eye.

Holography does not only this, but also causes the direction and phase of the light rays reflected from the real subject to be preserved in the hologram. When a hologram is viewed, the eye sees what appears to be the real object in all three of its dimensions and in great detail.

Holograms are generally produced by illuminating a photographic plate directly with a laser beam and simultaneously with a portion of the same beam as reflected from the subject to be recorded. The image recorded on the plate is called a hologram.

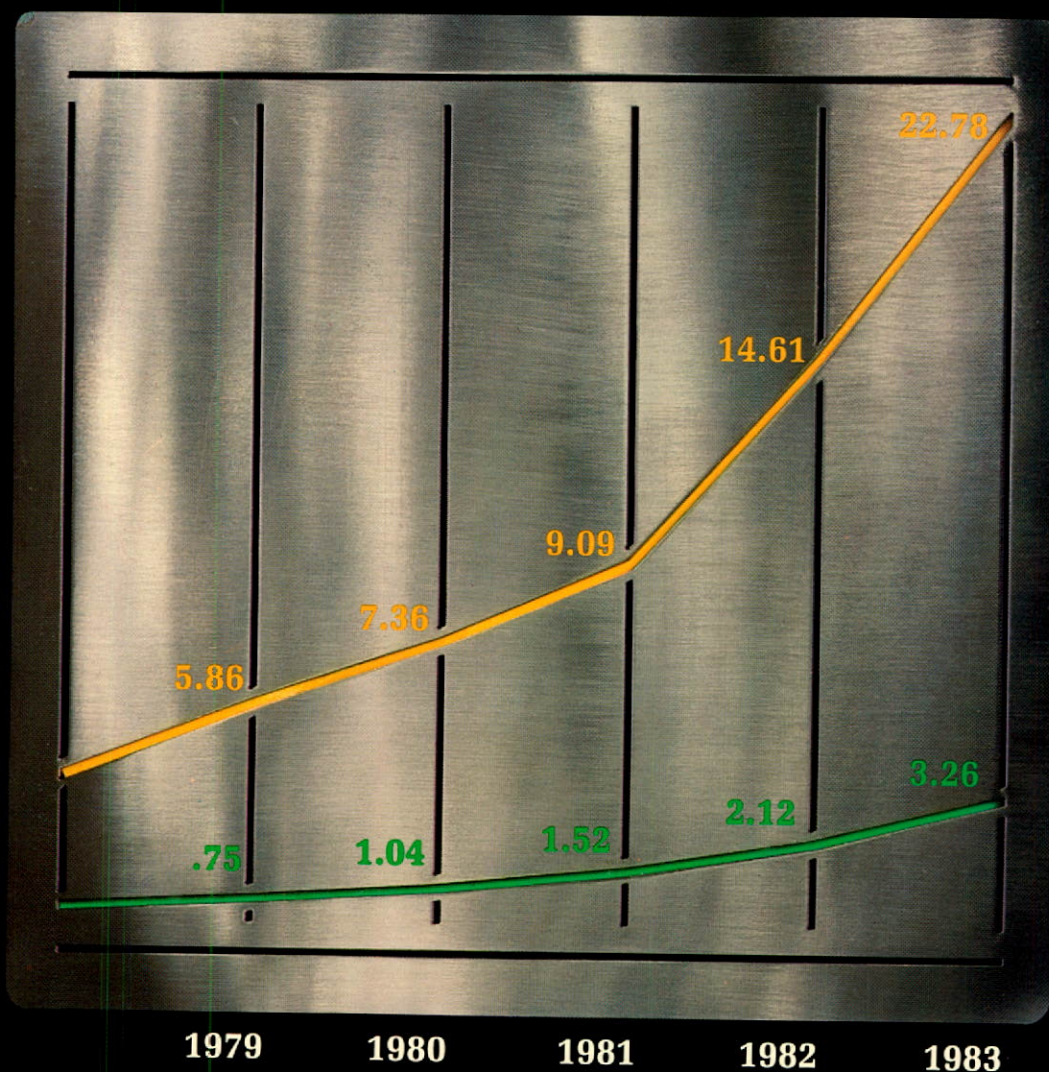
In engineering and non-destructive testing work a sample piece is typically placed under temperature, pressure or vibrational stress and two or more holograms are taken in sequence on the same photographic plate. The two holograms are then automatically compared with one another and show how every point on the surface of the test piece has moved as a result of the applied stress. Movements as small as a millionth of a metre are readily detectable and indicate to the engineer how a piece may be redesigned to minimize the affect of the stress or to show where a fault has occurred in its production. Such movements can be measured whether they occur in less than one thousandth of a second or over longer periods.

Holography is also beginning to find application in the visual arts. As well, holograms may eventually be incorporated into currency and credit cards as an immediate way of identifying their authenticity.

For a further explanation of holography and a fascinating review of lasers and applications, see the March 1984 edition of "National Geographic" magazine.

## Sales and Net Earnings

(millions of Canadian dollars)



■ Sales  
■ Net Earnings

## Auditors' Report

To the Shareholders of Lumonics Inc.:

We have examined the consolidated balance sheet of Lumonics Inc. as at December 31, 1983 and the consolidated statements of income and retained earnings and of changes in financial position for the year then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests and other procedures as we considered necessary in the circumstances.

In our opinion, these consolidated financial statements present fairly the financial position of the company as at December 31, 1983 and the results of its operations and the changes in its financial position for the year then ended in accordance with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

Deloitte Haskins & Sells  
Chartered Accountants  
Ottawa, Ontario

February 3, 1984

# Consolidated Balance Sheet

Lumonics Inc.

December 31, 1983

1983

1982

(thousands of Canadian dollars)

## Assets

### Current assets

Cash	\$ 493	\$ 235
Short-term investments	16,075	4,767
Accounts receivable	7,790	5,681
Inventories (Note 2)	5,444	4,540
Prepaid expense	77	39

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**29,879** 15,262

Notes receivable 81 127

Property, plant and equipment (Note 3) 4,489 4,088

Deferred development costs (Note 4) 691 788

Excess cost of subsidiary over net assets  
acquired (Note 5) 7,043 7,223

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**\$42,183** \$27,488

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## Liabilities

### Current liabilities

Accounts payable and accrued charges	\$ 3,644	\$ 3,027
Income taxes	972	70
Current portion of long-term debt	127	128

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**4,743** 3,225

Long-term debt (Note 6) 801 931

Deferred income taxes 1,112 1,172

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**6,656** 5,328

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## Shareholders' Equity

Share capital (Note 7)	26,517	15,851
Retained earnings (Note 8)	9,571	6,309
Accumulated foreign currency translation adjustment (Note 9)	(561)	—

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**35,527** 22,160

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**\$42,183** \$27,488

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Approved by the Board: A.V. Castledine, Director

R.J. Atkinson, Director

# Consolidated Statement of Income and Retained Earnings 13

Year ended December 31, 1983	1983	1982
	(thousands of Canadian dollars)	
<b>Sales</b>	<b>\$22,778</b>	<b>\$14,607</b>
Cost of goods sold	16,434	10,748
Gross profit	6,344	3,859
Research and development costs (Note 10)	2,689	1,995
Income from operations	3,655	1,864
Interest income (Note 11)	1,323	841
Income before income taxes	4,978	2,705
Income taxes (Note 12)	1,716	586
<b>Net income</b>	<b>3,262</b>	<b>2,119</b>
Retained earnings, beginning of year (Note 8)	6,309	4,190
<b>Retained earnings, end of year</b>	<b>\$ 9,571</b>	<b>\$ 6,309</b>
<b>Earnings per common share</b>		
Net income	\$ 3,262	\$ 2,119
Average number of common shares outstanding (thousands)	7,826	6,072
<b>Earnings per common share (dollars)</b>	<b>\$ .42</b>	<b>\$ .35</b>

## Consolidated Statement of Changes in Financial Position

Year ended December 31, 1983	1983	1982
	(thousands of Canadian dollars)	
<b>Sources of working capital</b>		
Operations		
Net Income	\$ 3,262	\$ 2,119
Items not affecting working capital		
Depreciation and amortization	1,108	647
Amortization of excess cost of subsidiary over net assets acquired	180	90
Deferred income taxes	42	98
	4,592	2,954
Issue of common shares	10,666	8,393
Increase in long-term debt	—	934
Decrease in notes receivable	46	49
	15,304	12,330
<b>Uses of working capital</b>		
Additions to property, plant and equipment	1,173	1,171
Deferred development costs	465	467
Net non-current assets of acquired business	—	7,811
Reduction in long-term debt	130	310
Foreign currency translation adjustment (Note 9)	437	—
	2,205	9,759
<b>Increase in working capital</b>	<b>13,099</b>	<b>2,571</b>
Working capital, beginning of year	12,037	9,466
<b>Working capital, end of year</b>	<b>\$25,136</b>	<b>\$12,037</b>

# Notes to the Consolidated Financial Statements

Lumonics Inc.

December 31, 1983

(tabular amounts in thousands of Canadian dollars)

## 1. Significant accounting policies

The consolidated financial statements have been prepared in accordance with generally accepted accounting principles, and reflect the following policies:

### Basis of consolidation

The consolidated financial statements include the accounts of the Company and its wholly-owned subsidiaries JK Lasers Limited and Lumonics Corporation.

### Short-term investments

Short-term investments are carried at the lower of cost and net realizable value.

### Inventories

Inventories are valued on the following basis:

Finished goods — at the lower of cost and net realizable value.

Work-in-process and raw materials — at the lower of cost and replacement cost.

### Property, plant and equipment

Property, plant and equipment are stated at cost after recognizing an adjustment in translation of foreign currencies. Buildings, machinery and equipment are depreciated using the diminishing-balance method.

### Research and development costs

Development costs relating to specific products that in the Company's view have a clearly defined future market are deferred and amortized on a straight-line basis over three years, commencing in the year following the year in which the new product development was completed.

Except as disclosed above, research and development costs (except for capital assets) are charged against income in the year incurred. Capital assets are treated as equipment purchases.

### Excess cost of subsidiary over net assets acquired

The excess cost of subsidiary over net assets acquired is amortized on a straight-line basis over a period of forty years from date of acquisition.

### Government assistance

Grant amounts resulting from government incentive programs are recorded in the accounts on the following basis:

Capital grants related to capital expenditures are reflected as a reduction of the costs of such assets.

Operating grants related to current period expenditures on research and development are recorded as a reduction of expenses at the time the eligible expenses are incurred.

### Translation of foreign currencies

Foreign currency accounts in Lumonics Inc. and the accounts of Lumonics Corporation, an integrated foreign subsidiary, are translated to Canadian dollars on the following basis:

Monetary assets and monetary liabilities — at the rate of exchange prevailing at the year end. Non-monetary assets (and related depreciation and amortization) and non-monetary liabilities — at the rates of exchange prevailing when the assets

were acquired or the liabilities assumed. Revenue and expenses (other than depreciation and amortization) — at a rate approximating the rates of exchange prevailing on the dates of the transactions. Gains and losses on translation of foreign currencies are included in income.

The accounts of JK Lasers Limited, a self-sustaining foreign subsidiary, are translated to Canadian dollars on the following basis:

Assets and liabilities — at the rate of exchange prevailing at the year end. Revenue and expenses (including depreciation and amortization) — at a rate approximating the rates of exchange prevailing on the dates of the transactions. Adjustments arising from the translation of foreign currency are deferred and included in Accumulated Foreign Currency Translation Adjustment, a separate component of shareholders' equity.

## 2. Inventories

	1983	1982
Finished goods	\$ 456	\$ 304
Work-in-process and raw materials	4,988	4,236
	<u>\$5,444</u>	<u>\$4,540</u>

## 3. Property, plant and equipment

	Depreciation Rates	1983	1982
Land		\$ 860	\$ 293
Buildings	1 - 5%	2,655	2,763
Machinery and equipment	20 - 25%	2,728	2,466
		<u>6,243</u>	<u>5,522</u>
Less accumulated depreciation		1,754	1,434
		<u>\$4,489</u>	<u>\$4,088</u>

Depreciation of plant and equipment expensed during the year amounted to \$546,000 (1982 — \$344,000).

## 4. Deferred development costs

	1983	1982
Balance, beginning of year	\$ 788	\$ 624
Amounts deferred in year	465	467
Amortization	(562)	(303)
	<u>\$ 691</u>	<u>\$ 788</u>

## 5. Excess cost of subsidiary over net assets acquired

	1983	1982
Cost	\$7,313	\$7,313
Less accumulated amortization	270	90
	<u>\$7,043</u>	<u>\$7,223</u>



## 6. Long-term debt

	1983	1982
15% Industrial and Commercial Finance Corporation Limited loan negotiated in pounds sterling, due in equal annual instalments of \$20,000 through to 1988, secured by land and building with a book value of \$485,000.	\$ 119	\$ 153
Industrial Development Authority promissory note negotiated in United States dollars due in instalments of \$5,000 and \$3,750 each month through to March 31, 1992 and March 31, 1989 respectively secured by land, building and equipment with a book value of \$995,000. Interest is payable at 75% of the prime rate of the First Interstate Bank of Arizona, N.A.	809	906
	928	1,059
Less current portion	127	128
	\$ 801	\$ 931

Principal amounts due in each of the next five years are \$125,000 annually.

## 7. Share capital

	1983	1982
Authorized		
Preferred — 190,500, 5% non-cumulative, non-voting, preferred shares redeemable at \$1 each		
Common — 40,000,000 common shares		
Outstanding and fully paid		
Preferred — 90,500 shares	\$ 90	\$ 90
Common — 7,869,008 shares	26,427	15,761
	\$26,517	\$15,851

Effective December 19, 1983 the shareholders of the Company approved the subdivision of its common shares on a two-for-one basis. Numbers and per share amounts in these financial statements reflect this split.

During the year common shares were issued as follows:

	1983	1982
Exercise of employee stock options		
— 99,386 shares for cash	\$ 571	\$ 179
Private placement		
— 1,000,000 shares for cash	10,095	—
Acquisition of shares of JK Lasers Limited		
— 1,354,804 shares	—	8,214
	\$10,666	\$ 8,393

## Stock options

As at December 31, 1983 notices had been accepted by the Toronto Stock Exchange to reserve 540,000 common shares pursuant to the employee stock option plans. In addition, 91,720 shares were reserved for employees in accordance with the acquisition agreement for JK Lasers Limited. No additional shares were reserved in 1983 so the total amount reserved continues at 631,720.

As at December 31, 1983 options to employees to purchase 566,164 common shares had been granted under these plans and were exercisable at prices ranging from \$2.88 to \$13.93 for a total consideration of \$4,468,383.

Of the stock options granted, 217,344 shares may be purchased in 1984, 119,910 shares in each of the calendar years 1985 and 1986, 75,700 in calendar year 1987 and 33,300 in calendar year 1988.

## 8. Retained earnings

During the year contributed surplus of \$126,000 was transferred to retained earnings. Prior year's numbers have been reclassified to conform with the current year's presentation.

## 9. Accumulated foreign currency translation adjustment

Components of the accumulated foreign currency translation adjustment related to JK Lasers Limited, a self-sustaining foreign subsidiary, are as follows:

	1983	1982
Working capital	\$ 437	\$ —
Property, plant and equipment		
Cost	452	—
Accumulated depreciation	(226)	—
Deferred income taxes	(102)	—
	\$ 561	\$ —

## 10. Research and development costs

	1983	1982
Research and development costs	\$3,049	\$2,863
Amortization of deferred development costs	562	303
	3,611	3,166
Development costs deferred	(465)	(467)
	3,146	2,699
Government assistance	(457)	(704)
	\$2,689	\$1,995

# Notes to the Consolidated Financial Statements

Lumonics Inc.

## 11. Interest income

	1983	1982
Interest income	\$1,418	\$ 921
Interest on long-term debt	(95)	(80)
	<u>\$1,323</u>	<u>\$ 841</u>

## 12. Income taxes

The effective tax rate differs from the statutory combined rates due to the manufacturing and processing tax reduction, business investment tax credits, the scientific research allowance, inventory credits and a deduction from taxable income for share issue expenses.

The Company has available at December 31, 1983, capital losses carried forward for income tax purposes of approximately \$81,000 which may be deducted from any future taxable capital gains. No recognition has been given in these financial statements to the potential tax savings which may result from this item.

Deferred income taxes relate primarily to claiming capital cost allowances for income tax purposes in excess of depreciation and amortization charged in the financial statements, and to claiming deferred development costs for income tax purposes in the year they are incurred.

## 13. Segmented information

The Company's activities represent one industry segment, manufacture and sale of lasers, and are conducted in three geographic segments, Canada, United States and Europe.

Export sales of the Canadian operation are as follows:

	1983	1982
United States	\$ 6,845	\$ 6,580
Europe	2,061	1,795
Other	1,752	1,044
	<u>\$10,658</u>	<u>\$ 9,419</u>

## 14. Litigation

The Company is currently the defendant in two actions alleging patent infringement, one in Canada and one in the United States. In both cases, the plaintiffs are various persons including Gordon Gould, Refac International Limited, and Patlex Corporation. Both Refac and Patlex have an interest in certain patents originally issued to Mr. Gould.

In 1983, the United States Patent Office ordered the patent under litigation in the United States be re-examined and at the present time all claims in that patent are under rejection. In attempting to halt the re-examination, the plaintiffs filed suit in the United States District Court for Eastern Pennsylvania to have the statute authorizing re-examination declared unconstitutional. The Court denied their claim by summary judgement in favour of the Patent Office, thus holding the statute constitutional. The plaintiffs are appealing that decision. Progress on the Canadian action has been slow in 1983, with Refac retaining new counsel as Patlex and Gould determined their interests to be divergent from those of Refac.

It is the Company's opinion that neither patent under litigation is valid and the above-noted developments have been favourable to this position. In the event of an adverse judgement in either or both actions, it is reasonable to believe that license arrangements could be negotiated which would have no material effect on the company.

## 15. Commitments

Capital expenditures committed for the construction of plant facilities in 1984 are approximately \$3,000,000.

## Segmented information

	Canada	United States	Europe	Eliminations	Consolidated
Sales to customers outside the enterprise	\$ 7,442	\$7,520	\$7,816	\$ —	\$22,778
Transfers between geographic segments	4,533	—	412	(4,945)	—
Total revenue	<u>\$11,975</u>	<u>\$7,520</u>	<u>\$8,228</u>	<u>\$(4,945)</u>	<u>\$22,778</u>
Segment operating profit	<u>\$ 3,973</u>	<u>\$1,054</u>	<u>\$1,506</u>	<u>\$ (189)</u>	<u>\$ 6,344</u>
Research and development					(2,689)
Interest income					1,323
Income taxes					(1,716)
Net income					<u>\$ 3,262</u>
Total assets	<u>\$38,024</u>	<u>\$4,409</u>	<u>\$5,870</u>	<u>\$(6,120)</u>	<u>\$42,183</u>

# Corporate Information

## Directors and Officers



**Robert J. Atkinson†\***  
President and Chief Executive Officer  
Lumonics Inc.



**Allan R. Buchanan†\***  
Chairman  
Lumonics Inc.



**Douglas C. Cameron†**  
President  
Noranda Enterprise Limited



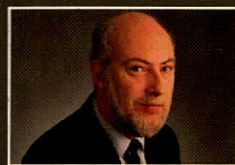
**Allan V. Castledine†**  
Chairman  
Davidson Partners Limited



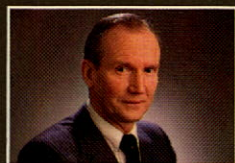
**Charles J. Gardner, Q.C.†**  
Partner  
Goldberg, Shinder, Gardner,  
Kronick & Tavel



**Richard E. Hall\***  
Secretary and Treasurer  
Lumonics Inc.



**Douglas J. James\***  
Vice President  
Kanata Operations  
Lumonics Inc.



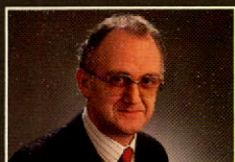
**R. Timothy Kenny†**  
President and  
Chief Executive Officer  
James Maclaren  
Industries Inc.



**Gordon A. Mauchel†\***  
Vice President  
Marketing and Corporate  
Development  
Lumonics Inc.



**H.R. Noon†**  
Assistant Director  
The College of Management  
(Dunchurch, England)



**James K. Wright†\***  
Vice President  
Lumonics Inc. and  
Joint Managing Director  
JK Lasers Limited

† Director  
\* Officer

## Auditors

Deloitte Haskins & Sells  
Ottawa, Ontario

Arthur Andersen & Co.  
Birmingham, England

## Transfer Agents

The Canada Trust Company  
Toronto, Ontario

## Stock Exchange Listing

The Toronto Stock Exchange  
Symbol LUM

## Solicitors

Goldberg, Shinder, Gardner,  
Kronick & Tavel  
Ottawa, Ontario

Tory, Tory, DesLauriers &  
Binnington  
Toronto, Ontario

## Bankers

Canadian Imperial Bank of  
Commerce  
Ottawa, Ontario

## Locations

### Corporate Centre

Lumonics Inc.  
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Fax (613) 592-5706

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Telex 165-801  
Fax (602) 438-2334

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U.S.A.  
(213) 598-8387

Eastern Regional Sales Office  
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Mineola  
New York 11501 U.S.A.  
(516) 746-2226

Midwestern Regional  
Sales Office  
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Illinois 60018 U.S.A.  
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## Japan

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81 42666 2213  
Fax 81 42666 0068

## Other

Contact the Corporate Centre  
for authorized Lumonics  
sales representatives and  
distributors throughout the  
world.

**The Annual and Special  
Meeting of the Share-  
holders of Lumonics Inc.  
will be held at 4:00 p.m.  
on Monday, April 30,  
1984, in the Rideau Room  
of the Four Seasons  
Hotel, Ottawa, Ontario,  
Canada.**

Printed in Canada

LUMONICS