

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 March 31, 2001.
- Transition Report Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934  
For the transition period from \_\_\_\_\_ to \_\_\_\_\_.

COMMISSION FILE NUMBER 0-16106

APA OPTICS, INC.  
(Exact Name of Registrant as Specified in its Charter)

MINNESOTA  
(State or other jurisdiction of  
incorporation or organization)

41-1347235  
(I.R.S. Employer  
Identification No.)

2950 N.E. 84TH LANE  
BLAINE, MINNESOTA 55449  
(763) 784-4995  
(Address, including ZIP code and telephone number, including area code, of  
registrant's principal executive office)

Securities registered pursuant to Section 12(b) of the Act:  
NONE

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

COMMON STOCK, PAR VALUE \$.01 PER SHARE  
(TITLE OF CLASS)

SERIES B PREFERRED SHARE PURCHASE RIGHTS  
(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 Exchange Act during the preceding 12 months and (2) has been subject to the filing requirements for the past 90 days.  YES  NO

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K.

The aggregate market value of the voting stock held by non-affiliates of the registrant as of May 18, 2001, was approximately \$90,555,682.

The number of shares of common stock outstanding as of May 18, 2001 was 11,915,165.

DOCUMENTS INCORPORATED BY REFERENCE:

Portions of our proxy statement for the annual shareholders meeting to be held in August 2001 are incorporated by reference into Part III.

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PART I

ITEM 1. BUSINESS.

(A) GENERAL DEVELOPMENT OF BUSINESS.

Since the founding of APA Optics, Inc. in 1979, we have focused on leading edge research in sophisticated optoelectronics and optical systems, with the primary goal of developing advanced products for subsequent marketing and fabrication. We currently manufacture and market dense wavelength division multiplexer (DWDM) optical components, a range of gallium nitride-based devices and services, and custom optics products.

For the last several years our goal has been to manufacture and market products and components based on our technology developments. We have focused our efforts on DWDM components for fiber optic communications and gallium nitride-based ultraviolet (UV) detectors (both components and integrated detector/electronic/display packages) because we believe that these two product areas have significant potential markets and because we have expertise and/or patent positions relevant to them.

In fiscal 2000 we eliminated our R&D contracts (historically a significant

source of revenue for us) to concentrate on development and production of our own proprietary products. This shift has significantly reduced our revenues and increased our losses, which will continue until we realize significant revenues from these products.

(B) DESCRIPTION OF BUSINESS.

Products

We currently offer the products described below.

- - Dense Wavelength Division Multiplexing (DWDM) Components. We manufacture

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and market a family of DWDM multiplexing/demultiplexing components based on patented bulk diffraction grating technology. These components enable fiber optic networks to transmit data simultaneously on several wavelengths of light within each optical fiber of a cable as opposed to a single wavelength of light in networks not employing DWDM technology. This multiplexing of data streams using different wavelengths of light significantly increases the volume of data transmission through an optical network without requiring the installation of additional fiber optic cable. Our DWDM components offer leading-edge performance for key parameters, such as insertion loss and crosstalk, which determine the integrity of the signals combined on the fiber. These advantages are magnified as more and more individual signals are multiplexed onto a single fiber, a current trend in the industry.

Our design allows us to configure DWDM components to work with singlemode or multimode optical fiber. Single mode fiber is typically associated with transmission over long distances (required for long haul networks) and metro area rings, while multimode fiber is typically associated with shorter networks found in campus and local area networks. Multimode demultiplexers are also an enabling component for multiwavelength fiber free communications systems.

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We hold three patents in this field, the earliest of which was issued in September 1995. In addition there are two pending patents and numerous international filings covering key markets in Europe and Asia.

- - Ultraviolet (UV) Detectors and Related Products. We currently manufacture

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and sell a wide range of UV detectors. The UV detectors are high response compound semiconductor devices based on gallium nitride (GaN) and aluminum gallium nitride (AlGaN). They are compact and rugged compared to competing technologies and have applications in spectrometry, UV curing processes, UV lamp monitors, solar radiation measurement, excimer-laser measurement and calibration, biomedical instrumentation, and flame detection and monitoring. We have been awarded seven patents in the area of compound semiconductor devices and have two pending.

- - Custom Optical Products. We manufacture and sell custom optical products

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to third parties; however, we expect a significant portion of our capacity in this area to be directed at supplying components for our DWDM components in the future. Custom optical products include:

- Optical Lens Systems. We design and build multi-element lens systems

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and components, including mounting structures, for precision quality optical needs in many applications, including laser-based systems, imaging systems, inspection systems, display systems, display optics, focusing optics for ultraviolet fire alarms, alignment verification optics for dual magnetic recording heads, and multi-magnification optics systems for optical comparators.

- Optical Thin Film Coatings. We custom design, develop, and fabricate

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optical thin film coatings for optical components of lasers, laser systems, optical instruments, and optical devices. Our antireflective coatings are deposited onto Company-fabricated lens components. We also use our thin film coating facility to design, develop and fabricate coatings for lens components supplied by customers.

We plan to actively market the following product in Fiscal 2002:

- - Sun(UV)Watch(R). In prior fiscal years we trial marketed our

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Sun(UV)Watch(R). Based on the results of this trial marketing we made several improvements to the Sun(UV)Watch(R). The Sun(UV)Watch(R) detects and monitors potential cancer causing UV radiation and sounds an alarm when the maximum safe exposure time based on government recommendations is reached. All of our UV sensing value-added products are built around our production UV detectors and, therefore, do not require significant

additional financial resources for development.

Our research and development efforts are currently focused on the products described below.

- - Compound Semiconductor Electronic Devices: We have been a pioneer in the  
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research of high power and high frequency transistors based on GaN and AlGaN and are pursuing this area for commercialization. There are significant markets emerging for these devices with the rapid growth of cellular phone use and the associated infrastructure and in other wireless applications. Two of our seven awarded patents in this technology are fundamental to the transistor structure. The development of products in this area will require the commitment of significant resources.

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- - Components and Modules for Fiber Optics Networks: Building on the strength  
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of our DWDM components, the Company is developing new components and value-added modules for fiber optics telecommunications networks. An alliance with Harris Corporation has been formed to jointly develop and market a product utilizing our DWDMs which enables 10 Gigabit Ethernet to be easily retrofitted to existing fiber installations in short haul (distances under 1,000 meters) applications such as business and academic campuses. We are also exploring other variants of the DWDM line incorporating passive and active functions. Much of this work is based on a technology called integrated optics, which creates optical devices on chips with integrated circuit-like processes. The 10 Gigabit Ethernet product is based on our current DWDM technology and will not require significant resources for further development. The development of products based on integrated optics technology will require the commitment of significant resources.

#### Marketing and Distribution

We market our DWDM and UV detector products through a variety of channels including advertising in relevant professional magazines, showcasing them in trade shows, direct mailing, personal visits, and by use of distributors in various countries (including Japan, Germany, Italy and France). While we do not currently maintain an internal sales force, we do have individual sales managers who focus on the sales of DWDM components and UV detection devices. We also maintain product information on our Web site.

#### Sources of Raw Materials

Several purchased materials and components are used in the manufacturing of our products. Most of these are readily available from multiple suppliers. Some critical optical components are purchased from a single or a limited number of suppliers. We are working with other optical manufacturers to develop additional sources of these components as well as pursuing internal development of this capability for some of these components. The loss of access to some components would have a material adverse effect on our ability to deliver products on a timely basis and on our financial performance.

#### Patents and Intellectual Property

As of March 31, 2001, we had 16 patents issued or applied for in the U.S. and three issued or applied for outside the U.S. We believe our success heavily depends upon technology we develop internally. The markets for our products are characterized by rapid change and continual innovation that could render our technology and patents obsolete before their statutory protection expires. Several of the companies we compete with have greater research and development resources than we do and could develop technologies and products that are similar or even superior to ours without infringing on our intellectual property. Similarly, we cannot make assurances that others will not claim infringement by us with respect to our products and technology.

#### Environmental Compliance

Because we handle a number of chemicals in our operations, we must comply with federal, state and local laws and regulations regarding the handling and disposal of such chemicals. To date the cost of such compliance has not been material.

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#### Major Customers

In prior years, we provided research and development services under contracts with various governmental agencies. Currently, we have no material contracts with any such agencies.

During Fiscal 2001, revenues from three customers represented 19%, 16% and 15% of our total revenues each. While significant as a percentage of revenues,

the revenues in real dollars were not as significant and the loss of any one of these customers would not have a material adverse effect on the Company. In addition to the customers referred to above, revenues from government agencies constituted more than ten percent of our total operating revenues in fiscal years 2000 and 1999:

Name	Year Ended March 31		
	2001	2000	1999
Government Agencies*	0%	38%	67%

\*Represents services to several operating agencies of the U.S. Government, as follows:

	2001	2000	1999
Air Force	--	--	15%
Army	--	35%	0
Navy	--	3	12
ARPA	--	--	40
Total	0%	38%	67%

#### Backlog

Our backlog of orders for DWDM components was approximately \$545,000 at March 31, 2001 compared to zero at March 31, 2000 and 1999. We expect the entire backlog to be shipped in the current fiscal year.

We had no backlog of uncompleted research contracts at March 31, 2001, as compared to \$28,400 at March 31, 2000, and \$189,000 at March 31, 1999. The elimination of the backlog in uncompleted contracts is the direct result of our shift from contract R&D to product development and promotion.

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#### Competition

The optoelectronics and compound semiconductor electronic device markets are evolving rapidly and, therefore, the competitive landscape changes continually. The opportunities presented by these markets have fostered a highly competitive environment. This competition will likely result in price reductions and lower profit margins for the companies serving this market. Many of the companies engaged in these businesses are well financed and have significantly greater research, development, production, and marketing resources than we do. Some of these companies have long operating histories, well-established distribution channels, broad product offerings and extensive customer bases. Our ability to compete with these companies will depend largely on the performance of our devices, our ability to innovate and develop solutions for our customers, our intellectual property and our ability to convince customers to adopt our technology early in their design cycle. Competitors for our DWDM products would include Lightwave Microsystems, Inc., Photonetics, Inc., and JDS Uniphase Corporation. Competitors for our GaN products would include Cree, Inc., Nitronex Corporation, and Emcore Corporation.

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#### Research and Development

During the fiscal years ended March 31, 2001, 2000, and 1999, we spent approximately \$1,176,000, \$919,000, and \$682,000, respectively, on research and development, all of which was related to the DWDM, UV detector and related products. In addition, in fiscal year 2001, we had no research activities sponsored by customers compared to \$978,000 and \$837,000 for fiscal years 2000 and 1999. We operate in highly competitive and rapidly evolving markets and plan to commit significant resources for research and development for the foreseeable future. We will consider locating research and development facilities in locations other than our current facilities in Minnesota and South Dakota based on several factors, including accessibility to qualified personnel and facility costs.

#### Employees

As of March 31, 2001, we had 58 full-time employees (including executive officers). Our future performance is dependent on our ability to attract, train, and retain highly qualified personnel. We have no employment agreements with our employees. The loss of one or more key employees could negatively impact the Company.

#### FACTORS THAT MAY AFFECT FUTURE RESULTS

The statements contained in this report on Form 10-K that are not purely

historical are "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995 and Section 21E of the Securities Exchange Act of 1934, including, without limitations, statements regarding the Company's expectations, hopes, beliefs, anticipations, commitments, intentions and strategies regarding the future. Forward-looking statements include, but are not limited to, statements contained in "Item 1. Business" and "Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations." Actual results could differ from those projected in any forward-looking statements for the reasons, among others, detailed below. We believe that many of the risks detailed here are part of doing business in the industry in which we compete and will likely be present in all periods reported. The fact that certain risks are characteristic to the industry does not lessen the significance of the risk. The forward-looking statements are made as of the date of this Form 10-K and we assume no obligation to update the forward-looking statements or to update the reasons why actual results could differ from those projected in the forward-looking statements.

Unless We Generate Significant Revenue Growth, Our Increasing Expenses And Negative Cash Flow Will Significantly Harm Our Financial Position.

We have not been profitable since fiscal 1990. As of March 31, 2001, we had an accumulated deficit of \$13.5 million. We may incur operating losses for the foreseeable future, and these losses may be substantial. Further, we may continue to incur negative operating cash flow in the future. We have funded our operations primarily through the sale of equity securities and borrowings. We have significant fixed expenses and we expect to continue to incur significant and increasing manufacturing, sales and marketing, product development and administrative expenses. As a result, we will need to generate higher revenues while containing costs and operating expenses if we are to achieve profitability.

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We Must Increase Our Manufacturing Capacity Or We Will Not Be Able To Deliver Our Products To Our Customers In A Timely Manner.

Manufacturing of our products is a complex and precision process. We have limited experience in rapidly increasing our manufacturing capacity or in manufacturing products at high volumes. We will be required to hire, train and manage additional manufacturing personnel and improve our production processes in order to increase our production capacity. There are numerous risks associated with rapidly increasing capacity, including:

- (i) Difficulties in achieving adequate yields from new manufacturing lines,
- (ii) Difficulty maintaining the precision manufacturing processes required by our products while increasing capacity,
- (iii) The inability to timely procure and install the necessary equipment, and
- (iv) Lack of availability of qualified manufacturing personnel.

Our manufacturing expansion and related capital expenditures are being made in anticipation of a level of customer orders that may not be realized. If anticipated levels of customer orders are not received, we will not be able to generate positive gross margins and profitability.

Our Dependence On Outside Manufacturers May Result In Product Delivery Delays.

We purchase components that are incorporated into our products from outside vendors. If these vendors fail to supply us with components on a timely basis, we could experience significant delays in shipping our products. Any significant interruption in the supply or support of any components could seriously harm our sales and our relationships with our customers.

Our Products May Have Defects That Are Not Detected Before Delivery to Our Customers.

Some of our products are designed to be deployed in large and complex optical networks and must be compatible with other components of the system, both current and future. In addition, our products may not operate as expected over long periods of time. Our customers may discover errors or defects in our products only after they have been fully deployed. If we are unable to fix errors or other problems, we could lose customers, lose revenues, suffer damage to our brand and reputation, and lose our ability to attract new customers or achieve market acceptance. Each of these factors would negatively impact cash flow and would seriously harm our business, financial condition and results of operations.

We Will Need To Introduce New Products And Product Enhancements to Increase Revenue.

The successful operation of our business depends on our ability to

anticipate market needs and to develop and introduce new products and product enhancements that respond to technological changes or evolving industry standards on a timely and cost-effective basis. Our products are complex, and new products may take longer to develop than originally anticipated. These products may contain defects or have unacceptable manufacturing yields when first introduced or as new versions are released. Our products could quickly become obsolete as new technologies are introduced. We must continue to develop leading-edge products and introduce them to the commercial market quickly in order to be successful. Our failure to produce technologically competitive products in a cost-effective manner and on a timely basis will seriously harm our business, financial condition and results of operations.

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Our Markets Are New And Are Characterized By Rapid Technological Changes And Evolving Standards.

The markets we serve are characterized by rapid technological change, frequent new product introductions, changes in customer requirements and evolving industry standards. In developing our products, we have made, and will continue to make, assumptions with respect to which standards will be adopted within our industry. If the standards that are actually adopted are different from those that we have chosen to support, our products may not achieve significant market acceptance.

Demand for Our Products is Subject To Significant Fluctuation.

Demand for our products is dependent on several factors including capital expenditures in the communications industry. Capital expenditures can be cyclical in nature and result in protracted periods of reduced demand for component parts. Similarly, periods of slow economic expansion or recession can result in periods of reduced demand for our products. Such periods of reduced demand will harm our business, financial condition and results of operations.

ITEM 2. PROPERTIES.

We have corporate offices, manufacturing facilities, and laboratories located in an industrial building at 2950 N.E. 84th Lane, Blaine, Minnesota. We currently lease 23,500 square feet of space under a sublease from Jain-Olsen Properties, a partnership consisting of Anil K. Jain and Kenneth A. Olsen, officers and directors of the Company. See Note 10 of Notes to Financial Statements included under Item 8 hereof. We own land directly west of the Blaine facility that may be used for future expansion.

We also own a 24,000 square foot production facility in Aberdeen, South Dakota, which is used for assembly of our DWDM components and UV detectors. The land upon which this facility is located was granted to us as part of a financing package from the city of Aberdeen. See Note 5 of Notes to Financial Statements included under Item 8 in this Report for further information regarding the financing of this facility.

We believe that these two facilities will be adequate for our needs for the foreseeable future.

ITEM 3. LEGAL PROCEEDINGS.

We are not currently involved in any material legal proceedings.

ITEM 4. SUBMISSION OF MATTERS TO A VOTE OF SECURITY-HOLDERS.

No matter was submitted to a vote of security holders during the fourth quarter of the fiscal year covered by this Report.

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EXECUTIVE OFFICERS OF THE REGISTRANT

The following is a list of our executive officers, their ages, positions and offices as of March 31, 2001.

NAME	AGE	POSITION
Dr. Anil K. Jain	55	Chief Executive Officer and President
Kenneth A. Olsen	57	Vice President and Secretary
Robert M. Ringstad	44	Chief Financial Officer

DR. ANIL K. JAIN has been a Director, Chief Executive Officer and President since March 1979. He also served as Chief Financial Officer until August 2000. From 1973 until October 15, 1983, when Dr. Jain commenced full time employment with the Company, he was employed at the Systems and Research Center at Honeywell Inc. as a Senior Research Fellow, coordinating optics-related

development.

KENNETH A. OLSEN has been a Director since 1980, Secretary since 1983, and Vice President since 1992. Prior to joining the Company, he had been with 3M Corp., St. Paul, Minnesota.

ROBERT M. RINGSTAD has been Chief Financial Officer since joining the Company in August 2000. Prior to joining the Company he was Vice President and Controller of Echostar Communications Corporation, Englewood, Colorado from October 1999 to January 2000. From October 1997 until March 2000 Mr. Ringstad was Chief Financial Officer and Chief Operating Officer for World Satellite Network, Inc., Minneapolis, Minnesota. Prior to joining World Satellite Network, Mr. Ringstad was employed with Family Partners, Ltd. of Minneapolis, MN.

PART II

ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY AND RELATED STOCKHOLDER MATTERS.

Our common stock is traded on The Nasdaq National Market under the symbol "APAT." The following table sets forth the quarterly high and low sales prices for our common stock for each quarter of the past two fiscal years as reported by Nasdaq.

<TABLE>		
<CAPTION>		
<S>	<C>	<C>
FISCAL 2001	HIGH	LOW
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Quarter ended June 30, 2000 . . . . .	\$36.00	\$12.25
Quarter ended September 30, 2000 . . . . .	24.38	9.75
Quarter ended December 31, 2000 . . . . .	17.31	5.50
Quarter ended March 31, 2001 . . . . .	11.81	6.06
FISCAL 2000	HIGH	LOW
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Quarter ended June 30, 1999 . . . . .	\$ 8.50	\$ 5.25
Quarter ended September 30, 1999 . . . . .	7.93	3.50
Quarter ended December 31, 1999 . . . . .	19.50	3.88
Quarter ended March 31, 2000 . . . . .	64.00	11.31

There were approximately 350 holders of record of our common stock as of March 31, 2001.

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We have never paid cash dividends on our common stock. The loan agreement relating to certain bonds issued by the South Dakota Economic Development Finance Authority restricts our ability to pay dividends.

ITEM 6. SELECTED FINANCIAL DATA.

<TABLE>					
<CAPTION>					
	2001	2000	1999	1998	1997
<S>	<C>	<C>	<C>	<C>	<C>
Statements of Operations Data					
Revenues . . . . .	\$ 885,740	\$ 420,809	\$ 722,030	\$2,190,637	\$2,769,270
Net loss . . . . .	(2,986,446)	(3,796,296)	(2,513,798)	(967,767)	(11,023)
Net loss per share, basic and diluted . . . . .	(.29)	(.43)	(.30)	(.12)	--
Weighted average number of shares, basic and diluted . . . . .	11,180,165	8,744,125	8,512,274	8,376,661	8,192,879
Balance Sheet Data					
Total assets . . . . .	\$41,914,451	\$ 9,610,391	\$ 6,804,976	\$9,629,912	\$9,419,398
Long-term obligations, including current portion . . . . .	2,836,831	3,049,258	3,214,712	3,609,652	3,829,004
Shareholders' equity . . . . .	38,280,299	6,306,049	3,389,295	5,859,863	5,412,968

The above selected financial data should be read in conjunction with the financial statements and related notes included under Item 8 of this Report and "Management's Discussion and Analysis of Financial Condition and Results of Operations" appearing in Item 7 of this Report.

ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS.

General

We are engaged in designing, manufacturing, and marketing of various optoelectronic products, ultraviolet (UV) detectors and related products and optical components. For several years, we also received significant revenues from research and development services projects sponsored by various government agencies. In fiscal 1998, we shifted our emphasis from research and development to product development, with the intent to eventually manufacture and market our own proprietary products. Accordingly, revenues from research and development contracts decreased significantly in fiscal 2000 and we received no revenues from this source in fiscal 2001.

For the last several years our goal has been to manufacture and market products/components based on our technology developments. We have focused on dense wavelength division multiplexer (DWDM) components for fiber optic communications and gallium nitride-based ultraviolet (UV) detectors (both components and integrated detector/electronic/display packages) because we believe that these two product areas have significant potential markets and because we have expertise and/or patent positions related to them.

#### Results of Operations

Fiscal 2001 Compared to Fiscal 2000. Operating revenues for fiscal 2001  
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were \$885,740, an increase of 110% from operating revenues of \$420,809 in fiscal 2000. The increase in revenues came primarily from sales of DWDM components, which totaled \$733,590 in Fiscal 2001. Our backlog of DWDM component orders was

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approximately \$545,000 as of March 31, 2001. There were no contract fees in fiscal 2001 compared to \$160,108 in fiscal 2000 and we had no backlog of uncompleted contracts at March 31, 2001. We believe we have made significant progress in marketing our new products and that revenues from sales of such products will continue to increase in fiscal 2002.

Cost of sales increased by 88%, to \$2,663,192, in fiscal 2001 from \$1,415,229 in fiscal 2000. Gross margin for product sales was negative in both fiscal 2001 and fiscal 2000, reflecting continued increased personnel and manufacturing costs and relatively low sales. The negative gross margins are influenced by the low unit production and sales levels relative to the capital equipment and personnel committed to production in the early phases of market penetration of our products. We expect to continue to experience negative gross margins until there is a significant increase in sales and production levels. Cost of contract fees was eliminated as no contract research was performed in fiscal 2001.

Selling, general and administrative expenses increased by 117% to \$1,866,766 from \$862,170 in fiscal 2000. The increase reflects additional compensation costs, non-cash compensation related to non-qualified stock options granted to employees, the cost of adopting a shareholder rights plan, and fees associated with moving to the Nasdaq National Market.

Research and development expenses increased by approximately 28% in fiscal 2001, to \$1,175,564 from \$918,811 in fiscal 2000. The increase results from the Company's continued investment in the development of its DWDM and GaN technologies. The Company plans to expand its research and product development activities in the future and will incur increased expenses related to these activities.

We reported a loss from operations in fiscal 2001 of \$4,819,782, a substantial increase over the loss from operations of \$3,753,623 in fiscal 2000. The increase in the loss results primarily from increased expenditures for selling, general and administrative and additional expenditures for research and development.

We realized \$2,002,713 in interest income in fiscal 2001, up 1882% from \$100,989 in fiscal 2000, reflecting increased average balances of cash and short-term investments during the year. Interest expense in fiscal 2001 totaled \$135,323, down 5% from \$142,662 in fiscal 2000, reflecting reduced balances on outstanding obligations.

Our net loss in fiscal 2001 was \$2,953,392 compared to \$3,796,296 in fiscal 2000. The decrease in the loss was primarily a result of increased revenues and significantly higher interest income from the investment of cash raised during the fiscal year. Further losses can be expected until revenues from production increase, or operating costs decrease, sufficiently to produce positive cash flow.

Fiscal 2000 Compared to Fiscal 1999. Operating revenues for fiscal 2000  
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were \$420,809, a decrease of 42% from operating revenues of \$722,030 in fiscal 1999. The decrease in revenues reflects the decision to focus on product development rather than contract research and development. Contract fees decreased from \$484,329 in fiscal 1999 to \$160,108 in fiscal 2000, and our backlog of uncompleted contracts at March 31, 2000 was \$28,400 as compared to \$189,000 at March 31, 1999. Revenues from sales of products increased by



approximately 10% as compared to fiscal 1999.

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Cost of sales increased by approximately 33%, to \$1,415,229 in fiscal 2000 from \$1,066,820 in fiscal 1999. Cost of contract fees increased by 17% from \$837,242 to \$978,222 in fiscal 2000. Gross margin for product sales was negative reflecting continued personnel and product development costs. Research and development expenses increased by approximately 35% in fiscal 2000, to \$918,811 from \$681,730 in fiscal 1999, and selling, general and administrative expenses increased by 18% to \$862,169 from \$727,988 in fiscal 1999. The increase in costs of sales, research and development and selling, general and administrative expenses resulted from our focus on product development, including the hiring of additional personnel for production, marketing, and sales.

The loss from operations in fiscal 2000 was \$3,753,623, a substantial increase over the loss from operations of \$2,591,750 in fiscal 1999. This loss resulted from the combination of significantly decreased revenues without a corresponding decrease in costs and expenses.

We realized \$100,989 in interest income in fiscal 2000, down 56% from \$228,195 in fiscal 1999, reflecting lower average cash balances during the year. Interest expense in fiscal 2000 totaled \$142,662, down 4% from \$149,243 in fiscal 1999, reflecting reduced balances on outstanding obligations.

Our net loss in fiscal 2000 was \$3,796,296, compared to \$2,513,798 in fiscal 1999. As noted above, this loss was primarily a result of significantly decreased revenues and significantly higher cost of sales and other operating expenses.

#### Liquidity and Capital Resources

Our cash, cash equivalents and short-term investments at March 31, 2001, totaled \$36,984,492 as compared to \$5,941,906 at March 31, 2000.

Cash used in operating activities was \$2,230,867 in fiscal 2001, \$3,497,892 in fiscal 2000 and \$1,939,439 in fiscal 1999. The change in the use of net cash in operating activities in fiscal 2000 was primarily related to the increase in the Company's net loss to \$3,796,296 from \$2,513,798 in fiscal 1999. The change in the use of net cash in operating activities in fiscal 2001 was primarily related to the decrease in the net loss in fiscal 2001 to \$2,953,392 and an increase in the amount of accounts payable as a result of increased purchasing for operations at the end of fiscal 2001.

The Company used net cash of \$16,995,645 in investing activities in fiscal 2001, \$15,759,000 of which was invested in short-term investments. During fiscal 2001 we received net cash of \$34,510,098 from financing activities that included proceeds of \$39,557,304 from the sale of common stock and the use of \$5,033,054 to retire preferred stock issued in fiscal 2000. During fiscal 2000, we received \$6,862,343 net cash from financing activities, primarily from sales of our common and preferred stock. The Company invested \$1,128,453, \$195,342 and \$236,891 in plant and equipment in fiscal 2001, fiscal 2000 and fiscal 1999, respectively. In all three years, such property and equipment was purchased primarily for the Aberdeen facility.

In connection with the construction of the manufacturing facility in Aberdeen, we took advantage of certain economic incentive programs offered by the State of South Dakota and the City of Aberdeen. At March 31, 2001, the total principal outstanding on the several loans obtained in connection with these financing packages was \$2,836,831. Interest on the loans ranges from 0% to 6.75%, and the loans are due between 2003 and 2016. These loans require compliance with certain financial covenants. We were out of compliance with some of these covenants with respect to one of the loans in fiscal 2001. For further information regarding these loans, see Note 5 of Notes to Financial Statements included under Item 8 of this Report.

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Our capital requirements are dependent upon several factors including market acceptance of our products, the timing and extent of new product introductions and delivery, and the costs of marketing and supporting our products on a worldwide basis. See "Item 1. Business."

Although we believe that our current cash, cash equivalents, and short-term investments will be sufficient to fund our operations for at least the next 12 months, we cannot assure you that we will not seek additional funds through public or private equity or debt financing or from other sources within this time frame or that additional funding, if needed, will be available on terms acceptable to us, or at all. We may also consider the acquisition of, or evaluate investments in, products and businesses complementary to our business. Any acquisition or investment may require additional capital.

Statements in this Report about future sales prospects and other matters to occur in the future are forward looking statements and are subject to uncertainties due to many factors, many of which are beyond our control. These factors include, but are not limited to, the continued development of our products, acceptance of those products by potential customers, our ability to sell such products at a profitable price, and our ability to fund our operations. For further discussion regarding these factors, see "Factors That May Affect Future Results" in "Item 1. Business" in this Report.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK.

Our exposure to market risk for changes in interest rates relates primarily to our investment portfolio. We invest in short-term securities of high credit issuers with maturities ranging from overnight up to 24 months. The average maturity of the portfolio does not exceed 12 months. The portfolio includes only marketable securities with active secondary or resale markets to ensure liquidity. We have no investments denominated in foreign country currencies and, therefore, our investments are not subject to foreign exchange risk. See "Cash and Equivalents" and "Short-term Investments" under Note 1. of the Audited Financial Statements.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA.

Quarterly Results of Operations. The following tables present our unaudited quarterly operating results for the eight quarters ended March 31, 2001:

<TABLE>  
<CAPTION>

	Quarter Ended			
	June 30, 1999	September 30, 1999	December 31, 1999	March 31, 2000
Statement of Operations Data				
<S>	<C>	<C>	<C>	<C>
Net revenue . . . . .	\$ 66,597	\$ 36,029	\$ 136,516	\$ 181,666
Gross profit (loss) . . . . .	(431,180)*	(495,742)	(576,227)	(469,493)
Net loss . . . . .	(916,590)	(955,512)	(988,740)	(935,454)
Net loss per share . . . . .	\$ (0.11)	\$ (0.11)	\$ (0.11)	\$ (0.10)

	Quarter Ended			
	June 30, 2000	September 30, 2000	December 31, 2000	March 31, 2001
Statement of Operations Data				
Net revenue . . . . .	\$ 51,517	\$ 123,462	\$ 280,945	\$ 429,816
Gross profit (loss) . . . . .	(354,555)	(486,258)	(456,119)	(480,520)
Net loss . . . . .	(909,675)	(596,999)	(636,837)	(809,880)
Net loss per share . . . . .	\$ (0.12)**	\$ (0.05)	\$ (0.05)	\$ (0.07)

<FN>  
\* The statement of operations data reflects a reclass of previously reported numbers.

\*\* Reflects a loss of \$(0.02) per share related to the redemption of preferred stock.

</TABLE>

See Item 14(a)(1) for financial statements filed with this Report.

ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE.

None.

PART III

ITEM 10. DIRECTORS AND EXECUTIVE OFFICERS OF THE REGISTRANT.

Information regarding executive officers is included in Part I of this Report

Information regarding directors and the information required by Items 11, 12, and 13, below, is incorporated in this Report by reference to the proxy statement for our annual meeting of shareholders (anticipated to be held in August 2001).

ITEM 11. EXECUTIVE COMPENSATION.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS.

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ITEM 14. EXHIBITS, FINANCIAL STATEMENT SCHEDULES, AND REPORTS ON FORM 8-K.

<TABLE>  
<CAPTION>  
<S>

(a) (1) The following financial statements are filed herewith under Item 8.

<C>

	Page
(i) Report of Independent Auditors . . . . .	18
(ii) Balance Sheets as of March 31, 2000 and 2001 . . . . .	19
(iii) Statements of Operations for the years ended March 31, 2001, 2000 and 1999 . . . . .	20
(iv) Statement of Shareholders' Equity for the years ended March 31, 2001, 2000 and 1999 . . . . .	21
(v) Statements of Cash Flows for the years ended March 31, 2001, 2000 and 1999 . . . . .	22
(vi) Notes to the Financial Statements at March 31, 2001 . .	23-33

</TABLE>

(2) Financial Statement Schedules: None

(a) Reports filed on Form 8-K:

No reports on Form 8-K were filed during the fourth quarter of the fiscal year ended March 31, 2001.

(c) Exhibits. See Exhibit Index on pages 34-35.

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SIGNATURES

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

APA Optics, Inc.

Date: June 29, 2001

By /s/ Anil K. Jain

-----  
Anil K. Jain  
President

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the Registrant and in the capacities and on the dates indicated.

SIGNATURE	TITLE	DATE
-----		
/s/ Anil K. Jain ----- Anil K. Jain	President, Chief Executive Officer, and Director	June 29, 2001
/s/ Kenneth A. Olsen ----- Kenneth A. Olsen	Secretary, Vice President, and Director	June 29, 2001
/s/ Robert M. Ringstad ----- Robert M. Ringstad	Chief Financial Officer	June 29, 2001
/s/ Gregory Von Wald ----- Gregory Von Wald	Director	June 29, 2001
/s/ William R. Franta ----- William R. Franta	Director	June 29, 2001
/s/ Michael A. Gort ----- Michael A. Gort	Director	June 29, 2001

## Report of Independent Auditors

The Board of Directors and Shareholders  
APA Optics, Inc.

We have audited the accompanying balance sheets of APA Optics, Inc. as of March 31, 2001 and 2000, and the related statements of operations, shareholders' equity, and cash flows for each of the three years in the period ended March 31, 2001. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with auditing standards generally accepted in the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of APA Optics, Inc. as of March 31, 2001 and 2000, and the results of its operations and its cash flows for each of the three years in the period ended March 31, 2001, in conformity with accounting principles generally accepted in the United States.

/s/ Ernst & Young LLP

Minneapolis, Minnesota  
May 11, 2001

<TABLE>  
<CAPTION>

## APA Optics, Inc.

## Balance Sheets

	MARCH 31	
	2001	2000
	-----	-----
<S>	<C>	<C>
ASSETS		
Current assets:		
Cash and cash equivalents	\$ 21,225,492	\$ 5,941,906
Short-term investments	15,759,000	-
Accounts receivable	370,859	209,337
Inventories:		
Raw materials	405,238	146,841
Work-in-process	10,078	129,684
Prepaid expenses	30,064	19,803
Bond reserve funds	65,000	65,000
	-----	-----
Total current assets	37,865,731	6,512,571
Property, plant, and equipment, net	3,248,191	2,459,760
Other assets:		
Bond reserve funds	351,630	213,353
Bond placement costs, net of accumulated amortization of \$204,000 in 2001 and \$156,000 in 2000	116,012	164,012
Patents, net of accumulated amortization of \$291,998 in 2001 and \$255,998 in 2000	112,192	40,000
Cash surrender value of life insurance	220,695	220,695
	-----	-----
Total other assets	800,529	638,060
	-----	-----
Total assets	\$ 41,914,451	\$ 9,610,391
	=====	=====
LIABILITIES AND SHAREHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	\$ 495,410	\$ 82,412
Accrued expenses	301,911	172,672
Current maturities of long-term debt	2,337,221	140,871
	-----	-----
Total current liabilities	3,134,542	395,955
Long-term debt	499,610	2,908,387

Shareholders' equity:		
Undesignated shares:		
Authorized shares - 4,999,500		
Issued and outstanding shares - -0-	-	-
Preferred stock, \$.01 par value:		
Authorized shares - 500		
Issued and outstanding shares - -0-	-	5
Common stock, \$.01 par value:		
Authorized shares - 50,000,000		
Issued and outstanding shares - 11,915,456 in 2001, 8,997,992 in 2000	119,155	89,980
Additional paid-in capital	51,614,972	16,408,446
Accumulated deficit	(13,453,828)	(10,192,382)
	-----	-----
Total shareholders' equity	38,280,299	6,306,049
	-----	-----
Total liabilities and shareholders' equity	\$ 41,914,451	\$ 9,610,391
	=====	=====

</TABLE>

See accompanying notes.

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<TABLE>  
<CAPTION>

APA Optics, Inc.

Statements of Operations

	YEAR ENDED MARCH 31		
	2001	2000	1999
<S>	-----	-----	-----
<C>	<C>	<C>	<C>
Revenues:			
Net sales	\$ 885,740	\$ 260,701	\$ 237,701
Contract fees	-	160,108	484,329
	-----	-----	-----
	885,740	420,809	722,030
Cost and expenses:			
Cost of sales	2,663,192	1,415,229	1,066,820
Cost of contract fees	-	978,222	837,242
Research and development	1,175,564	918,811	681,730
Selling, general, and administrative	1,866,766	862,170	727,988
	-----	-----	-----
	5,705,522	4,174,432	3,313,780
Loss from operations	(4,819,782)	(3,753,623)	(2,591,750)
Interest income	2,002,713	100,989	228,195
Interest expense	(135,323)	(142,662)	(149,243)
	-----	-----	-----
Loss before income taxes	(2,952,392)	(3,795,296)	(2,512,798)
Income taxes	1,000	1,000	1,000
	-----	-----	-----
Net loss	(2,953,392)	(3,796,296)	(2,513,798)
Preferred stock dividend	(33,054)	-	-
Excess of preferred stock redemption over carrying value	(275,000)	-	-
	-----	-----	-----
Net loss applicable to common shareholders	\$ (3,261,446)	\$ (3,796,296)	\$ (2,513,798)
	=====	=====	=====
Net loss per share:			
Basic and diluted	\$ (.29)	\$ (.43)	\$ (.30)
	=====	=====	=====
Weighted average shares outstanding:			
Basic and diluted	11,180,615	8,744,125	8,512,274
	=====	=====	=====

</TABLE>

See accompanying notes.

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<TABLE>  
<CAPTION>

APA Optics, Inc.

Statement of Shareholders' Equity

SHAREHOLDERS'	PREFERRED STOCK		COMMON STOCK		ADDITIONAL	ACCUMULATED	TOTAL
	SHARES	AMOUNT	SHARES	AMOUNT	PAID-IN CAPITAL	DEFICIT	EQUITY
--							
<S>	<C>	<C>	<C>	<C>	<C>	<C>	<C>
Balance at March 31, 1998	-	\$ -	8,512,274	\$ 85,123	\$ 9,657,028	\$ (3,882,288)	\$ 5,859,863
Warrants issued in lieu of debt service payments	-	-	-	-	43,230	-	43,230
Net loss (2,513,798)	-	-	-	-	-	(2,513,798)	
--							
Balance at March 31, 1999	-	-	8,512,274	85,123	9,700,258	(6,396,086)	3,389,295
Issuance of common stock	-	-	465,000	4,650	1,870,475	-	1,875,125
Warrants exercised	-	-	20,718	207	80,614	-	80,821
Issuance of preferred stock	500	5	-	-	4,724,995	-	4,725,000
Warrants issued in lieu of debt service payments	-	-	-	-	32,104	-	32,104
Net loss (3,796,296)	-	-	-	-	-	(3,796,296)	
--							
Balance at March 31, 2000	500	5	8,997,992	89,980	16,408,446	(10,192,382)	6,306,049
Issuance of common stock	-	-	2,845,868	28,459	39,528,845	-	39,557,304
Warrants exercised	-	-	64,646	646	252,584	-	253,230
Redemption of preferred stock	(500)	(5)	-	-	(4,724,995)	(308,054)	(5,033,054)
Warrants issued in lieu of debt service payments	-	-	-	-	51,172	-	51,172
Options exercised	-	-	6,950	70	32,080	-	32,150
Options issued as compensation	-	-	-	-	66,840	-	66,840
Net loss (2,953,392)	-	-	-	-	-	(2,953,392)	
--							
Balance at March 31, 2001	-	\$ -	11,915,456	\$119,155	\$51,614,972	\$ (13,453,828)	\$38,280,299

</TABLE>

See accompanying notes.

21

<TABLE>  
<CAPTION>

APA Optics, Inc.  
Statements of Cash Flows

	YEAR ENDED MARCH 31		
	2001	2000	1999
<S>	<C>	<C>	<C>
OPERATING ACTIVITIES			
Net loss	\$ (2,953,392)	\$ (3,796,296)	\$ (2,513,798)
Adjustments to reconcile net loss to net cash used in operating activities:			
Depreciation and amortization	424,022	424,085	491,275
Deferred compensation expense	66,840	-	-
Changes in operating assets and liabilities:			
Accounts receivable	(161,522)	(124,246)	151,193
Inventories	(138,791)	(54,658)	(64,746)
Prepaid expenses and other assets	(10,261)	(892)	(43,935)
Accounts payable and accrued expenses	542,237	54,115	40,572
Net cash used in operating activities	(2,230,867)	(3,497,892)	(1,939,439)
INVESTING ACTIVITIES			
Purchases of property and equipment	(1,128,453)	(195,342)	(236,891)
Purchase of short-term investments	(15,759,000)	-	-
Purchase of patents	(108,192)	(40,052)	(35,351)
Net cash used in investing activities	(16,995,645)	(235,394)	(272,242)
FINANCING ACTIVITIES			
Proceeds from sales of preferred stock	-	4,725,000	-
Payments for redemption of preferred stock	(5,033,054)	-	-
Proceeds from sales of common stock	39,557,304	1,875,125	-
Proceeds from exercise of warrants and options	285,380	80,821	-
Repayment of long-term debt	(161,255)	(133,350)	(351,710)
Bond reserve funds	(138,277)	314,747	192,025
Net cash provided by (used in) financing activities	34,510,098	6,862,343	(159,685)

Increase (decrease) in cash and cash equivalents	15,283,586	3,129,057	(2,371,366)
Cash and cash equivalents at beginning of year	5,941,906	2,812,849	5,184,215
Cash and cash equivalents at end of year	\$ 21,225,492	\$ 5,941,906	\$ 2,812,849
SUPPLEMENTAL DISCLOSURES OF NONCASH INVESTING AND FINANCING ACTIVITIES			
Warrants issued in lieu of debt service payments	\$ 51,172	\$ 32,104	\$ 43,230

</TABLE>

See accompanying notes.

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## 1. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

### NATURE OF BUSINESS

APA Optics, Inc. (the Company) currently manufactures and markets dense wavelength division multiplexer (DWDM) optical components, offers a range of gallium nitride-based devices and services, and manufacturers custom optics products.

Certain prior year amounts have been reclassified to conform with the current year presentation.

### REVENUE RECOGNITION

Sales are recorded upon shipment of product, at which point title transfers.

During 1999, the Company received a \$75,000 grant from the State of South Dakota when the Company hired its tenth employee at its Aberdeen, South Dakota production facility. The grant was designed to offset the costs of training new employees.

### CASH EQUIVALENTS

The Company considers all highly liquid investments with a maturity of three months or less when purchased to be cash equivalents. Investments classified as cash equivalents consist primarily of certificates of deposit. The fair value of investments approximates cost.

### SHORT-TERM INVESTMENTS

Short-term investments consist of certificates of deposit and are stated at cost plus accrued interest, which approximates market. The Company classifies its short-term investments as "held-to-maturity."

### INVENTORIES

Inventories are stated at the lower of cost or market. Cost is determined by the first-in, first-out (FIFO) method for raw materials, actual cost for direct labor, and average cost for factory overhead in work-in-process.

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## 1. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

### PROPERTY, PLANT, AND EQUIPMENT

Property and equipment are stated at cost. Depreciation is provided on the straight-line method over the following estimated useful lives of the assets:

YEARS  
=====

Building	20
Equipment	3 - 10
Leasehold improvements	15

### BOND PLACEMENT COSTS

Bond placement costs are amortized over five to eight years.

### PATENTS

Costs of obtaining and successfully defending patents are capitalized and amortized over three to five years.

### USE OF ESTIMATES

The preparation of financial statements in conformity with generally accepted accounting principles requires management to make estimates and assumptions that affect the amounts reported in the financial statements and accompanying notes. Actual results may differ from those estimates.

INCOME TAXES

The Company accounts for income taxes using the liability method. Deferred tax assets and liabilities are recognized for the future tax consequences attributable to temporary differences between the financial statement carrying amounts of assets and liabilities and their respective tax bases.

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1. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

IMPAIRMENT OF LONG-LIVED ASSETS

The Company records losses on long-lived assets in operations when events and circumstances indicate that the estimate of undiscounted future cash flows expected to be generated by those assets is less than the assets' carrying amount. If impairment is determined to exist, it is recorded as the excess of carrying value over estimated fair value.

2. EARNINGS PER SHARE

The following table sets forth the computation of basic and diluted earnings per common share for the years ended March 31:

	2001	2000	1999
<S>	<C>	<C>	<C>
Numerator:			
Net loss	\$ (2,953,392)	\$ (3,796,296)	\$ (2,513,798)
Preferred stock dividend and redemption premium	(308,054)	-	-
Numerator for basic and diluted earnings per share - loss available to common shareholders	\$ (3,261,446)	\$ (3,796,296)	\$ (2,513,798)
Denominator for basic and diluted earnings per share - weighted-average shares	11,180,615	8,744,125	8,512,274
Basic and diluted earnings per share	\$ (0.29)	\$ (0.43)	\$ (0.30)

</TABLE>

3. ACCOUNTS RECEIVABLE

Accounts receivable includes \$24,339 billed under retainage provisions of government contracts in 2001 (\$60,495 in 2000).

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4. PROPERTY, PLANT, AND EQUIPMENT

Property, plant, and equipment consists of the following:

	MARCH 31	
	2001	2000
Land	\$ 60,000	\$ 60,000
Buildings	1,679,424	1,679,424
Manufacturing equipment	4,830,531	4,083,453
Tools	127,612	88,092
Office equipment	184,568	193,952
Leasehold improvements	806,219	536,447
	7,688,354	6,641,368
Less accumulated depreciation	4,440,163	4,181,608
	\$3,248,191	\$2,459,760

5. LONG-TERM DEBT

In June 1996, the Company began construction of its new production facility in



Aberdeen, South Dakota to fabricate wavelength division multiplexed modulators. As part of its financing of the facility, the Company has received economic assistance from the State of South Dakota Governor's Office of Economic Development and the Aberdeen Development Corporation (the parties) as follows:

Proceeds:

Bond financing for building construction and equipment	\$1,895,000
Low interest loans	875,000
Forgivable loans	750,000
Equity investment - purchase of 288,992 shares of common stock	1,200,000
	-----
	\$4,720,000
	=====

5. LONG-TERM DEBT (CONTINUED)

The following is a summary of the outstanding debt at March 31 related to the Aberdeen facility:

<TABLE>  
<CAPTION>

	2001	2000
	-----	-----
	<C>	<C>
South Dakota Governor's Office of Economic Development and the Aberdeen Development Corporation Bond, 5% to 6.75%, due in various installments through 2016	\$1,695,000	\$1,780,000
Low interest loans, 0% to 3%, due in various installments through 2016	526,317	556,396
Forgivable loans, 3%, due in various installments through 2003	615,514	712,862
	-----	-----
	\$2,836,831	\$3,049,258
	=====	=====

</TABLE>

The forgivable loans are contingent upon employment levels at the facility meeting preset criteria. In exchange for any loans forgiven, the Company will grant warrants to purchase common stock of the Company based on the number of job credits earned by the Company in the preceding 12 months divided by the exercise price. As of March 31, 2001, 36,511 warrants have been issued for loans forgiven totaling \$187,289. The carrying value of the low interest loans and forgivable loans, based on similar instruments, approximates market at March 31, 2001 and 2000.

At March 31, 2001 and 2000, the Company had on deposit with trustees \$416,630 and \$343,353 in reserve funds for current bond maturities, of which \$65,000 and \$65,000 are held in escrow. These funds are included in bond reserve funds in the accompanying balance sheets. The loan agreement requires the Company to maintain compliance with certain covenants. The Company was out of compliance with certain of these covenants in fiscal 2001. All debt, except for the long-term portion of the low interest loans, to which the covenant violation does not apply, has been classified as current because of the Company's violation of one of the debt covenants contained in the agreement. The carrying value of the bonds approximates market value at March 31, 2001 and 2000.

5. LONG-TERM DEBT (CONTINUED)

As partial payment of expenses related to the Aberdeen financing, the Company issued warrants to purchase 31,875 shares of the Company's common stock at an exercise price of \$4.00 per share. The warrants expire in March 2002. The value assigned to the warrants of \$31,875 has been capitalized as bond placement costs and is amortized over the life of the loan agreement.

As part of the Company's plan to construct this production facility, the city of Aberdeen, South Dakota gave the Company land with an approximate fair market value of \$250,000. The gift was contingent upon the Company staying in the new building through June 23, 2002.

All of the above debt is secured by land, buildings, and certain equipment of the Company.

Interest paid during fiscal years 2001, 2000, and 1999 was \$135,323, \$142,662, and \$149,243, respectively.

Scheduled maturities of long-term debt are as follows (assuming no debt is forgiven and the parties do not call the bonds early): 2002 - \$377,908; 2003 - \$443,909; 2004 - \$315,708; 2005 - \$102,639; 2006 - \$97,639; and thereafter - \$1,420,138.

## 6. INCOME TAXES

As of March 31, 2001, the Company has net operating loss carryovers for federal income tax purposes of approximately \$12,365,000 which expire in fiscal years 2001 to 2020. During the year, \$43,000 in research and development credits expired.

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## 6. INCOME TAXES (CONTINUED)

Deferred income taxes reflect the net tax effects of temporary differences between the carrying amounts used for financial reporting purposes and the amounts used for income tax purposes. Significant components of the Company's deferred taxes are as follows:

	YEAR ENDED MARCH 31	
	2001	2000
Net operating losses	\$ 4,204,000	\$ 3,395,000
Depreciation	6,000	9,000
Research and development credits	-	43,000
Other	132,000	100,000
Total deferred tax asset	4,342,000	3,547,000
Less valuation allowance	(4,342,000)	(3,547,000)
Net deferred taxes	\$ -	\$ -

Income tax expense consists entirely of state taxes in 2001, 2000, and 1999.

## 7. SHAREHOLDERS' EQUITY

The Board of Directors may by resolution establish from the undesignated shares different classes or series of shares and may fix the relative rights and preferences of shares in any class or series.

In fiscal year 2001, the Company redeemed all 500 shares of its preferred stock in exchange for \$5,033,054 of cash payment. Also, the Company sold 2,910,514 shares of its common stock in a registered offering, resulting in net proceeds of \$39,810,534. These funds will be used to fund operations.

In fiscal year 2000, the Company sold in a private placement 500 shares of its preferred stock, resulting in net proceeds of \$4,725,000. The proceeds were used to fund operations. Also in September 1999, the Company sold 465,000 shares of its common stock in a private placement, resulting in net proceeds of \$1,870,475. These funds were used to fund operations.

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## 8. SHAREHOLDER RIGHTS PLAN

Pursuant to the Shareholder Rights Plan adopted by the Company in the current year, each share of common stock has attached to it a right, and each share of common stock issued in the future will have a right attached until the rights expire or are redeemed. Upon the occurrence of certain change in control events, each right entitles the holder to purchase one one-hundredth of a share of Series B Junior Preferred Participating Share, at an exercise price of \$80 per share, subject to adjustment. The rights expire on November 10, 2001 and may be redeemed by the Company at a price of \$.001 per right prior to the time they become exercisable.

## 9. STOCK OPTIONS AND WARRANTS

Option activity is summarized as follows:

&lt;TABLE&gt;

&lt;CAPTION&gt;

	SHARES AVAILABLE FOR GRANT	OPTIONS OUTSTANDING	WEIGHTED AVERAGE EXERCISE PRICE PER SHARE
<S>	<C>	<C>	<C>
Balance at March 31, 1998	1,206,338	30,000	\$ 6.10
Granted	(252,500)	252,500	4.09
Canceled	20,000	(20,000)	6.24
Balance at March 31, 1999	973,838	262,500	4.18
Granted	(65,000)	65,000	5.84
Canceled	35,000	(35,000)	4.67
Balance at March 31, 2000	943,838	292,500	4.49

Granted	(160,000)	160,000		10.06
Canceled	48,375	(48,375)		4.12
Exercised	-	(6,950)		4.64
Balance at March 31, 2001	832,213	397,175	\$	6.81

</TABLE>

The Company has various incentive and non-qualified stock option plans which are used as an incentive for directors, officers, and other employees, consultants, and technical advisors. Options are granted at fair market values determined on the date of grant and vesting normally occurs over a four-year period.

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9. STOCK OPTIONS AND WARRANTS (CONTINUED)

The number of shares exercisable at March 31, 2001, 2000, and 1999 was 191,898, 106,563, and 15,000, respectively, at a weighted average exercise price of \$5.77, \$4.67, and \$5.70 per share, respectively.

The weighted average fair value of options granted in 2001, 2000, and 1999 was \$11.30, \$5.30, and \$2.05 per share, respectively. The exercise price of options outstanding at March 31, 2001 ranged from \$3.77 to \$14.00 per share.

Pro forma information regarding net loss and net loss per share is required by FASB Statement No. 123, and has been determined as if the Company had accounted for its employee stock options under the fair value method of Statement 123. The fair value for these options was estimated at the date of grant using a Black-Scholes option pricing model with the following weighted-average assumptions for 2001, 2000, and 1999, respectively: risk-free interest rates of 6.0%, 5.50%, and 4.55%; volatility factor of the expected market price of the Company's common stock of .93, .44, and .48; and a weighted-average expected life of the options of five years.

The Black-Scholes option valuation model was developed for use in estimating the fair value of traded options which have no vesting restrictions and are fully transferable. In addition, option valuation models require the input of highly subjective assumptions. Because the Company's employee stock options have characteristics significantly different from those of traded options, and because changes in the subjective input assumptions can materially affect the fair value statement, in management's opinion, the existing models do not necessarily provide a reliable single measure of the fair value of its employee stock options.

For purposes of pro forma disclosures, the estimated fair value of the options is amortized to expense over the options' vesting period. The Company's pro forma information is as follows:

	2001	2000	1999
Pro forma net loss	\$(3,601,298)	\$(4,083,136)	\$(2,626,002)
Pro forma net loss per common share - basic and diluted	\$ (.32)	\$ (.47)	\$ (.31)

These pro forma amounts may not be indicative of future years' amounts.

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9. STOCK OPTIONS AND WARRANTS (CONTINUED)

The following is a table of the warrants to purchase shares of the Company's common stock:

	WARRANTS OUTSTANDING	EXERCISE PRICE PER SHARE	EXPIRATION DATE
Balance at March 31, 1998	111,693	\$ 3.30 - \$4.00	1999 - 2003
Granted	8,646	5.00	2004
Balance at March 31, 1999	120,339	3.30 - 5.00	1999 - 2004
Granted	108,337	4.88 - 49.47	2001 - 2005
Exercised	(20,718)	3.30 - 4.00	1999 - 2003
Expired	(3,100)	3.30	1999
Balance at March 31, 2000	204,858	3.75 - 49.47	2000 - 2005
Granted	177,985	7.00 - 17.84	2005 - 2006
Exercised	(64,646)	3.75 - 5.00	2000 - 2004
Balance at March 31, 2001	318,197	\$ 4.00 - 17.84	2002 - 2006

10. COMMITMENTS

The Company leases office and manufacturing facilities from a partnership whose two partners are major shareholders and officers of the Company. The lease agreement, classified as an operating lease, expires November 30, 2004 and provides for periodic increases of the rental rate based on increases in the consumer price index. Future minimum lease obligations under the lease as of March 31, 2001 are as follows:

Year Ending March 31:	
2002	\$107,280
2003	107,280
2004	107,280
2005	71,520

Rental expense, all of which was paid to the partnership, was \$135,000 in fiscal 2001, \$121,000 in fiscal 2000, and \$116,000 in fiscal 1999.

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#### 11. MAJOR CUSTOMERS

In fiscal 2001, three different customers accounted for 19%, 16%, and 15% of net sales each. At March 31, 2001, 69% of the Company's trade receivables were due from the aforementioned customers. In fiscal 2000 and 1999, U.S. government agencies were the Company's major customers. Sales to government agencies in these years accounted for 38% and 67%, respectively, of net sales.

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<TABLE>  
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#### EXHIBIT INDEX

NUMBER	DESCRIPTION	PAGE NUMBER OR INCORPORATED BY REFERENCE TO
<S>	<C>	<C>
3.1	Restated Articles of Incorporation, as amended to date	Exhibit 3.1 to Registrant's Report on Form 10-Q for the quarter ended September 30, 2000
3.2	Bylaws, as amended and restated to date	Exhibit 3.2 to Registrant's Report on Form 10-KSB for the fiscal year ended March 31, 1999
4.1(a)	State of South Dakota Board of Economic Development \$300,000 Promissory Note, REDI Loan: 95-13-A	Exhibit 4.1(a) to the Report on 10-QSB for the quarter ended June 30, 1996 (the "June 1996 10-QSB")
4.1(b)	State of South Dakota Board of Economic Development Security Agreement REDI Loan No: 95-13-A dated May 28, 1996	Exhibit 4.1(b) to the June 1996 10-QSB
4.2(a)	\$ 700,000 Loan Agreement dated June 24, 1996 by and between Aberdeen Development Corporation and APA Optics, Inc.	Exhibit 4.2(a) to the June 1996 10-QSB
4.2(b)	\$ 300,000 Loan Agreement dated June 24, 1996 between Aberdeen Development Corporation and APA Optics, Inc.	Exhibit 4.2(b) to the June 1996 10-QSB
4.2(c)	\$ 250,000 Loan Agreement dated June 24, 1996 by and between Aberdeen Development Corporation and APA Optics, Inc.	Exhibit 4.2(c) to the June 1996 10-QSB
4.2(d)	\$ 300,000 Loan Agreement dated June 24, 1996 by and between Aberdeen Development Corporation and APA Optics, Inc.	Exhibit 4.2(d) to the June 1996 10-QSB
4.3(a)	Loan Agreement between South Dakota Economic Development Finance and APA Optics, Inc.	Exhibit 4.3(a) to the June 1996 10-QSB
4.3(b)	Mortgage and Security Agreement - One Hundred Day Redemption from APA Optics, Inc. to South Dakota Economic Development Finance Authority dated as of June 24, 1996	Exhibit 4.3(b) to the June 1996 10-QSB
4.4(a)	Subscription and Investment Representation Agreement of NE Venture, Inc.	Exhibit 4.4(a) to the June 1996 10-QSB
4.4(b)	Form of Common Stock Purchase Warrant for NE Venture, Inc.	Exhibit 4.4(b) to the June 1996 10-QSB

4.5(a) Certificate of Designation for 2% Series A  
Convertible Preferred Stock

Exhibit 4.5(a) filed as a part of  
Registration Statement on Form  
S-3 (Commission File No. 333-  
33968)

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NUMBER	DESCRIPTION	PAGE NUMBER OR INCORPORATED BY REFERENCE TO
4.5(b)	Form of common stock warrant issued in connection with 2% Series A Convertible Preferred Stock	Exhibit 4.5(b) filed as a part of Registration Statement on Form S-3 (Commission File No. 333-33968)
4.6	Common Stock Purchase Warrant issued to Ladenburg Thalmann & Co. Inc. to purchase 84,083 shares	Exhibit 4.6 to Registrant's Report on Form 10-K for fiscal year ended March 31, 2000 ("2000 10-K")
4.7	Share Rights Agreement dated October 23, 2000 by and between the Registrant and Wells Fargo Bank Minnesota NA as Rights Agent	Exhibit 1 to the Registration Statement on Form 8-A filed November 8, 2000
10.1(a)	Sublease Agreement between the Registrant and Jain- Olsen Properties and Sublease Agreement and Option Agreement between the Registrant and Jain-Olsen Properties	Exhibit 10.1 to the Registration Statement on Form S-18 filed with the Chicago Regional Office of the Securities and Exchange Commission on June 26, 1986
10.1(b)	Amendment and Extension of Sublease Agreement dated August 31, 1999	Exhibit 10.1(b) to 2000 10-K
*10.2(a)	Stock Option Plan for Nonemployee Directors	Exhibit 10.3a to Registrant's Report on Form 10-KSB for the fiscal year ended March 31, 1994 (the "1994 10-KSB")
*10.2(b)	Form of option agreement issued under the plan	Exhibit 10.3b to 1994 10-KSB
*10.3	1997 Stock Compensation Plan	Exhibit 10.3 to Registrant's Report on Form 10-KSB for the fiscal year ended March 31, 1997
*10.4	Insurance agreement by and between the Registrant and Anil K. Jain	Exhibit 10.5 to Registrant's Report on Form 10-K for the fiscal year ended March 31, 1990
*10.5	Form of Agreement regarding Repurchase of Stock upon Change in Control Event with Anil K. Jain and Kenneth A. Olsen	Exhibit 10.1 to Registrant's Report on Form 10-QSB for the quarter ended September 30, 1997 ("September 1997 10-QSB")
*10.6	Form of Agreement regarding Employment/Compensation upon Change in Control with Messrs. Jain and Olsen	Exhibit 10.2 to the September 1997 10-QSB
23	Consent of Ernst & Young LLP	

</TABLE>

\*Indicates management contract or compensation plan or arrangements required to  
be filed as an exhibit to this form.

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Consent of Independent Auditors

We consent to the incorporation by reference in the Registration Statement (Form S-3 Nos. 333-33968, 333-44104, and 333-33966) and in the related Prospectus Supplement and Form S-8 Nos. 333-44500, 333-44488, and 333-44486 of APA Optics, Inc. of our report dated May 11, 2001, with respect to the financial statements of APA Optics, Inc. included in this Form 10-K for the year ended March 31, 2001.

/s/ Ernst & Young LLP

Minneapolis, Minnesota  
June 28, 2001