

SECURITIES AND EXCHANGE COMMISSION
 Washington, D.C. 20549

 FORM S-3
 REGISTRATION STATEMENT
 UNDER
 THE SECURITIES ACT OF 1933

APA OPTICS, INC.
 (Exact Name of registrant as specified in its charter)

| | | |
|---|---|---|
| MINNESOTA | 3827 | 41-1347235 |
| (State or other jurisdiction of incorporation) | (Primary Standard Industrial Classification Code Number) | (I.R.S. Employer Identification Number) |

 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 offices)

 ANIL K. JAIN, CHIEF EXECUTIVE OFFICER
 APA OPTICS, INC.
 2950 N.E. 84TH LANE
 BLAINE, MINNESOTA 55449
 TELEPHONE: (763) 784-4995 TELEFAX: (763) 784-2038
 (Name, address, including zip code, and telephone number, including area code,
 of agent for service)

 COPIES TO:
 JANNA R. SEVERANCE, ESQ.
 MOSS & BARNETT, A PROFESSIONAL ASSOCIATION
 4800 NORWEST CENTER, 90 SOUTH SEVENTH STREET
 MINNEAPOLIS, MINNESOTA 55402-4129
 TELEPHONE: (612) 347-0367

APPROXIMATE DATE OF COMMENCEMENT OF PROPOSED SALE TO THE PUBLIC:
 From time to time, commencing as soon as practicable after the effective
 date of this Registration Statement.

If the only securities being registered on this Form are being offered
 pursuant to dividend or interest reinvestment plans, please check the following
 box: []

If any of the securities being registered on this Form are being
 offered on a delayed or continuous basis pursuant to Rule 415 under the
 Securities Act of 1933, other than securities offered only in connection with
 dividend or interest reinvestment plans, check the following box: [X]

If this Form is filed to register additional securities for an offering
 pursuant to Rule 462(b) under the Securities Act, please check the following box
 and list the Securities Act registration statement number of the earlier
 effective registration statement for the same offering. []

If this Form is a post-effective amendment filed pursuant to Rule
 462(c) under the Securities Act, check the following box and list the Securities
 Act registration statement number of the earlier effective registration
 statement for the same offering. []

If delivery of the prospectus is expected to be made pursuant to Rule
 434, please check the following box. []

CALCULATION OF REGISTRATION FEE

<TABLE>
 <CAPTION>

| TITLE OF EACH CLASS OF SECURITIES TO BE REGISTERED | AMOUNT TO BE REGISTERED | PROPOSED MAXIMUM OFFERING PRICE PER UNIT | PROPOSED MAXIMUM AGGREGATE OFFERING PRICE | AMOUNT OF REGISTRATION FEE |
|---|----------------------------|---|--|-------------------------------|
| <S> Common Stock, \$.01 par value | <C> (1) | <C> (1) | <C> (1) | <C> \$26,400 |

</TABLE>

(1) Shares of common stock will be offered from time to time at prices based on current market prices up to a maximum aggregate offering price of \$100,000,000. Pursuant to Rule 457(o) under the Securities Act, the registration fee is calculated on the aggregate maximum offering price of the common stock, and the table does not specify information about the number of shares to be registered or the proposed maximum offering price per share.

THE REGISTRANT HEREBY AMENDS THE REGISTRATION STATEMENT ON SUCH DATES AS MAY BE NECESSARY TO DELAY ITS EFFECTIVE DATE UNTIL THE REGISTRANT SHALL FILE A FURTHER AMENDMENT WHICH SPECIFICALLY STATES THAT THIS REGISTRATION STATEMENT SHALL THEREAFTER BECOME EFFECTIVE IN ACCORDANCE WITH SECTION 8(a) OF THE SECURITIES ACT OF 1933, OR UNTIL THE REGISTRATION STATEMENT SHALL BECOME EFFECTIVE ON SUCH DATE AS THE COMMISSION, ACTING PURSUANT TO SAID SECTION 8(a), MAY DETERMINE.

APA OPTICS, INC.

COMMON STOCK

This prospectus relates to up to \$100,000,000 worth of the common stock, par value \$.01 per share, of APA Optics, Inc., a Minnesota corporation. Our common stock is traded in the Nasdaq SmallCap Market under the symbol APAT. On March 31, 2000, the closing sale price for the common stock as reported in the Nasdaq SmallCap Market was \$29.375 per share.

This prospectus is part of the registration statement we filed with the Securities and Exchange Commission using a "shelf" registration process. This means:

- * We may issue up to \$100,000,000 of our common stock from time to time.
- * We will circulate a prospectus supplement each time we plan to issue our common stock.
- * The prospectus supplement will inform you about the specific terms of that offering and also may add, update or change information contained in this prospectus.
- * You should read this prospectus and any prospectus supplement carefully before you invest.
- * We have engaged Ladenburg Thalmann & Co. Inc. as our exclusive placement agent for this offering on a "best efforts" basis.

SEE "RISK FACTORS" BEGINNING AT PAGE 5 TO READ ABOUT FACTORS YOU SHOULD CONSIDER BEFORE BUYING SHARES OF OUR COMMON STOCK.

THESE SECURITIES HAVE NOT BEEN APPROVED OR DISAPPROVED BY THE SECURITIES AND EXCHANGE COMMISSION OR ANY STATE SECURITIES COMMISSION NOR HAS THE SECURITIES AND EXCHANGE COMMISSION OR ANY STATE SECURITIES COMMISSION PASSED UPON THE ACCURACY OR ADEQUACY OF THIS PROSPECTUS. ANY REPRESENTATION TO THE CONTRARY IS A CRIMINAL OFFENSE.

No person has been authorized by us to give any information or to make any representations about the offering of common stock made by this prospectus other than the information and representations contained in this prospectus. Accordingly, you should not rely on information outside of this prospectus. This prospectus is not an offer to sell or buy any security other than the common stock offered by this prospectus; it is not an offer to sell or buy securities in any jurisdiction in which such offer is not qualified; and it is not an offer to buy or sell securities to any person to whom such offer would be unlawful. The information in this prospectus is current as of the date of this prospectus. Your receipt of this prospectus does not mean that there has been no change in the affairs of APA Optics, Inc. since the date of this prospectus or that the documents which are incorporated by reference in this prospectus are correct as of any date after the date of such documents.

THE DATE OF THIS PROSPECTUS IS _____, 2000.

SECURITIES AND EXCHANGE COMMISSION IS EFFECTIVE. THIS PROSPECTUS IS NOT AN OFFER TO SELL THESE SECURITIES AND IT IS NOT SOLICITING AN OFFER TO BUY THESE SECURITIES IN ANY STATE WHERE THE OFFER OR SALE IS NOT PERMITTED.

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WHERE YOU CAN FIND MORE INFORMATION

APA Optics is subject to the informational requirements of the Securities Exchange Act of 1934, and files reports, proxy statements and other information with the Securities and Exchange Commission. These reports, proxy statements and other information can be inspected and copies can be made at:

- * the public reference facilities maintained by the Commission at 450 Fifth Street, N.W., Washington, D.C. 20549
- * the regional offices of the Commission located at 500 West Madison Street, Chicago, Illinois 60601 and at 7 World Trade Center, New York, New York 10048
- * the offices of Nasdaq Operations, 1735 K Street, N.W., Washington, D.C.

These materials may also be accessed electronically by means of the Securities and Exchange Commission's home page on the Internet (<http://www.sec.gov>).

This prospectus is a part of a registration statement on Form S-3 that APA Optics has filed with the Securities and Exchange Commission. You may obtain copies of the registration statement from the Commission at the addresses in the preceding paragraph. This prospectus does not contain all of the information set forth in the registration statement and its exhibits. The registration statement provides further information about us and the shares. While we believe this prospectus provides the material information regarding the contracts and documents described in it, the statements contained in this prospectus about the contents of any contract or any other documents are not necessarily complete and, in each such instance, you should inspect the copy of such contract or document filed as an exhibit to the registration statement.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The following documents filed by APA Optics with the Commission pursuant to the Securities Exchange Act of 1934 (File No. 0-16106) are incorporated by reference in this prospectus, except as otherwise superseded or modified herein:

Our annual report on Form 10-K for the fiscal year ended March 31, 1999.

Our quarterly reports on Form 10-Q for the fiscal quarters ended June 30, 1999, September 30, 1999 and December 31, 1999.

Our registration statement on Form 8-A, dated July 28, 1987, registering our common stock under Section 12(g) of the Securities Exchange Act of 1934.

Our proxy statement on Schedule 14A for our annual shareholders meeting for the fiscal year ended March 31, 1999.

All other reports and documents filed by us pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act since March 31, 1999 and prior to the termination of the offering of the common stock, are also deemed to be incorporated by reference into this prospectus.

Any statement in any document incorporated or deemed to be incorporated by reference is modified or superseded to the extent that a statement in this prospectus or in any other subsequently filed document incorporated by reference modifies or supersedes such statement.

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We will furnish you, without charge, with a copy of any or all of the documents referred to above (other than exhibits to such documents). Requests for copies should be directed, orally or in writing, to:

Anil K. Jain, Chief Executive Officer
APA Optics, Inc.
2950 N.E. 84th Lane
Blaine, MN 55434
Telephone: (763) 784-4995

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PROSPECTUS SUMMARY

THE FOLLOWING SUMMARY CONTAINS INFORMATION ABOUT APA OPTICS, INC., SOMETIMES REFERRED TO AS "APA OPTICS" OR THE "COMPANY." IT MAY NOT CONTAIN ALL THE INFORMATION THAT MAY BE IMPORTANT TO YOU. YOU SHOULD READ THE ENTIRE PROSPECTUS, THE DOCUMENTS WHICH ARE INCORPORATED BY REFERENCE IN THE PROSPECTUS, INCLUDING THE FINANCIAL DATA AND RELATED NOTES, AND THE OTHER INFORMATION CONTAINED IN THE FORM S-3 REGISTRATION STATEMENT BEFORE MAKING AN INVESTMENT DECISION. THE REFERENCES TO "WE," "US," AND "OUR" MEAN APA OPTICS, EXCEPT WHERE IT IS CLEAR BY THE CONTEXT THAT THE REFERENCE IS TO SOMEONE ELSE.

THE COMPANY

APA Optics is engaged in the business of designing, manufacturing, and marketing optical components and various optoelectronic products. Currently, we are focused on two product areas: 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). We selected these areas of concentration because we believe they have significant potential markets and because we have significant expertise and/or patent positions relating to them.

For several years we received significant revenues from providing research and development services in connection with projects sponsored by various government agencies. In fiscal 1998, we determined to shift our emphasis from research and development to product development, realizing that this shift would significantly reduce revenues and increase losses until we realize revenues from our products. If we are successful in manufacturing and marketing our products, we expect to significantly increase revenues and achieve profitability.

APA Optics was incorporated in Minnesota in March 1979 and became a publicly owned company in 1986. Our principal offices are located at 2950 N.E. 84th Lane, Blaine, Minnesota 55434, and our telephone number is (763) 784-4995.

RISK FACTORS

An investment in our common stock involves a high degree of risk and is not appropriate for persons who cannot afford to lose their entire investment. See "Risk Factors."

THE OFFERING

If we sold common stock for gross proceeds of \$100 million at \$29.375 per share, which was the closing sale price of the common stock on March 31, 2000, 3,404,255 shares of common stock would be added to our issued and outstanding common stock. As of the date of this prospectus, we do not know whether any shares will be sold or the price at which sales may be made. Certain information about this offering is summarized below:

Common stock offered (1)..... 3,404,255 shares

Common stock outstanding after issuance (1).. 12,402,247 shares

Use of proceeds..... The proceeds of sale of the common stock will be used primarily for expansion of production facilities, sales and marketing of our DWDM-based product line,

working capital, and general corporate purposes.

Nasdaq symbol..... APAT

Transfer Agent and Registrar..... Norwest Shareowner Services, South St. Paul, Minnesota

- (1) Assumes issuance at \$29.375 per share, which was the closing sale price of the common stock on March 31, 2000.
- (2) Assumes no exercise of any warrants or options for common stock or conversion of any securities convertible to common stock. As of March 15, 2000 we had reserved for issuance:
- (a) 151,358 shares for various warrants, not including additional warrants in an amount not currently calculable which may be issued in connection with certain bond financing;
 - (b) 1,246,338 shares under employee benefit plans, a directors option plan, and other options;
 - (c) 307,500 shares issuable under our 2% Series A Preferred Stock and related warrants (including shares reserved in case dividends are accreted to stated value rather than paid in cash); and
 - (d) an indeterminate number of shares for warrants that may be issued to placement agents or underwriters in this offering (see "PLAN OF DISTRIBUTION").

SUMMARY FINANCIAL INFORMATION

<TABLE>
<CAPTION>

| | Nine Months Ended December 31 | | Year Ended March 31 | |
|---------------------------------------|-------------------------------|-------------|---------------------|--------------|
| | ----- | | ----- | |
| | (unaudited) | | | |
| Statement of operations data: | 1999 | 1998 | 1999 | 1998 |
| | ---- | ---- | ---- | ---- |
| <S> | <C> | <C> | <C> | <C> |
| Net revenues | \$ 239,142 | \$ 629,122 | \$ 722,030 | \$ 2,190,637 |
| Net income (loss) | (2,860,842) | (1,755,353) | (2,513,798) | (967,767) |
| Net income (loss) per share (basic) | (.33) | (.21) | (.30) | (.12) |
| Net income (loss) per share (diluted) | (.33) | (.21) | (.30) | (.12) |

<CAPTION>

| | December 31, 1999 | March 31 | |
|----------------------|-------------------|--------------|--------------|
| | ----- | ----- | |
| | (unaudited) | | |
| Balance sheet data: | | 1999 | 1998 |
| | | ---- | ---- |
| Working capital | \$ 1,860,158 | \$ 2,864,549 | \$ 5,345,480 |
| Total assets | 5,741,421 | 6,804,976 | 9,629,912 |
| Shareholders' equity | 2,408,527 | 3,389,295 | 5,859,863 |

</TABLE>

THE COMPANY

Since the founding of APA Optics in 1979, we have focused on leading edge research in sophisticated optoelectronic and optical system areas with the primary goal of developing advanced products for subsequent marketing and fabrication. We currently manufacture DWDM optical components, offer a range of gallium nitride (GaN) based devices and services, and market 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 selected two product areas based on significant potential markets and our expertise and/or patent positions: 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). If we are successful in manufacturing and marketing these products, we expect to significantly increase revenues and achieve profitability.

PRODUCTS

Our current products are as follows:

- * Optical Lens Systems. We design and build multi-element lens systems 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 optical thin film coatings for optical components of lasers, laser systems, optical instruments, and optical devices. We use optical thin film coating services in two major ways: to apply antireflective coatings onto Company-fabricated lens components, and to design, develop and fabricate coatings for lens components supplied by customers.
- * Optoelectronics Devices. We are focusing research and development efforts on several optoelectronic devices. Optoelectronic devices are vital components of communication systems and optical instruments.

Currently, we are developing the following products:

- * Dense Wavelength Division Multiplexer (DWDM). Recently, we demonstrated the feasibility of a DWDM capable of transmitting several channels through a single optical fiber for communication applications. We developed the DWDM based on our development of optical modulator (single channel) technology during the early 1990s for fiber optic communication. These modulators have the capability of direct high speed (several billion bits per second) data loading and unloading on laser beams going through optical fibers, either for short distance or long distances. The DWDM, a small part of the modulator, utilizes high frequency holographic gratings. Our new DWDM is a major break-through because it enables transmission of information on several different channels within a single fiber (a simple analogy is the expansion of a single lane highway to multi-lane throughway). As a result, the DWDM provides higher speed as well as increased and regulated data handling capabilities as compared to a single channel modulator. We are currently performing environmental packaging of the DWDM. We filed the first patent related to the DWDM Optical Modulator in June 1994, which was allowed on May 8, 1995. Since then, we have filed for four additional patents related to DWDM Multiplexer/Demultiplexer devices. We were awarded two of these patents in March 1997 and February 1998. The other two applications are still pending.
- * UV Detector. The UV Detector is a high response solid state detector based on single-crystal gallium nitride (GaN). The GaN detector is expected to have applications in spectrometry, solar radiation measurement, excimer-laser measurement and calibration, biomedical instrumentation, and flame detection and monitoring. The detector is visible blind, which allows detection of UV radiation in the presence of room lights without a filter. We believe the

GaN detector has advantages over photomultiplier tubes because of its ruggedness and chemical inertness, which suit it for application in high-vibration and harsh environments as well as high-temperature operation. We have been awarded at least four patents in nitride related technologies.

- * Other Products. We are in the process of introducing several other products by packaging our UV detectors with electronics and displays for many applications. Among these are a solar sensing watch to detect potential cancer causing UV radiation for consumer applications, UV radiation based flame sensors for industrial applications, and UV radiation meters for laboratory and industrial

applications. All of these products have significant similarities and, therefore, do not require significant financial resources for development.

MARKETING AND DISTRIBUTION

We delivered a limited number of alpha units of our DWDM to customers during fiscal 1999 and 2000. We have sold several UV detectors to more than 30 customers, as well as a few detector/electronics packages. During this time, we have been aggressively marketing both products by advertising in relevant professional magazines, showcasing our products in trade shows, direct mailing, personal visits, and distributors in various countries, including Japan, Germany, Italy and France. We also maintain product information on our Web page. Our DWDM product manager focuses on sales of DWDM and two persons work on marketing and sales of gallium nitride-based products.

SOURCES OF RAW MATERIALS

Two of the principal materials used in our business are optical glass and optical chips. Optical glass is commercially available through several distributors. We currently use at least two vendors for optical chips and continuously look for additional vendors for these parts. Certain chemicals and other materials necessary for our products are routinely available from several sources.

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. The cost of such compliance is not material.

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 of such agencies.

Revenues from the following unrelated customers constituted more than ten percent of our total operating revenues in the last three fiscal years:

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| Name | Year Ended March 31 | | |
|-----------|---------------------|------|------|
| | 1999 | 1998 | 1997 |
| Air Force | 23% | 20% | 42% |
| Army | 0% | 25% | 22% |
| Navy | 18% | 38% | 36% |
| ARPA | 59% | 17% | -0% |
| | ---- | ---- | ---- |
| Total | 100% | 100% | 100% |
| | ==== | ==== | ==== |

COMPETITION

Competition in the optoelectronics and optics fabrication businesses is significant. Many of the companies engaged in these businesses are well-financed and have significantly greater research, development, production, and marketing resources than we do. However, we believe that we have a competitive advantage due to our patents and the uniqueness of our devices. In particular, we believe that our DWDM is the most efficient (lowest insertion loss) and compact device currently available.

RESEARCH AND DEVELOPMENT

During the fiscal years ended March 31, 1999, 1998, and 1997 we spent approximately \$382,000, \$339,000, and \$375,000, respectively, on research and development sponsored by the Company, all of which was related to the DWDM, UV detector and related products. In addition, in each of those years, we spent approximately \$837,000, \$1,431,000, and \$1,610,000, respectively, on research activities sponsored by customers. During the 11 months ended February 29, 2000, we spent approximately \$299,000, on research and development sponsored by the Company, all of which was related to the DWDM, UV detector and related products and approximately \$181,000, on research activities sponsored by customers.

EMPLOYEES

As of March 15, 2000, we employed 36 full-time employees (including executive officers).

RISK FACTORS

BEFORE YOU INVEST IN THE COMMON STOCK YOU SHOULD CONSIDER THAT THE VALUE OF THE SHARES IN THE SECONDARY MARKET IS SUBJECT TO VARIOUS RISKS, INCLUDING THOSE DESCRIBED BELOW. IF ANY OF THE FOLLOWING RISKS ACTUALLY OCCUR, OUR BUSINESS, RESULTS OF OPERATIONS OR CASH FLOWS COULD BE ADVERSELY AFFECTED. IN THOSE CASES, THE TRADING PRICE OF OUR COMMON STOCK COULD DECLINE, AND YOU MAY LOSE ALL OR PART OF YOUR INVESTMENT. THESE RISKS SHOULD BE EVALUATED TOGETHER WITH ALL OF THE OTHER INFORMATION IN THIS PROSPECTUS BEFORE YOU DECIDE TO PURCHASE ANY OF THE SHARES WHICH ARE OFFERED. SPECIFIC RISK FACTORS WHICH YOU SHOULD CONSIDER INCLUDE THE FOLLOWING:

WE HAVE LIMITED EXPERIENCE IN MANUFACTURING. Although we have been involved in the manufacturing of optical components for several years, and have manufactured limited quantities of UV detectors and alpha DWDMs, we have not engaged in high volume manufacturing of these products. We may be unable to manufacture products that satisfy the volume and quality requirements of our customers, and, as a result, we may not achieve significant revenues or profitability.

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WE MAY NOT BE ABLE TO REDUCE OUR MANUFACTURING COSTS SUFFICIENTLY OR PLAN OUR MANUFACTURING EXPANSION accurately. We expect the price of our existing products to decline due to various factors, such as increased competition, including from companies with lower labor and production costs; a limited number of potential customers with significant bargaining leverage; introduction of new products by competitors; and greater economies of scale for higher volume manufacturers. To increase our revenues, we must increase our unit volumes and our manufacturing capacity. Adding capacity increases our fixed costs and the levels of unit shipments we must produce to achieve positive gross margins. As a result, if we are unable to increase our revenues or continuously reduce our manufacturing costs, our gross margins will not improve and we will continue to incur losses.

We are increasing our manufacturing capacity at our existing facilities in Aberdeen, South Dakota. Developing manufacturing capabilities involves significant risks which could materially adversely affect our gross margins and revenues, including:

- * Our inability to qualify a new manufacturing line for all of our customers;
- * unanticipated cost increases;
- * unavailability or late delivery of equipment;
- * unforeseen environmental or engineering problems; and
- * personnel recruitment delays.

Expanding our manufacturing capacity requires substantial time to build out and equip facilities and train personnel. If we receive orders substantially in excess of our planned capacity, we might not be able to fulfill them quickly enough to meet customer requirements. Our inability to deliver products timely could enable competitors to win business from our customers.

WE MAY NOT BE ABLE TO EFFECTIVELY INCREASE PRODUCTION AND MAINTAIN ACCEPTABLE MANUFACTURING YIELDS, RESULTING IN DELAY OF PRODUCT SHIPMENTS AND IMPAIRMENT OF OUR GROSS MARGINS. Manufacturing our products is highly complex and labor intensive. As we rapidly increase production and hire more people, our manufacturing yield, which is the percentage of our products which meet customer specifications, could decline, resulting in product shipment delays, possible lost revenue opportunities, higher customer returns, and impaired gross margins. Some of our manufacturing lines have experienced lower than expected yields, which could continue in the future. Rapid increases in production levels to meet demand may also result in higher overtime costs and other expenses.

WE HAVE HAD LIMITED SALES AND EXPECT LOSSES. To date, we have had only limited sales of UV detectors and DWDMs. As of December 31, 1999, we had an accumulated deficit of \$9,256,929. We expect operating losses to continue until sales of these products reach a level sufficient to cover operating costs. We may never generate sales at the required levels or become profitable. Our auditors' opinion concerning our financial statements for the fiscal year ended March 31, 1999 states that our accumulated deficit and recurring losses from operations raise substantial doubt about our ability to continue as a going concern.

Our ability to achieve profitability will depend on our ability to develop and bring new proprietary products to market. Our ability to become profitable will also depend upon a variety of other factors, including the following:

- * The price, volume and timing of sales of products;
- * Variations in gross margins of our products, which may be affected by sales mix and competitive pricing pressures;
- * Changes in the level of our research and development; and
- * Acquisitions of products, technology or companies.

Our long-term success will also be affected by expenses, difficulties and delays frequently encountered in developing and commercializing new products, competition, and the regulatory environment in which we operate. We cannot be certain that we will ever achieve significant revenues or profitable operations.

WE MUST CONTINUE TO FUND PRODUCT DEVELOPMENT. The continued existence and the growth and profitability of the Company depend upon the success of our product manufacturing and marketing efforts. In order for new products to be successfully marketed, they must satisfy the needs of potential customers by performing under the conditions in which such customers intend to use the products. We must continue development of these products and their packaging to ensure that these products will meet such requirements. However, our products may not perform as anticipated or as needed by customers.

OUR BUSINESS WILL SUFFER IF WE FAIL TO OBTAIN ADEQUATE FUNDING IN A TIMELY MANNER. We expect that we will need substantial additional funding. Our business, results of operations and cash flows will be adversely affected if we fail to obtain adequate funding in a timely manner. Our funding requirements will depend on many factors, including:

- * The progress of our research and development programs;
- * Revenue growth, if any;
- * The amount of cash generated, if any, by our operations;
- * The costs involved in preparing, filing, prosecuting, maintaining, enforcing and defending patent claims and other intellectual property rights;
- * Competing technological and market developments; and
- * The need for additional manufacturing facilities to accommodate growth.

Without giving effect to the sale of any of our common stock in the offering covered by this prospectus, we anticipate that our existing capital resources as of the date of this prospectus will be adequate to fund operations and capital expenditures at least through March 31, 2001. However, if we experience unanticipated cash requirements during this period, we could require additional funds much sooner. We may receive funds from the sale of equity securities, or the exercise of outstanding warrants and options to acquire common stock. However, we cannot assure you that any of those fundings will occur, or if they occur, that they will be on terms favorable to us. Also, the dilutive effect of those fundings could adversely affect our results per share.

ASSERTING AND DEFENDING INTELLECTUAL PROPERTY RIGHTS WILL HARM OUR RESULTS OF OPERATIONS REGARDLESS OF SUCCESS. Our business will be harmed if competitors develop substantially equivalent proprietary information and techniques or otherwise gain access to our trade secrets, if our trade secrets are disclosed or if we cannot effectively protect our rights to unpatented trade secrets.

We actively seek patent protection for our proprietary products and technologies. We have a number of United States patents and also have licenses to or assignments of numerous issued United States patents. However, litigation may be necessary to protect our patent position, and we cannot be certain that we will have the required resources to pursue the necessary litigation or otherwise to protect our patent rights. Our efforts to protect our patents may fail. In addition to pursuing patent protection in appropriate cases, we also rely on trade secret protection for unpatented proprietary technology. However, trade secrets are difficult to protect.

Claims may be brought against us in the future based on patents held by others. These persons could bring legal actions against us claiming damages and seeking to enjoin manufacturing and marketing of the affected product. If any of these actions are successful, in addition to any potential liability for damages, we could be required to obtain a license in order to continue to

manufacture or market the affected product. We cannot assure you whether we would prevail in any of these actions or that we could obtain any licenses required under any of these patents on acceptable terms, if at all.

We know of no pending patent infringement suits, discussions regarding possible patent infringements or threats of patent infringement litigation either related to:

- * patents held by us; or
- * our products or proposed products.

There could be significant litigation in our industry regarding patent and other intellectual property rights. If we become involved in any litigation, it could consume a substantial portion of our resources, regardless of the outcome of the litigation.

WE EXPERIENCE STRONG COMPETITION AND CHANGES IN TECHNOLOGY COULD RESULT IN MORE COMPETITION. The business in which we engage is highly competitive. Many of our competitors include large, well-financed and established companies who have far greater marketing, product development, and financial resources than we do.

We may not be able to successfully anticipate changes in technology, industry standards, customer requirements and product offerings, yet our ability to develop and introduce new and enhanced products will impact our position as a leader in the deployment of high-capacity solutions. The accelerating pace of deregulation in the telecommunications industry will likely intensify the competition for improved technology. There has been an increase in the funding of new companies intending to develop new products for the rapidly evolving telecom industry. These companies have time-to-market advantages due to the narrow and exclusive focus of their efforts. New companies may provide additional competition for our existing product lines as well as potential future products. The introduction of new products embodying new technologies or the emergence of new industry standards could render our existing products uncompetitive from a pricing standpoint, obsolete or unmarketable. Any of these outcomes would have a material adverse effect on our business, financial condition and results of operations.

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Because many of our competitors have greater financial and other resources than we do, they may be able to more quickly:

- * respond to new technologies or technical standards;
- * react to changing customer requirements and expectations;
- * manufacture, market and sell current products;
- * develop new products or technologies; and
- * deliver competitive products at lower prices.

As a result of these factors, our customers could decide to purchase products from our competitors and reduce their purchases from us.

In addition, our competitors or customers may acquire our suppliers and potential suppliers. Our customers may also develop their own internal sources of supply in competition with us. For example, Corning has announced an expansion of its ability to produce thin film optical filters by a factor of ten as well as the acquisition of Oak Industries, a maker of components used in WDM systems. Lucent Technologies, has announced an investment in privately-held Horizon Photonics, Inc., a provider of automated manufacturing of passive optical components. Lucent has also commented publicly that it sells a large portion of its components on the merchant market in addition to supplying its own needs. Cisco Systems, an emerging player in WDM systems, has announced the acquisition of Pirelli Optical Systems and a strategic investment of \$100 million in Pirelli's optical components and submarine optical transmission system businesses. In addition, Nortel Networks has announced a \$400 million investment in its optical networking and components business, including a new facility for the fabrication of optical components.

WE CURRENTLY HAVE LIMITED MARKETING EXPERTISE AND PERSONNEL AND EXPECT TO INCUR SUBSTANTIAL MARKETING COSTS. Our growth is dependent upon our ability to implement an aggressive, strong, and consistent marketing program for the Company's new products. During fiscal 1999, we hired two individuals to serve as marketing and sales managers. In addition, we currently market our products through independent distributors in several foreign countries. We believe that it is necessary to significantly expand our marketing efforts to market our new products successfully. Accordingly, we expect to incur substantial costs in connection with marketing and sales efforts. However, we cannot be sure that our efforts will result in significantly greater product recognition or market

penetration, or significantly increased levels of revenues.

ACCEPTANCE OF OUR NEW PRODUCTS IS UNCERTAIN. Although we have received several indications of interest from potential customers, we have not received any significant production orders. Because our products are relatively new in the market and are still being evaluated by potential customers, we cannot predict accurately the volume or timing of any orders.

WE MAY NOT BE ABLE TO SUCCESSFULLY COMPLETE DEVELOPMENT AND ACHIEVE COMMERCIAL ACCEPTANCE OF OUR NEW PRODUCTS. Although we have delivered evaluation units of our DWDM and UV detector products, we do not yet have products that can be manufactured or distributed on a commercial basis. The maturing process from laboratory prototype to commercial acceptance involves a number of steps, including:

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- * successful completion of product development;
- * validation of manufacturing methods;
- * extensive quality assurance and reliability testing; and
- * identification and qualification of component suppliers.

Each of these steps in turn presents serious risks of failure, rework or delay, any one of which could materially and adversely affect the speed and scope of product introduction and marketplace acceptance of the products. In addition, unexpected intellectual property disputes, failure of critical design elements, and a host of other execution risks may delay or even prevent the introduction of these products. We have not yet demonstrated commercial acceptance of these products and commercialization may require substantial sales and marketing efforts over lengthy sales cycles. Our best efforts may not be successful in attaining significant commercial acceptance and purchase of our products.

PRODUCT PERFORMANCE PROBLEMS COULD LIMIT OUR SALES PROSPECTS. The production of new fiberoptic systems with high technology content involves occasional problems as the technology and manufacturing methods mature. If significant reliability, quality or monitoring problems develop, a number of material adverse effects could result, including:

- * manufacturing rework costs;
- * high service and warranty expense;
- * high levels of product returns;
- * delays in collecting accounts receivable;
- * reduced orders from existing customers; and
- * declining interest from potential customers.

Although we maintain accruals for product warranties, actual costs could exceed these amounts.

IF OUR NEW PRODUCT INTRODUCTIONS ARE DELAYED, OR IF OUR NEW PRODUCTS HAVE DEFECTS, OUR REVENUES WOULD BE HARMED AND OUR COSTS COULD INCREASE. If we do not introduce new products in a timely manner, we will not obtain incremental revenues from these products or be able to replace more mature products with declining revenues or gross margins. Customers could decide to purchase components from our competitors, resulting in lost revenue over a longer term. We could also incur unanticipated costs if new product introductions are delayed or we need to fix defective new products.

WE MAY NOT BE ABLE TO SUCCESSFULLY MANAGE RAPID GROWTH. If we are successful in marketing our products, and if we receive orders for volume manufacturing, we will need to develop an infrastructure able to support growth, including comprehensive and reliable management information systems and additional manufacturing and other personnel. We may be unable to develop such systems or locate, hire, train and retain necessary personnel.

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WE ARE DEPENDENT ON KEY PERSONNEL. Although we have hired a business manager for fiber optic products, as well as marketing and sales managers, we are still dependent upon the continued services of Dr. Anil K. Jain. The loss of his services could have a significant adverse impact upon the Company's operations and development. We do not have an employment agreement or a noncompete agreement with Dr. Jain, although we maintain \$1,000,000 in key man

life insurance on him.

WE MAY NOT BE ABLE TO RECRUIT AND RETAIN THE PERSONNEL WE NEED TO SUCCEED. If we cannot hire and retain technical personnel with advanced skills and experience in the specialized field of fiber optics, our product development programs may be delayed and our customer support efforts may be less effective. If we are unable to hire the necessary managerial, sales and marketing personnel, we may not be able to increase our revenues.

WE ARE DEPENDENT ON SUPPLIERS. We rely on outside vendors to supply certain of the raw materials and other components of our products. For certain components, we may rely on single sources of supply, which could result in the unavailability of or interruptions in delivery of such components, manufacturing delays caused by such unavailability or interruptions, and fluctuations in the quality and price of such components. Delivery delays, quality problems and price increases could hurt our ability to supply our customers with products in a timely manner, which can cause our shipments and revenues to decline.

IF WE ARE UNABLE TO COMPLY WITH ENVIRONMENTAL LAWS AND REGULATIONS, OUR BUSINESS MAY BE HARMED. We are subject to federal, state and local laws and regulations governing the use, manufacture, storage, handling and disposal of hazardous materials and waste products. We currently maintain a supply of several hazardous materials at our facilities. We might be required to incur significant cost to comply with environmental laws and regulations. In the event of an accident, we could be held liable for any damages that result, and the liability could exceed our resources.

BECAUSE CURRENT OFFICERS AND DIRECTORS OWN A LARGE PERCENTAGE OF OUR STOCK, THESE SHAREHOLDERS MAY BE ABLE TO CONTROL APA OPTICS AND ALSO PREVENT POTENTIALLY BENEFICIAL ACQUISITIONS OF APA OPTICS. As of March 15, 2000 our officers and directors beneficially owned approximately 30% of the outstanding shares of our common stock. Beneficial ownership includes shares of our common stock subject to options exercisable within 60 days of March 15, 2000.

These shareholders, if acting together, may be able to elect all of our directors, and otherwise significantly influence matters requiring approval by our shareholders. This concentration of ownership and the lack of cumulative voting may also delay or prevent a third party from acquiring us.

These shareholders may have interests that differ from other shareholders of APA Optics, particularly in the context of potentially beneficial acquisitions of APA Optics. For example, to the extent that these stockholders are employees of APA Optics, they may be less inclined to vote for acquisitions of APA Optics involving the termination of their employment or diminution of their responsibilities or compensation.

WE DO NOT INTEND TO PAY DIVIDENDS. We intend to use any cash flows from operations to finance further growth of the Company's business. Accordingly, investors should not purchase the shares with a view towards receipt of dividends.

OUR STOCK PRICE MAY EXHIBIT VOLATILITY AND THE TRADING PRICE OF OUR STOCK MAY DECREASE DUE TO FACTORS BEYOND OUR CONTROL. Our common stock price has experienced substantial volatility in the past and is likely to remain volatile in the future. Volatility can arise as a result of the activities of short

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sellers and risk arbitrageurs and may have little relationship to our financial results or prospects. The trading prices of our common stock is also affected by the following factors, among others:

- * Variations in anticipated or actual results of operations;
- * Announcements of new products or technological innovations by competitors; and
- * Changes in earnings estimates of operational results by analysts.

Volatility can also result from divergence between our actual or anticipated financial results and/or status of product development or commercialization, and published expectations of analysts and announcements we may make. We attempt to address possible divergence through our public announcements and reports; however, the degree of specificity we can offer in such announcements, and the likelihood that any forward-looking statements we make will prove correct in actual results, can and will vary.

Our revenues and operating results have fluctuated significantly from quarter-to-quarter in the past and may fluctuate significantly in the future as a result of several factors, some of which are outside of our control. These factors include:

- * the size and timing of customer orders;

- * our ability to manufacture and ship our products on a timely basis;
- * our ability to obtain sufficient supplies to meet our product manufacturing needs;
- * our ability to meet customer product specifications and qualifications;
- * long and unpredictable sales cycles of up to a year or more;
- * our ability to sustain high levels of quality across all product lines; changes in our product mix;
- * customer cancellations or delivery deferrals;
- * seasonality of customer demand; and
- * difficulties in collecting accounts receivable.

Due to these factors, results are difficult to predict and you should not rely on quarter-to-quarter comparisons of our results of operations as an indication of our future performance. It is possible that, in future periods, our results of operations may be below the expectations of public market analysts and investors.

Moreover, the stock market from time to time has experienced extreme price and volume fluctuations, which have particularly affected the market prices for emerging growth companies and which have often been unrelated to the operating performance of these companies. These broad market fluctuations may adversely affect the market price of our common stock.

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During the past three years from the date of this prospectus, the market price per share of our common stock has fluctuated between approximately \$3.50 and \$60.

OUR BUSINESS MAY BE HARMED IF WE BECOME SUBJECT TO SECURITIES CLASS ACTION LITIGATION. In the past, following periods of volatility in the market price of a company's common stock, securities class action litigation has been brought against the issuing company. This type of litigation could be brought against us in the future. The litigation could be expensive and divert management's attention and resources, which could adversely affect our business and results of operations whether or not our defense is successful. If the litigation is determined against us, we could also be subject to significant liabilities.

WE MAY NOT EARN A FAVORABLE RETURN WITH THE PROCEEDS OF THIS OFFERING. Our management can spend the proceeds from this offering in ways with which you may not agree. We cannot predict that the proceeds will be invested to yield a favorable return.

THE MARKET PRICE OF OUR STOCK MAY FALL IF OTHER SHAREHOLDERS SELL THEIR STOCK. If our shareholders sell substantial amounts of our common stock in the public market following this offering, the market price of our common stock could fall. These sales also might make it more difficult for us to sell equity or equity-related securities in the future at a price we deem appropriate.

As of March 15, 2000 we had 8,997,992 shares of our common stock outstanding. Substantially all of these shares are eligible for sale in the public market. In addition, we are currently registering for public sale 250,000 shares of common stock which may be offered upon conversion of our outstanding 2% Series A Convertible Preferred Stock and related warrants, and an indeterminate number of shares of common stock (but not in excess of \$100 million) offered directly by the Company.

THE VALUE OF YOUR STOCK MAY DECREASE IF OTHER SECURITY HOLDERS EXERCISE THEIR OPTIONS OR WARRANTS OR CONVERT CONVERTIBLE SECURITIES. As of March 15, 2000 we had reserved 1,697,696 shares of our common stock for future issuance upon exercise of outstanding options, warrants and convertible securities. If these securities are exercised or converted, you may experience dilution in the book value and earnings per share of your common stock. This may cause the market price of our common stock to fall.

WE MAY ISSUE ADDITIONAL STOCK WITHOUT YOUR CONSENT. The Company has authorized 20 million shares of common stock, of which 8,997,992 shares are issued and outstanding as of March 15, 2000. We may seek shareholder authorization to increase that amount at our next annual shareholders meeting. The Board of Directors has authority, without action or vote of the shareholders, to issue all or part of the authorized but unissued shares. Additional shares may be issued in connection with future financings, acquisitions, employee plans, or otherwise. Any such issuance will dilute the

percentage ownership interest of existing shareholders, and may dilute the book value of the common stock. We currently intend to sell up to \$100 million in common stock from time to time at prices related to current market prices (subject to discount in some circumstances) in a registered public offering to institutional investors. We do not know the number or price of shares to be sold, or whether any shares will be sold. In addition, the Company is authorized to issue up to 5 million undesignated shares, of which 1,500 shares have been designated as 2% Series A Convertible Preferred Stock. As of March 15, 2000, 500 shares of 2% Series A Convertible Preferred Stock had been issued and were outstanding. The Board of Directors can issue additional preferred stock in one or more series and fix the terms of such stock without approval by shareholders. Preferred stock may include the right to vote as a series on particular matters, preferences as to dividends and liquidation, conversion and redemption rights and sinking fund provisions. The issuance of preferred stock could affect the rights of the holders of common stock adversely and reduce the value of the common

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stock. In addition, specific rights granted to holders of preferred stock could be used to restrict the Company's ability to merge with or sell its assets to a third party.

OUR DIRECTORS' LIABILITY IS LIMITED UNDER MINNESOTA LAW. Our Articles of Incorporation, as amended and restated, state that our directors are not liable for monetary damages for breach of fiduciary duty, except for a breach of the duty of loyalty, for acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law, for dividend payments or stock repurchases illegal under Minnesota law, and for any transaction in which the director derived an improper personal benefit. In addition, our bylaws provide that we shall indemnify our officers and directors to the fullest extent permitted by Minnesota law for all expenses incurred in the settlement of any actions against them in connection with their service as officers or directors of the Company.

ANTI-TAKEOVER PROVISIONS. Minnesota law provides Minnesota corporations with anti-takeover protections. These protective provisions could delay or prevent a change in control of the Company by requiring shareholder approval of significant acquisitions of voting stock of the Company. These provisions operate even when many shareholders may think a takeover would be in their best interests.

FORWARD-LOOKING STATEMENTS

This prospectus and the information which is incorporated by reference in this prospectus include "forward-looking statements" within the meaning of the securities laws. Statements about us and our expected financial position, business and financing plans are forward-looking statements. Forward-looking statements can be identified by, among other things, the use of forward-looking terminology such as "believes," "expects," "may," "will," "should," "seeks," "pro forma," "anticipates," "intends," or other variations or comparable terminology, or by discussions of strategy or intentions. Although we believe that the expectations reflected in our forward-looking statements are reasonable, we cannot assure you that our expectations will prove to be correct. Forward-looking statements are necessarily dependent upon assumptions, estimates and data that may be incorrect or imprecise and involve known and unknown risks, uncertainties and other factors. Accordingly, you should not consider our forward-looking statements as predictions of future events or circumstances. A number of factors could cause our actual results, performance, achievements or industry results to be materially different from any future results, performance or achievements expressed or implied by our forward-looking statements. These factors include, but are not limited to: the competitive environment in our industry; changes in economic conditions in general and in our business; changes in prevailing interest rates and the availability of and terms of financing to fund our business; our ability to attract and retain qualified personnel; changes in our acquisition and capital expenditure plans; and other factors discussed in this prospectus including, without limitation, those in our filings with the Securities and Exchange Commission. Given these uncertainties, you should not rely on our forward-looking statements in making an investment decision. We disclaim any obligation to update you on any factors that may affect the likelihood of realization of our expectations and we do not intend to announce publicly the results of any revisions to any of our forward-looking statements to reflect future events or developments. All written and oral forward-looking statements attributable to us (including statements before and after the date of this prospectus) are expressly qualified by these cautionary statements.

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Each time we sell our common stock, we will provide a prospectus supplement that will contain information about how we intend to use the net proceeds from our common stock sold at that time.

Unless otherwise indicated in the applicable prospectus supplement, we plan to use the net proceeds from the sale of our common stock primarily for expansion of production facilities, sales and marketing of our DWDM-based product line, working capital, and for general corporate purposes, including capital expenditures and to meet working capital needs. In addition, we expect from time to time to evaluate the acquisition of businesses and products for which a portion of the net proceeds may be used.

Pending these uses, we will invest the net proceeds in interest-bearing securities.

PRICE RANGE OF COMMON STOCK

Our common stock is traded under the symbol "APAT" in the Nasdaq SmallCap Market. The following table shows the high and low closing sale prices as reported by the Nasdaq SmallCap Market during the last two fiscal years ended March 31, 1998 and 1999 and the first three quarters of our fiscal year ending March 31, 2000.

| FISCAL YEAR | 1998 | 1998 | 1999 | 1999 | 2000 | 2000 |
|----------------|--------|--------|--------|--------|--------|--------|
| SALE PRICE | LOW | HIGH | LOW | HIGH | LOW | HIGH |
| First Quarter | \$5.25 | \$6.50 | \$5.62 | \$6.75 | \$5.25 | \$8.50 |
| Second Quarter | 5.37 | 6.62 | 4.25 | 6.00 | 3.50 | 7.93 |
| Third Quarter | 6.12 | 9.25 | 4.00 | 5.00 | 3.88 | 19.50 |
| Fourth Quarter | 5.50 | 8.00 | 4.75 | 10.00 | -- | -- |

We have never declared or paid a dividend on our common stock and the Board of Directors currently intends to retain all earnings, if any, for use in the business for the foreseeable future. Any future determination as to declaration and payment of dividends will be made at the discretion of the Board of Directors, subject to covenants in any loan documents restricting the payment of dividends. Our current loan agreements restrict our ability to pay dividends.

PLAN OF DISTRIBUTION

We have engaged Ladenburg Thalmann & Co. Inc. as our exclusive placement agent for this offering on a best efforts basis. Ladenburg Thalmann has agreed with us that it will seek to identify institutional investors who may wish to purchase our common stock from time to time on specific terms to be negotiated between us and such institutional investors. Ladenburg Thalmann is not committed to purchase any of our securities, regardless of whether Ladenburg Thalmann does or does not successfully identify others to purchase our securities. Also, Ladenburg Thalmann has advised us that they will not purchase any of our securities for their own account or for any discretionary accounts managed by them.

We have agreed to pay Ladenburg Thalmann a placement fee equal to 3% of the gross proceeds to APA Optics from each such sale. We have also agreed to issue Ladenburg Thalmann at the closing of the first placement 3-year warrants to purchase common stock in an amount equal to 3% of \$50,000,000

divided by 125% of the market price on the day prior to such initial placement. After Ladenburg Thalmann has placed at least \$50,000,000 of common stock for us, we will issue to them additional 3-year warrants for common stock equal to 3% of the gross proceeds from each such placement divided by 125% of the market price on the day prior to such transaction. The exercise price of each such warrant shall be 125% of the market price of the common stock on the day prior to closing such particular placement.

We have also given Ladenburg Thalmann a \$35,000 non-accountable expense allowance and a right of first refusal for a period of one year from the placement of \$50,000,000 of common stock pursuant to this offering to provide certain additional financing for us. We have also agreed to give Ladenburg Thalmann customary underwriter's indemnification against liabilities under the Securities Act.

Any variance from those underwriting terms will be disclosed in a prospectus supplement.

EXPERTS AND LEGAL MATTERS

The financial statements of APA Optics, Inc. as of March 31, 1999 and 1998, and for each of the three years in the period ended March 31, 1999, incorporated by reference in this prospectus and in the registration statement of which this prospectus is a part have been audited by Ernst & Young LLP, independent auditors, as set forth in their report thereon (which contains an explanatory paragraph describing conditions that raise substantial doubt about the ability of APA Optics to continue as a going concern, as described in Note 2 to the financial statements) also incorporated by reference herein. Such financial statements have been incorporated by reference in reliance upon such report given on the authority of such firm as experts in accounting and auditing.

The validity of the shares of common stock offered by this prospectus has been passed upon for the Company by Moss & Barnett, A Professional Association, Minneapolis, Minnesota.

MATERIAL CHANGES

There have been no material changes in the financial condition or business of the Company since its Report on Form 10-Q for the quarter ended December 31, 1999 except for our placement of \$5 million in 2% Series A convertible preferred stock and related warrants for purchase of 50,000 shares of common stock in March 2000.

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DISCLOSURE OF COMMISSION POSITION ON INDEMNIFICATION FOR SECURITIES ACT LIABILITIES

Our Articles of Incorporation limit personal liability for breach of the fiduciary duty of our directors, to the fullest extent provided by the Minnesota Business Corporation Act. The Articles eliminate the personal liability of directors for damages occasioned by breach of fiduciary duty, except for liability based on the director's duty of loyalty to APA Optics, liability for acts or omissions not made in good faith, liability for acts or omissions involving intentional misconduct, liability based on payments of improper dividends, liability based on violations of state securities laws, and liability occurring prior to the date such provision was added. Any amendment to or repeal of these provisions will not be applied retroactively to adversely affect any right or protection of a director with respect to any acts or omissions occurring prior to the amendment or repeal. In addition, the Minnesota Business Corporation Act and our Bylaws provide that our officers and directors have the right to indemnification from the Company for liability arising out of certain actions to the fullest extent permissible by law.

This indemnification may be available for liabilities arising in connection with this offering. However, in the opinion of the Securities and Exchange Commission, indemnification for liabilities arising under the Securities Act of 1933 is against public policy as expressed in the Act and is therefore unenforceable.

ANTITAKEOVER STATUTE

Section 302A.671 of the Minnesota Business Corporation Act (the "Minnesota Act") applies, with certain exceptions, to any acquisition of voting stock of APA Optics, including the receipt of a proxy, from a person other than APA Optics, and other than in connection with certain mergers and exchanges to which APA Optics is a party, that results in the beneficial ownership by the acquiring party of 20% or more of the Company's voting stock then outstanding. Under Section 302A.671 any such acquisition must be approved by a majority vote of our shareholders. In general, in the absence of such approval, shares exceeding the threshold are denied voting rights and may be redeemed by us at the then fair market value within 30 days after the acquiring person fails to give a timely information statement to the Company or after the date that shareholders vote not to grant voting rights to the acquiring person's shares.

Section 302A.673 of the Minnesota Act generally prohibits any business combination by a Minnesota company with any shareholder that purchases 10% or more of the company's voting shares (an "interested shareholder") within four years following the interested shareholder's share acquisition date, unless the business combination is approved by a committee of all of the disinterested members of the Board of Directors of the company before the share acquisition.

These statutory provisions could delay or prevent a change in control of APA Optics.

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\$100,000,000

APA OPTICS, INC.

COMMON STOCK

PROSPECTUS

_____, 2000

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PART II. INFORMATION NOT REQUIRED IN PROSPECTUS

ITEM 14. OTHER EXPENSES OF ISSUANCE AND DISTRIBUTION

The estimated expenses in connection with the issuance and distribution of the Common Stock registered hereby, other than underwriting discounts and fees, are set forth in the following table:

| | |
|--------------------------------------|----------|
| SEC registration fee..... | \$26,400 |
| Legal fees and expenses..... | 10,000 |
| Accounting fees and expenses..... | 5,000 |
| Blue Sky fees and expenses..... | 1,000 |
| Printing and engraving expenses..... | 5,000 |
| Miscellaneous..... | 1,000 |
| | ----- |
| Total..... | \$48,400 |
| | ===== |

ITEM 15. INDEMNIFICATION OF DIRECTORS AND OFFICERS

Unless prohibited in a corporation's articles or bylaws, Minnesota Statutes ss.302A.521 requires indemnification of officers, directors, employees and agents, under certain circumstances, against judgments, penalties, fees, settlements and reasonable expenses (including attorneys' fees and disbursements) incurred by such person in connection with a threatened or pending proceeding with respect to the acts or omissions of such person in his or her official capacity. The general effect of Minnesota Statutes ss.302A.521 is to reimburse (or pay on behalf of) directors and officers of the registrant any personal liability that may be imposed for certain acts performed in their capacity as directors and officers of the registrant, except where such persons have not acted in good faith. The Bylaws of the Registrant provide for such indemnification to the maximum extent permitted by Minnesota Statutes.

ITEM 16. EXHIBITS

| Exhibit No. | Description of Exhibit |
|-------------|--|
| 1.1 | Placement Agency Agreement dated March 16, 2000 between APA Optics and Ladenburg Thalmann & Co. Inc. |
| *3.1 | Restated Articles of Incorporation, as amended |
| *3.2 | Bylaws, as amended |
| 5.1 | Opinion and Consent of Counsel to APA Optics |
| 23.1 | Consent of Ernst & Young LLP |
| 23.2 | Consent of Counsel to APA Optics (filed as part of Exhibit 5.1) |

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* Incorporated by reference to exhibit filed as a part of Form 10-KSB for the fiscal year ended March 31, 1995.

ITEM 17. UNDERTAKINGS

(a) Insofar as indemnification for liabilities arising under the Securities Act of 1933, as amended (the "Act") may be permitted to directors, officers and controlling persons of the issuer pursuant to the foregoing provisions or otherwise, the issuer has been advised that in the opinion of the Commission such indemnification is against public policy as expressed in the Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the issuer of expenses incurred or paid by a director, officer or controlling person of the issuer in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the issuer will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Act and will be governed by the final adjudication of such issue.

(b) Because the registration statement incorporates Exchange Act documents filed subsequent to the effective date of the registration statement, the Company hereby undertakes that, for purposes of determining any liability under the Securities Act of 1933, each filing of the Company's annual report pursuant to Section 13(a) or Section 15(d) of the Securities Exchange Act of 1934 (and, where applicable, each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Securities Exchange Act of 1934) that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

(c) If the Company relies upon Rule 430A under the Act, the Company undertakes that, for determining any liability under the Act, it will:

(1) Treat the information omitted from the form of prospectus filed as part of this registration statement in reliance upon Rule 430A and contained in a form of prospectus filed under Rule 424(b)(1) or (4) or 497(h) under the Act as part of this registration statement as of the time the Commission declared it effective.

(2) Treat each post-effective amendment that contains a form of prospectus as a new registration statement for the securities offered in the registration statement, and that offering of the securities at that time as the initial bona fide offering of those securities.

(d) Insofar as the Company is registering securities under Rule 415 of the Securities Act, the Company will:

(1) file, during any period in which it offers or sells securities, a post-effective amendment to this registration statement to include any additional or changed material information on the plan of distribution.

(2) for determining liability under the Securities Act, treat each post-effective amendment as a new registration statement of the securities offered, and the offering of the securities at that time to be the initial bona fide offering.

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(3) File a post-effective amendment to remove from registration any of the securities that remain unsold at the end of the offering.

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SIGNATURES

In accordance with the requirements of the Securities Act of 1933, the registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-3 and has duly authorized this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized in the City of Minneapolis, State of Minnesota, on April 3, 2000.

APA OPTICS, INC.

By: /s/ Anil K. Jain

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS that each individual whose signature appears below constitutes and appoints Anil K. Jain, his true and lawful attorney-in-fact and agent with full power of substitution, for him and in his name, place and stead, in any and all capacities, to sign any and all amendments (including post-effective amendments) to this registration statement, and to sign any registration statement for the same offering covered by Rule 462(b) promulgated under the Securities Act of 1933, as amended, and any and all amendments (including post-effective amendments) thereto, and to file the same, with all exhibits thereto, and all documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorney-in-fact and agent, full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as he might or could do in person, hereby ratifying and confirming that said attorney-in-fact and agent or his substitute, may lawfully do or cause to be done by virtue hereof.

| SIGNATURE ----- | TITLE ----- | DATE ---- |
|---|--|---------------|
| /s/ Anil K. Jain ----- Anil K. Jain | Chief Executive Officer and Chief Financial Officer (Principal executive officer and principal financial officer) | April 3, 2000 |
| /s/ Kenneth A. Olsen ----- Kenneth A. Olsen | Director | April 3, 2000 |
| /s/ Gregory J. Von Wald ----- Gregory J. Von Wald | Director | April 3, 2000 |
| /s/ Michael A. Gort ----- Michael A. Gort | Director | April 3, 2000 |

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| | | |
|---|------------------------------|---------------|
| /s/ William R. Franta ----- William R. Franta | Director | April 3, 2000 |
| /s/ Randal J. Becker ----- Randal J. Becker | Principal accounting officer | April 3, 2000 |

*Executed by the undersigned as attorney-in-fact
for the named signatory

Anil K. Jain

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[LOGO] LADENBURG
THALMANN

March 16, 2000

Anil Jain
Chairman/ Chief Financial Officer
APA Optics, Inc.
2950 N.E. 84th Lane
Blaine, MN 55449

Dear Mr. Jain:

The purpose of this letter agreement (the "Agreement") is to set forth the terms and conditions pursuant to which Ladenburg Thalmann & Co. Inc. ("LTCO") shall serve as exclusive placement agent in connection with the proposed offering (the "Offering") of equity securities (the "Securities") of APA Optics, Inc. (the "Company") pursuant to a registration statement on Form S-3. The gross proceeds from the Offering will be up to \$100,000,000. All references to dollars shall be to U.S. dollars. The terms of such Offering and the Securities shall be as agreed to between the Company and the purchasers thereof. The Company may accept or reject any offer to purchase the Securities, in whole or in part, in its sole discretion.

Upon the terms and subject to the conditions of this Agreement, the parties hereto agree as follows:

1. APPOINTMENT. (a) Subject to the terms and conditions of this Agreement hereinafter set forth, the Company hereby retains LTCO, and LTCO hereby agrees to act as the Company's exclusive placement agent and financial advisor in connection with the Offering, effective as of the date hereof. The Company expressly acknowledges and agrees that LTCO's obligations hereunder are on a reasonable best efforts basis only and that the execution of this Agreement does not constitute a commitment by LTCO to purchase the Securities and does not ensure the successful placement of the Securities or any portion thereof or the success of LTCO with respect to securing any other financing on behalf of the Company. LTCO shall not commence any selling efforts until the registration statement has been declared effective by the SEC.

(b) Except as set forth below in this Section 1, during the effectiveness of this Agreement, neither the Company nor any of its subsidiaries or affiliates shall, directly or indirectly, through any officer, director, employee, agent or otherwise (including, without limitation, through any placement agent, broker, investment banker, attorney or accountant retained by the Company or any of its subsidiaries or affiliates), solicit, initiate or encourage the submission of any proposal or offer (an "Investment Proposal") from any person or entity (including any of such person's or entity's officers, directors, employees, agents and other representatives) relating to any issuance of the Company's or any of its subsidiaries' equity securities (including debt securities with any equity feature) or relating to any other transaction having a similar effect or result on the Company's or any of its subsidiaries' capitalization, or participate in any discussions or negotiations regarding, or furnish to any other person or entity any information with respect to, or otherwise cooperate in any way with, or assist or participate in, facilitate or encourage any effort or attempt by any other person or entity to do or seek to do any of the foregoing. The Company shall immediately cease and cause to be terminated any and all contacts, discussions and negotiations with third parties regarding any Investment Proposal. The Company shall promptly notify LTCO if any such Investment Proposal, or any inquiry or contact with any person or entity with respect thereto, is made. The Company shall not provide or release any information with respect to this Agreement or the Offering except as required by law. This Section 1(b) shall not apply to the Company's 2% Convertible Preferred Stock.

(c) Notwithstanding anything to the contrary contained herein, in the event that LTCO shall not provide to the Company within three months after the effective date of the registration statement one or more qualified institutional investors reasonably acceptable to the Company willing to invest in the aggregate at least \$25,000,000 in the Offering on substantially the same terms as agreed to between the Company and such investors, the Company shall have the right to terminate this Agreement and/or to solicit and pursue other Investment

Proposals (subject to LTCO's rights to compensation under Section 3(b)). No break-up fee shall be payable under Section 2(d) if the Company terminates this Agreement pursuant to this Section 1(c).

2. FEES AND COMPENSATION. In consideration of the services rendered by LTCO in connection with the Offering, the Company agrees to pay LTCO the following fees and other compensation:

- (a) 1) 3% warrant coverage on \$50 million as commitment fee payable immediately upon the initial closing which will be the date of the completion of the initial draw down under the Offering; after the Company draws down at least \$50 million under the Offering, 3% warrant coverage on the amount draw down by the Company at each subsequent closing payable at the applicable subsequent closing which will be the date of the completion of

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the applicable subsequent draw down under the Offering. The warrant coverage shall be determined as follows: 3% * (for the initial closing) \$50,000,000 or (for subsequent closings) the amount drawn down by the Company at the applicable subsequent closing / 125% of the VWAP of the Company's common stock on the trading day immediately preceding the applicable closing. The Warrants shall have a term of three years and a strike price equal to 125% of the VWAP of the Company's common stock on the trading day immediately preceding the applicable closing ("VWAP" shall mean the daily volume weighted average price of the Company's Common Stock as reported by Bloomberg Financial using the AQR function); and

- 2) a cash fee payable upon the initial and each subsequent closing equal to 3% of the amount drawn down by the Company at each such closing; and
- (b) \$35,000 non-accountable expense allowance.
- (c) All amounts payable hereunder shall be paid to LTCO out of an attorney escrow account at the closing or by such other means acceptable to LTCO.
- (d) If (i) LTCO has provided a qualified institutional investor, as set forth in Section 1(c), who is acceptable to the Company, and who is willing to invest at substantially the terms agreed to between the Company and the investor, (ii) the Company rejects the investor's offer and no sale of Securities is made to such investor, and (iii) the Company terminates the Agreement prior to March 31, 2001 (the "Termination Date"), for reasons other than a breach of this Agreement by LTCO, the Company will pay \$200,000 to LTCO as a "break-up" fee.

3. TERMS OF RETENTION. (a) Unless extended or terminated in writing by the parties hereto in accordance with the provisions hereof, this Agreement shall remain in effect until the Termination Date of March 31, 2001.

(b) Notwithstanding anything herein to the contrary, the obligation to pay the Fees and Compensation and Expenses described in Section 2, if any, and paragraphs 2, 6, and 8 of Exhibit A and all of Exhibit B and Exhibit C attached hereto, each of which exhibits is incorporated herein by reference, shall survive any termination or expiration of the Agreement. It is expressly understood and agreed by the parties hereto that any private financing of equity or debt or other capital raising activity of the Company within 24 months of the termination or expiration of this Agreement, with any investors (the number of such investors shall not exceed seven without the Company's prior written

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approval) to whom the Company was introduced by LTCO or who was contacted by LTCO while this Agreement was in effect and disclosed to the Company in writing, shall result in such fees and compensation being due and payable by the Company to LTCO under the same terms of Section 2 above.

(c) In no event shall the number of shares of Common Stock issued in the Offering, together with the number of shares issued and issuable pursuant to the Company's 2% Convertible Preferred Stock and related warrants reach or exceed 20% of the number of shares of common stock outstanding as of the date of issuance of the 2% Convertible Preferred Stock, unless issuance in an amount of 20% or more has been approved by the shareholders.

4. RIGHT OF FIRST REFUSAL. If the investors to whom the Company was introduced by LTCO pursuant hereto purchase in the aggregate at least

\$50,000,000 of Securities under the Offering, then upon completion of the sale of such \$50,000,000 of Securities, LTCO shall have an irrevocable right of first refusal for a period of one year to provide all private financing (i.e. registered public offerings of debt and equity are excluded) for the Company (other than conventional banking arrangements, borrowing and commercial debt financing and discrete unrelated transactions of not more than \$250,000 where no investment banking fee is being paid). LTCO shall exercise such right in writing within five (5) business days of receipt of a written term sheet describing such proposed transaction in reasonable detail.

5. INFORMATION. The Company recognizes and confirms that in completing its engagement hereunder, LTCO will be using and relying on publicly available information and on data, material and other information furnished to LTCO by the Company or the Company's affiliates and agents. It is understood and agreed that in performing under this engagement, LTCO will rely upon the accuracy and completeness of, and is not assuming any responsibility for independent verification of, such publicly available information and the other information so furnished. Notwithstanding the foregoing, it is understood that LTCO will conduct a due diligence investigation of the Company and the Company will cooperate in all respects with such investigation as a condition of LTCO's obligations hereunder.

6. REGISTRATION. Promptly following execution of this Agreement, the Company shall prepare and file with the SEC a registration statement. From time to time in connection with any particular sale of Securities, the Company will, at its own expense, obtain any registration or qualification required to sell any Securities under the Blue Sky laws of any applicable jurisdictions, as reasonably requested by LTCO.

7. NO GENERAL SOLICITATION. The Securities will be offered only by approaching prospective purchasers on an individual basis. No general solicitation or general advertising in any form will be used in connection with the

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offering of the Securities. From and after the filing of the registration statement, the Company shall pre-clear any proposed press release with LTCO.

8. CLOSING. The closing of the sale of the Securities shall be subject to customary closing conditions, including the provision at closing by the Company of officers' certificates, and opinion of counsel as to registration of the Securities.

9. MISCELLANEOUS. This Agreement together with the attached Exhibits A through C constitutes the entire understanding and agreement between the parties with respect to its subject matter and there are no agreements or understandings with respect to the subject matter hereof which are not contained in this Agreement. This Agreement may be modified only in writing signed by the party to be charged hereunder.

If the foregoing correctly sets forth our agreement, please confirm this by signing and returning to us the duplicate copy of this letter.

We appreciate this opportunity to be of service and are looking forward to working with you on this matter.

Very truly yours,

LADENBURG THALMANN & CO. INC.

By: /s/ David B. Boris

Name: David B. Boris
Title: Executive Vice President

Agreed to and accepted
as of the date first written above:

APA Optics, Inc.

By: /s/ Anil Jain

Name: Anil Jain
Title: President

EXHIBIT A

STANDARD TERMS AND CONDITIONS

1. The Company shall promptly provide LTCO with all relevant information about the Company (to the extent available to the Company in the case of parties other than the Company) that shall be reasonably requested or required by LTCO, which information shall be accurate in all material respects at the time furnished.
2. LTCO shall keep all information obtained from the Company strictly confidential except: (a) information which is otherwise publicly available, or previously known to, or obtained by LTCO independently of the Company and without breach of LTCO's agreement with the Company; (b) LTCO may disclose such information to its employees and attorneys, and to its other advisors and financial sources on a need to know basis only and shall ensure that all such employees, attorneys, advisors and financial sources will keep such information strictly confidential; and (c) pursuant to any order of a court of competent jurisdiction or other governmental body or as may otherwise be required by law, provided that LTCO shall provide prior notice of such disclosure to the Company to enable it to seek a protective order or other relief.
3. The Company recognizes that in order for LTCO to perform properly its obligations in a professional manner, it is necessary that LTCO be informed of and, to the extent practicable, participate in meetings and discussions between the Company and any third party relating to the matters covered by the terms of LTCO's engagement.
4. The Company agrees that any report or opinion, oral or written, delivered to it by LTCO is prepared solely for its confidential use and shall not be reproduced, summarized, or referred to in any public document or given or otherwise divulged to any other person without LTCO's prior written consent, except as may be required by applicable law or regulation.
5. No fee payable to LTCO pursuant to any other agreement with the Company or payable by the Company to any agent, lender or investor shall reduce or otherwise affect any fee payable by the Company to LTCO hereunder.
6. The Company represents and warrants that: (a) it has full right, power and authority to enter into this Agreement and to perform all of its obligations hereunder; (b) this Agreement has been duly authorized and executed and constitutes a valid and binding agreement of the Company enforceable in accordance with its terms; and (c) the execution and delivery of this Agreement and the consummation of the transactions contemplated hereby does not conflict with or result in a breach of (i) the Company's certificate of incorporation or by-laws or (ii) any agreement to which the Company is a party or by which any of its property or assets is bound.
7. Nothing contained in this Agreement shall be construed to place LTCO and the Company in the relationship of partners or joint venturers. Neither LTCO nor the Company shall represent itself as the agent or legal representative of the other for any purpose whatsoever nor shall either have the power to obligate or bind the other in any manner whatsoever. LTCO, in performing its services hereunder, shall at all times be an independent contractor.
8. This Agreement has been and is made solely for the benefit of LTCO and the Company and each of the persons, agents, employees, officers, directors and controlling persons referred to in Exhibit B and their respective heirs, executors, personal representatives, successors and assigns, and nothing contained in this Agreement shall confer any rights upon, nor shall this Agreement be construed to create any rights in, any person who is not party to such Agreement, other than as set forth in this paragraph.
9. The rights and obligations of either party under this Agreement may not be assigned without the prior written consent of the other party hereto and any other purported assignment shall be null and void.
10. All communications hereunder, except as may be otherwise specifically provided herein, shall be in writing and shall be mailed, hand delivered, or sent via facsimile and confirmed by letter, to the party

to whom it is addressed at the following addresses or such other address as such party may advise the other in writing:

To the Company:
Anil Jain
APA Optics, Inc.
2950 N.E. 84th Lane
Blaine, MN 55449
TELEPHONE: (612) 784-4995
Facsimile: (612) 784-2038

To LTCO:
Ladenburg Thalmann & Co. Inc.
590 Madison Avenue
New York, NY 10022
Attention: David B. Boris
Telephone: (212) 409-2000
Facsimile: (212) 409-2169

All notices hereunder shall be effective upon receipt by the party to which it is addressed.

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Exhibit 1.1 to
Ladenburg Thalmann S-3

EXHIBIT B

INDEMNIFICATION

The Company agrees that it shall indemnify and hold harmless, LTCO, its stockholders, directors, officers, employees, agents, affiliates and controlling persons within the meaning of Section 20 of the Securities Exchange Act of 1934 and Section 15 of the Securities Act of 1933, each as amended (any and all of whom are referred to as an "Indemnified Party"), from and against any and all losses, claims, damages, liabilities, or expenses, and all actions in respect thereof (including, but not limited to, all legal or other expenses reasonably incurred by an Indemnified Party in connection with the investigation, preparation, defense or settlement of any claim, action or proceeding, whether or not resulting in any liability), incurred by an Indemnified Party: (a) arising out of, or in connection with, any actions taken or omitted to be taken by the Company, its affiliates, employees or agents, or any untrue statement or alleged untrue statement of a material fact contained in any of the financial or other information contained in the registration statement and/or final prospectus furnished to LTCO by or on behalf of the Company or the omission or alleged omission of a material fact required to be stated therein or necessary to make the statements therein, in light of the circumstances under which they were made, not misleading; or (b) with respect to, caused by, or otherwise arising out of any transaction contemplated by the Agreement or LTCO's performing the services contemplated hereunder; provided, however, the Company will not be liable under clause (b) hereof to the extent, and only to the extent, that any loss, claim, damage, liability or expense is finally judicially determined to have resulted primarily from LTCO's gross negligence or bad faith in performing such services.

If the indemnification provided for herein is conclusively determined (by an entry of final judgment by a court of competent jurisdiction and the expiration of the time or denial of the right to appeal) to be unavailable or insufficient to hold any Indemnified Party harmless in respect to any losses, claims, damages, liabilities or expenses referred to therein, then the Company shall contribute to the amounts paid or payable by such Indemnified Party in such proportion as is appropriate and equitable under all circumstances taking into account the relative benefits received by the Company on the one hand and LTCO on the other, from the transaction or proposed transaction under the Agreement or, if allocation on that basis is not permitted under applicable law, in such proportion as is appropriate to reflect not only the relative benefits received by the Company on the one hand and LTCO on the other, but also the relative fault of the Company and LTCO; provided, however, in no event shall the aggregate contribution of LTCO and/or any Indemnified Party be in excess of net compensation actually received by LTCO and/or such Indemnified Party pursuant to this Agreement.

The Company shall not settle or compromise or consent to the entry of any judgment in or otherwise seek to terminate any pending or threatened action, claim,

suit or proceeding in which any Indemnified Party is or could be a party and as to which indemnification or contribution could have been sought by such Indemnified Party hereunder (whether or not such Indemnified Party is a party

thereto), unless such consent or termination includes an express unconditional release of such Indemnified Party, reasonably satisfactory in form and substance to such Indemnified Party, from all losses, claims, damages, liabilities or expenses arising out of such action, claim, suit or proceeding.

The foregoing indemnification and contribution provisions are not in lieu of, but in addition to, any rights which any Indemnified Party may have at common law hereunder or otherwise, and shall remain in full force and effect following the expiration or termination of LTCO's engagement and shall be binding on any successors or assigns of the Company and successors or assigns to all or substantially all of the Company's business or assets.

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Exhibit 1.1 to
Ladenburg Thalmann S-3

EXHIBIT C

JURISDICTION

The Company hereby irrevocably: (a) submits to the jurisdiction of any court of the State of New York or any federal court sitting in the State of New York for the purposes of any suit, action or other proceeding arising out of the Agreement between the Company and LTCO which is brought by or against the Company or LTCO; (b) agrees that all claims in respect of any suit, action or proceeding may be heard and determined in any such court; and (c) to the extent that the Company has acquired, or hereafter may acquire, any immunity from jurisdiction of any such court or from any legal process therein, the Company hereby waives, to the fullest extent permitted by law, such immunity.

The Company waives, and the Company agrees not to assert in any such suit, action or proceeding, in each case, to the fullest extent permitted by applicable law, any claim that: (a) the Company is not personally subject to the jurisdiction of any such court; (b) the Company is immune from any legal process (whether through service or notice, attachment prior to judgment, attachment in the aid of execution, execution or otherwise) with respect to it or its property; (c) any such suit, action or proceeding is brought in an inconvenient forum; (d) the venue of any such suit, action or proceeding is improper; or (e) this Agreement may not be enforced in or by any such court.

Any process against the Company in, or in connection with, any suit, action or proceeding filed in the United States District Court for the Southern District of New York or any other court of the State of New York, arising out of or relating to this Agreement or any transaction or agreement contemplated hereby, may be served on the Company personally, or by first class mail or overnight courier (with the same effect as though served upon the Company personally) addressed to the Company at the address set forth in the Agreement between the Company and LTCO.

Nothing in these provisions shall affect any party's right to serve process in any manner permitted by law or limit its rights to bring a proceeding in the competent courts of any jurisdiction or jurisdictions or to enforce in any lawful manner a judgment obtained in one jurisdiction in any other jurisdiction.

This Agreement shall be governed by and construed in accordance with the laws of the State of New York, without regard to conflicts of law principles.

April 3, 2000

APA Optics, Inc.
2950 N.E. 84th Lane
Blaine, MN 55449

Re: Registration Statement on Form S-3

Ladies and Gentlemen:

We have acted as counsel for APA Optics, Inc. (the "Company") in connection with the Registration Statement on Form S-3 (the "Registration Statement") that relates to the issuance of up to \$100,000,000 of common stock of the Company (the "Shares").

In connection with the registration of the Shares, we have examined such documents, records and matters of law as we have deemed necessary to the rendering of the following opinion. Based upon that review, it is our opinion that upon receipt of payment in full therefor, the Shares being registered, when issued by the Company, will be validly issued, fully paid and non-assessable.

The foregoing opinion is subject to the qualification that the Shares or any of them, when issued, will not when taken together with the then issued and outstanding capital stock of the Company, exceed the authorized capital stock of the Company.

We consent to the use of this opinion as an exhibit to the Registration Statement and further consent to the use of our name wherever it appears in the Registration Statement, including the prospectus constituting a part thereof, and any amendments thereto.

Very truly yours,

MOSS & BARNETT,
A Professional Association

/s/ Janna R. Severance

Janna R. Severance

CONSENT OF INDEPENDENT AUDITORS

We consent to the reference to our firm under the caption "Experts and Legal Matters" in the Registration Statement (Form S-3 No. 333-00000) and related Prospectus of APA Optics, Inc. for the registration of \$100,000,000 in shares of its common stock and to the incorporation by reference therein of our report dated May 14, 1999, with respect to the financial statements of APA Optics, Inc. included in its Annual Report (Form 10-K) for the year ended March 31, 1999, filed with the Securities and Exchange Commission.

/s/ ERNST & YOUNG LLP

Minneapolis, Minnesota
April 3, 2000