

*“AccuRay the Quality Company”*

## Corporate Quality

Paying a premium for high quality products is a choice familiar to us all. What may not be familiar is that we also pay a price for poor quality. The scrappage, rejected parts, inspection, repair and other activities caused by not "doing things right the first time" can add 15 to 30 percent to a company's operating costs. In other words, by recognizing that quality should be *designed into* products, not *inspected out*, a company can better satisfy customer needs while adding as much to their bottom line as would a large boost in sales.

*U.S. President Ronald Reagan described AccuRay as "The Quality Company with quality programs, quality products and quality people..." during his October, 1982 visit. After dining with employees, President Reagan honored AccuRay with the highest accolade granted by the U.S. Department of Commerce, the "E Star" Award, in recognition of AccuRay's outstanding export record.*

During the 1980's, companies that incorporate statistical quality control programs as a key element of their competitive strategy will increase market share, differentiate their products from competitors and achieve a dominant position in markets that emphasize high product quality<sup>1</sup>. This growing emphasis on quality is reinforced by evidence that quality has become as important as price in improving market share and profit margins. A recent study of some 2,000 business units by the Strategic Planning Institute of Cambridge, Massachusetts, showed that companies with high quality products and services typically had high market share. This combination led to profit margins five times greater than companies at the other extremes.

The efficiency of using statistical methods to analyze

<sup>1</sup> SRI International Business Intelligence Program, Research Report 658, "Managing Quality: A Strategic Perspective".

quality is perhaps best exhibited in an example from the printed circuit board industry. Without statistical methods, monitoring all the production process variables would require over 5,000 separate tests. Using statistical methods, the number of tests needed to identify and correlate significant product defects can be cut to about 20 — a more practical and less costly procedure.

Although this "quality revolution" may be a recent phenomenon for many companies, AccuRay has been actively pursuing its goal to be the Quality Leader in the process control industry since 1978. Results achieved during this five-year Corporate Quality Management Program suggest that AccuRay can be the Quality Leader and the low-cost supplier.

The primary ingredient of a successful quality program is total corporate involvement. This begins when top management recognizes it

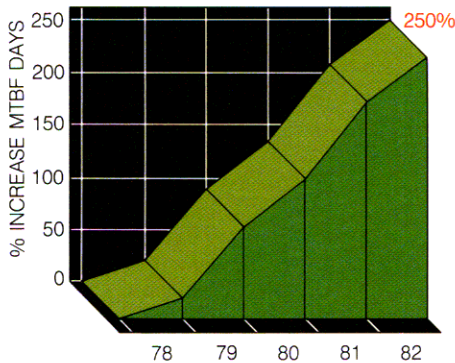
has primary control over a company's quality status. AccuRay management recognized this role in the 1970's and incorporated quality as an essential long-range competitive strategy. In 1979, AccuRay management moved toward accomplishing its goal by creating the senior executive position of Director, Corporate Quality Management. AccuRay then initiated worldwide seminars to discuss the use of quality as a strategic management tool and established a corporate Quality Steering Committee that has been instrumental in guiding AccuRay through the maze of quality issues.

Once the framework was in place, the next step was to pinpoint the cost of non-conforming products and services in terms of money and reputation. To better understand this, AccuRay implemented an aggressive statistical quality control program to track the performance of products and

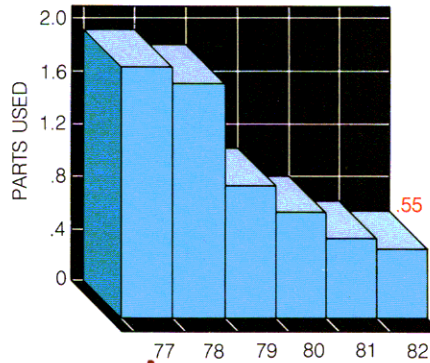


# Corporate Quality

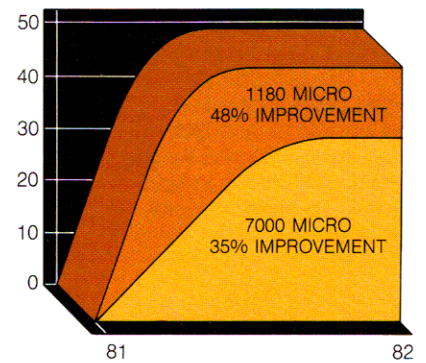
**Mean-Time-Between-Failure (MTBF) for all MICRO Systems**



**Average Monthly Parts Usage Per System**



**Final Test Quality Improvement**



services and determine the causes of inferior and superior performances. These causes are traced to their origins and corrected, whether they be the fault of a supplier, user, or AccuRay.

Data are gathered through detailed audits of AccuRay system performance and semiannual performance reviews with AccuRay customers. A special field task force was also established to audit representative installations and analyze why some were more successful than others. The result? A total of 72 recommendations were made to correct or improve upon the quality of system installations.

AccuRay semiannual performance reviews have proven effective in creating and maintaining open communication channels between AccuRay and customer management. Chief operating executives from some of the world's largest paper com-

panies have enhanced the quality of their operations through AccuRay's documentation of performance criteria and willingness to undertake a "partnership" to achieve a maximum return on the customer's invested capital. A typical performance review is indicative of this partnership. Senior management from both companies review AccuRay system performance, highlighting specific achievements and analyzing problem areas. Action is then taken by either "partner" to achieve the shared goal of maximum utilization of the AccuRay system.

Another example of AccuRay's partnership with customers is the early 1983 introduction of a new 12-month warranty for replacement components that substantially exceeds the standard 90-day warranties offered by other process control suppliers. The EVERGREEN Parts Warranty assures

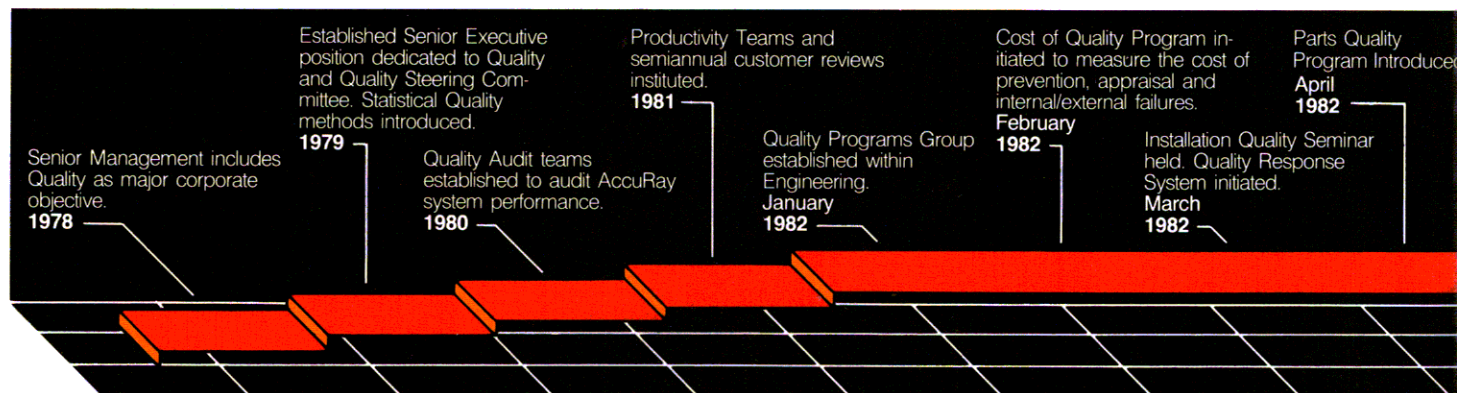
customers that all MICRO™ system parts, including spare parts and replacement parts, will be free from defects in workmanship and materials for a period of one year from date of shipment — or AccuRay will replace them at no cost to the user.

Within AccuRay's own manufacturing/engineering area, numerous productivity teams, or quality circles, have been established to examine quality issues. This has helped foster a participative management style that allows AccuRay associates to make meaningful inputs to change how things are done — for the betterment of the product. Additionally, a special task force was established to improve certain areas of design, specification and manufacture. By identifying 200 to 300 present and potential problems, it is estimated this group will have a favorable impact of over \$3 million upon the Corporation during the next

several years.

In addition to these internal steps to attain quality improvement, AccuRay has aggressively involved its suppliers in the program. According to studies, 55 percent of field failures for long-life products, such as AccuRay systems, can be traced to components purchased from outside vendors. More specifically, 13 assemblies accounted for 71 percent of all AccuRay system failures during 1981, of which nine were purchased from outside vendors. To reduce these failures, a Vendor Quality Task Force was established to concentrate on improving the reliability of AccuRay systems by improving the quality of purchased components.

During 1982, AccuRay established on-going programs with 24 vendors, representing 61 percent of total system component purchases, to develop specific





AccuRay's "software factory" stores over 2,000 software modules and the techniques to combine them into customized software packages for each customer.

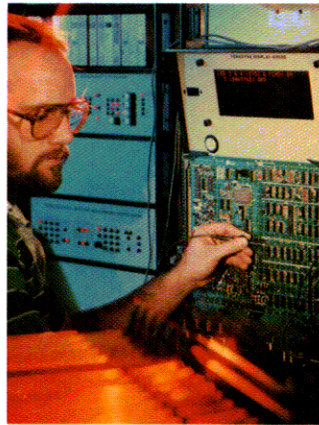
quality criteria for components entering AccuRay's manufacturing facilities. These vendors have established performance goals of 98 percent or better, with most setting goals of zero defects. By achieving the goal of reducing incoming and final test failures of vendor supplied parts by 50 percent, the program saved AccuRay over \$150,000 during 1982.

To help prevent future problems, AccuRay involves suppliers early in the product design process. This allows suppliers to specify the proper components, or develop

some which may not be on the market yet, to help AccuRay products fully meet the needs of its customers.

All told, the Corporate Quality Management Program has achieved impressive results by enhancing the ability of AccuRay's manufacturing operations to consistently produce systems that conform to the customer's requirements. Some of these results include:

- Improved final test quality of 1180 MICRO™ systems by 48 percent.
- Improved final test



A \$3 million investment in PC board testing equipment has elevated AccuRay PC board quality 13 percent above industry standards.



This recently acquired numerically controlled lathe will provide high quality parts and a direct cost savings of over \$350,000 in 1983.

quality of 7000 MICRO™ systems by 35 percent.

■ Testing methodology to reduce "infant mortality" of AccuRay manufactured printed circuit boards by up to 66 percent.

■ Hardware failures reduced 64 percent.

■ Software failures reduced 65 percent.

■ Finished software costs in manufacturing reduced 40 percent.

■ Developed an environmental conditioning option to increase the Mean-Time-Between-Failure for a vendor-supplied component up to 400 percent.

■ Parts backorders reduced 79 percent in 1981 and an additional 13 in 1982.

■ Backorders to system

shipments (system components, such as spare parts, etc., not shipped with the system) reduced 57 percent.

It is expected that further improvements will come as AccuRay extends its statistical training methods to every associate through a corporate-wide training program beginning in 1983. With present programs intact, and activities scheduled for the future, it is evident that AccuRay's commitment to quality is no empty statement of intentions. It involves real actions by AccuRay associates to bring about improvements in all products and services. Simply stated, at AccuRay quality is everyone's business.

Additional Productivity Teams Initiated.  
June 1982

Quality Task Forces established for:  
■ Engineering/Manufacturing;  
■ Vendors;  
■ Field.  
July 1982

President Reagan visits AccuRay acknowledging the Company for its exporting excellence and dedication to improving Quality.  
October 1982

Manufacturing Supervisors and Team Leaders complete leadership and statistical training. Established Defect Prevention and Quality Communications Programs. Director of Quality Management position elevated to Vice President level.  
November 1982

Internalized Vendor Quality and Field Quality task forces into line organization. Launched statistical Quality control training for all associates.  
December 1982

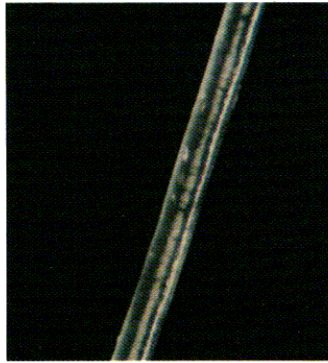
# Forest Products

The important role high quality AccuRay products play in improving customer operations is best exhibited in the forest products industry, historically AccuRay's largest market.

In the pulp and paper segment of this industry, where AccuRay systems control over 1,000 paper machine and pulping processes, the emphasis of the 1970's was to expand production capacity to meet increasing demand for paper products. However, this strategy was altered by declining profit margins resulting from increased raw material and energy costs, and increased competition. Compounded by international currency fluctuations, high interest rates and a generally poor worldwide economy, these factors have caused the industry to shift emphasis away from expansion and towards increasing the production efficiency of existing manufacturing equipment. These needs perfectly match the benefits offered by AccuRay products and services.

Over 700 AccuRay 1180 MICRO™ systems presently reduce costs and improve quality on paper machines worldwide producing in excess of 60 million tons of paper per year. These systems reduce production costs, increase production efficiency, constantly perform quality assurance functions and provide real-time management information. The 1180 MICRO monitors the paper product virtually 100 percent of the time to assure that the customer produces a quality product and management has production information for more efficient use of raw materials and energy.

The value of AccuRay systems start at the source — accurate sensors for measuring weight, caliper, moisture, color, ash content and other vital characteristics of the paper. Think of the sensor as



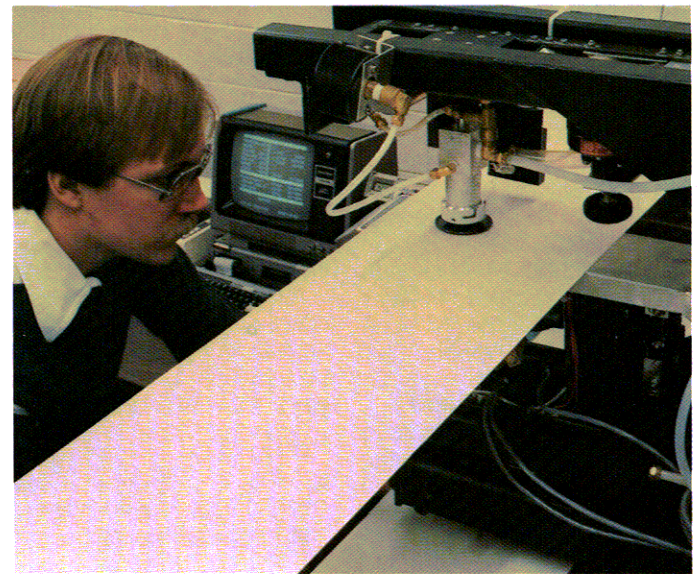
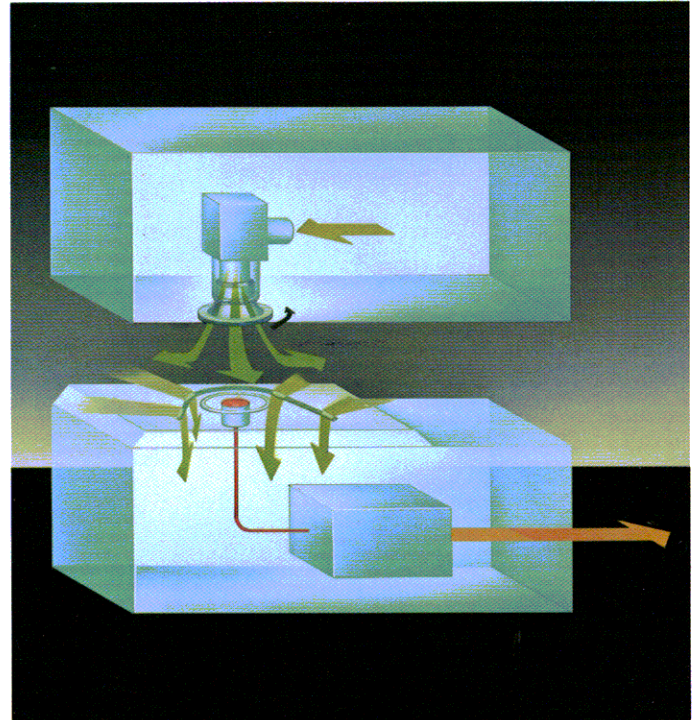
*The design of the new MICROSCAN Caliper Sensor is so unique it merited three separate patents. These design attributes allow the sensor to measure paper thickness to an accuracy equivalent to one-sixtieth the width of a human hair. (Hair strand magnified through microscope.)*

the "eye" of the computer; if the sensor goes "blind" or begins to see things that aren't really there, then the computer will act upon false information. The importance of accurate, reliable sensors is the reason why AccuRay historically channels over one-third of its annual research and development funds into sensor design and development.

During 1983, this intensive investment program will result in the introduction of a new family of MICROSCAN™ Sensors. The MICROSCAN Caliper Sensor provides one example of the revolutionary nature of these new sensors.

Uniform thickness (caliper) of the paper sheet has arisen as one of today's top quality parameters because variations in thickness can severely hamper high speed printing and converting operations. Extensive field and laboratory testing of the new caliper sensor have proven it can measure thickness to an accuracy of 0.35 microns. To illustrate how accurate this measurement is, one micron is equivalent to one-sixtieth the width of a human hair.

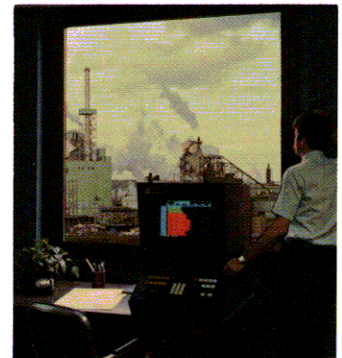
Through a 10-year research and development in-



*The AccuRay MICROSCAN Caliper Sensor is the result of four years and \$2 million of R&D work that included a specially built laboratory with equipment to duplicate the behavior of a high-speed paper machine.*

vestment of nearly \$54 million, AccuRay continually provides new state-of-the-art features to improve customer operations. As a responsible supplier, AccuRay provides these latest developments in sensor, software and hardware technology as upgrades to existing equipment as well as with new systems. This

allows customers to easily and cost-effectively bring even the first MICRO systems installed in 1976 up to today's standards. We call this unique approach to system development EVERGREEN Technology™, after the evergreen tree which constantly renews itself to stay green and alive.



*Through a unique marketing and information exchange program, entitled "Project Caravan", AccuRay will display how its paper machine control systems (bottom left), pulp fiberline control systems (top middle) and millwide production management information systems (top right) help the pulp and paper industry Master Quality and Manage Costs. Project Caravan is expected to attract over 2,000 top industry executives from AccuRay's major markets.*

capabilities will become increasingly important to pulp producers.

Another important factor is the modular design of the 4200 MICRO System. This modularity ensures both long system life and continued economic benefit since the system can be shared (multiplexed) among the various pulp fiberline processes. Initial installation of the 4200 MICRO System can provide immediate quality and economic benefits in one area of the pulping operation. Later, through the EVERGREEN approach and the system's modular design, other modules can be added to expand the system controls throughout the entire pulp fiberline — without the added cost of an additional system.

Due to these capabilities, over 12 million tons of annual pulp production are controlled with AccuRay systems. AccuRay also is the recognized leader in controlling continuous digesters, including the world's largest located in Bogalusa, Louisiana.

As computers have gained acceptance throughout the modern manufacturing firm, there has often been such an influx of raw data that decision-making efficiency decreases rather than increases. In order to transform this raw data into useful information that gives management an operating advantage, AccuRay offers the Micro/Manager 8000™ production management information system.

EVERGREEN Technology gives AccuRay MICRO systems a longer, more useful product life than any other system available. Through this ability to continually provide the latest technology without precluding prior capital investments, AccuRay helps customers overcome the costly problem of system obsolescence.

The financial advantages offered by the EVERGREEN approach are perhaps best exemplified in the area of cross-machine control. When the MICRO system was first introduced, papermakers were primarily concerned with controlling the average machine-direction variations in

paper. Since that time, there has been a growing industry need to also automatically control the uniformity of these variables across the width of the paper sheet. To meet this need, AccuRay has introduced a complete family of cross-machine controls for basis weight, moisture, caliper and roll hardness that substantially improve paper product quality by reducing cross-machine product variability. Due to AccuRay's EVERGREEN approach, these latest advancements in process control can not only be supplied with new systems, but can be added to every MICRO system presently installed throughout the

world.

The combination of EVERGREEN Technology and a new 12-month EVERGREEN Parts Warranty, which vastly exceeds warranties offered by other process control suppliers, ensures that customers in every industry served by AccuRay will receive a technologically superior product with superior service support.

In the pulping area of the typical pulp and paper mill, AccuRay 4200 MICRO™ systems manage the digestion process where wood chips are cooked with chemicals to create the raw material for paper production. These systems can also manage the subsequent washing and bleaching processes where bleaching chemicals are added to whiten the pulp for the production of printing and writing papers.

The 4200 MICRO System provides consistent pulp quality at any production rate, higher yield and lower energy and chemical usage. With major pulping chemical costs anticipated to increase up to 30 percent during the next several years, these

# Forest Products

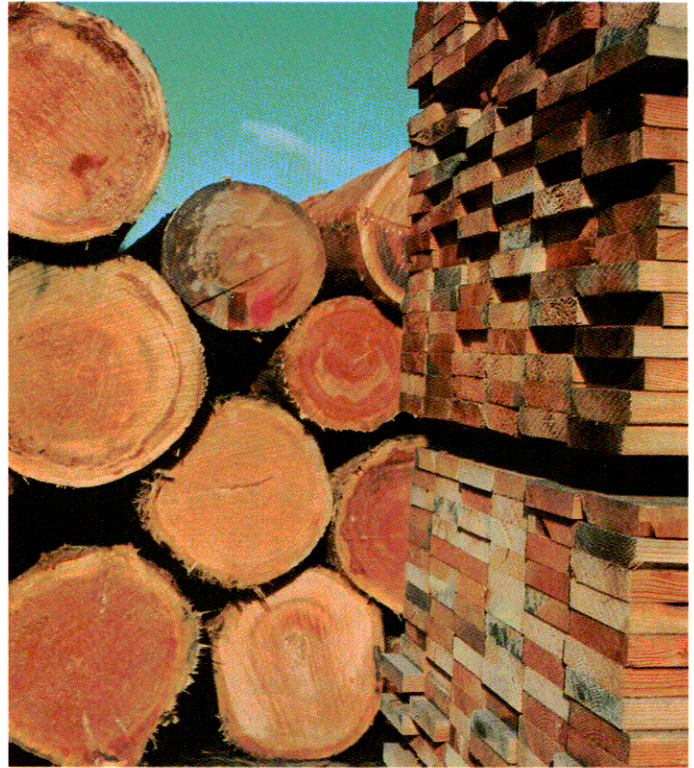
Introduced in 1981 as the industry's first commercially available millwide computer package, Micro/Manager 8000 has propelled AccuRay into a leadership position in production management information systems. Through MICROLINK™, AccuRay's two-way intelligent communications device, Micro/Manager 8000 is a distributed control system that takes advantage of important data automatically collected by AccuRay MICRO systems and combines this with information from business computers to create reports tailored to management's information needs. With this information at hand, managers can make better decisions to enhance the efficiency, quality, productivity and profitability of their manufacturing operation.

In addition to its own millwide product, AccuRay has been extensively involved in helping customers implement millwide systems utilizing other vendor components. Such projects are made possible through the communication and control capabilities provided by individual MICRO systems.

AccuRay will literally take its complete line of products and services for the pulp and paper industry "on the road" during 1983 in a series of executive management, technical management and production management seminars. During the course of the five-month "Caravan" program, AccuRay senior management from around the world and over \$1 million of computer equipment will be brought to some of the Company's major European markets to address the topic of "Mastering Quality — Managing Costs". These Caravan seminars will be held in London, Stockholm, Dusseldorf, Zurich and Barcelona to reduce the cost and time away from the job that industry executives must



*The production and quality information and process control provided by AccuRay 6000 MICRO Sawmill Systems (top left) yield annual savings of nearly \$1 million. The most popular of the system's modules, the AccuRay Trimmer Optimizer (bottom right), measures and controls each board cut from the log to maintain the maximum amount of saleable wood.*

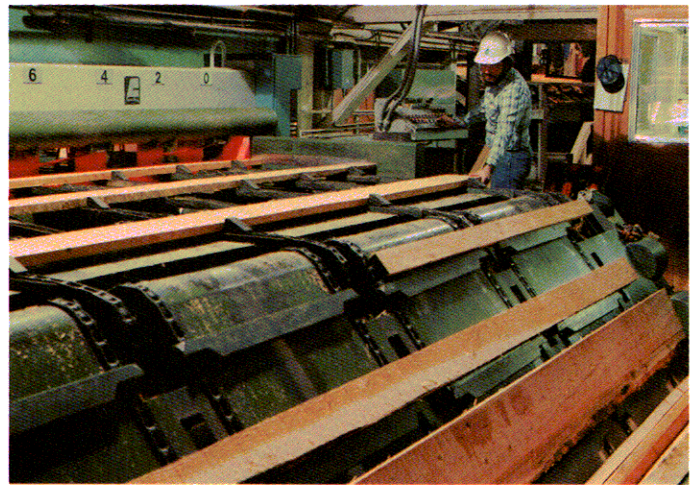


incur to obtain information about the latest technology for the pulp and paper industry. AccuRay estimates that over 2,000 top managers and executives will attend the Caravan seminars. Following the European segment of the program, similar seminars will be held in Columbus, Ohio, for the North American pulp and paper industry.

With the main indicator of lumber industry activity, housing starts, projected to experience a healthy increase during 1983, AccuRay is optimistic about the opportunities for the latest addition to its forest products line of equipment, the 6000 MICRO™ Sawmill System.

Prior to the introduction of this system, sawmills were basically a manual operation unable to fully optimize production, tightly control costs or perform comprehensive quality control practices. The 6000 MICRO allows sawmills to go beyond these human limitations and enter the age of automation.

The 6000 MICRO Sawmill System is composed



of several modules which provide localized control of the series of sawing "machine centers" that make up a sawmill. These modules then communicate process information to a central computer for management analysis. With these capabilities, sawmills can measure and control each board as it passes through the mill to increase the total number and quality grade of boards cut from each log, increase

overall production and maximize the dollar value of each board by cutting it to the most profitable length.

With more installations than all competitors combined, AccuRay sawmill systems have been proven to save about \$18 per thousand board feet processed. For the average installation, this translates into an annual savings of nearly \$1 million.

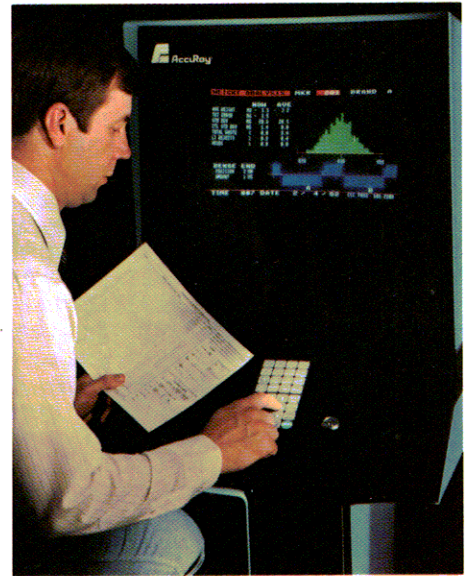
# Specialty Products

Over 30 percent of AccuRay's 1982 revenues were generated by specialty markets such as cigarette making, metals rolling, plastics extrusion and fiberglass insulation manufacture. Like AccuRay systems for the forest products industry, these systems control the manufacturing process using proprietary sensors and specially developed software to save energy and raw materials, increase productivity, lower production costs and improve product quality.

AccuRay systems for the tobacco industry control the manufacture of over 1.5 trillion cigarettes per year. The foundation of AccuRay's current tobacco products line, the 7000 MICRO™, automatically measures and controls cigarette weight and displays production information for the machine operator. With the addition of AccuRay's CIM™ (Cigarette Inspection Module), the system simultaneously identifies and rejects cigarettes that fail to meet quality standards. CIM is the tobacco industry's only inspection module employing modern fiber optic techniques which remain accurate and reliable even at the highest cigarette making machine speeds.

Introduced in 1979, the overwhelming success of the 7000 MICRO attests to its ability to counteract the rising costs of material and labor, and handle increasing cigarette machine speeds and factory complexity — factors that directly affect production

*Using fiber optic beams to detect discoloration, holes and protrusions in each cigarette, the CIM rod sensor (top) is the cigarette industry's most advanced inspection device. The 7000 MICRO System (bottom left) measures and controls cigarette weight and uses CIM generated information to reject cigarettes that fail to meet quality standards. Process and production data from multiple 7000 MICRO systems can also be displayed as concise daily operating information for the factory with the 7500 MICRO Information System (bottom right).*





## Specialty Products

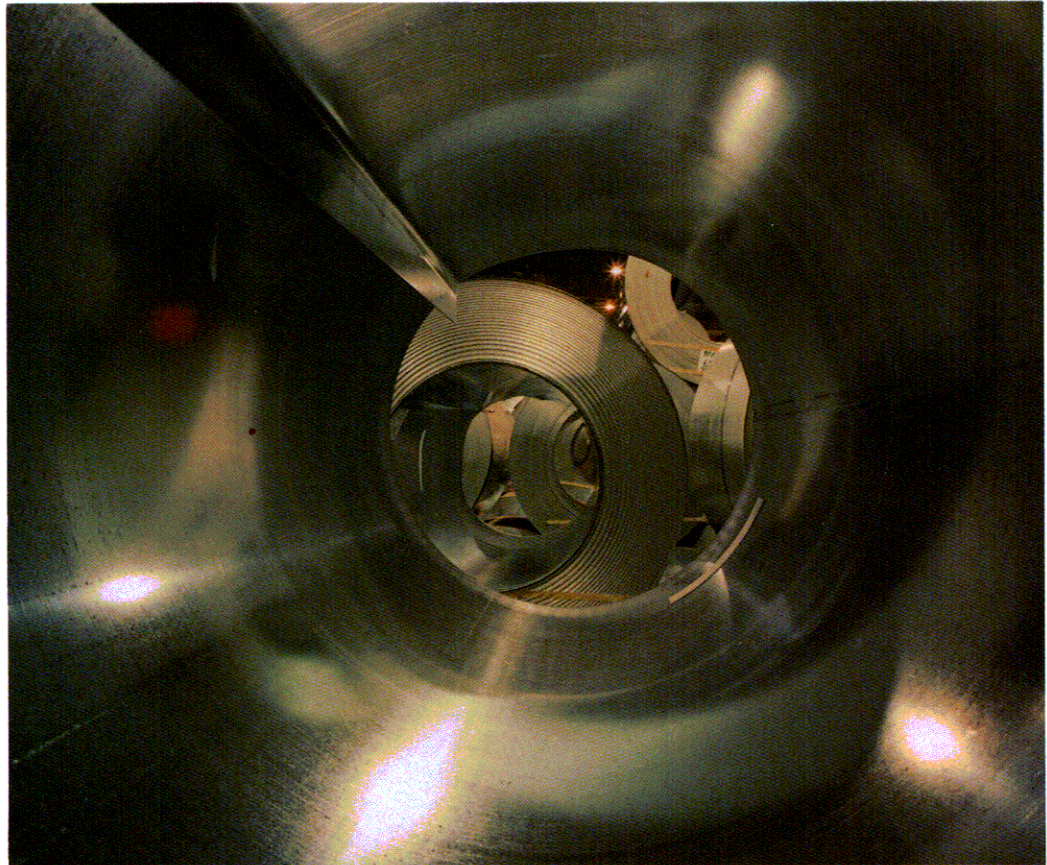
costs and overall profitability. With cigarette production rates approaching 8,000 cigarettes per minute, manufacturers have found that higher speeds require more sophisticated controls if production is to be increased, costs reduced and quality maintained. These objectives are best achieved through the automatic control, on-line inspection and comprehensive production information provided by AccuRay systems.

Like other AccuRay MICRO systems, the computer-to-computer communications capability of the 7000 MICRO facilitates cost-effective links with higher level computers to create a factory-wide computer network. In the tobacco industry, AccuRay products achieve this in two ways.

The 7500 MICRO Information System™ (MIS) collects process and production data from multiple process lines to present concise day-to-day operating information. This vital information is displayed for supervisors, quality control personnel and process specialists at one convenient location for timely decisions and corrective actions.

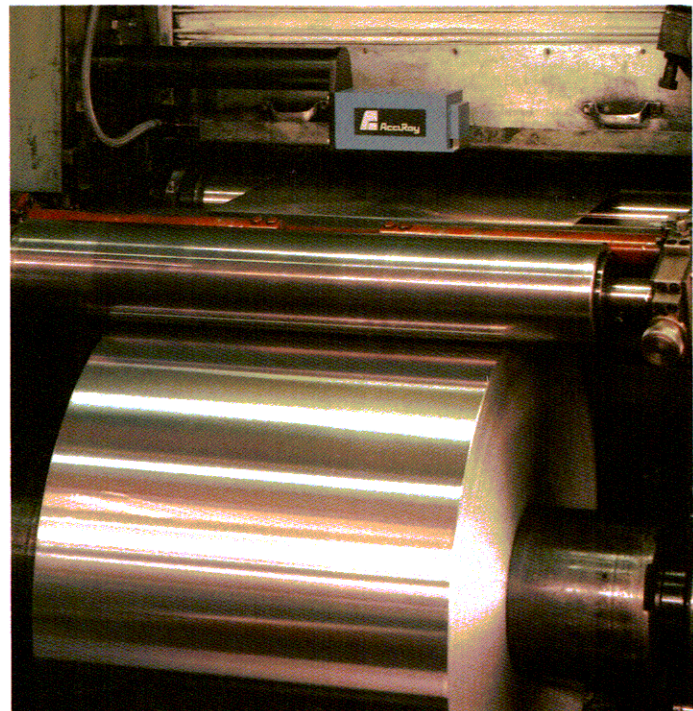
For a more comprehensive factory-wide production management information system, the Micro/Manager 8000T™ combines the important information collected by 7000 MICRO systems with information from business computers to create reports tailored to management's information needs. The Micro/Manager 8000T allows factory and corporate management to effectively plan production, implement strategic plans and direct overall factory operations.

During 1982, the 7000 MICRO was also introduced to the steel strip and sheet and aluminum foil and sheet segments of the metals industry for precise measurement and control of rolling processes, conversion lines

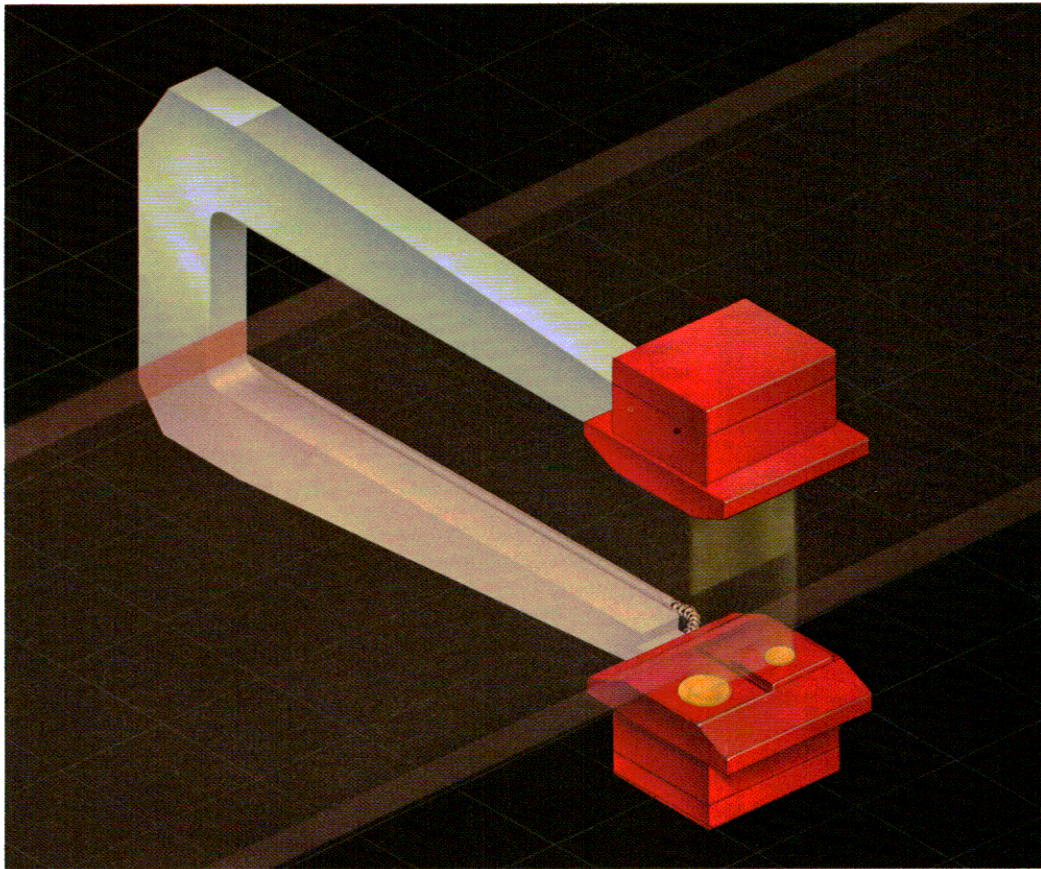


and inspection lines. This system uses the same MICRO technology proven successful in over 1400 prior installations in other AccuRay industries to meet the worldwide industry's need to increase product quality and productivity while conserving materials and energy. Producing a uniformly thick metal sheet is important for the metals industry to meet the quality demands of its customers. Just as AccuRay stresses the importance of quality with its suppliers, metals industry customers reject metal rolls for even the slightest thickness variations, thus transforming the finished product into a lesser quality grade or expensive scrap.

In addition to new rolling mill applications, the 7000 MICRO is designed to replace presently installed pre-MICRO technology AccuRay systems with a minimum of cost and production downtime. Since



*Heavy-duty sensors that perform accurate measurements 100 times per second and the 7000 MICRO System's microprocessor technology work together to help metals rolling mills produce a uniform, quality product while conserving materials and energy.*



Sensors housed in the U-Frame scanner (left) measure the components of fiberglass insulation as it is being manufactured and relay this data to a computer console (above) for automatic control. Color video reports give operators information about the efficiency and quality of the manufacturing process.



AccuRay systems reduce variations in the extrusion of plastic sheet and film by up to 85 percent. The systems proprietary sensors and controls are also used for specialized extrusion coated aseptic packaging of consumables such as fruit juices, dairy products and dessert puddings.

1972, AccuRay has supplied over 350 systems to the metals industry to process over 60 million tons of metal per year.

The cross-industry versatility of AccuRay system architecture is not limited to the 7000 MICRO. For instance, the same system architecture used in 1180 MICRO paper machine control systems has also been successfully adapted for use in the plastics and fiberglass industries.

For years, AccuRay systems have been integrally involved in measuring and controlling the thickness of extruded plastic. In fact, AccuRay systems improve the uniformity of over 3.5 billion pounds of extruded plastic sheet and film per year. With AccuRay control of extruders, sheet variations can be reduced by up to 85 percent.

AccuRay's proprietary sensors and controls are also

used for specialized extrusion coated aseptic packaging often used to package food in sterilized containers. Due in part to a recent FDA approval of food sterilants other than heat, this application is gaining popularity in the United States. In Europe, aseptic packaging is used extensively to package consumables such as fruit juices, dairy products and semi-solids like dessert puddings. In some cases, such packaging can ensure an unrefrigerated shelf life of several years for otherwise perishable items.

AccuRay systems measure and control the individual layers of plastic and other materials used in aseptic packaging's complex multi-layer extruded sheet. This capability is extremely important because if any one component in the product is not tightly controlled, the entire product becomes expensive, nonrecyclable waste. The high

visibility of consumer goods packaging makes AccuRay's quality assurance function highly important to this industry segment.

In the area of fiberglass insulation manufacture, AccuRay has capitalized upon the expansion in insulation production by introducing a system that measures and controls fiberglass insulation to exact specifications. The system achieves this objective by regulating the amount of glass and binding material used to produce a continuous sheet of insulation. This unique ability to precisely control the energy-intensive fiberglass insulation manufacturing process provides manufacturers with an economic payback of a year or less.

# To Our Stockholders and Associates:

The year 1982 was the most profitable in the history of AccuRay Corporation. Net income rose to \$3,833,000, or \$1.08 per share, compared with \$3,170,000, or \$0.90 per share in 1981. At year-end, our balance sheet also showed significant improvement in the reduction of total bank debt to \$10.2 million, compared with \$26.1 million a year earlier. Bank borrowings are now at the lowest level in ten years.

For the fourth quarter of 1982, total operating revenues were \$27.7 million, compared with \$28.8 million for the same period in 1981. Net income was \$1,193,000, or \$0.34 a share, compared with \$1,010,000, or \$0.29 a share in 1981.

Our bank debt has now been reduced \$64.2 million since 1974. In that year it reached a peak of \$74.4 million, primarily due to internal financing of customer installment sale and lease agreements. In 1982, less than 1% of new equipment shipments required direct financing by the Company, compared with 54% in 1974.

While we are pleased to report record net income and further reduction in bank debt, we also wish to emphasize that 1982 was an extremely difficult business year for most of the key industrial markets we serve. The impact of the worldwide recession on our 1982 operating results is sum-

marized in the following financial highlights:

■ Backlog at December 31, 1982, declined to \$42.4 million compared with \$50.0 million a year earlier. This backlog includes equipment and related commitments for services. New orders for equipment and initial services received in 1982 were \$57.8 million versus \$71.9 million in 1981.

■ Total operating revenues from sales, service and leasing were \$108.7 million in 1982 compared with \$108.5 million in 1981. Sales revenues — representing primarily new equipment shipments — declined to \$50.0 million from \$51.0 million in 1981.

■ Gross profit margins on total operating revenues were 39.6% compared with 40.2% a year earlier. Margins on sales revenues declined to 46.9% from 51.3% a year earlier. This decline is primarily attributed to lower selling prices caused by extremely intense competitive conditions. The decline in sales margins was offset by an improvement in margins on service and leasing, which increased to 33.4% from 30.3% a year earlier.

■ Selling, administrative and other operating expenses increased 5.4% to \$25.8 million versus \$24.5 million in 1981.

■ Research and development expenses were \$8.2 million versus \$7.8 million in

1981. This R & D investment represented 16.3% of total sales revenues in 1982.

■ Total interest expense decreased 44% to \$4.2 million in 1982 compared with \$7.5 million in 1981.

■ A foreign currency loss of \$613,000 was recorded in 1982 compared with a foreign currency gain of \$109,000 in 1981. This loss reflects the costs of hedging transactions and net transaction and translation gains and losses on overseas business. We were particularly affected in 1982 by extreme fluctuations of the U.S. dollar and devaluations in Mexico and Brazil, where funds on deposit could not be protected by exchange contracts. The Company's continuing policy is to minimize its exposure position in each foreign currency and an annual budget is provided for the cost of hedging transactions.

■ In 1982, a non-recurring gain of \$479,000 before taxes was recorded for the sale of unused real estate together with an additional gain of \$182,000 from the redemption of a portion of the Company's outstanding 5½% Convertible Subordinated Debentures. In 1981, a similar gain of \$444,000 was recorded for the redemption of these debentures. They were purchased in both years to satisfy the requirements of the Company's sinking fund

obligation. At December 31, 1982, the aggregate amount of debentures outstanding was \$12.5 million compared with \$13.0 million a year earlier.

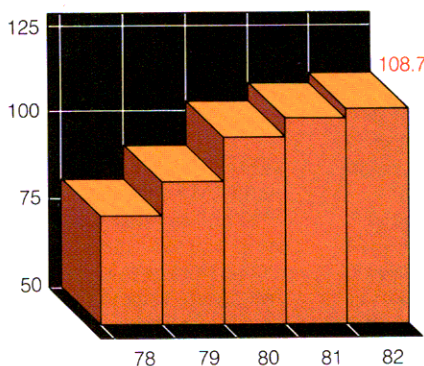
■ Total operating revenues per employee have increased in each of the last ten years. In 1982, they increased to \$59,800 compared with \$57,900 in 1981. At year-end 1982, total employment was 1,790 compared with 1,845 in 1981 and 1,905 in 1980.

## Positioned for the Future

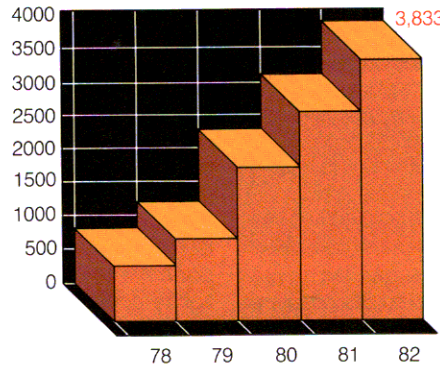
We believe that AccuRay is currently well-positioned in terms of technology, finance, and personnel to benefit from the long-awaited economic recovery in our primary markets. The following represent positive trends for our future business:

In the forest products industry (pulp, paper, and lumber manufacture), those companies heavily involved in the wood products segment should improve their operations in 1983. As the housing market revives from the severe slump of the past three years, this should increase the demand for our AccuRay 6000 MICRO sawmill automation system. During 1982, we completed our first system installations in sawmills outside the Weyerhaeuser Company, with whom we had cooperated for our original development

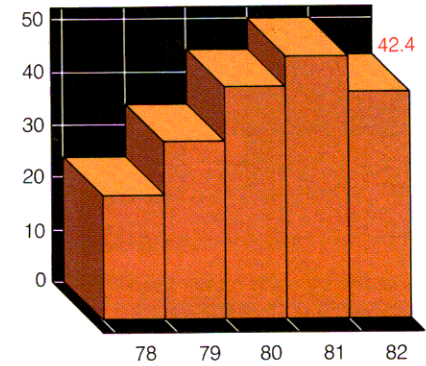
**Operating Revenue**  
(Millions of Dollars)



**Net Income**  
(Thousands of Dollars)



**Backlog-End of Year**  
(Millions of Dollars)



work. The following are examples of recent customer testimonials about the AccuRay Trimmer Optimizer. This system virtually eliminates miscut lumber at the green trimmer in the sawmill by "seeing" every board and making the right trim decision with computer accuracy.

■ "We believe the AccuRay trimmer to be by far the most advanced on the market at this time. Most important of all, we are extremely pleased and impressed with AccuRay's support and technical follow-through on this complex installation."

Owens-Illinois, Inc.  
Forest Products Group  
December 19, 1982

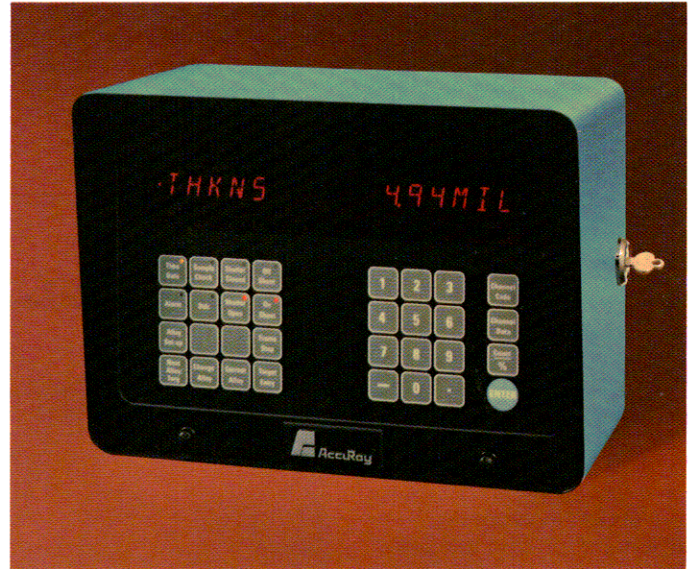
■ "We were surprised and pleased that the AccuRay System was running in automatic just four days from the installation date and has maintained excellent uptime since then. The drastic reduction in both overtrim and undertrim exceeded our expectations, yet with further mill specific tuning, we understand that even further reductions are possible in the future."

Gregory Timber Resources, Inc.  
January 27, 1983

In the papermaking industry, historically our largest single market, a significant trend is developing to automatically control profile variations across the paper sheet as it is being manufactured. Reduction in variations of basis weight, moisture,

caliper (thickness), and hardness dramatically improves the quality of the paper. Prior to this ability to control cross-machine variations automatically, control systems have been applied to controlling only machine-direction average variations. Cross-machine control was accomplished manually by the machine operator using video display information. Industry observers now conclude that substantial gains in paper quality can be achieved by using automatic cross-machine control based on the complex computer solutions which are available. As an example, Wiggins Teape, an AccuRay customer in the United Kingdom, installed our products to control cross-machine variations in basis weight and caliper on the PM-1 fine paper machine at their Fort William mill in Scotland. Initial results showed a 42.5% reduction in weight variations and a 47.5% reduction in caliper variations across the machine. This automatic control gives the customer the means of greatly improving product quality while substantially improving paper machine efficiency.

During 1981 and 1982, we introduced a complete family of cross-machine controls which can either be supplied with new systems or added to our installed AccuRay 1180 MICRO Systems. This installed base

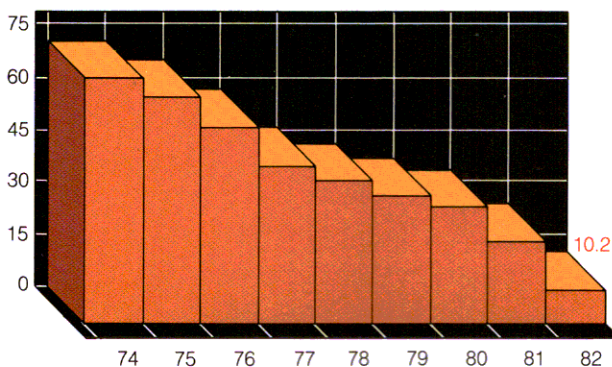


The 7000 MICRO System introduced to the steel and aluminum segments of the metals rolling industry meets the worldwide need to increase product quality while conserving materials and energy.

now totals more than 700 systems in over 50 countries. This is part of our EVERGREEN Technology solution to the obsolescence problem in the process automation industry. Prior to our introduction of the MICRO System, there was no real plan in our markets for delivering new technology to existing customers in a cost-effective way. In many cases, a new system would be introduced which took advantage of the latest technology — but which also made obsolete the capabilities (and the economic payback) of the current system. We use the analogy of the evergreen tree, which constantly renews its needles and remains green and alive, to describe the AccuRay 1180 MICRO System generation. The 1180 MICRO is designed to always offer the most current state-of-the-art features and functions, such as automatic cross-machine controls, which can easily be added to existing systems as separate modules. The present MICRO systems architecture is based on a hierarchical structure of distributed microprocessors. The 1180 MICRO for paper,

plastics, and other specialty markets, the 4200 MICRO for pulp markets, and the 6000 MICRO for wood products use multiple microprocessors to support a minicomputer. The 7000 MICRO, which uses the microprocessor unit in a stand-alone configuration and has been previously applied in the tobacco industry, was introduced to the steel and aluminum metals rolling markets in 1982. A successful initial field test of the 7000 MICRO was completed on a slitter line at Alcan Aluminum Corporation's Warren, Ohio plant. Subsequently, Alcan has ordered eight 7000 MICRO systems for plants in West Virginia, New York, and Ontario, Canada, as well as Ohio. Steel industry response to the 7000 MICRO has been encouraging, with the first order from "big steel" coming from U.S. Steel. The system will be installed at the company's Cuyahoga works near Cleveland, Ohio. A specialty strip producer, Teledyne-Rodney Metals of New Bedford, Massachusetts, has ordered the 7000 MICRO for quality improvements on a Sendzimir reversing mill, which produces a broad

### Bank Debt (Millions of Dollars)



range of stainless steels and other exotic metals.

In 1982, new equipment business from customers in Europe accounted for 38% of the total orders received during the year. December, 1982 also marked the end of the first full year of production at the new AccuRay manufacturing facility at the Finnabair Industrial Park located in Dundalk, County Louth, Ireland. Two important production milestones were reached during 1982. Our 50th AccuRay 1180 MICRO System was shipped from the new factory in September and the 200th AccuRay 7000 MICRO shipped one month later. We are now in a much improved position to serve the growing needs of our customers in the 10 nation European Economic Community, as well as in the other Nordic, European, Middle East and African countries.

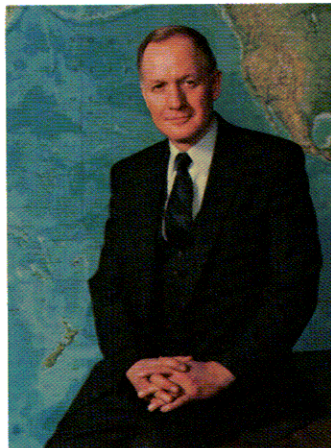
With most raw material processing industries currently operating well below capacity and "real" interest rates remaining remarkably high, we believe that, in the next few years, customer emphasis will be on modernization of existing manufacturing equipment and facilities to increase production efficiencies rather than in investment for new capacity — a scenario that is well-suited for our Company. The increasing need to improve final product quality to compete in worldwide markets, combined with the

requirement to save raw materials, reduce energy and improve production efficiencies in order to operate profitably, should result in a strengthening market for the systems and services provided by AccuRay Corporation.

Sincerely,

*David L. Nelson*

David L. Nelson  
President



# Directors and Officers

## Directors

**Edward McC. Blair**  
Senior Partner  
William Blair & Co.  
(Investment Banking)

**Christopher J. Campbell**  
Executive Vice President  
AccuRay Corporation

**Henry R. Chope**  
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**John Eckler**  
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Bricker & Eckler  
(Attorneys at Law)

**William M. McLaughlin**  
President  
Venture Concepts, Inc.  
(Financial Consulting)

**Dr. David L. Morrison**  
President  
IIT Research Institute

**David L. Nelson**  
President  
AccuRay Corporation

**George F. Schlaudecker**  
Consultant

**Robert E. Swenson**  
Vice President - Finance  
AccuRay Corporation

**Jeffrey M. Wilkins**  
President  
CompuServe, Inc.

**George B. Young**  
Director & Trustee  
Various Organizations

## Auditor

Arthur Andersen & Co.  
Columbus, Ohio 43215

## Transfer Agent/Registrar

AmeriTrust Company  
Corporate Trust Division  
P.O. Box 6477  
Cleveland, Ohio 44101

## Operating Officers of AccuRay Corporation and Subsidiaries

**William L. Adams**  
Senior Vice President

**William D. Bloebaum**  
Vice President-  
International Finance

**Walter H. Canter, Jr.**  
Vice President

**Maxwell L. Close**  
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**Donald D. Danison**  
Vice President

**Marc F. De Backer**  
Director,  
European Finance

**John E. DeWitt**  
Senior Vice President

**Mark K. Duyck**  
International Controller

**John E. Eickelberg**  
Vice President

**David J. Foster**  
Vice President

**Ladd R. Grapski**  
Controller

**Herbert J. Kahn**  
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**James D. Mitchell**  
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Vice President

**Guy T. Pira**  
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**Ronald F. Shuff**  
Secretary and  
General Counsel

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Christopher J. Campbell Jeffrey M. Wilkins Henry R. Chope



George B. Young William M. McLaughlin Robert E. Swenson



David L. Nelson

Edward McC. Blair



Dr. David L. Morrison

George F. Schlaudecker

John Eckler



# AccuRay Corporation Principal Offices

## Corporate Headquarters and Manufacturing

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Ville St. Laurent  
Quebec H4R 1R9

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Mexico 10 D.F.

## United States:

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Suite 303  
Suffield Center  
Suffield, Connecticut 06078  
4800 S.W. Macadam Avenue  
Suite 240  
Portland, Oregon 97201  
Piedmont Center Building  
33 Villa Road, Suite 400A  
Greenville, South Carolina 29615  
711 North Lynndale Drive  
Appleton, Wisconsin 54914

## Manufacturing

Finnabair Industrial Park  
Dundalk  
County Louth  
Republic of Ireland

## Benelux Countries:

Genevestraat 10  
1140 Brussels

## Finland:

Salomonkatu 17 A 12  
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78400 Chatou

## Germany:

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52 Siegburg

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Barcelona 17

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Hertfordshire WD3 1EQ



*About half of AccuRay's 1790 employees are involved in research and development, manufacturing and administrative functions at the Company's worldwide headquarters in Columbus, Ohio.*



*The remainder of the Company's associates are employed at AccuRay's new manufacturing facility in the Republic of Ireland and in marketing and customer service functions throughout the world.*



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Chiyoda-ku  
Tokyo

## New Zealand:

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Rotorua

## Singapore:

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## South Korea:

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Chung-ku, Seoul