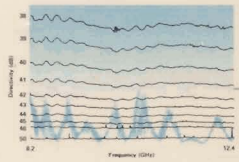
Hewlett-Packard

Fifty years of looking to the future

1988 Annual Report

1939

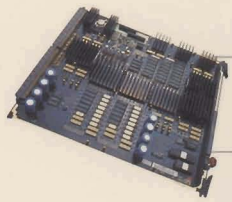
1950



1967

1972

1986



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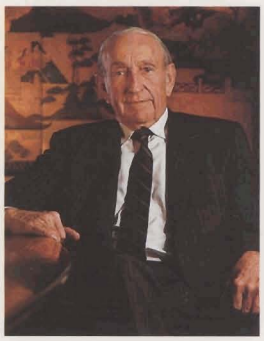
CORPORATE PROFILE

Hewlett-Packard Company designs, manufactures and services electronic products and systems for measurement and computation. HP's basic business purpose is to provide the capabilities and support needed to help customers worldwide improve their personal and business effectiveness.

FINANCIAL HIGHLIGHTS

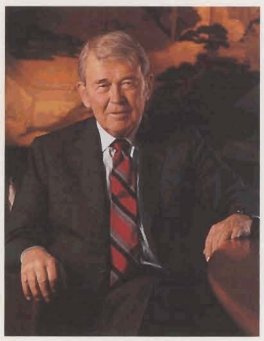
For the years ended October 31 Dollars in millions except per share amounts	1988	1987	Increase
Total orders	$10,070	$8,379	20%
Net revenue	$ 9,831	$8,090	22%
Earnings before taxes	$ 1,142	$ 962	19%
Net earnings	$ 816	$ 644	27%
Net earnings per share	$ 3.36	$ 2.50	34%
Return on equity	17.1%	13.7%	
At year-end:			
Shares outstanding (in millions)	234	257	
Employees	87,000	82,000	



David Packard

Chairman of the Board

and Co-founder



William Hewlett

Director Emeritus

and Co-founder

We're pleased to report a 22 percent increase in net revenue and a 27 percent increase in net earnings for the 1988 fiscal year. Earnings per share rose 34 percent. For the first time in the company's history, orders exceeded $10 billion, reflecting positive customer acceptance of the many new products we've brought to market. We were able to improve our net profit margin to 8.3 percent of net revenue, which compares to 8.0 percent in the previous fiscal year.

Financial Highlights

The company's 20 percent order growth this past year was the strongest since 1984. International orders grew 28 percent to a total of $5.290 billion. This order growth has been helped by high levels of capital spending in both Europe and the Asia-Pacific region and a stronger Hewlett-Packard presence in international markets. Exchange rates continued to help our price competitiveness outside the U.S., although they had less of an impact on orders and revenues this past year than in fiscal 1987. U.S. orders reached record levels in the fourth quarter and totaled $4.780 billion for the year, up 12 percent.

Despite the uncertain supply of some memory components used in many of our products, we were able to convert the bulk of our orders into shipments. Our net revenue reached $9.831 billion, and we exit the year with our backlog at a reasonable level.

Pre-tax earnings rose 19 percent. This represents somewhat slower growth than the increase in net revenue, primarily because the cost of equipment sold and services rose to 48.1 percent of net revenue. This compares to 46.8 percent for fiscal year 1987. During this past fiscal year, sales of personal computers and printers through the retail sales channel had a very high growth rate. Such sales involve higher trade discounts and lower gross margins. However, we held growth in operating expenses to about 4 percentage points below growth in net revenue, reflecting the lower direct operating expenses associated with products sold through the retail channel.

After two years with no growth in employment, this past year we added 5,000 people to the HP payroll for a total of 87,000 employees worldwide. Major staff additions occurred in our sales, factory marketing, and research and development organizations. We believe current staffing levels are adequate and expect slower growth in employment next year. We will, however, maintain a strong college recruiting effort.

Net earnings for the year rose to $816 million and were favorably affected by a reduction in our overall tax rate from 33.0 percent in 1987 to 28.5 percent. Net earnings per share increased 34 percent to $3.36 on an average of 243 million shares outstanding. The company purchased and retired 29.6 million shares of its common stock for an aggregate purchase price of $1.569 billion during the course of the year. Combined with the issuance of new shares under our employee stock purchase plans, the net result of our stock repurchases was to reduce the number of shares outstanding at year end by 9 percent.

Business Highlights

The company's computer systems can be grouped into two major categories—single-user systems, such as workstations and personal computers and associated peripherals, and multi-user systems such as minicomputers. During the year we reorganized our computer business to reflect these two categories.

Sales of workstations and personal computers were well above our expectations. This strength is very gratifying because just a few years ago we weren't viewed as a serious contender in these markets.

In multi-user systems, we had mixed results. Orders for HP Precision Architecture systems running the HP-UX operating system have exceeded our expectations. On the other hand, our ability to actively promote the commercial version of the new architecture in the new HP 3000 systems was slowed until we could complete shipment of a new release of the MPE-XL operating system, which we accomplished in September. With the new release, the performance and reliability of these commercial systems look excellent, and demand grew significantly in the fourth quarter.

Our Test and Measurement business had a good year, especially in Europe and the Asia-Pacific region. We've been reaping the benefits of many products introduced during the past couple of years, and of more competitive prices. Our new logic analyzers, described in this report, have been enormously successful. Sales of component test equipment, oscilloscopes, voltmeters and data-communications test equipment have also shown healthy increases.

HP's Analytical and Medical businesses achieved order growth rates of 20 percent and 11 percent, respectively. Both introduced a number of major products and capped the year with very strong fourth-quarter performances.

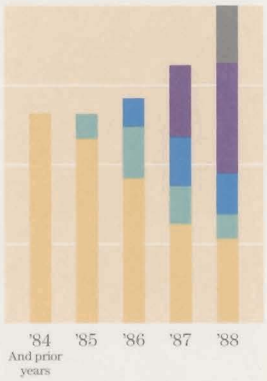
John Young

President and

Chief Executive

Officer

HP Product Orders
By year introduced



This graph illustrates the key role new products play in HP's growth. Each bar indicates the year's total product orders, with the top section of each bar showing orders for those products introduced in that year. More than half of 1988's orders were for products introduced in the past three years.

The Peripherals Group had another banner year. In 1988, we celebrated the shipment of the one-millionth HP LaserJet printer. Sales also surged for our HP DeskJet printer, which is based on HP technology and offers laser-quality printing for less than $1,000.

Our Worldwide Customer Support business remains an attractive and profitable activity. Last year we initiated a program in which we would contract to diagnose and manage customer networks that include products from other selected vendors. This new support program has received enthusiastic customer response.

Finally, our Components Group continues to thrive in a very fast-paced and highly competitive market. We're enthusiastic about the prospects for the new AlGaAs technology described elsewhere in this report.

Business Outlook

If we have a reasonably favorable economic environment worldwide next year, we expect to be able to maintain continued growth. Our product program is strong, and so is our organization.

As we enter our fiftieth anniversary year, we intend to build on the qualities that have been HP hallmarks for half a century—technical innovation, a commitment to customer satisfaction, and our dedicated and energetic people. These elements provide the company with its underlying strength and enable us to view the future with considerable optimism.

David Packard

Chairman of the Board

John Young

President and Chief Executive Officer

December 5, 1988

For fifty years, Hewlett-Packard has used new technology to produce a steady stream of products that allow people to do things they never could before. The electronics industry has gone through dramatic changes since Dave Packard and Bill Hewlett formed their business partnership in 1939. But since the beginning, HP's special strength has remained its ability to create new products that provide imaginative solutions to customer needs.

The following pages trace some of the major technological contributions of the people of Hewlett-Packard during HP's first fifty years of looking to the future.

Fifty Years of
Looking to the Future

In 1939, electronic products used vacuum tubes. Today, they use very-large-scale integrated circuits and microprocessors. These semiconductor chips are the "brains" inside many instruments such as this multifunction synthesizer that is used in testing aircraft navigation and instrument landing systems, and communications equipment.

1939

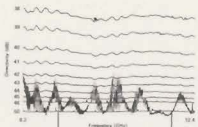
Audio oscillator designed by Hewlett is used by Walt Disney to test sound equipment in making the movie "Fantasia."

1942

Like Hewlett's oscillator, voltmeter designed by Packard gives unprecedented reliability for a lower price.

1950

HP makes major advances in microwave instrumentation, leading to more comprehensive test results, higher accuracy.



When Bill Hewlett and Dave Packard started their company in a garage in Palo Alto in 1939, the science of electronics was very young. In fact, the garage has been recognized by the state of California as the birthplace of Silicon Valley. Much of the company's early work involved inventing instruments that enabled engineers to create and measure electronic phenomena. HP's customers have always needed instruments that are increasingly accurate, smaller, faster and less expensive, yet provide ever more quality and reliability. Because of their innovation, HP instruments became the basic tools of the rapidly growing electronics industry of the 1940s.

40 years of contributions in microwave communications

Radar and telecommunications were important applications that resulted from the advances in microwave technology that took place during World War II. Starting with products operating at radio frequencies, HP's postwar research soon led to a complete line of microwave test products. In the late 1940s and early 1950s, these included signal generators, power meters and other instruments designed for high performance and easier use. Later HP contributions included reflectometry systems that provided accurate and comprehensive data on components used in communications systems.

In the 1960s, the broadband microwave spectrum analyzer and the vector network analyzer HP introduced were widely recognized innovations. During this time, scientists and engineers used HP microwave test equipment extensively in the design and operation of the U.S. space program. With the development in the 1980s of the microprocessor and inexpensive memory, HP's recent microwave products have offered exceptional measurement and computational power as well as many features that make them easier to use.

Products open new markets for HP

HP continues to innovate and expand into new markets and this year introduced instruments for use in the design and testing of lightwave (fiber-optic) products as well as computer-aided engineering systems for microwave circuit designers.

1951 *Time needed to measure high frequencies is reduced from minutes to seconds by HP's high-speed frequency counter.*

1960 *HP oscilloscope is first to use new sampling technique to view the faster digital waveforms used in computer technology.*

1963 *First synthesizer to generate electrical signal at precise frequency desired is a major contribution to automated testing.*

HP entered the business of making electronic instruments for chemical analysis in 1965. Today, the company manufactures many analytical products that are used for environmental and drug testing. These HP instruments and systems are also widely used in the pharmaceutical, biotechnology, chemical, petrochemical and food industries.

Chemical analysis made faster, less expensive

Only four years after entering the field, HP made a significant technological breakthrough with the introduction of the industry's first robotic sample injector. This enabled analytical equipment to be loaded with samples and then to run unattended for several hours, even overnight. This new technology greatly reduced the cost of chemical analysis.

HP first to put computing power inside analytical instruments

In 1974, HP made another important contribution with the development of the first analytical instrument to be controlled by a microprocessor. This advance enabled the instrument to make 10 readings in 20 minutes and to be operated by technicians. Previously, experienced chemists had been required to operate such equipment, and a single analysis could take several hours. This further reduction in the cost of chemical analysis facilitated its use in environmental testing applications at a time of increasing concern about the effects of air and water pollution.

In 1979, HP invented the use of fused silica to make the capillary columns contained in gas chromatographs. These new columns further simplified chemical analysis and expanded the range of compounds that could be effectively analyzed. In the same year, HP also introduced a new product to speed up chemical analysis using chromatography by allowing people to look at several different wavelengths of light simultaneously.

1964

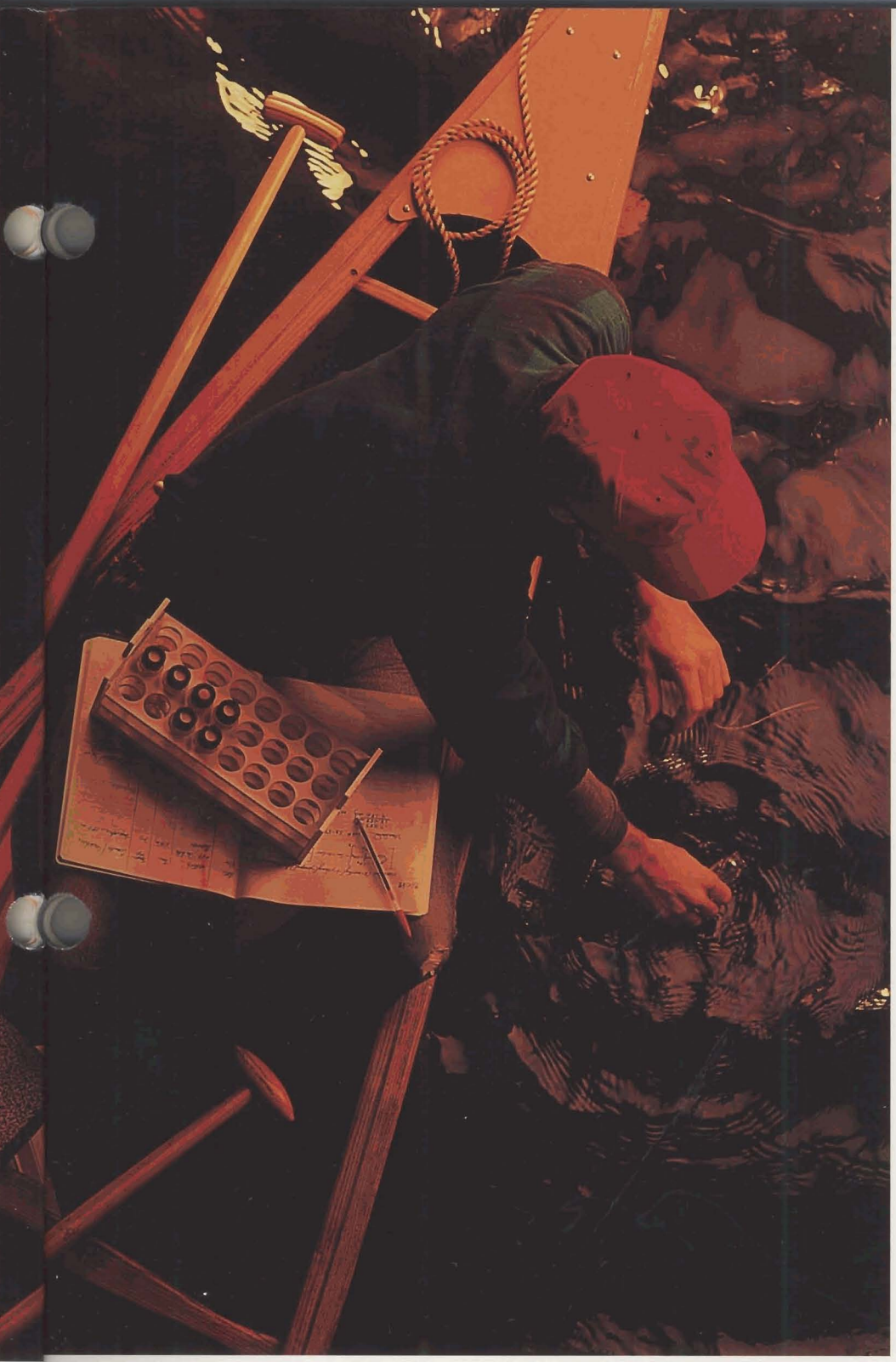
Microwave spectrum analyzer is first to make direct-reading, calibrated analysis of individual signals within a frequency band.

1966

HP introduces its first computer, developed as a versatile controller for HP's growing family of programmable instruments.

1967

Non-invasive fetal heart rate monitor developed by HP GmbH in Germany. Helps babies by detecting fetal distress during labor.



To help people protect the environment, sensitive instruments are needed to assist in detecting and understanding the effects of potentially hazardous substances. For more than 20 years, HP has been making analytical instruments and systems for chemical analysis that have many uses, including environmental and drug testing.

HP engineers fly the atomic clocks they developed to 18 countries to synchronize international time standards.

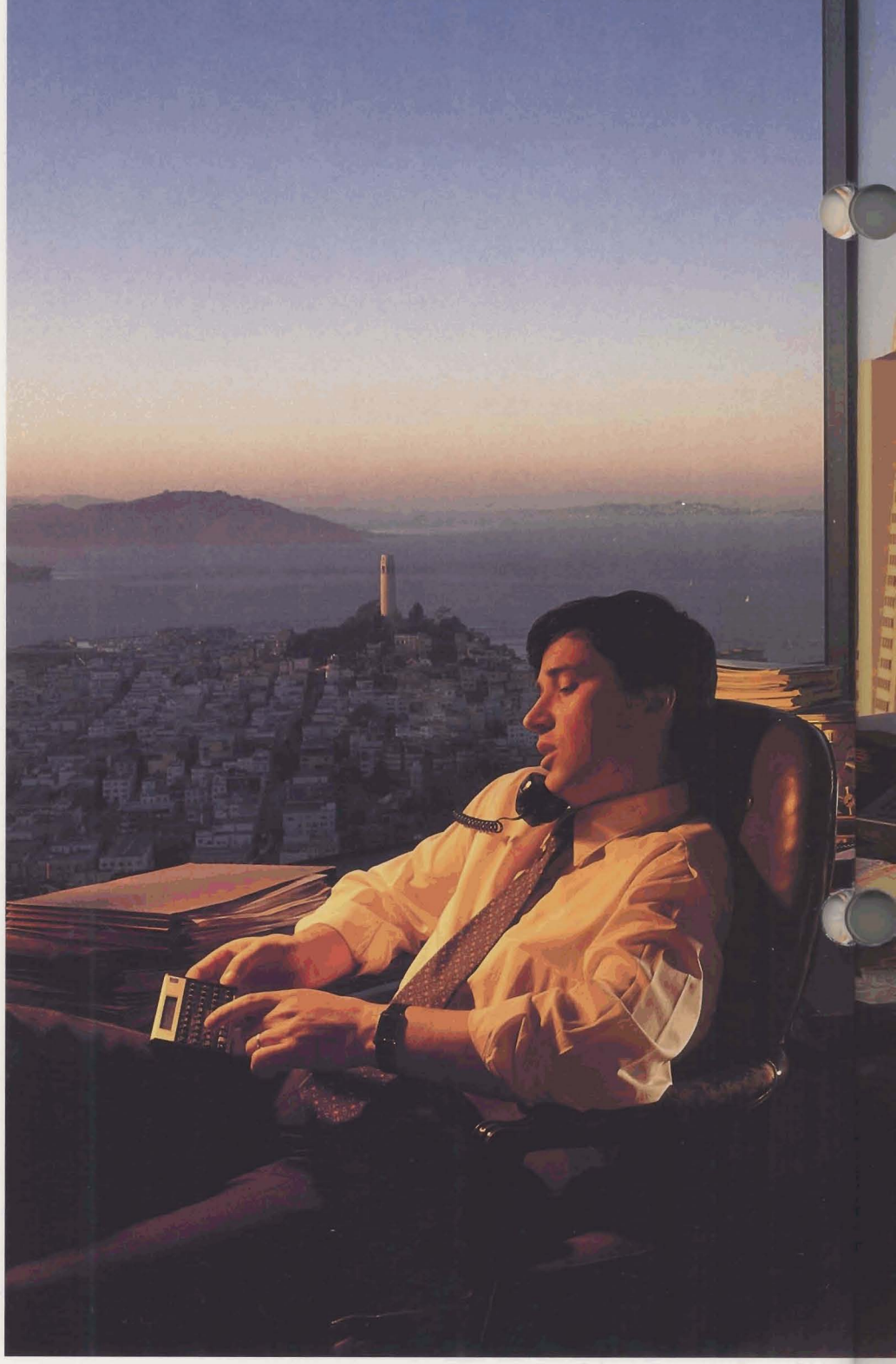
1968

World's first programmable scientific desktop calculator is introduced by HP.

1969

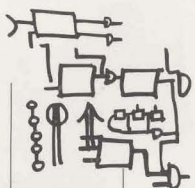
First robotic sample injector for chromatography allows samples to be analyzed while system is unattended.

HP developed the world's first scientific handheld calculator and today remains a technological leader in both scientific and business calculators. HP's business calculators easily perform a variety of complicated financial computations, making them almost "standard issue" equipment in the finance and real estate industries.



1969

HP markets its first time-shared operating system on a minicomputer supporting up to 16 users.

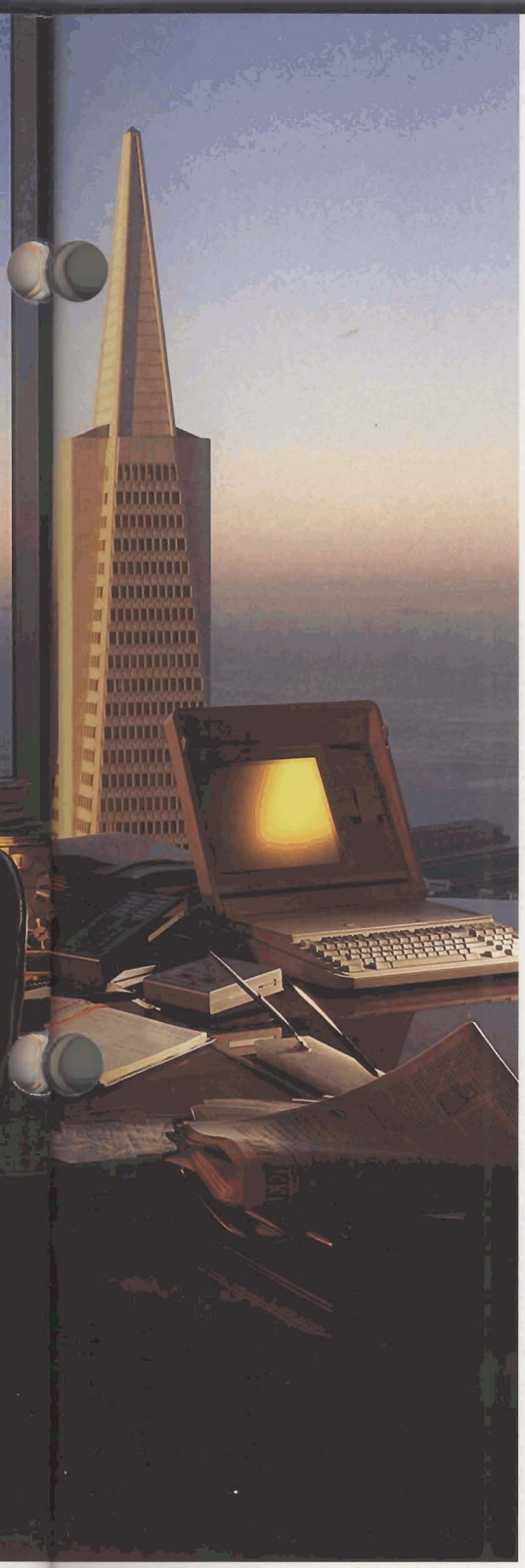


1970

Automatic microwave network analyzer is an indispensable tool for the design and manufacture of microwave systems.

1971

Work with lasers produces laser interferometer that measures to a millionth of an inch and later results in first electronic surveying tools.



After the introduction of its scientific desktop calculator in 1968, HP realized that integrated circuit technology had advanced to where it ought to be possible to create a small electronic calculator to perform the functions of an engineer's slide rule. It was Bill Hewlett's idea that what people really needed was something powerful yet small enough to fit into a shirt pocket. A marketing study was commissioned but showed there wasn't much interest in such a product. In this instance, Hewlett threw the study in the trash and the rest, as they say, is history.

"Mr. Hewlett, may I see your pocket, please?"

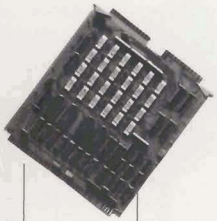
The engineering team began by measuring the dimensions of Hewlett's pocket to make sure the product would indeed fit the defined customer need. The development effort that followed was one of the fastest and most intensive in the company's history. In 1972, the HP-35 became the world's first scientific handheld or "pocket" calculator. It provided the same computing power as the highly successful HP 9100 scientific desktop calculator introduced six years earlier, but at one-sixth the price.

HP technology continues to lead calculator industry

Continued development efforts produced, in 1974, the world's first fully programmable handheld calculator and, two years later, the first calculator with the ability to store data in its memory even after being turned off. The latter development was made possible by HP's industry-leading integrated circuit technology. In 1979, HP introduced the first calculator able to communicate with instruments and computers, then followed that achievement in 1987 with the first calculator that solves symbolic math problems.

Also an innovator in business calculators, HP introduced its first pocket-sized business machine a year after the original HP-35. Today, HP offers a broad line of business calculators, including the popular HP-12C and the HP Business Consultant II. Each of these machines is pre-programmed to perform frequently used financial calculations. The HP Business Consultant II also plots graphs and stores lists of data such as names and addresses.

First user-programmable minicomputer yields much higher performance in specific applications.



1972

World's first scientific handheld calculator, developed by HP, makes the engineer's slide rule obsolete.

1973

HP 3000 business computer is the industry's first commercial distributed data processing system.

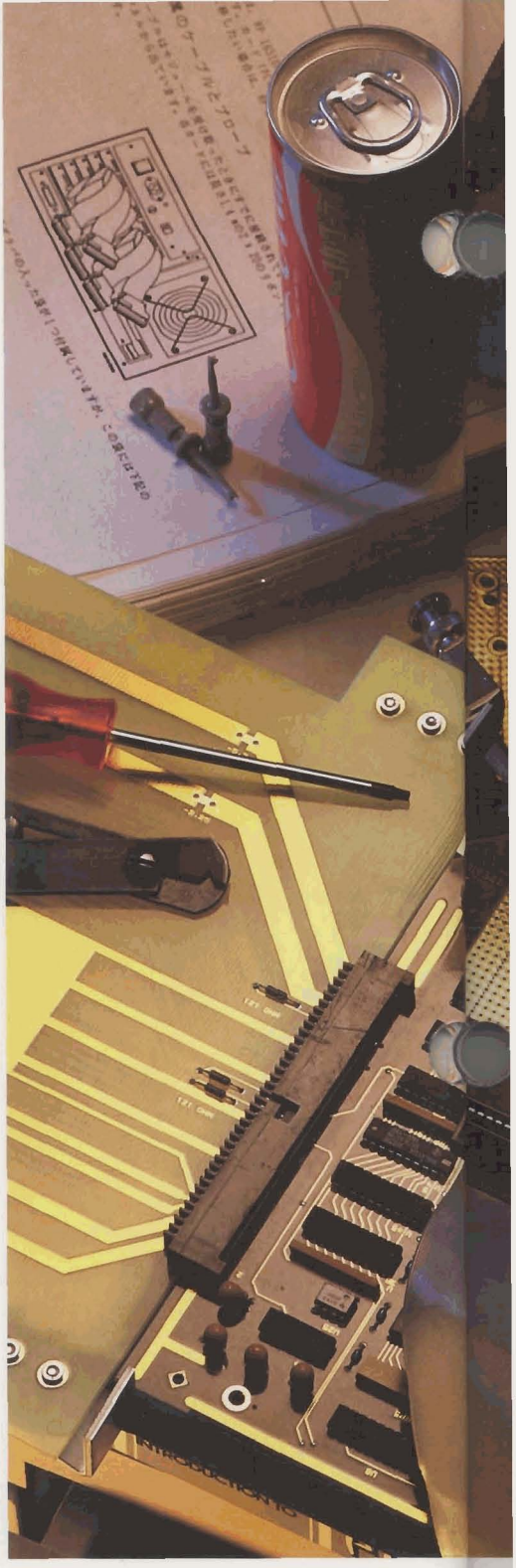
HP's first two products for logic analysis introduced in 1973 were much more sophisticated than anything then available for designers of digital electronic products. These analyzers played a key role in many major advances in computer technology in the 1970s, including the development of HP's handheld and desktop computers.

The chicken or the egg?

HP's most recent contributions in logic analysis have involved using computer technology to make measurement tools for computer designers. Discussing them becomes almost a "which came first, the chicken or the egg" story. First, logic analyzers were used extensively in the development of HP's new Precision Architecture computers. Then, the very-large-scale integrated circuit technology (VLSI) developed by HP for use in these new computers was also used to make a logic analyzer with 140,000 transistors on a single semiconductor chip. These tiny chips are now the heart of HP's new family of logic analyzers.

A more complicated product that's easier to use

Through the use of HP's proprietary VLSI technology, HP logic analyzers now have fewer parts, lower power consumption, require less tuning and provide higher reliability than previous models. The logic analysis system you see here is actually four instruments in one: a digitizing oscilloscope, a high-speed timing analyzer and a pattern generator, as well as a logic state analyzer. Even so, the user doesn't have to understand its complex inner workings; the many knobs and dials on previous models have been reduced to just one knob and a series of menus that can be activated by touch. This product and HP's other new logic analyzers have also set new standards for price/performance in logic analysis.

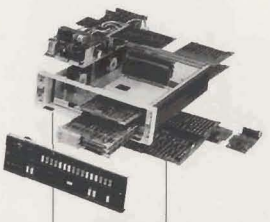


1973

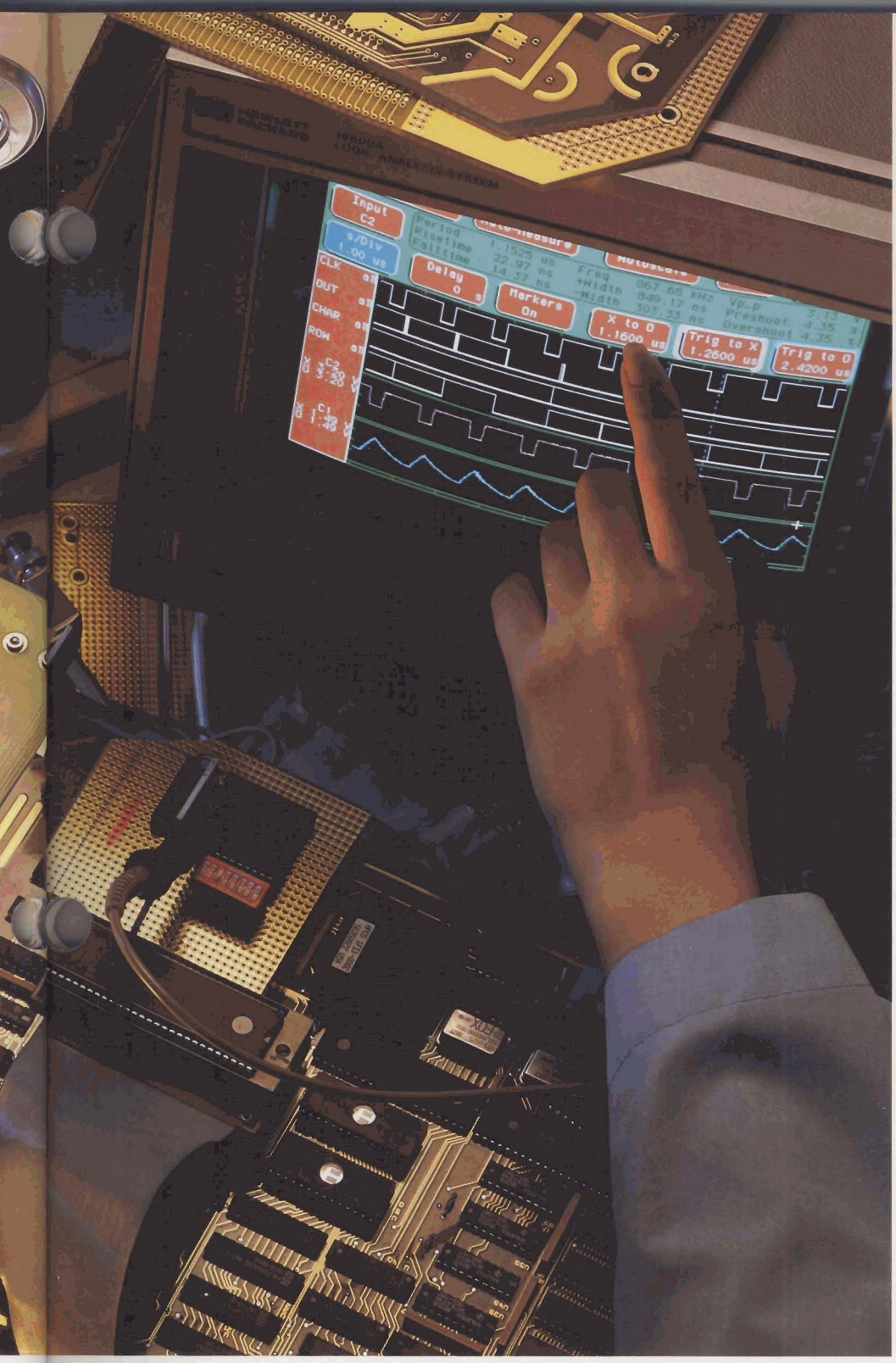
HP's first logic analyzers become tools of choice for engineers in fast-growing field of digital electronics.

1974

First minicomputer to be based on 4K dynamic random access semiconductors (DRAMs) instead of magnetic cores.



First chemical analysis system controlled by a microprocessor provides simplified operation, improved results.

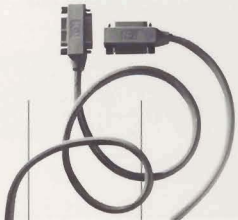


When the microprocessor was invented in 1972, engineers were presented with a new set of measurement problems. People needed a tool to help them see and understand what went on inside these tiny computers the size of semiconductor chips. The instrument of choice soon became the logic analyzer. HP has been a pioneer in the field since 1973.

HP Image 3000 database management software introduced. Datapro International rates it best in its class for three consecutive years.

1975

Industry adopts HP-IB interface to connect instruments. It and HP programming language make possible off-the-shelf test systems.



1976

HP's microprogrammed software package lets technical programs using FORTRAN computer language run ten times faster.

People often think of artificial intelligence as something new. Actually, HP introduced its first product using this technology ten years ago. It was a system to diagnose electrocardiograms (ECGs) the way a doctor does. Today the technology of this large early system is available in a portable unit that can be used in a doctor's office.

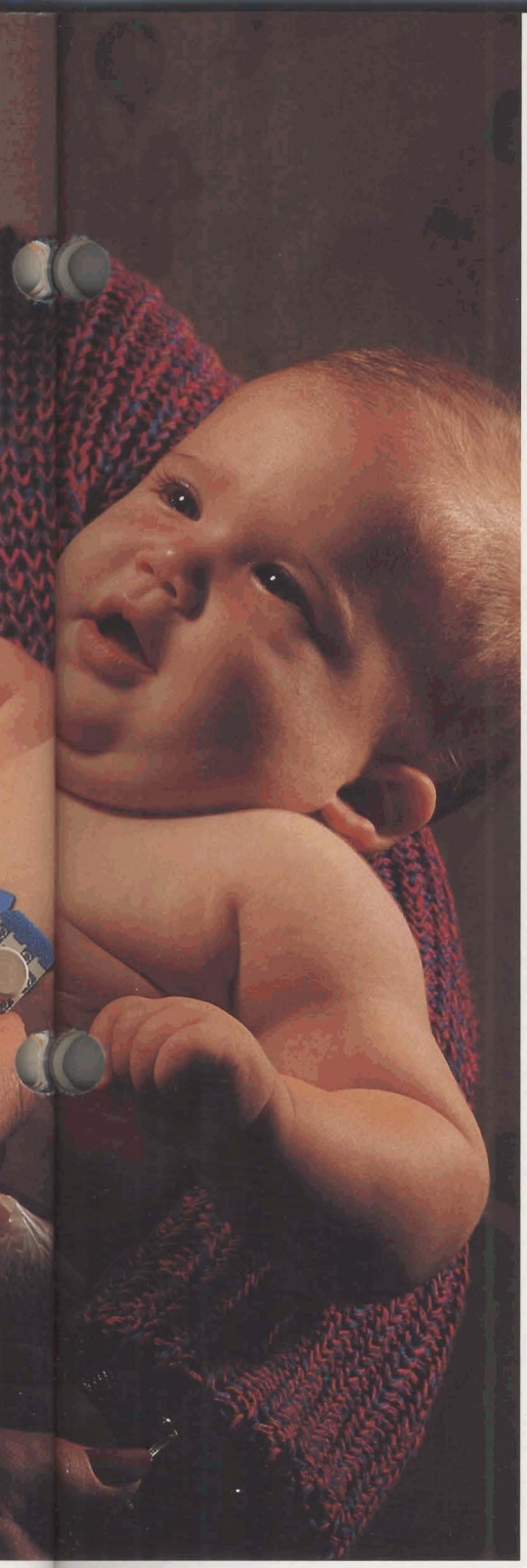
1978

One of first ever artificial intelligence programs enables HP computer system to read ECGs the way a doctor does.

1979

HP introduces fused-silica capillary columns. They greatly simplify chemical analysis and allow more compounds to be analyzed.

New diode-array detector for chemical analysis provides rapid results by measuring multiple wavelengths of light simultaneously.



HP introduced the HP 5600C ECG Management System in 1978. It was one of the first commercial applications of artificial intelligence using a rule-based expert system, a machine that mimics what human experts do. The system is based on an HP 1000 real-time minicomputer and can automatically interpret and store individual ECGs. The product operates using a rule-based system in which the computer compares the data it receives from an electrocardiograph to a set of rules or criteria it has previously "learned."

Helping doctors learn from each other

To develop the appropriate rules, HP engineers studied thousands of ECGs in medical textbooks. Then they met many times with leading cardiologists, showing them these ECGs and asking for their diagnosis. In this way, they established criteria representing the consensus of hundreds of the best doctors in the field.

A customized solution

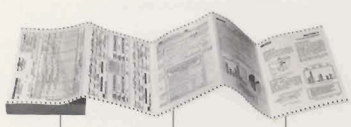
After four years of this research, the engineers created a new computer language called HP ECG Criteria Language or ECL. One of the greatest contributions of ECL is that it allows a doctor to understand the logic by which the system arrives at an interpretation, and then, perhaps, to question that logic or even to change the rules. In this way, the machine can be customized to follow a particular method of diagnosis that is different from the consensus of the group. Because the rule-based system is so easy to use and the logic is so easy to modify, it is possible to write new criteria sets, or rules, as the science of interpreting ECGs evolves. The standard HP criteria set has been revised six times in the past ten years.

Today, the automatic interpretation of ECGs using ECL is available in the HP ECG Management System and the HP PageWriter II Intelligent Cardiograph, a portable unit that is available in five languages besides English.

1980

64-channel cardiac ultrasound product is fast enough to produce real-time, moving images of the heart beating.

HP introduces first laser printer to be fast, inexpensive enough for use outside a central computer room. Also merges forms and text.



1981

HP reduces the price, increases the speed and capability of plotters by using technology to move both paper and pen.

Two scientists at HP Labs were talking in the hall one day about what makes a great non-impact printer. Their discussion focused on the simple concept of applying ink directly to paper known as ink jet. They felt the technology could be simplified; all ink jet printers on the market at that time had only a few nozzles in an expensive printhead and required a complex system of pumps and hoses. The HP scientists wanted to use integrated circuit technology to create large arrays of nozzles at low cost.

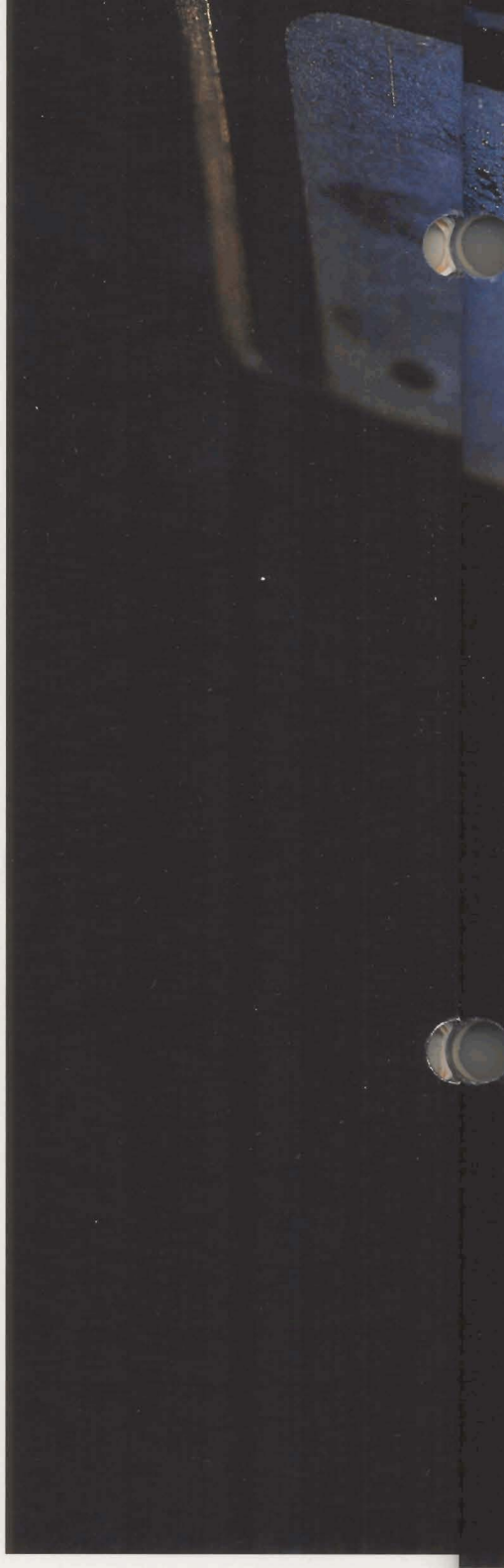
The percolation of a new idea

One of the first concepts they investigated was the principle of vaporization that operates coffee percolators. After some trial and error, they developed a small resistor which, when heated for a few microseconds by an electric pulse, creates a vapor bubble which ejects ink out of an adjacent nozzle. The HP division in Oregon that was to manufacture the product recognized the printhead could be made at a low enough cost that it could also contain the ink supply, making the whole unit disposable.

HP's first thermal ink jet printer, the HP ThinkJet, was introduced in 1984. It features a self-contained printhead that skims across the paper, ejecting tiny drops of ink through 12 microscopic nozzles in the right sequence to print characters at a rate of 150 per second. The printhead holds enough ink for about 500 pages and can be replaced more easily than (and at about the same cost as) a typewriter ribbon. Because the printer has so few moving parts, it is also very quiet and reliable.

Laser-quality printing for less than $1,000

In 1987, HP introduced the HP PaintJet color printer. This printer uses two disposable printheads (one black and one color) to produce high-quality graphics in 330 colors on either paper or overhead transparency film. HP followed that achievement this year with the HP DeskJet, the first personal printer to achieve laser-quality output for less than $1,000. HP expects to deliver its one-millionth thermal ink jet printer in 1989.



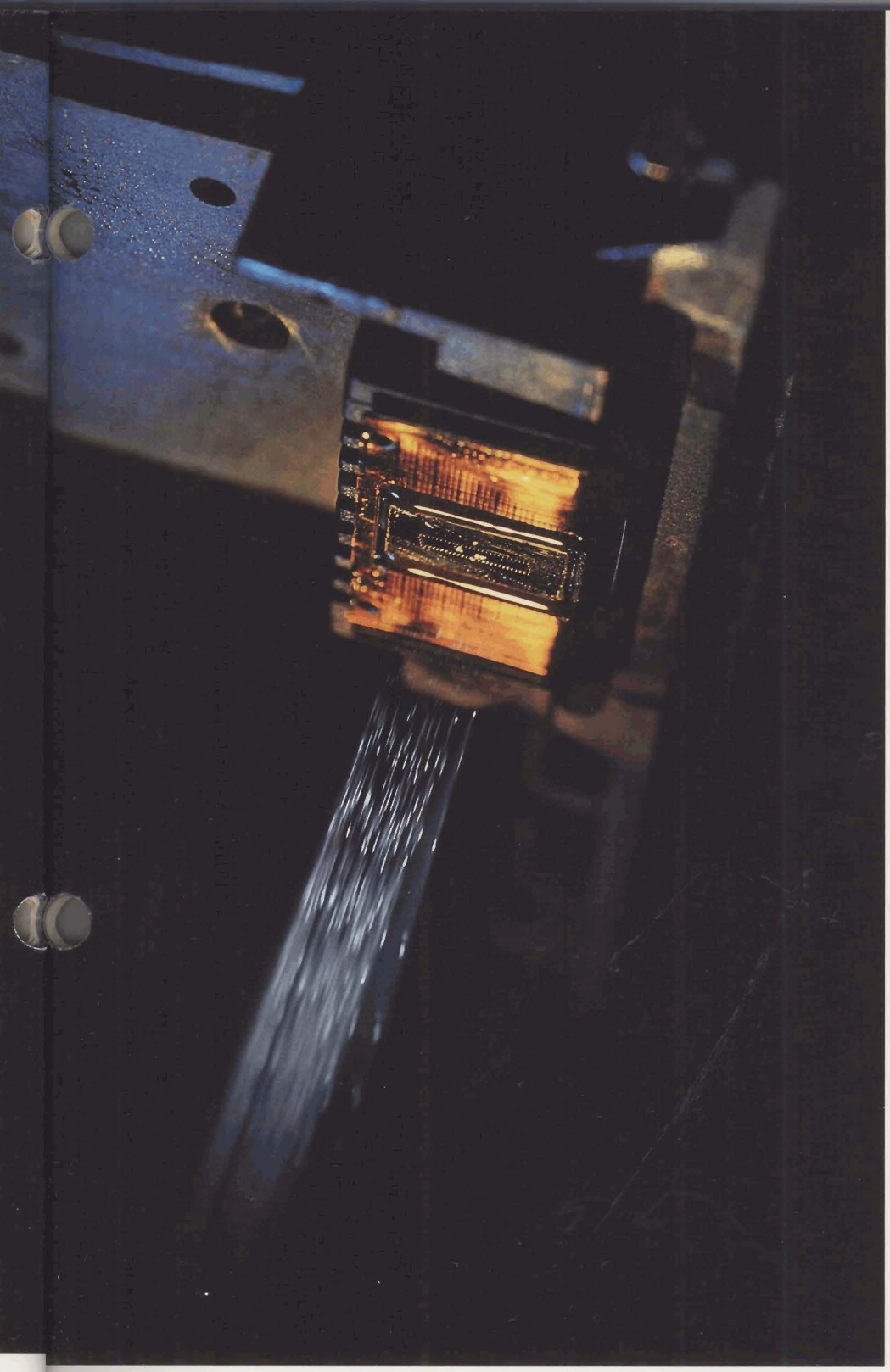
1981

HP's NMOS-III technology produces a silicon chip with 600,000 transistors, more than any other on the market for many years.

1982

Electronic mail system developed by HP Ltd. in U.K. is first major wide-area commercial network of its kind based on minicomputers.

HP's Signal Data Network is first to relay data fast enough to allow monitoring of 24 hospital beds from a central station.



To meet the customer need for a low-priced, high-quality printer, HP scientists turned to the idea of squirting tiny drops of ink through the air in formation to print characters on paper. Their technology is now the basis for a whole family of personal printers. Like probably thousands of other ideas at HP, this one began with a conversation in a hallway.

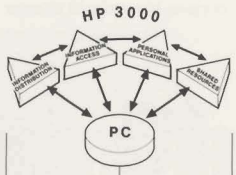
1984

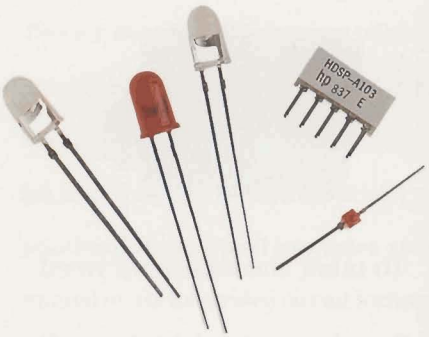
Thermal ink jet technology introduced in HP ThinkJet, first in a series of high-quality, low-priced personal printers.

HP introduces HP LaserJet, the world's most popular personal desktop laser printer.

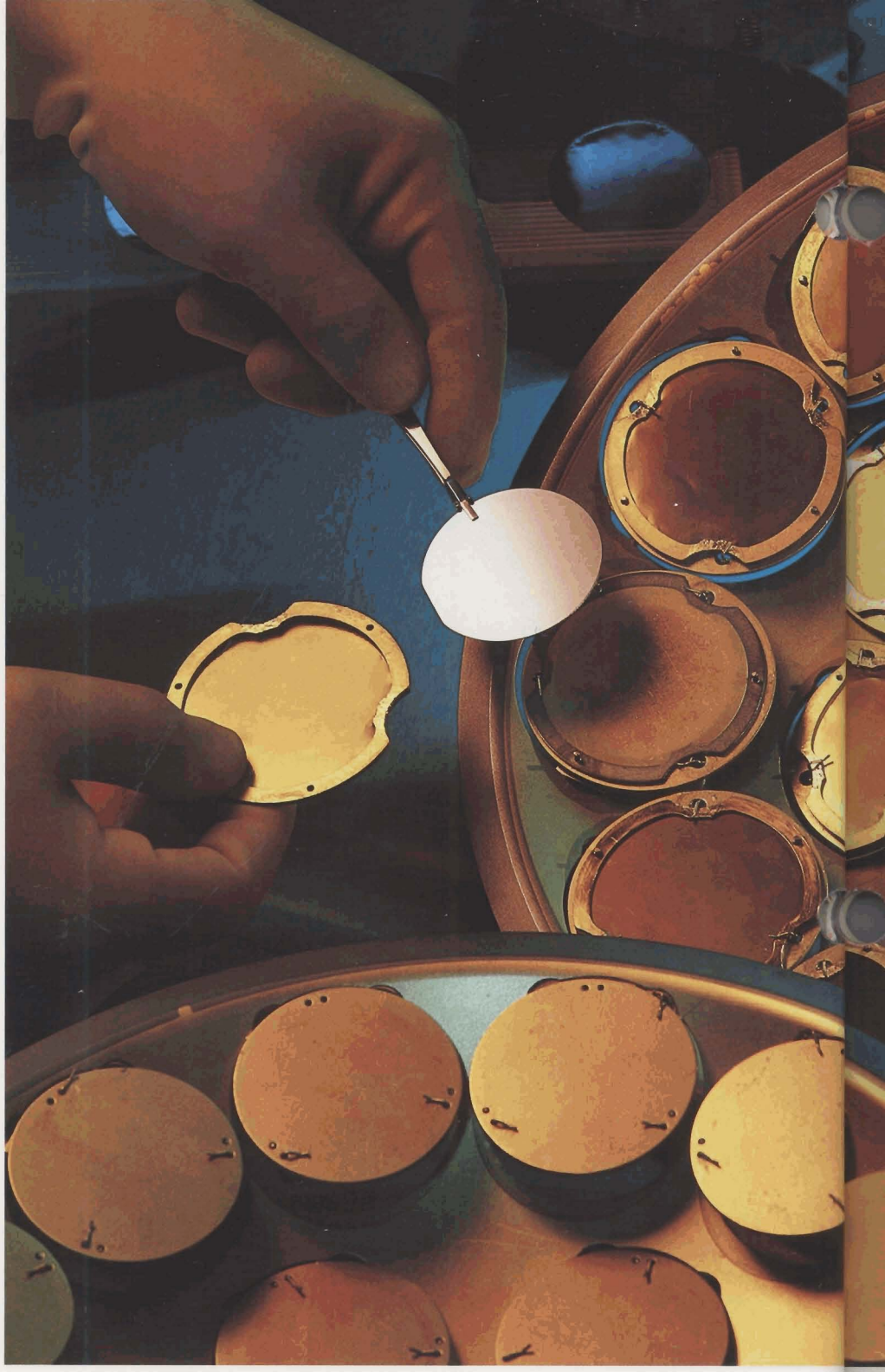
1985

First computer networking product to allow users access to information without knowing where it resides.





HP introduced its first light-emitting diodes (LEDs) in 1968. Today, the company is considered to be the leader in cost-effective manufacturing of an advanced LED that is 50 times brighter than the original devices HP made in 1968. This new product has greatly broadened the range of possible uses for LEDs, including outdoor applications.



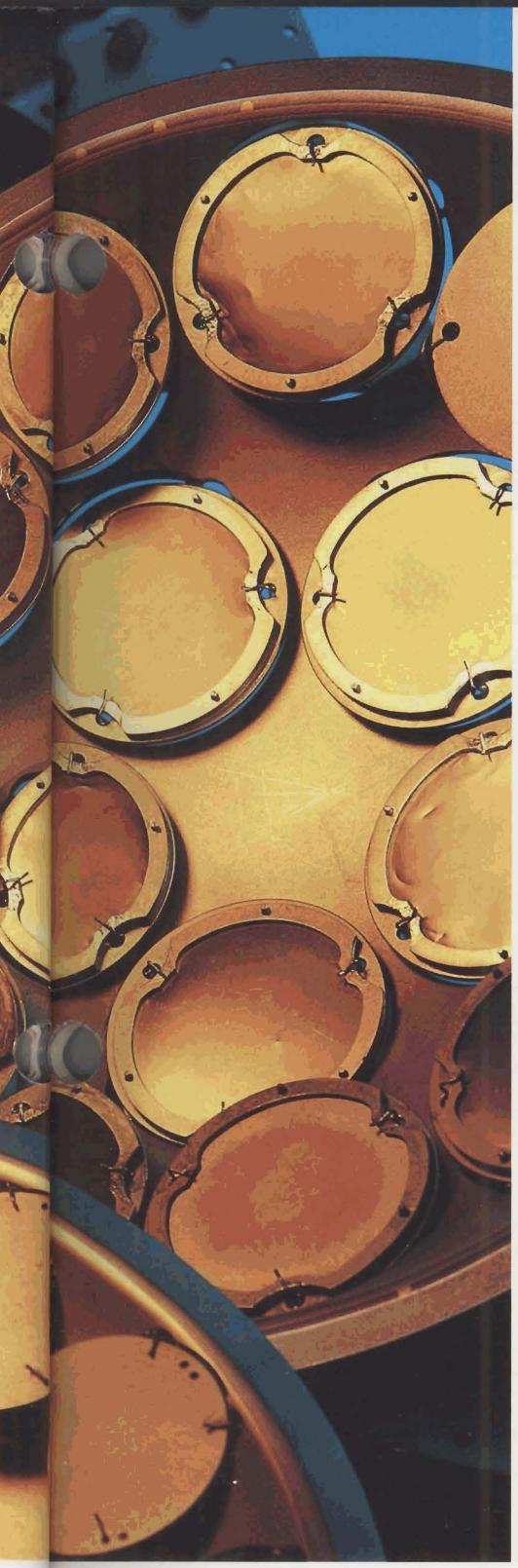
1985

HP's Personal Productivity Center fully integrates personal computers into networks of larger computers.

1986

HP is the first major computer maker to commit to a broad line of products based on reduced-instruction-set computing.

Yokogawa Hewlett-Packard in Japan expands on its industry-leading technology with major new semiconductor test system.



In the early 1960s, HP's research into a group of semiconducting materials known as III-V materials yielded an unexpected result. Scientists found that when an electrical current is passed through thin layers of certain of these materials, they give off red light. This technology was used to produce light-emitting diodes that found early application in displays for calculators and other instruments. These new displays made it possible to present information easily and precisely in numerical form. Most instruments at the time required users to make their readings from dials or needles pointing to some kind of scale.

At first, LEDs were available in only one color, red. But by 1974, HP had become one of the first companies to figure out how to also make them in yellow and green. This increased the range of applications, but the light produced was still not strong enough to make LEDs useful in bright light.

HP becomes first high-volume producer

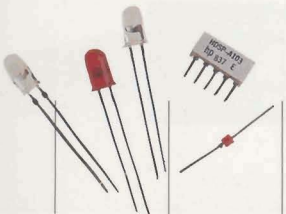
In 1987, HP became the first company to develop a high-volume production process for an advanced LED based on aluminum gallium arsenide (AlGaAs). This new device was 50 percent brighter than any other mass-produced LED available at the time. The development was the result of ongoing research by HP's Components Group into semiconducting materials and production techniques. It is a typical example of the company's strength in commercializing new technologies.

Brighter LEDs open new markets

These new AlGaAs diodes can produce up to three times the light of the best conventional LEDs, or produce the same light using only a fraction of the power. This breakthrough, together with improvements in the optical design, has resulted in LEDs that are now bright enough to be used in such demanding outdoor applications as automotive taillights, scoreboards and billboards. The semiconducting wafers are manufactured in San Jose, California, and then shipped to HP's state-of-the-art manufacturing plants in Singapore and Malaysia where they are built into various displays. These displays are used in HP products and are also sold to other manufacturers.

1987

HP is first to develop a high volume production process for LEDs bright enough to greatly expand their range of possible uses.



HP is first in industry to use CD-ROM technology for fast updating of product support information. One disk can replace many manuals.

Viewing of electronic signals improved by new instrument to display and analyze frequency versus time.

The development program for HP's latest generation of computers began with four main goals. The first was to create a single architecture to be the common foundation for many sizes of computers. The new architecture needed to be compatible with HP's existing commercial computer systems in order to protect the investments of these customers in applications software. Secondly, the new architecture needed to provide price/performance leadership and lower cost of ownership. Thirdly, it had to be able to capitalize on future breakthroughs in hardware technology, system organization and computer architecture. And finally, the architecture needed to communicate easily in computer networks and with all of HP's computer peripheral products.

Using instruments to understand computers

The project drew on the talents of engineers from across the company. They began by using HP instruments to measure how both HP's and competitors' systems executed a variety of applications at many customer sites. It was this research into what computers really do that enabled the designers to go beyond RISC. They not only reduced the number of instructions and the time necessary to execute them, but created a balanced basic structure that scales across many sizes of computers and all of the commercial and technical applications HP computers serve. The first HP Precision Architecture computers met all the original design goals and began shipping late in 1986. Eighteen models have been introduced in less than two years, a new product rollout unparalleled in the industry.

On the road to the future

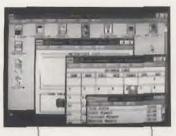
Today, customers around the world are using HP Precision Architecture computers to innovate and be more competitive. Using an HP 9000 Model 840, Geostar Corporation in Washington, D.C., developed a satellite-based tracking system. The system allows companies like Trans-Western Express in Denver, Colorado, to constantly monitor the location of their vehicles and to communicate with drivers about routes and arrival times while they are on the road.

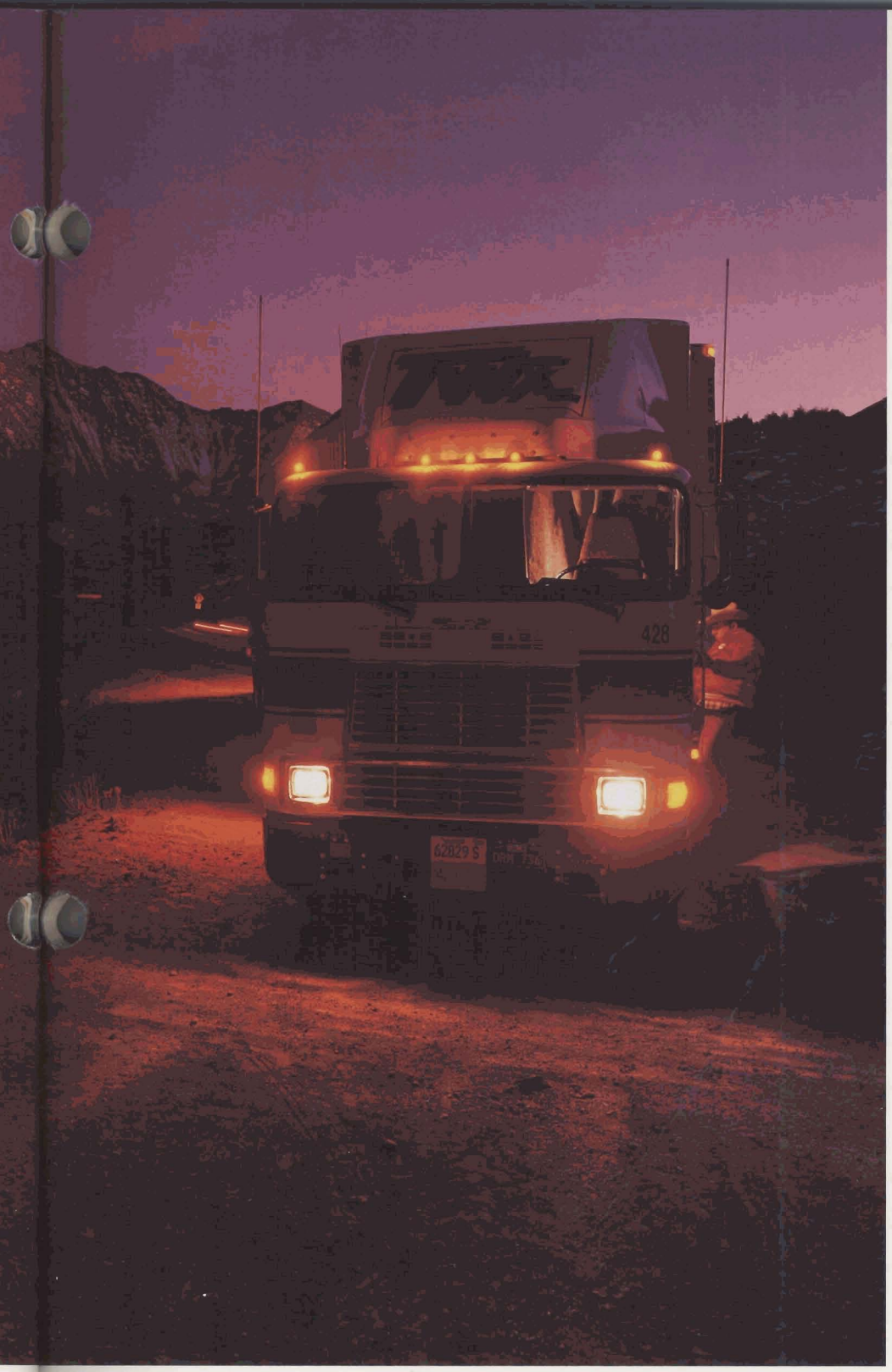
1988

New concept in patient monitoring provides modular systems that can be easily customized and expanded.

Half-inch tape drive uses data-compression algorithms in the electronics for up to five times the data storage on a reel.

HP NewWave software environment makes computers easier to use, merges different types of data and automates routine tasks.





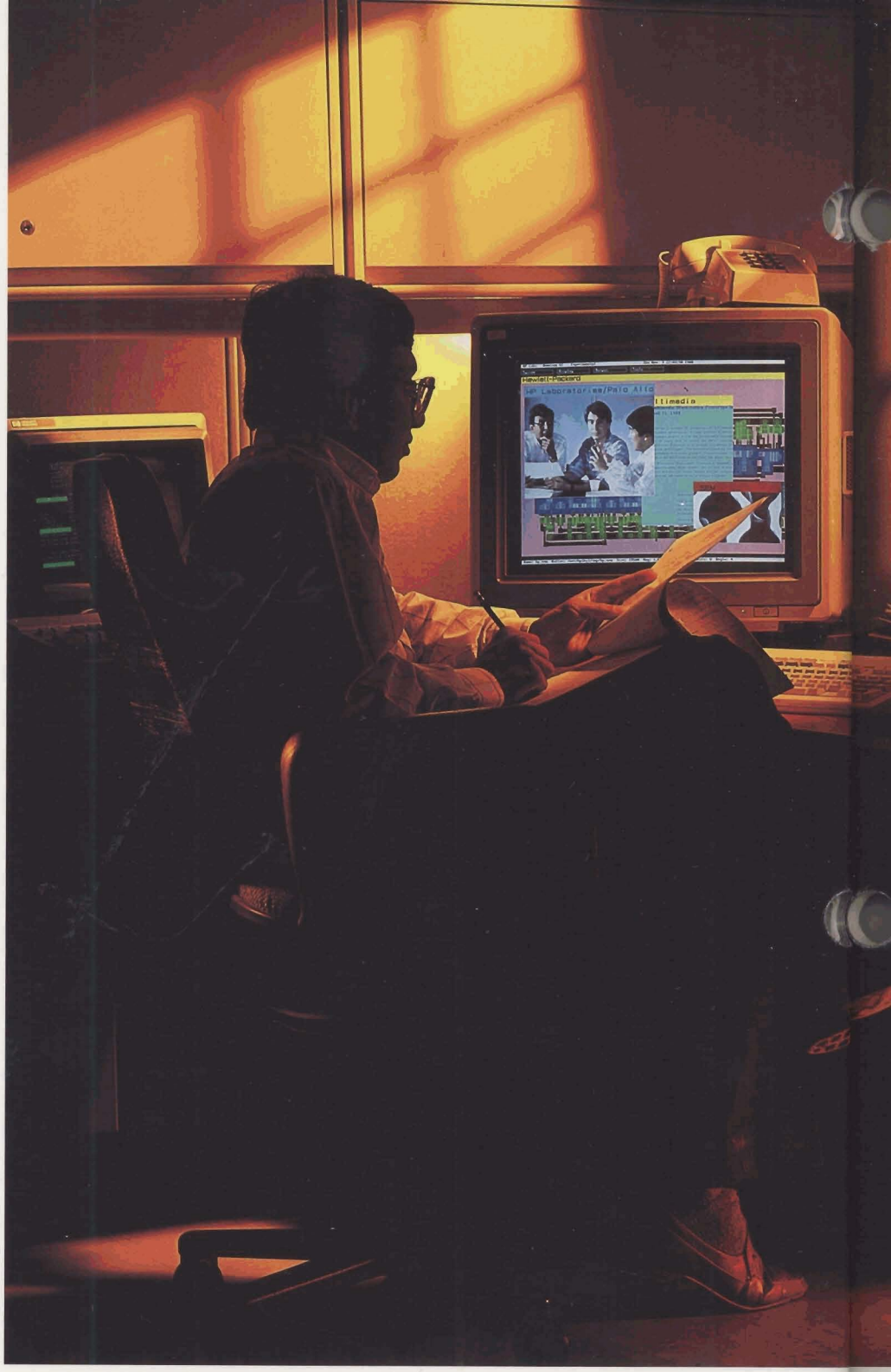
In 1986, HP's most extensive research and development effort to date culminated in the shipment of the first computers to use a revolutionary architecture that will be the base for the company's computers well into the 1990s. HP Precision Architecture computers are based on reduced-instruction-set computing (RISC), but go far beyond it.

Digital multimeter makes high-frequency, high-accuracy and high-resolution voltage measurements with one instrument.

Animation superworkstation shows motion for uses such as weather-forecasting, medical imaging and mechanical design.

Analyzer able to measure the gigahertz transmission bandwidths used in optical telecommunication.

Imagine a time when a computer workstation is your window to a vast world of information and specialized services. A time when it can connect you with people on different continents and let you find and share information quickly without even knowing where it's located. With its breadth of technological expertise in instruments, computers and networks, HP is in an excellent position to make this vision a reality.

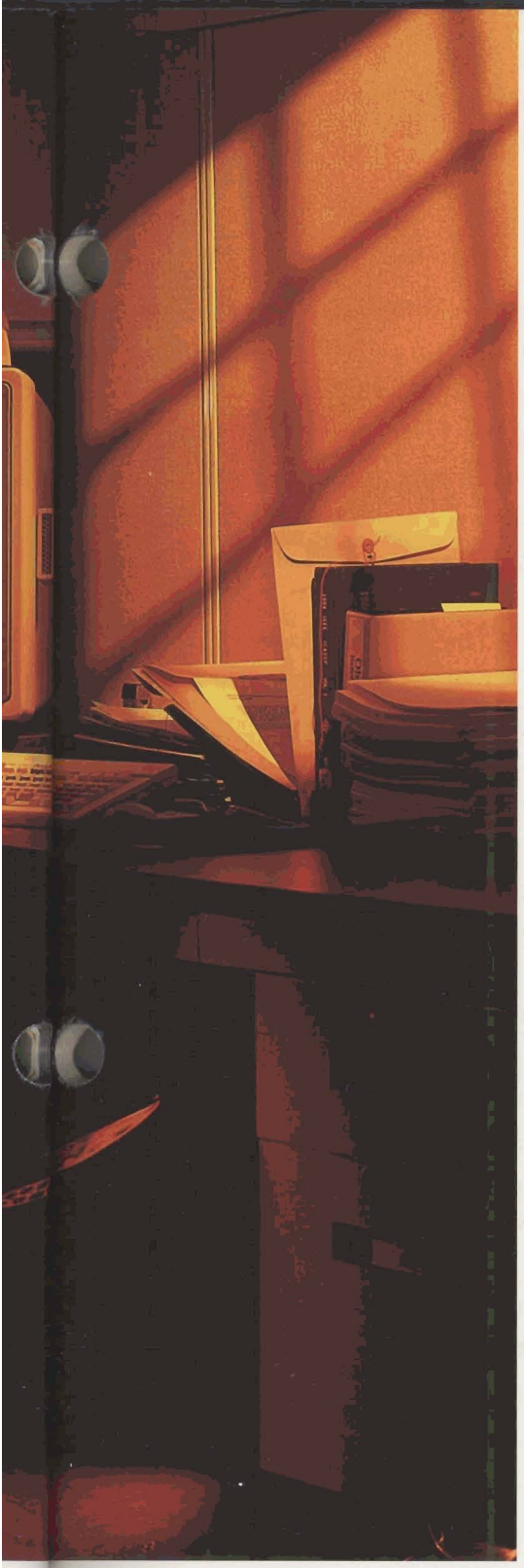


FUTURE

New approaches to computer architecture will be needed to create more powerful computers such as many processors working in parallel.

By learning more about similarities among different instruments, engineers can make them more intelligent with one instrument performing many tasks.

To make advances in biotechnology, tools will be needed to analyze proteins and other biomolecules that make up the building blocks of all life.



HP calls its vision of future information technology the Cooperative Computing Environment. That is, networks of both general-purpose and specialized computers working together as a single, integrated system—no matter where they're located, who made them, or what operating system they use. Despite their complexity, these systems will be easy to use because people will deal with familiar objects and words without having to understand computers or know where information is stored. Artificial intelligence "agents" will even perform many routine tasks for us.

Different computers and people working as one

This kind of environment will change dramatically the way that people work with each other and with information, letting distributed groups work more effectively. Engineering teams around the world will be able to work on the same project, sharing information simultaneously. And doctors will be able to monitor patients and consult with other doctors from anywhere in the world.

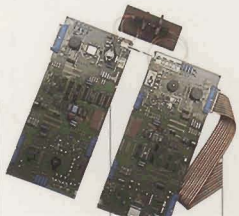
We have the technology to do some of these things today. But to make all of the elements truly cooperative, many more technological problems must be solved. "Smart" networks must be developed that can manage the simultaneous transmission of voices, data and video. Industry standards will be needed to allow many different types of machines to communicate. Software must be much more advanced to hide the complexity of such a system from its users. And much faster computers must be developed that can do many tasks at once, requiring whole new approaches to computer architectures. Sophisticated electronic instruments also will be needed to design and provide information to and about these giant networks. They'll be part of the networks themselves, monitoring their operation and making repairs or sending out alarms.

HP is already at work on many of these problems. These photographs were taken at HP Labs, the company's central research facility in Palo Alto, California, where Hewlett-Packard continues to look to the future each day.

Superconductors, or materials that carry electricity with little or no resistance, may be a key to faster computers and higher-performance instruments.

Artificial intelligence will help people browse through databases and integrate information from many sources, including some that can't be captured by computers today.

Computer networks that can transmit different types of information simultaneously will be needed to realize the Cooperative Computing Environment.



As an international company, Hewlett-Packard recognizes that its employees and customers alike are of many races, ages and ethnic backgrounds, and that some have disabilities. In order to remain competitive in a global marketplace and to attract the best available talent, HP must understand, appreciate and capitalize on a diverse work force.

In the U.S., recently released Department of Labor statistics indicate that during the remainder of this century more than 80 percent of new entrants into the U.S. work force will be women, minorities and immigrants. HP continues to position itself to be representative of this changing labor pool.

In 1988, the company showed progress in hiring and promoting minority and female employees, as shown in the table below. At the same time, we've put special attention on managing the diversity of our work force by completing a new training class to be introduced next year which will provide managers and supervisors with the skills needed to elicit optimal performance from a team of people representing diverse backgrounds. In addition, the same concepts will be incorporated into existing training programs for all employees.

During the year, the company made philanthropic grants totaling $51 million. In order to help prepare young people for satisfying careers in business and technical fields, 85 percent of those grants were made to educational institutions and programs. Most of them were in the form of new products used for instruction in computer science, engineering and business. An additional $3 million, mostly in cash grants, went to health and human service agencies in communities where HP employees live and work. In addition, through matching programs, HP encourages individual employee contributions. Employee contributions to United Way totaling $3.3 million were matched dollar-for-dollar by the company. Employee equipment grants totaling $1 million to all levels of educational institutions were matched by the company on a 1:3 basis. Employee cash gifts of $650,000 to universities and colleges were matched 1:1.

A new Recipient-Enhanced Grant was introduced in 1988, which allows the company to give larger equipment gifts to selected universities when they contribute a portion of the cost of the equipment. Five such grants have been made in the U.S.

	Total Number	Minority		Female	
		Total	Percent	Total	Percent
Managers & Supervisors					
1983	7,866	806	10.2	1,863	23.7
1988	9,257	1,044	11.3	2,391	25.8
Professionals					
1983	15,175	1,832	12.1	3,998	26.3
1988	22,082	3,494	15.8	6,835	31.0
Technicians					
1983	5,379	896	16.7	831	15.4
1988	5,401	1,001	18.5	816	15.1
Skilled/Craft					
1983	2,843	552	19.4	448	15.8
1988	2,265	531	23.4	403	17.8
Percentage of HP Work Force			19.3		40.4

FINANCIAL STATEMENTS

Hewlett-Packard Company and Subsidiaries

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STATEMENT OF MANAGEMENT RESPONSIBILITY

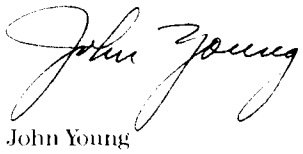
Hewlett-Packard Company and Subsidiaries

The company's management is responsible for the preparation, integrity and objectivity of the consolidated financial statements and other financial information presented in this report. The accompanying financial statements have been prepared in conformity with generally accepted accounting principles and reflect the effects of certain estimates and judgments made by management.

The company's management maintains an effective system of internal control that is designed to provide reasonable assurance that assets are safeguarded and transactions are properly recorded and executed in accordance with management's authorization. The system is continuously monitored by direct management review and by internal auditors who conduct an extensive program of audits throughout the company. The company selects and trains qualified people who are provided with and expected to adhere to the company's standards of business conduct. These standards which set forth the highest principles of business ethics and conduct are a key element of the company's control system.

The company's financial statements have been examined by Price Waterhouse, independent accountants. Their examinations were conducted in accordance with generally accepted auditing standards, and included a review of financial controls and tests of accounting records and procedures as they considered necessary in the circumstances.

The Audit Committee of the Board of Directors, which consists of four outside directors, meets regularly with management, the internal auditors and the independent accountants to review accounting, reporting, auditing and internal control matters. The committee has direct and private access to both internal and external auditors.



John Young

President and Chief Executive Officer

Robert P. Wayman

Senior Vice President and Chief Financial Officer

REPORT OF INDEPENDENT ACCOUNTANTS

Hewlett-Packard Company and Subsidiaries

To the Shareholders and Board of Directors of Hewlett-Packard Company

In our opinion, the accompanying consolidated balance sheet and the related consolidated statements of earnings, of shareholders' equity and of cash flows present fairly, in all material respects, the financial position of Hewlett-Packard Company and its subsidiaries at October 31, 1988 and 1987, and the results of their operations and their cash flows for each of the three years in the period ended October 31, 1988, in conformity with generally accepted accounting principles. These financial statements are the responsibility of the company's management; our responsibility is to express an opinion on these financial statements based on our audits. We conducted our audits of these statements in accordance with generally accepted auditing standards which require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for the opinion expressed above.

Price Waterhouse

San Francisco, California

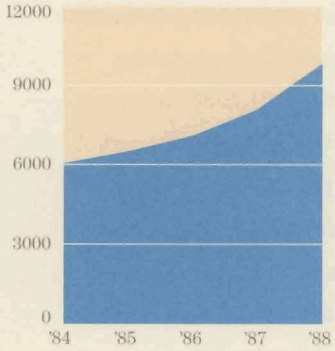
November 21, 1988

CONSOLIDATED STATEMENT OF EARNINGS

Hewlett-Packard Company and Subsidiaries

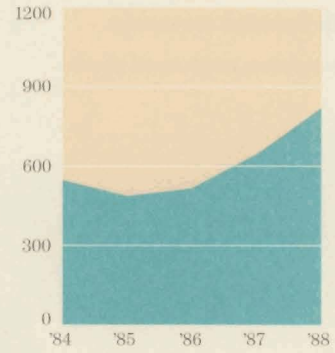
Net Revenue

In millions



Net Earnings

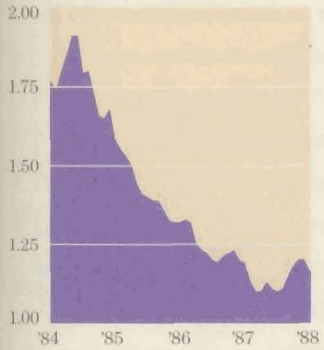
In millions



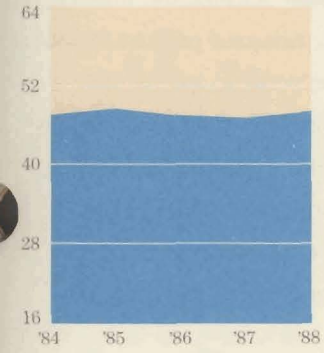
For the years ended October 31 In millions except per share amounts	1988	1987	1986
Net revenue:			
Equipment	$7,709	$6,315	$5,622
Services	2,122	1,775	1,480
	9,831	8,090	7,102
Costs and expenses:			
Cost of equipment sold	3,444	2,723	2,479
Cost of services	1,288	1,062	874
Research and development	1,019	901	824
Marketing and selling	1,951	1,612	1,397
Administrative and general	987	830	748
	8,689	7,128	6,322
Earnings before taxes	1,142	962	780
Provision for taxes	326	318	264
Net earnings	$ 816	$ 644	$ 516
Net earnings per share	$ 3.36	$ 2.50	$ 2.02

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

U.S. Dollar Relative to Major Foreign Currencies
Fiscal 1980 equals 1.00



Cost of Equipment Sold and Services
Percent of net revenue



Results of Operations

In 1988, HP reported strong, well-balanced growth across many of the company's product and service areas. This growth was driven by favorable market acceptance of HP's new product offerings, coupled with aggressive marketing programs and a healthy overall business environment.

The company's orders exceeded the $10.0 billion mark in 1988 and increased 20 percent over 1987. Net revenue grew 22 percent to $9.8 billion compared to a 14 percent increase in 1987. Net earnings were up 27 percent to $816 million following an increase of 25 percent in the prior year.

Worldwide business conditions were generally positive during 1988 with steady growth in the U.S. and continued expansion in most international economies. Net revenue was up 16 percent in the U.S. to $4.7 billion while revenue from customers outside the U.S. grew 28 percent to $5.1 billion. In 1987, net revenue from the company's U.S. and non-U.S. operations increased 8 percent and 21 percent, respectively. International revenue growth continued to be favorably affected by the decline in the value of the U.S. dollar in recent years. As illustrated in the graph on the left of this page, the value of the U.S. dollar moderated in 1988 after more than two years of steady decline.

Equipment sales increased 22 percent and 12 percent in 1988 and 1987, respectively, while service revenue grew 20 percent in each of those years. Much of the growth in equipment sales was attributed to new products designed to meet customer needs and provide industry leadership in price/performance. Demand was particularly strong for the company's peripheral, personal computer and engineering workstation products. Detailed information on orders and net revenue by groupings of similar products and services is presented on page 45 of this report.

HP continued to enhance its new-product programs with a broad range of product introductions throughout 1988. Some of the more important products introduced this year include three new high-performance HP 9000 engineering workstations, a family of low-priced laser-quality ink jet printers and a powerful line of desktop HP Vectra personal computers. In other business areas, significant product announcements were made for new logic analyzers, a modular system for patient monitoring and a new generation mass spectrometer.

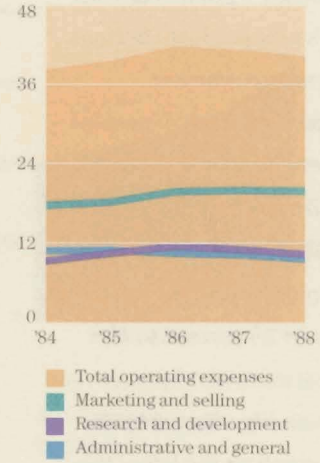
During the fourth quarter of 1988, the company achieved an important product development milestone with the release of a new version of the HP3000 MPE-XL operating system. This version of MPE-XL significantly improves the performance and reliability of the company's commercial HP Precision Architecture computer systems.

Costs and expenses as a percent of net revenue are presented in the following table:

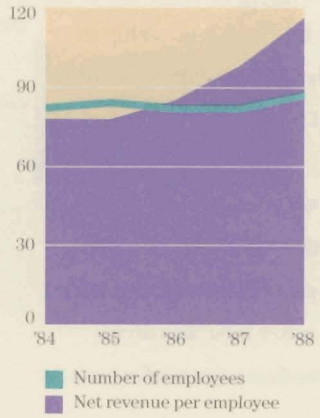
For the years ended October 31	1988	1987	1986
Cost of equipment sold and services	48.1	46.8	47.2
Research and development	10.4	11.1	11.6
Marketing and selling	19.8	19.9	19.7
Administrative and general	10.1	10.3	10.5

During 1988, costs and expenses as a percent of net revenue were significantly affected by changes in the mix of products sold by the company. A higher proportion of net revenue was generated from personal computing products, such as peripherals and personal computers, distributed

Operating Expenses
Percent of net revenue



Employees and Net Revenue Per Employee
In thousands



principally through dealers and other value-added resellers. Because of fundamental differences in cost structure, sales of these products generally involve higher cost of sales and lower operating expenses, as a percent of net revenue, than the company average. Largely as a result of these effects, cost of equipment sold and services as a percent of net revenue increased 1.3 percentage points in 1988 while total operating expenses decreased 1.0 percentage point. Cost of equipment sold and services was affected to a lesser extent by other factors such as pricing pressures from increased competition and manufacturing efficiencies resulting from improved capacity utilization.

Although research and development expense decreased as a percent of net revenue, expenditures increased 13 percent in 1988 to $1.0 billion and amounted to $2.7 billion over the last three years. Research efforts have resulted in a continuous flow of new products and are considered vital to the company's future growth and competitive position in the marketplace. Generally, over half of HP's annual orders are for products introduced in the preceding three years.

Marketing and selling expense grew 21 percent in 1988 to $2.0 billion as compared to an increase of 15 percent in 1987. The growth in these expenses was principally attributed to direct selling costs incurred in connection with higher sales volume, along with increased product promotion, advertising and currency translation effects. Marketing and selling expense as a percent of net revenue declined only slightly from 1987 because expense increases largely offset the favorable impact from the changes in product mix. Management continues to focus on marketing and selling strategies to respond to the rapid increase in the dealer channel business and to maintain HP's leadership position in customer satisfaction. Administrative and general expense grew 19 percent in 1988 to $987 million following an increase of 11 percent in 1987. This increase reflects higher profit-sharing and retirement expense and lower net interest income.

The company's effective tax rate was 28.5 percent in 1988 compared to 33.0 percent in 1987 and 33.9 percent in 1986. The decline in the tax rate in 1988 was attributed to several factors, the most notable of which were the reduction in the U.S. federal statutory income tax rate and lower effective tax rates on earnings generated outside the U.S. Effective tax rates outside the U.S. declined principally because of tax benefits associated with a particularly high level of repatriated earnings and local tax effects of currency translation.

The company will be required to adopt Statement of Financial Accounting Standards No. 96 (SFAS 96), "Accounting for Income Taxes," by fiscal 1991. As more fully described in the Notes to Consolidated Financial Statements, implementation of SFAS 96 is expected to result in a benefit to reported earnings in the year of adoption.

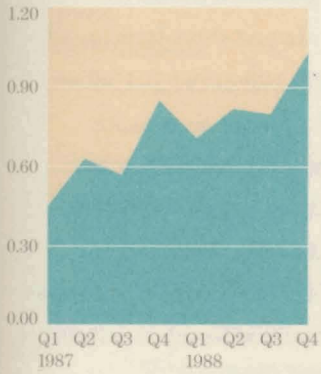
Net earnings for 1988 were $816 million compared to $644 million and $516 million in 1987 and 1986, respectively. As a percent of net revenue, net earnings increased to 8.3 percent in 1988 from 8.0 percent in 1987 and 7.3 percent in 1986. The company's improved profitability was primarily attributed to higher revenue growth, control of expenses and reductions in effective income tax rates.

HP employment increased to 87,000 employees in 1988 from 82,000 at the end of 1987 and 1986. The company increased its workforce principally in the marketing and selling, and research and development areas.

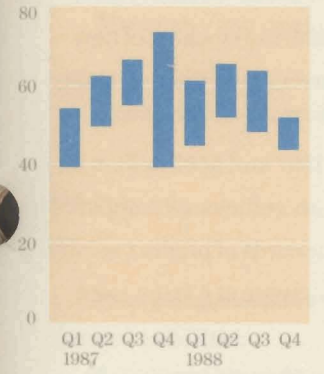
QUARTERLY SUMMARY

Hewlett-Packard Company and Subsidiaries
Unaudited

Net Earnings Per Share
In dollars

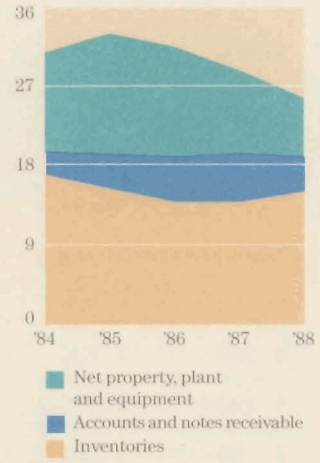


Range of Common Stock Prices
In dollars per share

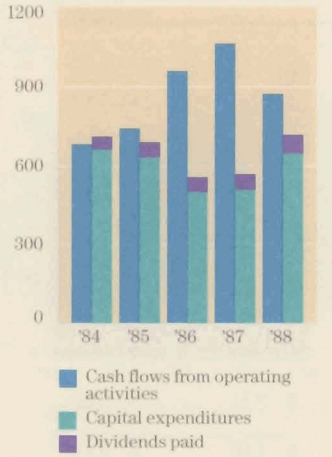


For the three months ended In millions except per share amounts	January 31	April 30	July 31	October 31
1988				
U.S. orders	$1,168	$1,139	$1,198	$1,275
International orders	1,272	1,348	1,329	1,341
Total orders	$2,440	$2,487	$2,527	$2,616
Net revenue	$2,192	$2,496	$2,434	$2,709
Cost of equipment sold and services	$1,030	$1,194	$1,182	$1,326
Earnings before taxes	$ 260	$ 293	$ 259	$ 330
Net earnings	$ 179	$ 202	$ 192	$ 243
Net earnings per share	$ .71	$ .82	$ .80	$ 1.03
Cash dividends paid per share	$ .065	$ .065	$ .065	$ .085
Range of stock prices per share	$61⅜-44¾	$65½-52	$63⅞-48¼	$52-43¾
1987				
U.S. orders	$ 930	$1,028	$1,194	$1,110
International orders	1,001	1,049	1,044	1,023
Total orders	$1,931	$2,077	$2,238	$2,133
Net revenue	$1,740	$2,017	$2,054	$2,279
Cost of equipment sold and services	$ 809	$ 932	$ 970	$1,074
Earnings before taxes	$ 176	$ 239	$ 221	$ 326
Net earnings	$ 116	$ 162	$ 148	$ 218
Net earnings per share	$ .45	$ .63	$ .57	$ .85
Cash dividends paid per share	$ .055	$ .055	$ .055	$ .065
Range of stock prices per share	$54¼-39¼	$62½-49⅝	$66⅝-55⅛	$73⅝-39¼

Asset Management
Percent of net revenue



Selected Cash Flows
In millions



Financial Condition and Liquidity

HP continues to have the ability to finance its growth through internally generated funds. The company's financial position remains strong with cash and cash equivalents, and short-term investments of $918 million at October 31, 1988. Corresponding balances were $2.6 billion and $1.4 billion at the end of 1987 and 1986, respectively.

The purchase of HP common stock pursuant to the company's ongoing stock repurchase program was the most significant use of funds during 1988. HP purchased and retired 29.6 million shares of its common stock for an aggregate price of $1.6 billion. In 1987, the company acquired 4.9 million shares for an aggregate price of $220 million. The company presently has Board of Directors' authorization for additional stock repurchase expenditures of up to $242 million based on certain price and volume criteria.

Cash generated from operating activities declined in 1988 despite the higher level of operating profitability. This decrease was principally attributed to increases in inventory and higher income tax payments related to certain taxes which were deferred in prior years. Inventory grew $361 million or 32% over 1987 levels. This growth reflects increased demand, the stocking of new products and some inventory imbalances resulting from uncertainties surrounding the availability of memory components.

Capital expenditures were $648 million in 1988, $507 million in 1987 and $499 million in 1986. The company continues to invest in capital improvements in amounts sufficient to support future growth, enhance operating processes and maintain the highest standards of product quality. Capital expenditures for 1989 are expected to exceed those of 1988 and increase at a faster pace than in recent years.

Notes payable and short-term borrowings decreased $472 million from the balance outstanding at the end of 1987. During the first quarter of 1988, the company repaid $492 million in borrowings pursuant to a short-term receivable financing arrangement.

In October 1987, the Financial Accounting Standards Board issued Statement of Financial Accounting Standards No. 94 (SFAS 94), "Consolidation of All Majority-owned Subsidiaries." SFAS 94 will require consolidation of the accounts of Hewlett-Packard Finance Company, a wholly-owned subsidiary presently accounted for under the equity method, with those of the company in 1989. This change will result in an increase in consolidated assets and liabilities but is not expected to have a material effect on the company's financial position. Implementation of SFAS 94 will not affect net earnings.

HP continues to strengthen its position in the marketplace and is better prepared to meet the challenges of an increasingly competitive global business environment. The company's new product programs, solid financial condition and worldwide business organization provide HP with the opportunity for balanced financial growth in the years ahead.

CONSOLIDATED BALANCE SHEET

Hewlett-Packard Company and Subsidiaries

October 31 In millions except par value and number of shares	1988	1987
Assets		
Current assets:		
Cash and cash equivalents	$ 800	$2,145
Short-term investments	118	500
Accounts and notes receivable	1,860	1,561
Inventories:		
Finished goods	680	480
Purchased parts and fabricated assemblies	798	637
Other current assets	164	167
Total current assets	4,420	5,490
Property, plant and equipment:		
Land	320	275
Buildings and leasehold improvements	2,052	1,883
Machinery and equipment	1,958	1,761
	4,330	3,919
Accumulated depreciation and amortization	(1,814)	(1,591)
	2,516	2,328
Other assets	561	315
	$7,497	$8,133
Liabilities and shareholders' equity		
Current liabilities:		
Notes payable and short-term borrowings	$ 507	$ 979
Accounts payable	486	364
Employee compensation and benefits	635	488
Taxes on earnings	390	423
Deferred revenues	202	150
Other accrued liabilities	350	331
Total current liabilities	2,570	2,735
Long-term debt	61	88
Other liabilities	157	134
Deferred taxes on earnings	176	154
Shareholders' equity:		
Preferred stock, $1 par value (authorized: 300,000,000 shares; issued: none)	–	–
Common stock and capital in excess of $1 par value (authorized: 600,000,000 shares; issued and outstanding: 234,218,000 in 1988 and 257,251,000 in 1987)	234	776
Retained earnings	4,299	4,246
Total shareholders' equity	4,533	5,022
	$7,497	$8,133

Certain amounts have been reclassified to conform to the 1988 presentation.
The accompanying notes are an integral part of these financial statements.

CONSOLIDATED STATEMENT OF CASH FLOWS

Hewlett-Packard Company and Subsidiaries

For the years ended October 31 In millions	1988	1987	1986
Cash flows from operating activities:			
Net earnings	$ 816	$ 644	$516
Adjustments to reconcile net earnings to cash provided by operating activities:			
Depreciation and amortization	373	342	321
U.S. federal deferred taxes on earnings	(189)	97	47
Changes in assets and liabilities:			
Accounts and notes receivable	(319)	(217)	(95)
Inventories	(361)	(136)	12
Accounts payable	122	79	42
Accrued taxes on earnings	190	65	53
Other current assets and liabilities	221	177	38
Other, net	17	9	23
	870	1,060	957
Cash flows from investing activities			
Investment in property, plant and equipment	(648)	(507)	(499)
Disposition of property, plant and equipment	107	73	88
Purchase of short-term investments	(57)	(345)	(426)
Maturities of short-term investments	439	297	203
Other, net	(140)	–	3
	(299)	(482)	(631)
Cash flows from financing activities:			
Increase (decrease) in notes payable and short-term borrowings	(472)	750	(31)
Issuance of common stock under employee stock plans	211	191	159
Repurchase of common stock	(1,569)	(220)	(287)
Dividends	(69)	(60)	(56)
Other, net	(17)	(14)	18
	(1,916)	647	(197)
Increase (decrease) in cash and cash equivalents	(1,345)	1,225	129
Cash and cash equivalents at beginning of year	2,145	920	791
Cash and cash equivalents at end of year	$ 800	$2,145	$920

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

CONSOLIDATED STATEMENT OF SHAREHOLDERS' EQUITY

Hewlett-Packard Company and Subsidiaries

In millions except number of shares in thousands	Common stock: Number of shares	Common stock: Par value and capital in excess of par	Retained earnings	Total
Balance October 31, 1985	256,916	$780	$3,202	$3,982
Employee stock plans:				
Shares issued	6,238	219	–	219
Shares purchased	(7,062)	(287)	–	(287)
Dividends	–	–	(56)	(56)
Net earnings	–	–	516	516
Balance October 31, 1986	256,092	712	3,662	4,374
Employee stock plans:				
Shares issued	6,051	284	–	284
Shares purchased	(4,892)	(220)	–	(220)
Dividends	–	–	(60)	(60)
Net earnings	–	–	644	644
Balance October 31, 1987	257,251	776	4,246	5,022
Employee stock plans:				
Shares issued	6,536	333	–	333
Shares purchased	(29,569)	(875)	(694)	(1,569)
Dividends	–	–	(69)	(69)
Net earnings	–	–	816	816
Balance October 31, 1988	234,218	$234	$4,299	$4,533

Certain amounts have been reclassified to conform to the 1988 presentation.
The accompanying notes are an integral part of these financial statements.

Summary of Significant Accounting Policies

Principles of consolidation

The consolidated financial statements include the accounts of Hewlett-Packard Company and its subsidiaries, except for Hewlett-Packard Finance Company, which is accounted for under the equity method. All significant intercompany accounts and transactions have been eliminated.

Revenue recognition

Revenue from equipment sales is recognized at the time the equipment is shipped. Services revenue is recognized over the contractual period or as services are performed.

Taxes on earnings

Income tax expense is based on pretax financial accounting income and includes deferred taxes for the effects of timing differences between financial accounting and taxable earnings.

Net earnings per share

Net earnings per share is computed based on a method which approximates the use of weighted-average shares outstanding during the year; shares used in the computation were 243,258,000 in 1988, 257,251,000 in 1987 and 256,092,000 in 1986. Outstanding stock options considered to be common stock equivalents have not been included because the effect would be immaterial.

Short-term investments

Short-term investments principally comprise cash invested in certificates of deposit, temporary money market instruments and tax-exempt notes, and are stated at cost which approximates market.

Inventories

Inventories are valued at standard costs which approximate actual costs computed on a first-in, first-out basis, not in excess of market.

Property, plant and equipment

Property, plant and equipment are stated at cost. Additions, improvements and major renewals are capitalized. Maintenance, repairs and minor renewals are expensed as incurred. Depreciation is provided using accelerated methods, principally over the following useful lives: buildings and improvements, 15 to 40 years; and machinery and equipment, three to 10 years. Amortization of leasehold improvements is provided using the straight-line method over the life of the lease or the asset, whichever is shorter.

Foreign currency translation

The company uses the U.S. dollar as its functional currency. Foreign currency assets and liabilities are translated into U.S. dollars at end-of-period exchange rates except for inventories, prepaid expenses, and property, plant and equipment, which are translated at historical exchange rates. Revenues and expenses are translated at average exchange rates in effect during the year except for those expenses related to balance sheet amounts that are translated at historical exchange rates. Gains or losses from foreign currency translation are included in net earnings.

Statement of Cash Flows

The company adopted Statement of Financial Accounting Standards No. 95 (SFAS 95), "Statement of Cash Flows," in fiscal 1988. Information reported in previous years in the Consolidated Statement of Changes in Financial Position has been restated to conform to the presentation in the Consolidated Statement of Cash Flows. In accordance with SFAS 95, the company has classified marketable securities and time deposits as cash equivalents if the original maturity of such investments is three months or less. Cash and cash equivalents, and short-term investments have been reclassified in the company's Consolidated Balance Sheet for comparative purposes. The effect of foreign currency exchange rate fluctuations on cash balances held in foreign currencies was not material. Income taxes paid are disclosed in the Taxes on Earnings note.

Taxes on Earnings

The provision for taxes comprises the following:

In millions	1988	1987	1986
U.S. federal taxes:			
Current	$230	$(15)	$ 21
Deferred	(189)	97	47
State taxes	51	37	29
Non-U.S. taxes	234	199	167
	$326	$318	$264

The company paid income taxes of $336 million in 1988, $154 million in 1987 and $176 million in 1986.

The difference between the U.S. federal statutory income tax rate and the company's effective tax rate is as follows:

	1988	1987	1986
U.S. federal statutory income tax rate	34.0%	42.0%	46.0%
State income taxes, net of federal tax benefit	2.9	2.2	2.0
Research and development tax credits	(1.8)	(2.0)	(3.8)
FSC tax benefit	(2.5)	(1.3)	(1.7)
Lower rates in other jurisdictions, net	(3.7)	(6.6)	(6.8)
Other, net	(.4)	(1.3)	(1.8)
	28.5%	33.0%	33.9%

Deferred federal taxes result from differences in the timing of revenue and expense recognition for tax and financial reporting purposes. Included in these differences are amounts relating to deferred payment contracts, the effects of which resulted in decreased deferred taxes of $217 million in 1988 and increased deferred taxes of $90 million and $30 million in 1987 and 1986, respectively. There are no other individually significant timing differences.

After allocating eliminations and corporate items, earnings before taxes of U.S. and non-U.S. operations are as follows:

In millions	1988	1987	1986
U.S. operations, including Puerto Rico	$ 593	$442	$305
Non-U.S. operations	549	520	475
	$1,142	$962	$780

The company has not provided for U.S. federal income and foreign withholding taxes on $864 million of non-U.S. subsidiaries' undistributed earnings as of October 31, 1988 because such earnings are intended to be reinvested indefinitely. If these earnings were distributed, foreign tax credits should become available under current law to reduce or eliminate the resulting U.S. income tax liability. Where excess cash has accumulated and it is advantageous for tax or foreign exchange reasons, subsidiary earnings are remitted.

As a result of certain employment and capital investment actions undertaken by the company, income from manufacturing activities in certain countries is subject to reduced tax rates and in some cases is wholly exempt from taxes for years through 2002. The income tax benefits attributable to the tax status of these subsidiaries are estimated to be $57 million, $43 million and $40 million for 1988, 1987 and 1986, respectively.

Federal income tax returns of the company have been examined through 1979 by the Internal Revenue Service (IRS) and settled. The IRS has not completed its examination of returns for years subsequent to 1979. The company believes that adequate accruals have been provided for all years.

In December 1987, the Financial Accounting Standards Board issued Statement of Financial Accounting Standards No. 96 (SFAS 96), "Accounting for Income Taxes." The company will be required to adopt SFAS 96 by the first quarter of fiscal 1991. Under the new standard, deferred taxes are computed based on enacted tax rates for the years in which such taxes are scheduled to be payable or refundable, subject to certain limitations on the recognition of deferred tax benefits. The company expects to recognize a benefit to reported earnings upon implementation of SFAS 96, provided current income tax rates remain at their present levels. This implementation benefit is expected to result from the reduction of certain deferred tax liabilities currently recorded at tax rates which are higher than those presently in effect.

Retirement Plans

Pension and profit-sharing plans

Substantially all of the company's employees are covered under various pension and deferred profit-sharing retirement plans. The worldwide pension and deferred profit-sharing costs were $111 million in 1988, $75 million in 1987 and $56 million in 1986.

U.S. employees are provided retirement benefits by the U.S. Deferred Profit-Sharing Plan and the U.S. Supplemental Pension Plan. The U.S. Deferred Profit-Sharing Plan is a defined contribution plan that provides the vast majority of retirement benefits. The plan is funded solely by the company through an annual contribution based upon the company's adjusted U.S. net income, as defined in the plan agreement. Assets of the plan are held in trust for the sole benefit of employees. Expense for the U.S. Deferred Profit-Sharing Plan was $70 million in 1988, $50 million in 1987 and $33 million in 1986. The U.S. Supplemental Pension Plan is a defined benefit plan that provides for any excess of defined minimum benefits over the benefits available from the U.S. Deferred Profit-Sharing Plan. The amount of the benefit is computed based upon the employee's highest average pay rate and length of service, reduced by the annuity value to which the employee is entitled under the U.S. Deferred Profit-Sharing Plan.

The combined status of the U.S. Deferred Profit-Sharing and U.S. Supplemental Pension plans is as follows:

In millions	1988	1987
Fair value of plan assets	$1,297	$1,131
Retirement benefit obligation	$1,097	$ 945

Employees outside of the U.S. generally receive retirement benefits under various defined benefit and defined contribution plans based upon such factors as years of service and employee compensation levels. It is the company's practice to fund these pension costs to the extent they are tax deductible.

The funded status of the U.S. and non-U.S. defined benefit plans is as follows:

	U.S. supplemental defined benefit plan		Non-U.S. defined benefit plans	
In millions	1988	1987	1988	1987
Vested benefit obligation	$ (2)	$ (3)	$(173)	$(140)
Accumulated benefit obligation	$ (3)	$ (4)	$(180)	$(160)
Fair value of plan assets	$224	$202	$ 333	$ 272
Projected benefit obligation	(24)	(16)	(352)	(301)
Excess of plan assets over projected benefit obligation	200	186	(19)	(29)
Unrecognized net experience (gain) loss	(19)	(21)	22	27
Unrecognized net transition asset*	(108)	(118)	(26)	(23)
Prepaid (accrued) pension costs	$ 73	$ 47	$ (23)	$ (25)

*Amortized over 15 years for the U.S. plan and over periods ranging from 12 to 20 years for non U.S. plans.

Plan assets consist primarily of listed stocks and bonds for the U.S. plans and listed stocks, bonds and cash surrender value life insurance policies for the non-U.S. plans.

The company's worldwide net pension and deferred profit-sharing costs comprise the following:

	U.S. plans		Non-U.S. plans	
In millions	1988	1987	1988	1987
Service cost – benefits earned during the period	$ 2	$ 1	$37	$28
Interest cost on projected benefit obligation	1	1	22	17
Actual investment return on plan assets	(22)	(13)	(25)	(6)
Net amortization and deferral	(7)	(15)	–	(15)
Net pension charge (credit) for defined benefit plans	(26)	(26)	34	24
Pension and deferred profit-sharing costs for other plans	70	50	33	27
	$44	$24	$67	$51

The assumptions used to measure the projected benefit obligations and to compute the expected long-term return on assets for the defined benefit plans are as follows:

	U.S. supplemental defined benefit plan		Non-U.S. defined benefit plans	
	1988	1987	1988	1987
Discount rate	8.5%	8.0%	4.5% to 10.0%	4.5% to 13.5%
Average increase in compensation levels	7.0%	7.0%	3.0% to 9.0%	3.5% to 9.0%
Expected long-term return on assets	9.0%	9.0%	5.0% to 11.5%	5.0% to 12.0%

TaxCAP and other benefits

Employees of the company and certain subsidiaries may participate in the Tax Saving Capital Accumulation 401(k) Plan (TaxCAP) which was established as a supplemental retirement program. Under the TaxCAP program, the company contributes one dollar for every three dollars contributed by employees. Combined Employee Stock Purchase Plan and TaxCAP contributions by an employee cannot exceed 12 percent of the employee's annual base compensation. At October 31, 1988, approximately 39,000 employees were participating in TaxCAP out of the approximately 52,000 who were eligible.

In addition to providing pension benefits, the company currently provides certain health-care and life-insurance benefits for retired employees. Substantially all of the company's U.S.

employees could become eligible for these benefits. The cost of such benefits, which is recognized as expense as claims are paid, was $7 million in 1988 and $3 million in each of 1987 and 1986.

Notes Payable and Short-term Borrowings

Notes payable and short-term borrowings comprise notes payable to banks, commercial paper, current maturities of long-term debt and, in fiscal 1987, $492 million in borrowings under a receivable financing arrangement. Borrowings under the receivable financing were fully repaid in fiscal 1988.

The company has unused lines of credit of approximately $467 million at October 31, 1988. These lines of credit provide for borrowings on a worldwide basis and generally do not require commitment fees.

Shareholders' Equity

Employee stock purchase plan

Eligible company employees may contribute generally up to 10 percent of their base compensation to the quarterly purchase of company stock under an Employee Stock Purchase Plan. Under this plan, employees contribute 75 percent and the company contributes 25 percent of a formula stock price, which is based on average market prices during the preceding quarter. At October 31, 1988, 72,000 employees were eligible to participate and 55,000 employees were participants in the plan.

Incentive compensation plans

The company has three principal stock option plans, adopted in 1974, 1979 and 1985. All plans permit options granted to qualify as "Incentive Stock Options" under the Internal Revenue Code. Options are granted at prices which equal the fair market value on the date of grant. The majority of options granted prior to 1987 vest at a rate of 25 percent in each of the first two years and at 50 percent in the third year from the date of grant. Options granted in 1987 and 1988 generally vest at a rate of 25 percent per year over a period of four years from the date of grant. The plans provide for the granting of stock appreciation rights with respect to options granted to officers.

The following table summarizes option activity during 1988:

Thousands except price per share	Options	Price per share
Outstanding at October 31, 1987	9,472	$10-69
Granted	2,574	47-63
Exercised	(922)	10-47
Cancelled	(174)	19-69
Outstanding at October 31, 1988	10,950	$12-63

At October 31, 1988, options to purchase 5,960,000 shares were exercisable at prices ranging from $12 to $49 per share. Shares available for option grants at October 31, 1988 and 1987 were 3,775,000 and 6,954,000, respectively. Approximately 31,000 employees were considered eligible to receive stock options in fiscal 1988. There were approximately 11,000 employees holding options under one or more of the option plans as of October 31, 1988.

Under the 1985 Incentive Compensation Plan, certain key employees may be granted cash or restricted stock awards. Cash and restricted stock awards are independent of option grants and are subject to restrictions as determined appropriate by the company's Stock Option Committee. The majority of the shares of restricted stock outstanding at October 31, 1988 are subject to forfeiture if employment terminates prior to five years from the date of grant. During that period, ownership of the shares cannot be transferred. Restricted stock has the same dividend and voting rights as other common stock and is considered to be currently issued and outstanding. The cost of the awards, determined as the fair market value of the shares at the date of grant, is expensed over the period the restrictions lapse. Such expense amounted to $17 million, $10 million and $7 million in 1988, 1987 and 1986, respectively. At October 31, 1988 and 1987, the company had 2,236,000 and 1,429,000 shares, respectively, of restricted stock outstanding.

Shares reserved

The company has reserved shares for future issuance under the employee stock plans. At October 31, 1988 and 1987, 25,384,000 and 30,867,000 shares, respectively, were reserved.

Stock repurchase program

Under the company's ongoing stock repurchase program, shares of HP common stock are periodically purchased by an independent broker to meet future employee stock plan requirements. In fiscal 1988, the board authorized additional expenditures of up to $950 million under this program. Approximately 29,569,000 shares were repurchased in 1988 for an aggregate purchase price of $1,569 million. In 1987, the company acquired approximately 4,892,000 shares for an aggregate price of $220 million. At October 31, 1988, HP has authorization for an aggregate of $242 million in future repurchases under this program based on certain price and volume criteria.

Commitments

The company leases certain real and personal property. Minimum commitments under these operating leases are $87 million for 1989, $70 million for 1990, $47 million for 1991, $37 million for 1992, $28 million for 1993 and $153 million for 1994 through 2061. Certain leases require the company to pay property taxes, insurance and routine maintenance and include escalation clauses. Rent expense was $142 million in 1988, $134 million in 1987 and $116 million in 1986.

At October 31, 1988, the company had purchase commitments for plant site acquisition, facility construction and related machinery and equipment aggregating $328 million.

Geographic Area Information

The company operates in a single industry segment: the design, manufacture and service of measurement and computation products and systems.

Net revenue, earnings before taxes and identifiable assets, classified by the major geographic areas in which the company operates, are as follows:

In millions	1988	1987	1986
Net revenue			
United States:			
Unaffiliated customer sales	$4,763	$4,122	$3,812
Interarea transfers	2,064	1,596	1,405
	6,827	5,718	5,217
Europe:			
Unaffiliated customer sales	3,304	2,667	2,197
Interarea transfers	250	206	188
	3,554	2,873	2,385
Other areas:			
Unaffiliated customer sales	1,764	1,301	1,093
Interarea transfers	457	313	279
	2,221	1,614	1,372
Eliminations	(2,771)	(2,115)	(1,872)
	$9,831	$8,090	$7,102
Earnings before taxes			
United States	$ 851	$ 690	$ 537
Europe	244	318	313
Other areas	313	173	148
Eliminations and corporate	(266)	(219)	(218)
	$1,142	$ 962	$ 780
Identifiable assets			
United States	$4,243	$4,567	$3,409
Europe	1,998	1,577	1,322
Other areas	986	839	724
Eliminations and corporate	270	1,150	832
	$7,497	$8,133	$6,287

Net revenue from sales to unaffiliated customers is based on the location of the customer. Interarea transfers are sales among HP affiliates principally made at market price, less an allowance primarily for subsequent manufacturing and/or marketing costs. Earnings before taxes and identifiable assets are classified based on the location of the company's facilities.

Identifiable corporate assets, which are net of eliminations in the table on the previous page, comprise primarily cash, property, plant and equipment and investments and aggregate $1,758 million in 1988, $3,108 million in 1987 and $1,746 million in 1986.

Unconsolidated Finance Subsidiary

The company's wholly-owned, unconsolidated finance subsidiary, Hewlett-Packard Finance Company (HPFC), provides financing of U.S. leases and installment sales of the company's products as well as the financing of third-party software and equipment. The investment in HPFC is accounted for under the equity method.

The company will be required to adopt Statement of Financial Accounting Standards No. 94 (SFAS 94), "Consolidation of All Majority-owned Subsidiaries," in fiscal 1989. The new accounting standard will require consolidation of the accounts of HPFC with those of the company. Implementation of SFAS 94 is not expected to have a material effect on the company's financial position and will not affect net earnings.

HPFC's shareholder's equity and total assets at October 31 amounted to $64 million and $451 million in 1988, and $68 million and $513 million in 1987, respectively. Finance revenue totaled $44 million for 1988, $52 million for 1987 and $45 million for 1986, while net earnings were $9 million, $8 million and $7 million, respectively.

Additional information is available in the 1988 HPFC Form 10-K filed with the Securities and Exchange Commission.

ORDERS AND NET REVENUE BY GROUPINGS OF SIMILAR PRODUCTS AND SERVICES

Hewlett-Packard Company and Subsidiaries
Unaudited

For the years ended October 31 In millions	1988	1987	1986
Orders			
Measurement, design, information and manufacturing equipment and systems	$ 3,900	$3,371	$3,067
Peripherals and network products	2,809	2,153	1,741
Service for equipment, systems and peripherals	1,875	1,560	1,326
Medical electronic equipment and service	724	652	544
Analytical instrumentation and service	476	396	320
Electronic components	286	247	203
	$10,070	$8,379	$7,201
Net revenue			
Measurement, design, information and manufacturing equipment and systems	$ 3,839	$3,256	$2,995
Peripherals and network products	2,727	2,059	1,761
Service for equipment, systems and peripherals	1,855	1,540	1,323
Medical electronic equipment and service	688	618	513
Analytical instrumentation and service	456	388	303
Electronic components	266	229	207
	$ 9,831	$8,090	$7,102

The table above provides supplemental information showing orders and net revenue by groupings of similar products and services. The groupings are as follows:

Measurement, design, information and manufacturing equipment and systems

Equipment and systems (hardware and software) used for design, manufacturing, office automation and information processing; general-purpose instruments and computers; and handheld calculators.

Peripherals and network products

Printers, plotters, magnetic disc and tape drives, terminals and network products.

Service for equipment, systems and peripherals

Support and maintenance services, parts and supplies related to design and manufacturing systems, office and information systems, general-purpose instruments and computers, peripherals and network products.

Medical electronic equipment and service

Products that perform patient monitoring, diagnostic, therapeutic and data-management functions; application software; support and maintenance services; and hospital supplies.

Analytical instrumentation and service

Gas and liquid chromatographs, mass spectrometers and spectrophotometers used to analyze chemical compounds; and support and maintenance services.

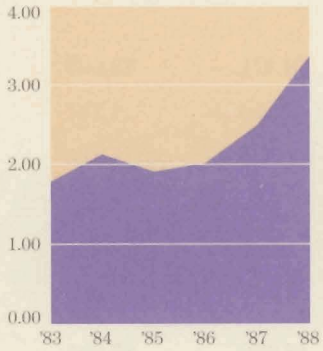
Electronic components

Microwave semiconductor and optoelectronic devices that are sold primarily to manufacturers for incorporation into electronic products.

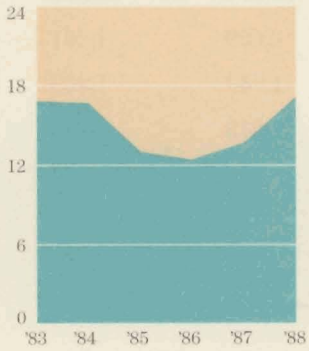
SELECTED FINANCIAL DATA

Hewlett-Packard Company and Subsidiaries
Unaudited

Net Earnings Per Share
In dollars



Return on Average Shareholders' Equity
Percent



For the years ended October 31 In millions except per share amounts in dollars and employees in thousands	1988	1987	1986	1985	1984	1983
U.S. orders	$ 4,780	$4,262	$3,826	$3,662	$3,629	$2,901
International orders	5,290	4,117	3,375	2,733	2,721	2,021
Total orders	$10,070	$8,379	$7,201	$6,395	$6,350	$4,922
Net revenue	$ 9,831	$8,090	$7,102	$6,505	$6,044	$4,710
Earnings before taxes	$ 1,142	$ 962	$ 780	$ 758	$ 860	$ 728
Net earnings	$ 816	$ 644	$ 516	$ 489	$ 665*	$ 432
Per share:						
Net earnings	$ 3.36	$ 2.50	$ 2.02	$ 1.91	$ 2.59*	$ 1.69
Cash dividends	$ .28	$ .23	$ .22	$ .22	$ .19	$ .16
At year-end:						
Total assets	$ 7,497	$8,133	$6,287	$5,680	$5,153	$4,161
Employees	87	82	82	84	82	72

Supplementary Earnings Information, assuming the 1984 reversal of DISC taxes is applied retroactively, is presented below.

Net earnings per share	$ 3.36	$ 2.50	$ 2.02	$ 1.91	$ 2.13	$ 1.79

Graphs included in the annual report which illustrate trends in net earnings, net earnings per share and return on average shareholders' equity are based on this Supplementary Earnings Information.

*Includes a one-time increase in net earnings of $118 million (46 cents per share) resulting from a DISC tax law change.

Directors

John B. Fery
Chairman of the Board and
Chief Executive Officer
Boise Cascade Corporation
A paper and forest products manufacturer and distributor

Robert J. Glaser, M.D.
Director for Medical Science
Lucille P. Markey Charitable Trust
A philanthropic foundation supporting basic medical science research

Harold J. Haynes
Retired Chairman of the Board and
Chief Executive Officer
Chevron Corporation
Formerly Standard Oil Company of California

Walter B. Hewlett
Independent Researcher and
Director
Center for Computer Assisted
Research in the Humanities
A non-profit corporation

Shirley M. Hufstedler
Partner in the law firm of
Hufstedler, Miller, Kaus & Beardsley

George A. Keyworth II
Director of Research
Hudson Institute
A center for public policy research

Paul F. Miller, Jr.
Senior Partner
Miller, Anderson and Sherrerd
An investment management firm

Dean O. Morton
Executive Vice President and
Chief Operating Officer
Hewlett-Packard Company

David Packard
Chairman of the Board
Hewlett-Packard Company

David Woodley Packard
Chairman and President
Ibycus Corporation
Computer research systems for ancient languages

Donald E. Petersen
Chairman of the Board and
Chief Executive Officer
Ford Motor Company

William E. Terry
Executive Vice President
Hewlett-Packard Company

Hicks B. Waldron
Retired Chairman and
Chief Executive Officer
Avon Products, Inc.
A beauty products company

T. A. Wilson
Chairman Emeritus
The Boeing Company
An aerospace company

John A. Young
President and
Chief Executive Officer
Hewlett-Packard Company

William R. Hewlett
Director Emeritus
Hewlett-Packard Company

Committees of the Board

Executive Committee
Young (Chair), Morton, Terry

Audit Committee
Hufstedler (Chair), Haynes, Petersen, Wilson

Employee Benefits Committee
Glaser (Chair), Fery, Walter Hewlett, Keyworth, Terry, Young

Executive Compensation and Stock Option Committee
Haynes (Chair), Glaser, Petersen, Waldron, Wilson

Investment Committee
Miller (Chair), Morton, David Woodley Packard, Waldron, Wilson

Nominating Committee
Glaser (Chair), Haynes, Hufstedler, Miller, David Packard, Young

Officers

David Packard
Chairman of the Board

John A. Young
President and Chief Executive Officer

Dean O. Morton
Executive Vice President and
Chief Operating Officer

Richard C. Alberding
Executive Vice President
Marketing and International

Douglas C. Chance
Executive Vice President
Networked Systems

John L. Doyle
Executive Vice President
Business Development

Lewis E. Platt
Executive Vice President
Computer Products

William E. Terry
Executive Vice President
Measurement Systems

James L. Arthur
Senior Vice President and Director
U.S. Field Operations

Franco Mariotti
Senior Vice President and Director
European Operations

Alfred P. Oliverio
Senior Vice President

Robert P. Wayman
Senior Vice President and
Chief Financial Officer

Richard W. Anderson
Vice President and General Manager
Microwave and Communications Group

Edward W. Barnholt
Vice President and General Manager
Electronic Instruments Group

Alan D. Bickell
Vice President and Director
Intercontinental Operations

Joel S. Birnbaum
Vice President and General Manager
Information Architecture Group

S. T. Jack Brigham III
Vice President Administration and
General Counsel

William F. Craven
Vice President and General Manager
Components Group

Harold E. Edmondson
Vice President and Director
Corporate Manufacturing

Richard A. Hackborn
Vice President and General Manager
Peripherals Group

Dieter Hoehn
Vice President and General Manager
Analytical Group

Benjamin L. Holmes
Vice President and General Manager
Medical Products Group

Michael C. Leavell
Vice President and General Manager
Worldwide Customer Support Operation

Franz Nawratil
Vice President and Director
European Marketing and Sales

William G. Parzybok, Jr.
Vice President and General Manager
Engineering and Manufacturing Systems Group

Charles W. Richion
Vice President and Director
U.S. Sales Operation

Willem P. Roelandts
Vice President and General Manager
Computer Systems Group

Raymond W. Cookingham
Controller

George F. Newman, Jr.
Treasurer

D. Craig Nordlund
Associate General Counsel and
Secretary

Ann O. Baskins
Assistant Secretary and
Corporate Counsel

New Officers

During 1988, one HP executive was named senior vice president and four were named vice presidents of the company. They are: Franco Mariotti, senior vice president, European Operations; Edward W. Barnholt, vice president and general manager, Electronic Instruments Group; Michael C. Leavell, vice president and general manager, Worldwide Customer Support Operation; Franz Nawratil, vice president and director, European Marketing and Sales; and Willem P. Roelandts, vice president and general manager, Computer Systems Group.

Corporate Offices
3000 Hanover Street
Palo Alto, California 94304
Telephone: (415) 857-1501

U.S. Operations

Manufacturing

Cupertino, Palo Alto, Rohnert Park, Roseville, San Diego, San Jose, Santa Clara, Santa Rosa and Sunnyvale, California

Colorado Springs, Fort Collins, Greeley and Loveland, Colorado

Boise, Idaho

Andover and Waltham, Massachusetts

Rockaway, New Jersey

Corvallis and McMinnville, Oregon

Avondale, Pennsylvania

Aguadilla, Puerto Rico

Everett, Spokane and Vancouver, Washington

Marketing

Region Headquarters:

North Hollywood, California

Atlanta, Georgia

Rolling Meadows, Illinois

Rockville, Maryland

HP Sales and Support Offices

Located in 140 cities throughout the United States*

International Operations

European Operations Headquarters:

Geneva, Switzerland

Intercontinental Operations Headquarters:

Palo Alto, California

European Manufacturing

Bristol and Pinewood, England

Grenoble and Lyon, France

Boeblingen and Waldbronn, Federal Republic of Germany

South Queensferry, Scotland

Barcelona, Spain

Intercontinental Manufacturing

Ringwood, Australia

Campinas, Brazil

Waterloo, Canada

Beijing and Shenzhen, China

Hachioji, Japan

Seoul, Republic of Korea

Penang, Malaysia

Guadalajara, Mexico

Singapore

Taipei, Taiwan

European Marketing

Region Headquarters:

Pinewood, England

Evry, France

Bad Homburg, Federal Republic of Germany

Cernusco, Italy

Geneva, Switzerland

Intercontinental Marketing

Region Headquarters:

Melbourne, Australia

Toronto, Canada

Hong Kong

Mexico City, Mexico

Tokyo, Japan

HP Sales and Support Offices and Distributorships

Approximately 300 in 92 countries*

*A directory of sales and support locations can be obtained from the Public Relations Department, Hewlett-Packard Company corporate offices.

Annual Meeting of Shareholders
The annual meeting will be held Tuesday, February 28, 1989, at 2 p.m. at Hewlett-Packard's Cupertino site located at 19447 Pruneridge Avenue, Cupertino, California.

Annual Report/10-K Report
Publications of interest to current and potential HP investors are available upon request. These include annual and quarterly reports and the Form 10-K filed with the Securities and Exchange Commission. As a service to those with impaired vision, the HP 1988 Annual Report is available on audio cassette. This material can be obtained at no cost by contacting the Public Relations Department, Hewlett-Packard Company corporate offices.

Transfer Agent and Registrar
Harris Trust and Savings Bank
Corporate Trust Operations
Division, P.O. Box 755
Chicago, Illinois 60690
Telephone: (312) 461-4061

Common Stock, Dividend Policy
The company's stock is traded on the New York Stock Exchange, the Pacific Stock Exchange and the Tokyo Stock Exchange. Cash dividends have been paid each year since 1965. The current rate is $.085 per share per quarter. At December 1, 1988, there were 73,200 shareholders of record.

Acknowledgments
The large photograph on pages 10-11 was taken in the San Francisco, California, offices of Salomon Brothers.

The large photograph on pages 20-21 was taken on Loveland Pass in Colorado with the help of Trans-Western Express in Denver, Colorado.

Designed by Ted Williams and Partners, San Francisco

3000 Hanover Street

Palo Alto, California 94304

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