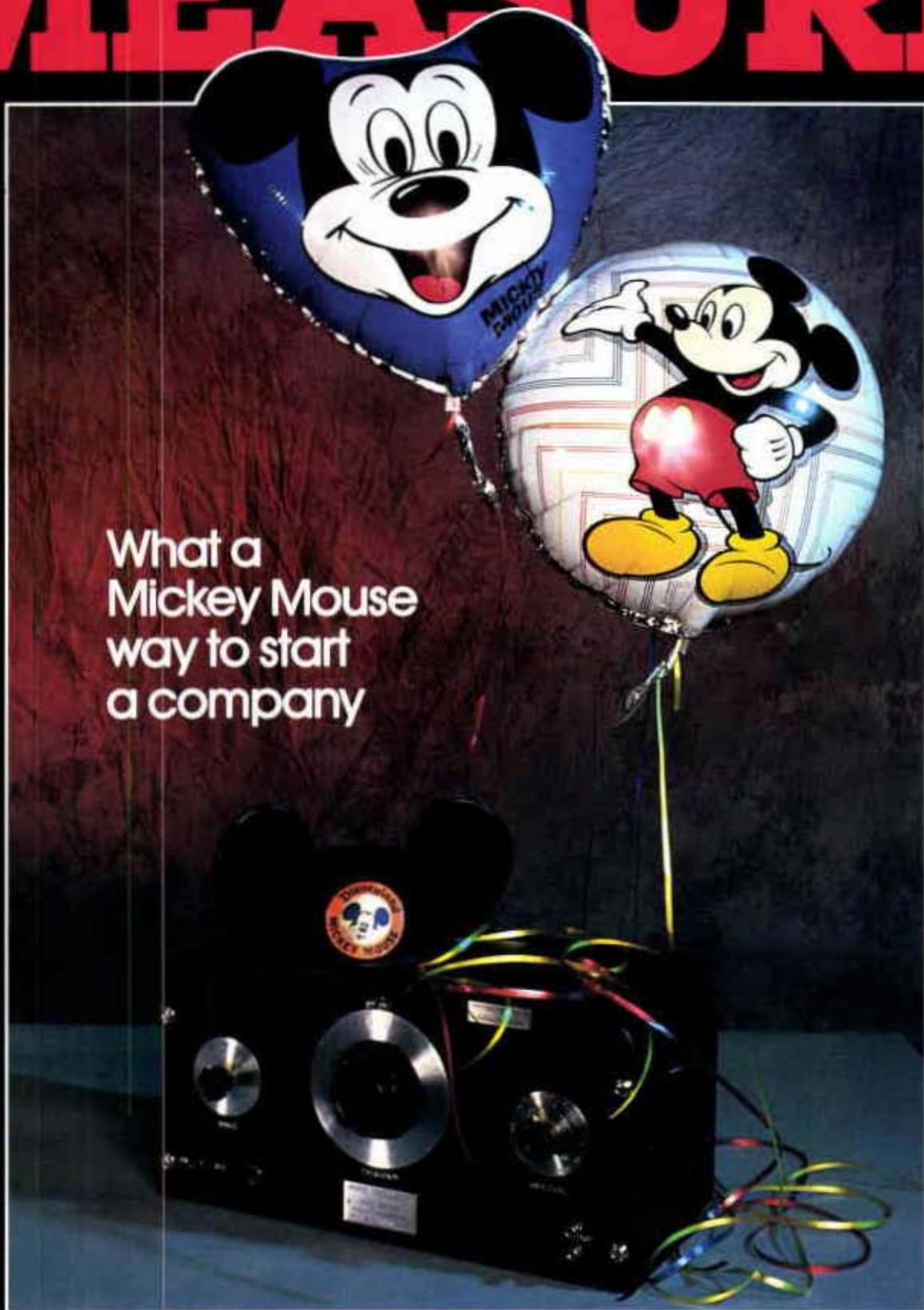


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way to start
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Once upon a time Bill and Dave sold their first audio oscillators to Walt Disney Co. to make *Fantasia*; then Bill and Dave and all 93,000 employees lived happily ever after. Cover photo by Liane Enkelis.

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MEASURE

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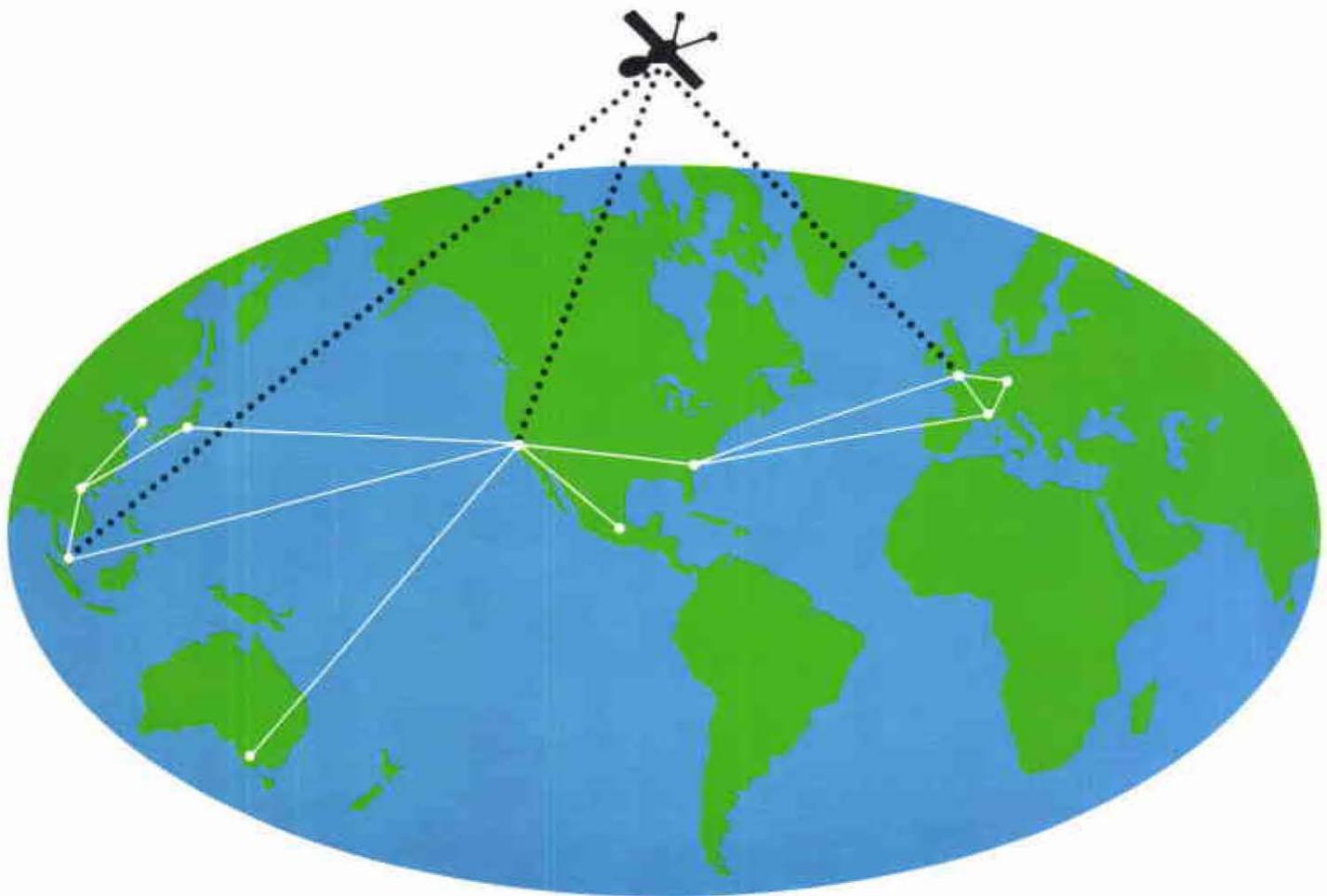
Measure is published six times a year for employees and associates of Hewlett-Packard Company. Produced by Corporate Public Relations, Internal Communication Department, Brad Whitworth, Manager. Address correspondence to Measure, Hewlett-Packard Company, 208R, PO Box 10301, Palo Alto, California 94303-0890 USA. (415) 857-4144. Report changes of address to your local personnel department.

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Hewlett-Packard Company is an international manufacturer of measurement and computation products and systems recognized for excellence in quality and support. The company's products and services are used in industry, business, engineering, science, medicine and education in approximately 100 countries. Founded in 1939, HP is celebrating its 50th anniversary this year. HP employs more than 93,000 people worldwide.





Customer Support—the 24-hour solution

“G’day, Bill,” the Aussie voice nearly 8,000 miles away crackles on the other end of the telephone line.

“G’day, mate,” Bill Dunn answers cheerfully, even though it’s the middle of the afternoon on the fourth of July at the Mountain View, California, North American Response Center. “How can I help you today?”

“We’re having trouble retrieving some files,” says the systems supervisor for Martin Communications Ltd., a Sydney, Australia, manufacturer of printed-circuit boards. “Can you help?”

Bill wastes no time. He uses his local system, checks his solutions database and simulates the customer’s problem—all while most Californians are basking in the afternoon sun.

“That’s great,” comes the trans-Pacific response. “We’re up and running again. Thanks.”

It’s a familiar role for Bill, an HP support engineer for technical applications at the response center. As a customer-support engineer he’s part lifeguard, part sleuth.

“You learn to ask a zillion questions,” Bill says.



"It's like an investigator piecing together the evidence. You focus in on the customer's knowledge and your knowledge of their system to come up with the right solution."

Bill is part of a 15,000-person HP contingent called the Worldwide Customer Support Operations (WCSO). How important is support? HP service for equipment, systems and peripherals generated \$1.85 billion in revenue in 1988—19 percent of the company's total revenue.

But support is much more than just a significant profit center. It's a way of life.

"Go back to the corporate objectives and you'll see that HP has had a clear focus on its customers from the beginning," says Mike Leavell, former WCSO vice president and general manager

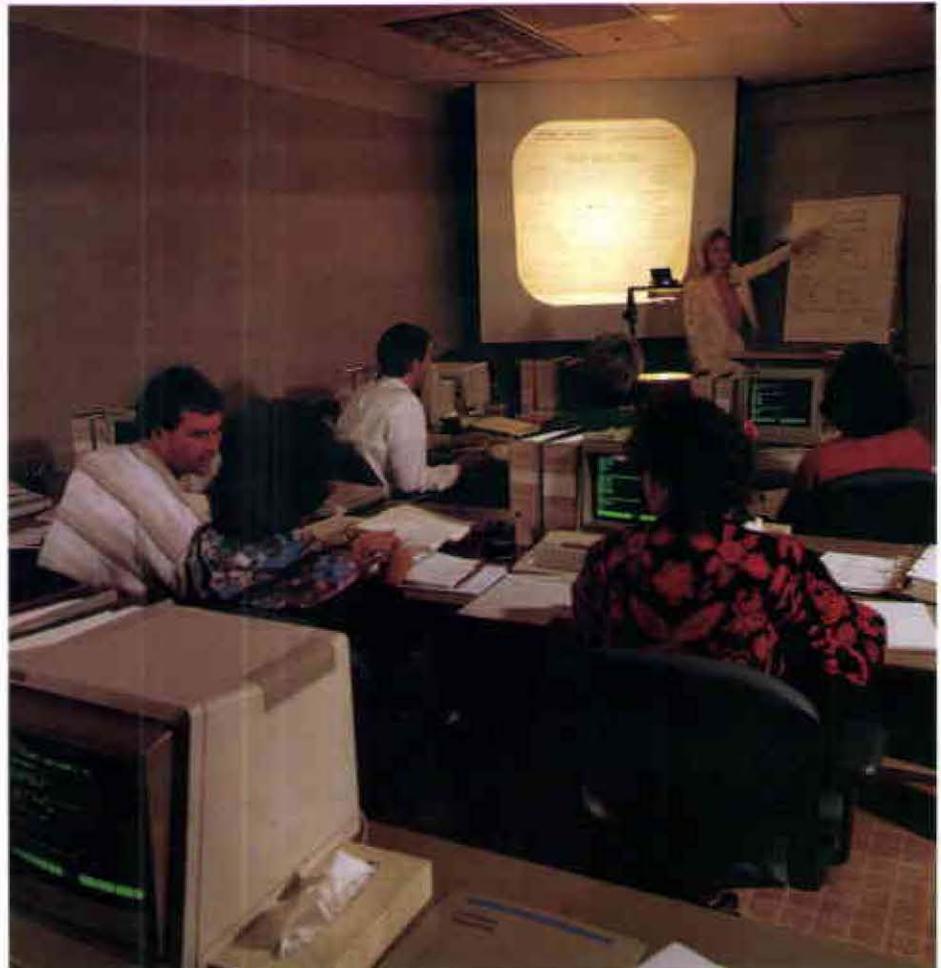
"Support is an exciting business because it's so diverse and complex."

and newly named director of U.S. Field Operations. "Our mission is to provide products and services of the highest quality and the greatest possible value to our customers, and that enables us to get and hold their respect and loyalty.

"Those aren't just words Bill Hewlett and Dave Packard made up 30-some years ago: it's a philosophy HP has practiced for decades."

And it's more than maintenance and repair. Mike adds. Support encompasses everything from helping customers select the right systems, installing the systems, training customers to ensure maximum productivity and helping maintain the systems night and day.

"Support is an exciting business because it's so diverse and complex," says Roger Costa, general manager of the Product Support Division. "We see the full range of HP—R&D, manufacturing, marketing and so forth. That presents an intellectual challenge to know and deal with all elements of the company."



HP customer-education centers like the one (above) at WCSO headquarters in Mountain View, California, help customers get the most from their networks.

About 1,100 employees are in the WCSO's new Mountain View, California, headquarters—a 450,000-square-foot, two-building complex which once was a shopping center.

The facility houses group headquarters, an HP Response Center, HP Customer Education Center, HP Multivendor Support Operation, the Application Support Division, the Product Support Division and four support research and development activities.

Linked with 400 support offices and 32 response centers worldwide, WCSO offers customers 24-hour-a-day, 365-day-a-year support.

And when it comes to support, there's nothing more important these days than network support. Networks link a wide variety of equipment within offices and across continents. Servicing such diverse networks is, effectively, a competitive advantage.

Worldwide Customer Support Operations at a glance

15,000 employees
32 response centers linking
400 support offices worldwide
90-plus countries
\$1.85 billion in revenue (19% of
HP's total revenue for fiscal
1988)

WCSO structure

Application Support Division
Product Support Division
Response Center Operations
Support Materials Operation
Multivendor Support Operation
Support Systems Laboratory
U.S. Customer Support
European Customer Support
Intercontinental Customer Support



Giant car-rental company Hertz International uses HP's NetAssure support program to handle large rental volumes, process transactions faster and maintain high customer satisfaction throughout Europe.

PHOTO COURTESY OF HERTZ INTERNATIONAL

HP's Network Support program, for example, includes:

- **Worldwide support.** HP covers the world with consistent, timely support.
- **Comprehensive services.** It can help customers through the planning, design and implementation phases.
- **Multivendor support and problem management.** HP plans multivendor networks and helps implement, maintain and operate them.
- **Experience and expertise.** In addition to its recognized leadership in customer-support satisfaction, HP provides extensive training for its network specialists.

Specialization. If there's one word that captures the contemporary challenge of customer support, that's it. Network systems today are like high-tech Tinker Toys: start with a computer system made up of hardware and software from a half-dozen or more vendors, and then transmit the data in

your system over a maze of telecommunications services.

How do you support such a web of diverse products and services from multiple vendors? By offering a range of network-support services which covers all phases of a customer's network needs from design to implementation.

For example, one of these services is HP NetAssure. This gives customers a single contact point to identify and correct problems—even if the problem is in another vendor's equipment.

"Basically, that means that HP is monitoring our lines and all of our telecommunications hardware," says Joe Bournat, management-information-services director for Hertz Europe Ltd., the giant car-rental company.

"In the event of any failure," he notes, "HP has the capability of identifying it and correcting it. If necessary, they will notify the local Hewlett-Packard office on a country level and correct the problem as soon as possible."

Adds Fredy Dellis, president of Hertz

International Ltd., "The payback we get from that investment is measured in terms of customer satisfaction, how fast we process our transactions and the fact we are able to handle much more volume without adding a lot of manpower."

HP equipment and network support also help keep the Singapore Stock Exchange operating smoothly.

"In a trading day, we can do \$100 million to \$200 million worth of shares in a four-hour trading period," says Paul Phillips, data-processing manager for the exchange. "If the network is down for one hour, it could cause \$25 million to \$50 million worth of lost trading... which could translate to hundreds of thousands or millions of dollars worth of commissions lost in the industry. So it's critical that the network be up the whole day so we don't have these sorts of problems."

In addition to customer testimonials, HP has a raft of surveys which support its industry-leadership position.

Based on results which HP compiled from minicomputer surveys by Data-



pro, a market-research firm. HP ranks No. 1 among industry leaders in overall support satisfaction for the sixth consecutive year. Survey results were averaged across six key categories: maintenance effectiveness, maintenance responsiveness, troubleshooting, documentation, education and software support.

"Now we can examine our worldwide results and respond quickly to those issues."

While those surveys provide some indication of how HP stacks up with its competitors, three company surveys conducted in each of the past two years provide more important results:

- A yearly service-center survey asks customers in the U.S., Europe and Intercontinental to rate HP on repair, calibration and administration.
- An annual worldwide customer-support survey measures HP's service in areas such as workstation and system hardware, software and response-center support, and customer-education services.
- The corporate customer-satisfaction survey asks customers worldwide about HP's performance in areas such as educational services, sales interactions, information and literature, product documentation, delivery and cost of ownership.

"In the past, most countries and sales regions conducted their own surveys," notes Karla Williams, program manager for WCSO customer-satisfaction surveys. "We did not have a global picture of HP's support performance from the customer's viewpoint. Now we can examine our own worldwide survey results to identify worldwide, super



A key to HP's support success is the extensive training support engineers undergo. The training gives them the ability to think broadly about the root of a problem.

region and local issues—and respond quickly to those issues at each level of the support organization."

With the survey results, area managers can follow up with plans to address specific issues customers have raised.

"The surveys help us improve our services each year, and help us identify and respond to specific customer needs," Karla says.

Keys to HP's success in the area of customer support are the people and the training they receive as support engineers. This gives them the ability to think broadly about the root of the problem, says Roger Costa.

"Sometimes you expect the problem is 'A' and it turns out to be 'B' and 'C,'" he explains. "If you don't have the training and the ability to look at the larger aspect of the problem, you could misdiagnose the real problem."

The high cost of losing a customer

- For every customer who complains, 26 others remain silent.
- 91% of unhappy customers will never purchase goods or services from you again.
- The average "wronged" customers will tell eight to 16 people.
- It costs about five times as much to attract new customers as it costs to keep old ones.
- Solve customer complaints and 82% to 95% will continue to make purchases.

(Source: Technical Assistance Research Programs, Washington, D.C.)



Atlanta, Georgia, houses five main support functions, including a North American Response Center, customer network center, customer-education center, application-engineering project center and repair depot.

(ALAN THOMAS)

In April, Marc Hoff, general manager of the Application Support Division, announced a new software-support program which features three levels of service:

- **HP BasicLine**—Customers with a software materials level of support now have electronic access to important problem-solving information to increase system uptime and productivity.
- **HP ResponseLine**—Customers receive all of the HP BasicLine support plus new features, including telephone assistance for questions about software use, clarification about software documentation, or resolution of software problems.
- **HP TeamLine**—Customers receive a personalized level of software support along with all of the features of HP ResponseLine and HP BasicLine support. An HP support consultant works directly with a customer team to tailor support to the customer need.

"Our goal is to give customers the same level of support in Singapore, Japan and Paris that they would get in downtown San Francisco or Los Angeles," says Mike Leavell.

For Gene Bradley, another support engineer at the North American Response Center, downtown San Francisco was exactly the site of a recent customer-support problem. A major California bank was having difficulty running credit reviews and checking other programs on its system at the same time.

"I checked our solutions database and found an example of a program they could run on their system and faxed a copy to them," Gene says. "One look at the example and they knew what to do to solve the problem."

"We can solve about one-third of the problems we receive by finding a similar problem we've solved, then communicating that example to the customer.

You can solve another third just by 'walking' them through the program step by step. The other third are more complex problems where we try to duplicate the problem the customer has, then work the problem until we find the answer.

"The solution can be minutes or hours away—and every call is different. But that's what I like most about customer support. Every call tests your ability to diagnose a problem quickly and provide the right solution to get the customer back on track. We're in the solutions business."

—Jay Coleman



Posters for the original 1940 release of *Fantasia* (left) and the 1992 digital release (right) show the emergence of Mickey Mouse from supporting actor to acknowledged star. HP audio oscillators helped make the movie classic.

What a Mickey Mouse way to start a company

Once upon a time, Bill and Dave sold their first audio oscillator to Walt Disney Company for the making of *Fantasia*, and then Bill and Dave and all 93,000 of their employees lived happily ever after.

In late 1940, Bill Hewlett and Dave Packard were well on their way to building their own version of the Magic Kingdom. They'd outgrown the garage and all was Zip-A-Dee Doo-Dah right with the world.

A year earlier, their very first sale had been an order of eight Model 200B audio oscillators to Walt Disney Company, which was in the final stretch of its Olympian effort to create the movie *Fantasia*.

Late 1940 was a little more tense for Walt Disney. *Fantasia* had been two years and an astounding \$2.3 million in the making. It all started in 1938 with a Mickey Mouse short subject of "The Sorcerer's Apprentice," which cost \$125,000 to make. To recoup this investment, Walt Disney and conductor Leopold Stokowski decided to make the cartoon one part of a longer concert feature.

Fantasia premiered on November 13, 1940, at New York's Broadway Theater, one of only 12 theaters in the world specially equipped to run it with an expensive "Fantasound" sound system with 56 speakers.

The unthinkable happened. *Fantasia bombed*. Disney's first commercial failure had a lot working against it. With only 12 theaters capable of showing it, says Disney archivist David Smith, Disney's staunchest fans in Middle America didn't have much access to it. There were distribution problems at RKO Radio Pictures. World War II interfered with foreign markets.

And some people just plain didn't like it. It was *too* different. Walt Disney had hoped to make classical music accessible to his regular cartoon fans, but also wanted to appeal to a more highbrow crowd, those who scoffed at animation as an art form. The seven sequences of *Fantasia* merged imaginative animated images with some of the world's best music, as performed by Stokowski's Philadelphia Orchestra. For example:

■ In Tchaikovsky's "The Nutcracker Suite," sugar-plum fairies use dew drops to wake up other fairies, mushrooms become Oriental dancers, and

thistles and orchids become Russian dancers in Cossack clothing and peasant dresses.

■ In the most famous sequence, Paul Dukas' "The Sorcerer's Apprentice," Mickey Mouse borrows the sorcerer's magic hat and teaches a broom to do his water-fetching chores. As Mickey lazily dozes, the broom relentlessly carries water buckets back and forth until the entire room is flooded. When Mickey awakes in waist-deep water,

he goes after the broom with an ax and each splinter becomes a maniacal water-carrying broom. While Mickey searches for the antidote, Yensid the sorcerer returns to the castle, makes the water disappear and swats Mickey with the broom for his mischief. (Stokowski used Disney's own musicians for this one sequence.)

■ Stravinsky's "Rite of Spring" becomes a fiery metaphor for the creation of Earth, complete with volcanoes,

10 fun *Fantasia* facts

☛ The sorcerer in *Fantasia*'s "The Sorcerer's Apprentice" sequence is named Yensid. Hold that up to the Wicked Witch's mirror and see what it spells.

☛ More than one million drawings were done for the film. That resulted in approximately a 4.5-to-1 ratio between drawings created and used.

☛ There was some thought given to casting Dopey of the Seven Dwarfs as the sorcerer's apprentice, but Walt Disney hoped Mickey's appearance would boost his waning popularity.

☛ Mickey Mouse had pupils in his eyes for the first time in his appearance in "The Sorcerer's Apprentice."

☛ A strange thing happened in movie theaters when *Fantasia* was re-released in the early '60s. During "The Dance of the Hours," kids in the audience ("little Philistines," according to Los Angeles County Museum of Art's Ron Haver) spontaneously sang along to it with the words from then-popular "Hello Muddah! Hello Fadduh!," a song by Allan Sherman about going to camp.

☛ One scene in "Pastoral Symphony" was cut before the 1969 re-release and will probably never be seen again. Following the "humor" of the time, one of the little centaurettes, drawn as a pickaninny, shines

the hooves of the other centaurs. Deemed "racially sensitive," says David Smith, the images disappeared from the film.

☛ *Fantasia* is a musical term for a composition in a fanciful or irregular form or style.

☛ A sequence based on Debussy's "Clair de Lune" was part of *Fantasia* until mid-1939, but was shelved until it appeared in Disney's 1946 feature, *Make Mine Music*, under the title "Blue Bayou." In the '50s, "Blue Bayou" was broadcast on the Disneyland television show as the first stereo broadcast on television. The original Stokowski soundtrack came through the TV speaker and viewers were invited to tune into an AM radio station for stereo sound.

☛ Even the intermission feature of *Fantasia* was designed to entertain. The Sound Track—a shy, embarrassed little pattern of squiggles—is introduced to the audience by the narrator, and coerced into showing the audience how he makes his sounds.

☛ To celebrate Mickey Mouse's 60th birthday this year, the country of Bhutan in Asia's Himalayan Mountains issued 12 stamps and 12 souvenir sheets featuring highlights of Mickey's life. One of the stamps is Mickey as the sorcerer's apprentice in *Fantasia*.



earthquakes, floods, fish, dinosaurs and prehistoric birds.

■ Beethoven's "Pastoral Symphony," written by the composer to evoke the feelings of a day in the country, becomes a mythological lovefest, complete with a soused Bacchus, lightning-flinging Zeus and arrow-slinging Diana.

■ Amilcare Ponchielli's "Dance of the Hours" brings together ostriches, elephants, crocodiles and hippos in tutus and toe shoes for an exuberant dance that crumbles the iron gates of the hall they're in.

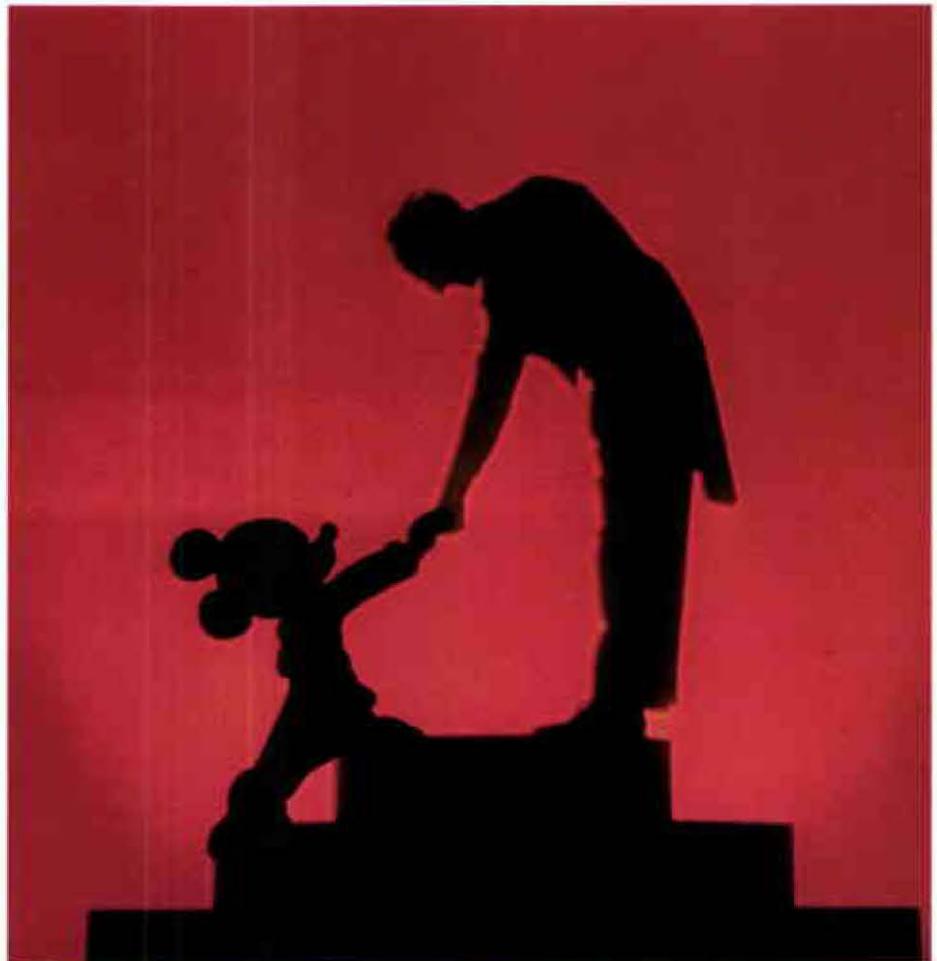
■ In a classic good vs. evil mode, Modest Mussorgsky's "Night on Bald Mountain" becomes a terrifying whirl of demons, devil bats and lizards that is stilled by morning church bells and Franz Schubert's "Ave Maria."

Though Disney has been more than vindicated since the show's dismal premiere, critics at the time claimed he had "bastardized" the classical music used in the production. "People in the music field especially felt it was sacrile-

"People felt it was sacrilegious to foist on an audience a picture of what music is supposed to be evoking in your mind."

gious to foist on an audience a picture of what music is supposed to be evoking in your mind," says Disney's David Smith. "They felt each person should be free to picture his or her own vision of what the music means."

But there were lots of fans, too. Many of them raved about the 1940s' state-of-the-art Fantasound. Disney's effort to make the music sound like a live performance. In his book, *Walt Disney's Fantasia*, John Culhane



Mickey Mouse congratulates Leopold Stokowski for conducting "The Sorcerer's Apprentice"—perhaps the most famous *Fantasia* sequence.

explains that Stokowski recorded each section of his orchestra individually, then mixed the nine separate optical tracks on four master tracks.

"These tracks," Culhane writes, "were heard by the audience for Fantasound from three sound horns behind the picture screen instead of the usual one, plus 56 small house speakers placed strategically through the auditorium. Thus, when a muted horn in 'The Rite of Spring' heralds the approach of Tyrannosaurus Rex, the horn sounds from the auditorium, far from the screen. As the monster comes closer to the screen, so does the horn call. When he crashes into the clearing, there is crashing dissonance issuing from the very point on the screen where he appears."

Disney engineers used HP Model 200B audio oscillators to test the various channels, recording equipment and speaker systems in the theaters that showed the film. The costly Fantasound installations for *Fantasia* were abandoned as early as 1941 though Disney continued to use the HP audio

oscillators until the early 1980s.

Turns out that Walt Disney was just a decade or two ahead of his time. When the film was re-released in 1956 with the original optical Fantasound tracks re-channeled on four-track magnetic film, it made money for the first time, says Disney's archivist. It's been re-released seven times—in 1946, 1956, 1963, 1969, 1977, 1982 and 1985.

In 1969, it entered cult-film status when the "flower children" embraced its wild images—especially, wink, wink, the dancing Oriental mushrooms in "The Nutcracker Suite"—as the ultimate psychedelic experience. A 1970 *Newsweek* magazine "Life and Leisure" segment called "Tripping on Disney" stated: "When Walt Disney produced *Fantasia* 30 years ago, KEEP OFF THE GRASS still meant keep off the grass. Now it means NO POT ON THE PREMISES, and the old master of mass-media fantasy would probably be amazed by the hippies and heads

who are making *Fantasia* the season's hit revival."

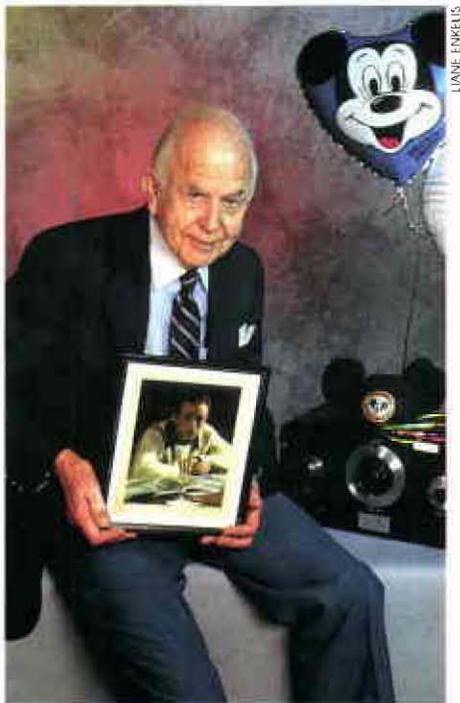
In 1982, the Stokowski soundtrack was re-recorded by Irwin Kostal in digital and Dolby stereo. But Stokowski will be back when *Fantasia* hits the theaters in November 1990 for its 50th-anniversary celebration, says Disney archivist David Smith. The original sound track is being "de-noised" by Disney engineers to remove the pops, scratches and hisses, much the same treatment *Gone With the Wind* got for its 50th-anniversary release this year. Ron Haver, director of film programs at the Los Angeles County Museum of Art and *Fantasia*-phile extraordinaire, hopes Disney will also reinsert snippets that have been cut through the years.

He's especially hopeful that the folks on-screen introductions to the sequences by Deems Taylor, a respected music critic of the time who was well known for his radio broadcasts for the Metropolitan Opera, will be included in *Fantasia* again.

The adventurous, pioneering spirit that Walt Disney shared with the world through film classics like *Fantasia* has returned to the company after some rocky years following Walt's death in 1966. The '80s have positively sizzled under the direction of Chief Executive Officer Michael Eisner (who has been called more Walt than Walt). Disney's \$10 billion market value is by far the largest of all the entertainment companies. In the last four years, annual revenues have increased 150 percent to \$3.4 billion in 1988, while profits have more than quintupled to \$522 million in 1988.

Walt Disney Studios and its grown-up subdivision, Touchstone Pictures, have turned out one hit after another with last year's *Good Morning Vietnam*, *Three Men and a Baby* and *Who Framed Roger Rabbit*, and this summer's *Dead Poets Society* and *Honey, I Shrunk the Kids*.

Happily, HP still has a small place in Disney's Cinderella success story. In 1982, Walt Disney Productions used an HP 9826 desktop computer and HP 1000 computer to create many of the animated special effects for the futur-



Bill Stancil helped Norm Neely and Johnny Hawkins complete the deal.

The missing link

How did the successful Walt Disney Productions first hear about Bill and Dave's audio oscillator? William Stancil had been working as a "sound man" for MGM and Goldwyn Studios, but left studio work to establish his own garage laboratory. One of Bill Stancil's good friends, George Downs, told him about a terrific oscillator he'd seen at the 1938 IEEE convention. George drew Bill a picture of the audio oscillator and suggested he get in touch with Norm Neely, father of HP's Neely Sales Region, and Johnny Hawkins, a Disney engineering consultant working on *Fantasia*. Bill Stancil went to work for Norm Neely as a sales engineer, helped get the Disney audio oscillator sale from Johnny Hawkins—and the rest is history.

Bill Stancil worked for Norm Neely for less than two years, but came into successes of his own. He soon started his own company, Stancil Corporation, which for 42 years has made multichannel voice recorders used by police, highway patrol and fire departments, as well as stockbrokers, financial institutions, money exchangers and racetracks.

Approaching age 80, Bill Stancil still reports to work every day and cherishes his special HP connection. "I framed my business on the logic those two guys had," he says. "I've used their methods as a Bible for my own company."

istic movie *TRON*, significant in the industry for being the first film to make extensive use of computer imaging.

John Murray, sales rep at HP's Calabasas, California, office, says Walt Disney Productions now uses three HP 9000 technical workstations to create animated productions, most recently for *The Little Mermaid*. Two of the HP workstations are in the new Disney film studios in Orlando, John says, where the hordes of tourists can walk by and watch the HP 9000s at work. Disney also uses many HP plotters and printers, as well as an HP 9040 Series 500.

Beyond film entertainment, there are the cash-machine amusement parks: Disneyland in Anaheim, California, Disney World in Orlando, Florida, and Tokyo Disneyland. A major new attraction, the MGM-Disney Studio Theme Park, opened in Orlando this May and Euro-Disneyland, 20 miles outside of Paris, is on its way. There is the popular cable Disney Channel. There are hotels and resorts, and a burgeoning network of retail stores that sell Mickey Mouse sweat shirts and Goofy night lights. Disney is developing a satellite broadcast system in Europe with Rupert Murdoch, called Disney Channel and Sky Movies.

Disney's fairy tale is far from over. The sleeping giant recovered from Walt Disney's death in 1966 and is awake, hot, in touch with the American pulse and as lovable as ever. Stay "tooned."

—Jean Burke Hoppe

(Free-lance writer and lifelong Mouseketeer Jean Burke Hoppe last wrote for *Measure* in the July-August 1988 issue on the way we communicate. Like entertainer Michael Jackson and his celebrated single-gloved hand, Jean has been known to wear mouse ears for no apparent reason.—Ed.)

Through strategic alliances, joint ventures and consortia, HP and its many teammates are

Pulling together to win in the marketplace



DION SMITH/ALLSPORT USA

Look at the relationships today between HP and American Telephone & Telegraph (AT&T), and you'll find them complex, changing and very confusing.

■ **AT&T is a solid HP customer.** AT&T is HP's largest commercial major account, and HP sales to AT&T have been consistently growing at faster rates than HP's overall business. HP President John Young makes regular sales calls on the international telecommunications giant.

■ **AT&T is a good HP supplier.** It is HP's dominant long-distance carrier, handling upwards of 5.2 million minutes of long-distance calls each month. More than 80 HP facilities use AT&T hardware for their telephone switchboards.

■ **AT&T is an ally.** For example, HP and AT&T are working together on joint research projects to develop the market for next-generation telephone networks—ISDNs or Integrated Services Digital Networks—that will carry voice, data and video at the same time.

■ **But AT&T is also an adversary.** AT&T sells computer systems that compete with some HP models. And AT&T has been working closely on future releases of its UNIX* operating system with Sun Microsystems, HP's largest competitor in the workstation market. AT&T's relationship with Sun was one factor that encouraged HP, IBM, DEC and others to start the Open Software Foundation to offset AT&T's attempts

The many forms of teamwork

Working together can take many forms—from a total purchase of another company, as HP did with Apollo, to merely belonging to the same industry association.

Here are some real-world examples of ways that HP has teamed up with others to compete in an increasingly complex marketplace:



HP-AT&T-Siemens
Announced agreement to supply interchangeable fiber-optic components that comply with international computer networking standards. Each company will develop, manufacture and market its own transceivers to meet Fiber Distributed Data Interface (FDDI) standards.

to control the future of UNIX.

Confused about the relationships? You're not alone. Hewlett-Packard and many other companies are finding that to compete in today's marketplace, you've got to team up with others. Sometimes your partners will be your best friends, sometimes they may be your most bitter rivals.

Fortune magazine reports that in the 1980s, U.S. companies formed more than 2,000 alliances with European companies alone. In 1988, for example, HP struck deals with four telecommunications companies. In May, HP and Northern Telecom announced an agreement to design networks using both companies' products. In June, HP bought a minority interest in an Italian firm, NECSY, that builds measurement instrumentation systems for maintaining telecommunication networks. In July, HP bought 10 percent of Octel Communications, a voice-processing firm. And in August, HP formed a partnership with Australia's telephone company (see story on page 15).

"None of these recent relationships is particularly large," Bob Wayman, HP's chief financial officer, told security analysts last year. "But each represents an important new direction, an important new strength for the company. In the very broad information-management marketplace in which we compete, there are opportunities to team up successfully with other companies."

The rewards for such teamwork are

easy to define. HP and others are looking for technological superiority, manufacturing competitiveness, marketing clout and ultimately, for customers. (See John Young's message, page 25.)

Spreading R&D's risks

HP has long enjoyed a reputation for pioneering some of the world's finest technologies—the first handheld scientific calculator, the frequency counter and the audio oscillator. Traditionally, the company spends about 10 cents of every dollar in sales on research and development.

But to make those R&D dollars go even further today, HP is part of consortia, university partnerships and joint ventures.

For example, in June HP announced its plans to join DuPont and the Los Alamos National Laboratory in a technical program to develop thin-film, high-temperature superconductors for electronic components. The collaborative effort will involve the equivalent of 25 or more researchers and an estimated \$10 million worth of equipment and facilities. Work will be done at the existing facilities of the three parties, including HP Labs' Deer Creek facility.

In its quest to bring superconductor applications to the commercial market, this new consortium goes head-to-head with a similar one established earlier this year by IBM, AT&T and the Massachusetts Institute of Technology (MIT). A U.S. presidential advisory committee

recommended the formation of four to six such groups involving universities, government and industry to improve the country's competitiveness in superconductivity.

These partnerships, while a growing trend, have to overcome a natural reluctance to share ideas. Traditionally, R&D groups have looked down their noses at others' ideas. Technology that was "not-invented-here" was often treated with scorn.

A major turning point in that attitude was IBM's effort to develop the personal computer in the early 1980s. Rather than design the machine and its software in-house, Big Blue turned to others for help: the microprocessor came from Intel, the operating system from Microsoft, the disk drives from Seagate and the drive controllers from Western Digital. The results: the IBM PC became the industry-standard personal computer almost overnight, and everyone started looking for partners.

Finding a DRAM answer

IBM is again sharing its expertise by taking the lead in creating a new chip-making arrangement called U.S. Memories Inc. It's a \$1 billion venture to manufacture dynamic random-access memory chips, or DRAMs.

Seven U.S.-based companies (IBM, HP, Advanced Micro Devices, LSI Logic, Intel, National Semiconductor and DEC) plan to pool their monies in a separate company to build a state-of-



HP—Eon

Acquisition of a small company which makes network management products. The organization, now known as the Intelligent Networks Operation, is part of the Colorado Telecom Division. The first product is the LAN Probe for Ethernet local area networks.



HP—Hitachi

Joint development of new, higher-speed chip set based on HP's RISC (reduced-instruction-set-computing) technology and Hitachi's advanced semiconductor and circuit-design technology. HP also has signed an agreement with long-time Korean joint-venture partner Samsung Electronics.



Biotechnology Research and Development Corp

HP—American Cyanamid—Amoco—Dow—Ecogen—International Minerals and Chemical—Agricultural Research and Development Group to conduct biotechnology research, for example, to find an environmentally safe pesticide made from natural plants.



HP—Matsushita

Joint venture to produce the HP 7600 series of electrostatic plotters. Instead of using a pen, electrostatic plotters use patterns of electrical charges which attract toner to paper, much like a photocopier or a LaserJet printer.

Pulling together

the-art plant to provide its members with a stable supply of DRAMs. The chip will be based on a first-generation 4-megabit DRAM design from IBM.

In recent years, control of the market for DRAMs had moved into Japanese hands. U.S. companies, trying to figure out how not to let Japanese suppliers dominate the market, hit upon U.S. Memories as an answer.

There are still obstacles before the cooperative effort, announced in June, becomes a reality: settling anti-trust questions, recruiting still more companies, collecting capital from them, choosing a site and building a factory. But one newspaper report calls the cooperation excellent. "Never before has the American electronics industry been so willing to set aside its internal rivalries to face a common threat."

Helping out overseas

But cooperative ventures can also help improve a company's overseas presence and tap a new pool of engineering talent.

HP and Tsinghua University in the Peoples' Republic of China set up a cooperative software development effort in 1987. The two worked together on software for HP's Precision Architecture computer products. Tsinghua is often called the MIT of the PRC.

Herb Blomquist, manager in HP's Information Architecture Group, says the project was a complete success and HP now has "an improved math-library

software product with additional capabilities that were produced at a significantly reduced cost and in a much shorter time frame than resource availability at HP would have allowed."

Moving toward standards

One of the most compelling reasons in the electronics industry to enter into alliances is to find ways to make your products work with everyone else's.

Customers insist that they be able to hook together machines from dozens of vendors and have them perform.

That concept is clearly understood at HP. The company has believed in following and setting standards for a long time. For example, the HP interface bus (HP-IB) was adopted in the 1970s as the international standard to hook together instruments, computers and peripherals. HP has almost 200 people actively involved in standards-setting bodies throughout the company. HP's computer-networking strategy is based on industry standards. A fast-growing piece of HP's support business is servicing multivendor computer environments.

A major effort is under way in HP to support two new standards, VXibus and Modular Measurement System (MMS), in the computer-aided-test industry. VXibus ties together digital and high-performance analog test instruments while MMS works with high-performance RF and microwave equipment. HP hopes to link the two

complementary standards through the HP MTS (Modular Test System) which may someday become its own standard.

But nowhere is HP's commitment to standards more important than in the "UNIX Wars."

On one side is the originator of the operating system, AT&T. AT&T licenses UNIX to hundreds of companies including HP. In turn, HP has developed its own version of UNIX called HP-UX which is modified to add capabilities and to get peak performance from HP computers.

Long-standing complaints by HP and others about AT&T's licensing policies boiled over when a major workstation competitor—SUN—announced it would get preferred AT&T treatment.

So to maintain a level playing field, HP, Apollo (now a part of HP), IBM, DEC, Nixdorf, Siemens and Groupe Bull formed the Open Software Foundation (OSF) in May 1988. To date, OSF has signed 155 others to the cause, including two additional sponsors—Philips and Hitachi. OSF plans to develop a completely open software environment and a new operating system, including technology from IBM and others. Unlike AT&T, OSF won't have restrictive licensing. OSF's first product, the MOTIF user interface which offers the "3-D look" developed by HP, has already been released to rave reviews.

In a counter-move, AT&T, Sun, Amdahl, Fujitsu, NCR, Unisys and



HP-3Com

A strategic alliance for joint development, marketing and servicing of network and software products based on international standards. HP can purchase up to 5 percent of 3Com's stock.



RACE

(Research and Development Program in Advanced Communication Technologies for Europe)

HP-Ericsson-Clemessy-Advanced Systems Architectures—and more than 100 others

Program run by European Economic Community to develop integrated voice, data and video networks to be used throughout Europe in the 1990s.



HP-Varian

Working together, have developed a process called metal-organic molecular beam epitaxy (MOBRE) to make high-electron mobility transistors (HMET)—the fastest and lowest-noise transistors in use today.



Open Software Foundation

HP-IBM-DEC-Bull-Nixdorf-Siemens-Apollo (now part of HP)-Philips-Hitachi and now 150 others

Developing a new "open" computing environment, based on a UNIX derivative, without AT&T's restrictive licensing practices.

23 others formed UNIX International—a users' group to influence the future direction of AT&T's division responsible for the operating system: the UNIX Software Organization.

But to make matters more complex, some companies have decided to play it safe by joining both sides. For example, Data General is a member of both OSF and UNIX International.

While the battle lines may be clear between rivals UNIX International (UI) and OSF, no battle lines are needed in the case of a third UNIX consortium called X/Open. Its members include all major members of UI and OSF, as well as those organizations themselves. X/Open's mission is to propose standards via portability guides so software written for one version of UNIX can easily run on other brands of machines. HP was one of the first companies to pass X/Open's test suites, which earned it the right to use X/Open's trademark on its HP-UX products.

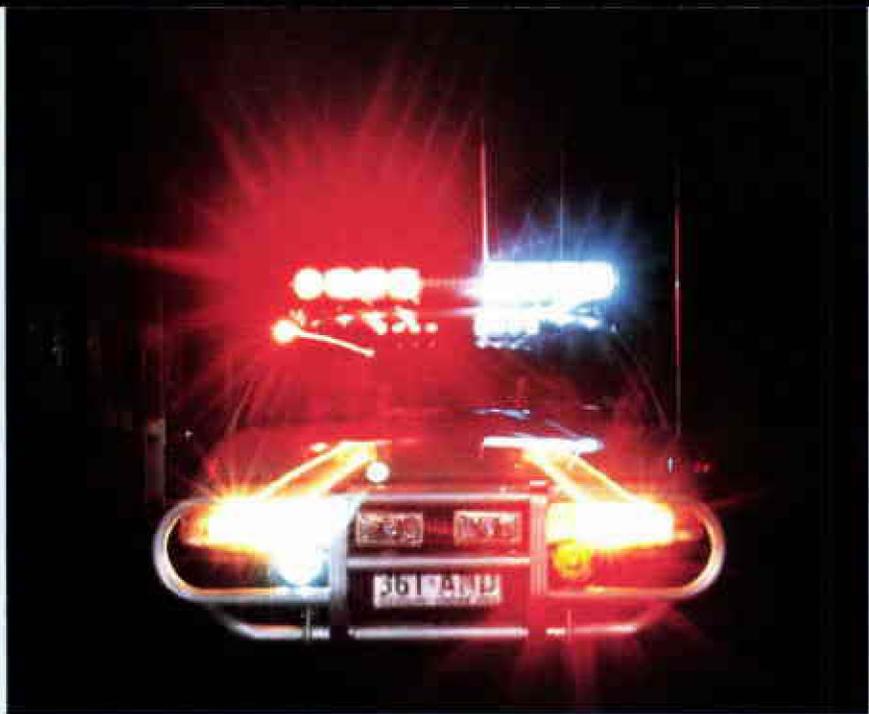
Kathryn Harrigan, a professor of strategic management at Columbia University, told *Fortune* magazine that these arrangements are a necessity. "Within a decade, most companies will be members of teams that compete against each other."

But regardless of motive, HP must learn that alliances are here to stay. "Our success depends not only on what we can do ourselves," says John Young, HP president, "but on what we achieve with others." —Brad Whitworth



UNIX International
AT&T—Sun—Amdahl—Fujitsu—
NCR—Unisys—and now 23
others

Developing a standard version
of AT&T's UNIX operating system
around Sun's RISC technology.
Should speed sales of UNIX
computers, benefiting AT&T and
Sun's efforts to grow in the
computer business.



A \$1.5 million joint-venture sale in Australia: the Queensland state police.

Unusual arrangement spurs HP computer sales in Australia

On a continent known for unusual animals like kangaroos and koalas, HP has a special arrangement in the company it formed with Australian Telecom in August 1988.

Hewlett-Packard sold half interest in its commercial-computing business in Australia to the government-controlled telephone company in return for access to Telecom's top corporate customers. The two "parents" are sharing the risks and the profits from the company equally.

One technology writer in Australia called the arrangement "a coup" for HP because it now owns "half of the only company in this country that can supply all of a company's computer and telecommunications needs until deregulation of the telecommunications market. This is likely to give HP a solid, two-year 'window of opportunity.'"

HP's other businesses in Australia—test-and-measurement instruments, technical computers and other products—weren't affected by the deal.

The new company, Telecom/Hewlett-Packard Pty. Ltd., operates out of HP's Melbourne headquarters and will have two HP execs and two Telecom execs on its board. But because Telecom has offices throughout the country, HP's "reach" in the Australian marketplace has been extended.

For nearly two years, Telecom had been looking for a partner to offer computing solutions to its cus-

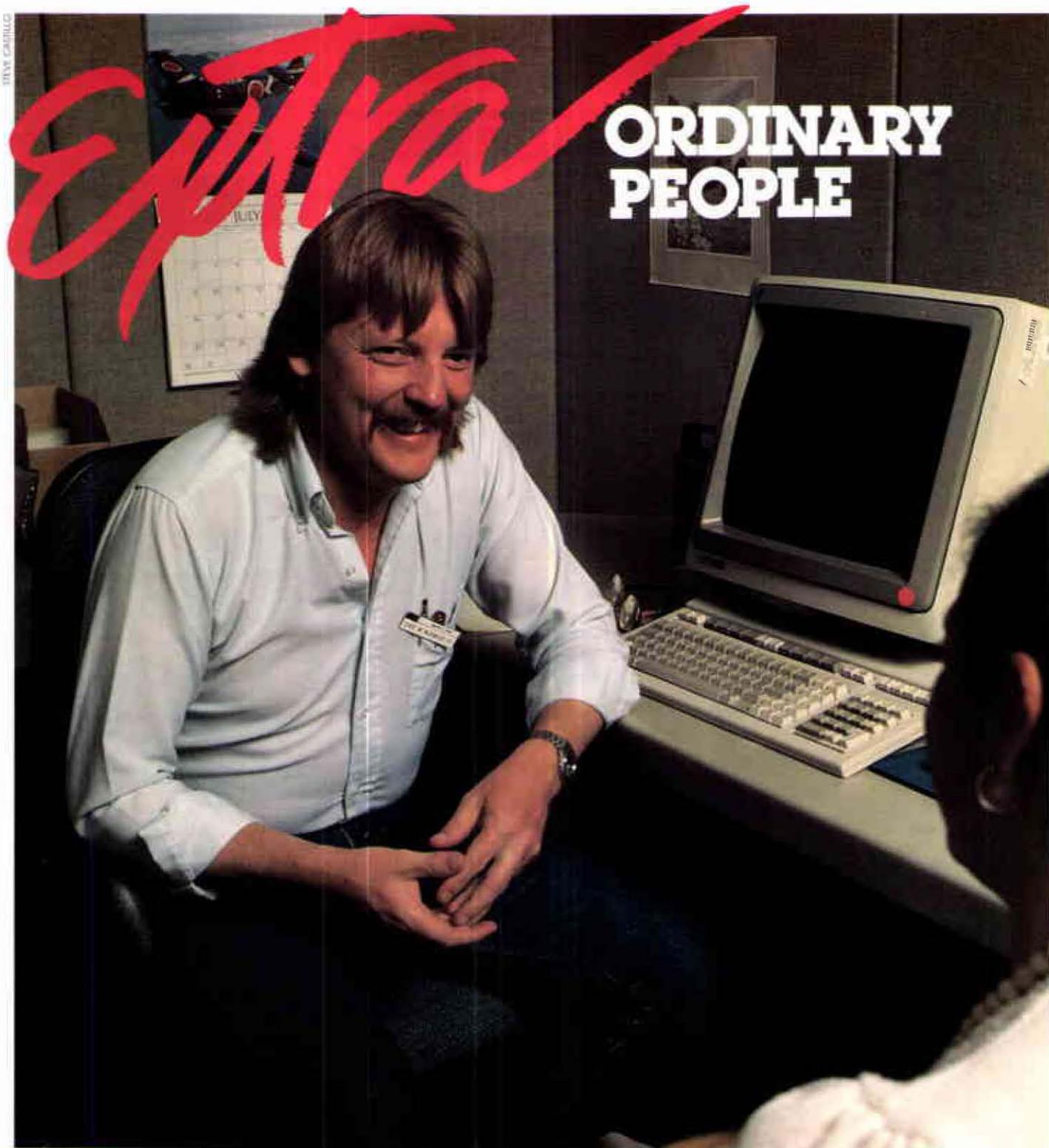
tomers along with its telecommunications networks. It looked at about 50 possibilities (including Australia's two largest players—IBM and DEC) before picking HP. Two reasons Telecom felt HP would be its best partner: complementary networking strategies and both firms' support of international standards.

Is the partnership working? There's been one big payoff already. Telecom and HP have been awarded a \$1.5 million (U.S.) contract to supply a computer-based command-and-control system for the state police force in Queensland.

The system will enable dispatchers to instantly obtain names, addresses, telephone numbers, criminal records, vehicle identification and other information from a computer when responding to a call, and then relay this information to police officers in the field.

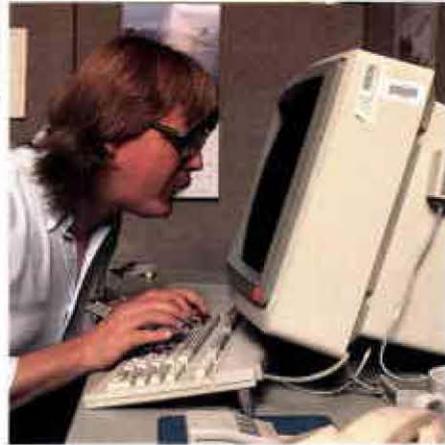
Eventually the mobile and foot patrols will have portable terminals to display electronic maps, fingerprints and photographs.

But even the new 50-50 partnership needed the help of others to clinch the deal. BHA Computer will serve as the local system integrator, Peat Marwick Hungerfords will provide quality-assurance and service-introduction consulting, and Sybase Australia Pty. Ltd. will provide the relational database management system upon which the application is based.



An automobile accident nearly 20 years ago left HP Labs' Earl Norwood legally blind—and turned his life around.

Earl Norwood gets a second chance



Even with only 12 percent vision, Earl excels as an associate systems administrator.

There are two Earl Norwoods. The dividing line between the two is like a curtain of time that separates two distinctly different personalities.

On one side of the curtain is a 20-year-old auto mechanic who could think no further than grabbing a dozen beers at a local liquor store at day's end.

On the other side is a responsible adult: a contributing and highly respected HP employee: a talented and joyful musician.

What separates the two is a disastrous auto accident almost 20 years ago that left Earl legally blind.

"I think of that accident," says Earl, "as a dividing line between wasted youth and responsible adulthood. I went from being a drunken gas-station attendant to thinking, 'I want to be a real person, a good person, someone with dreams and plans.'"

The accident, as positively as Earl views it today, nearly killed him. It happened on Highway 1, about 10 miles south of Half Moon Bay in the San Francisco area. Earl was driving and there were four others in the car. He doesn't remember all this too clearly ("The mind is a wonderful thing and mercifully forgets," he says.), but he understands he blew a tire, lost control, hit a ditch and destroyed the car.

The others suffered minor injuries, but Earl ended up with a skull fracture, a crushed and shredded lung and a severed main artery in his stomach.

And when he came to after many days in a coma, he discovered he was almost completely blind.

"I'm alive. I've made it."

"It's strange," says Earl, "but when I realized I couldn't see and that it wasn't likely to change much, it didn't terrify me. All I remember thinking was, 'I'm alive. I've made it.'"

In the ensuing days in the hospital, Earl began to rethink his life. He realized he didn't like the old, pre-accident Earl. "That Earl," he remembers, "was a wild, irresponsible kid. He was heading nowhere fast."

Earl's first memory in the hospital

was the sound from a radio. "I knew I was alive when I heard the music," he says. He had always loved music and intended to study it seriously. Now he decided to immerse himself and bought a bass guitar on the way home from the hospital.

He spent hours on the instrument studying with Rich Gerard, a well-known local musician, and learned enough to become a professional guitarist. He played engagements in the San Francisco Bay Area for two or three years.

Then Earl got married and realized there wasn't enough earning power in music to pay for food and rent. He knew he had to go back to school to learn how to net a decent income.

Sharon Connor, then in the California Department of Rehabilitation and today a personnel liaison with HP Labs, suggested Earl get an AA degree at Valley Technical Institute, a local trade school in San Jose, California. The Sensory Aids Foundation, a non-profit agency that helps the disabled, offered to fund Earl's education in the school's technician program.

"Something clicked. . ."

"Sharon took me down there," Earl says, "and I met a school representative. After talking to me he said, 'Forget it. You'll never make it.' Something clicked inside my head. It was like throwing down a gauntlet. I was determined to make something of my life." Earl graduated fourth in his class of 25 in the electrical-technician program and earned his professors' respect.

However, there was the matter of getting a job. Earl is legally blind. He has about 12 percent vision. And he realized that getting a foot in the door of a high-tech company wouldn't be easy.

"Let's give him a chance."

He interviewed at HP's Stanford Park Division (SPD) 12 years ago. "I sensed the apprehension that interviewers had about my ability to do the job," Earl remembers. "But in the end they said, 'Let's give him a chance.' And they made me an offer. I felt so lucky. There were so many other people they could have hired."

Earl's first HP assignment was testing and troubleshooting on the RF signal-generator instrument product line in SPD in Palo Alto. He delights in the fact that he was the first tech on the line to make standard time on certain sub-assemblies, which meant his average time was higher than anyone else's.

Although Earl enjoyed working on hardware, he became fascinated with software and took some programming classes. This propelled him to a technician's job in the Optoelectronics Division. When the division moved 20 miles south from Palo Alto to San Jose, Earl took a position as an associate systems administrator in Palo Alto's HP Labs, where he now works.

Despite a busy job, Earl missed the music. He met musician and HP employee Stephen Wallace when they both worked at Stanford Park, and the two put a band together to record Stephen's music. Earl tried to make a go of it in the rock 'n' roll scene. "I was killing myself," he says. "We'd rehearse every evening and play all weekend. It was tough."

The band made a recording and played at local clubs. But the late hours and the dismal night-club routine began to wear on Earl. "It suddenly soured for me," he recalls. "That whole drunken scene. There were nights some of the guys in the band were so drunk they couldn't stand up. It wasn't fun any more and so it was a great relief when the band died."

But the music didn't die for Earl.

He still plays in a band, still continues to record music and plays a few engagements a month. "Now," says Earl, "it's much more pleasant, low key, not like a career, but just fun."

Extra ORDINARY PEOPLE

“When I play I feel healthy.”

Earl never wants to be without music in his life. “The music is a great way of coping with being different, with being disabled. The music touches a kind of wholesomeness inside me. When I play, I feel healthy and strong.”

Earl admits that not seeing is difficult and often frustrating for him. Earl’s vision is measured at 20/100; 20/200 is blind. He has a kind of tunnel vision and sees parts of things and people at a time.

He can’t see traffic lights and has to rely on sound to judge how far away cars are. He can’t drive and get places he wants to go—especially at night—and he has to rely on others more than he likes. “It’s a frustration,” says Earl. “that I face every day. But my philosophy is that I have to do things on my own. Everyone has limitations. And you do whatever you can to take advantage of all the good in you and play down your limitations.”

Despite these sentiments, Earl seems to have a limitless capacity and energy for helping others. Recently, he helped nearby De Anza Community College get some donated HP equipment up and running. He recreated the college’s systems problems in his office. Then he solved them by searching through lines and lines of computer code. “It was like a fun puzzle. I enjoyed helping the school. I look for opportunities to help others and be a hero whenever I can.”

His supervisor, Andrea Chemu, doesn’t think of Earl as having any “handicap” at all. “He flies around here like he’s on remote control,” says Andrea, manager of systems administration for HP Labs. “His disability doesn’t affect what he does—he’s just a great employee. And he’s a delight to work with—a real “people” person—and is very independent.”

“He’s. . . a star. . .”

He’s also a real star, Andrea says. “We call him “the oldest living rock star,” she says with a laugh. “In everything he does, Earl is a star.”

Earl wouldn’t quite agree with that. But he admits that the new Earl is



Earl and fellow HP employee Stephen Wallace practice their music after work. “The music is a great way of coping with being different, with being disabled,” Earl says.

much better than the old one of 20 years ago. “I don’t think I would have liked the old Earl Norwood... the one before the accident. I think that Earl would have ended up a bitter and dejected person.”

The current Earl Norwood? “Now I feel good about what I’ve been able to do. Good about me. Good about where I am in life.”

—Shirley Gilbert

(Shirley Gilbert, communications manager at HP’s Cupertino, California, site, last contributed to Measure with a profile of Ken Sasaoka, YHP president and general manager, in the July-August 1989 issue.)

A history of caring

For 44 years, the U.S. has set aside a period in October to recognize employees with disabilities and to encourage more businesses to employ them.

Last year, Congress expanded the recognition program to a month-long activity. President Ronald Reagan changed the committee’s name to The President’s Committee on Employment of People with Disabilities, believing that using the proper term to describe people with disabilities helps lead to dignity and equality for all citizens.

HP has a long history of hiring people with disabilities. In addition to company activities such as management training and employee-awareness programs—which help non-disabled employees learn more about disabilities—HP sponsors career days and mentor programs to provide employment and counseling assistance for people with disabilities.

Steve Martin —a “wild and crazy” HP fan

He may be a wild and crazy guy on stage, but in private, entertainer Steve Martin is a very serious guy—and serious about his passion for HP equipment.

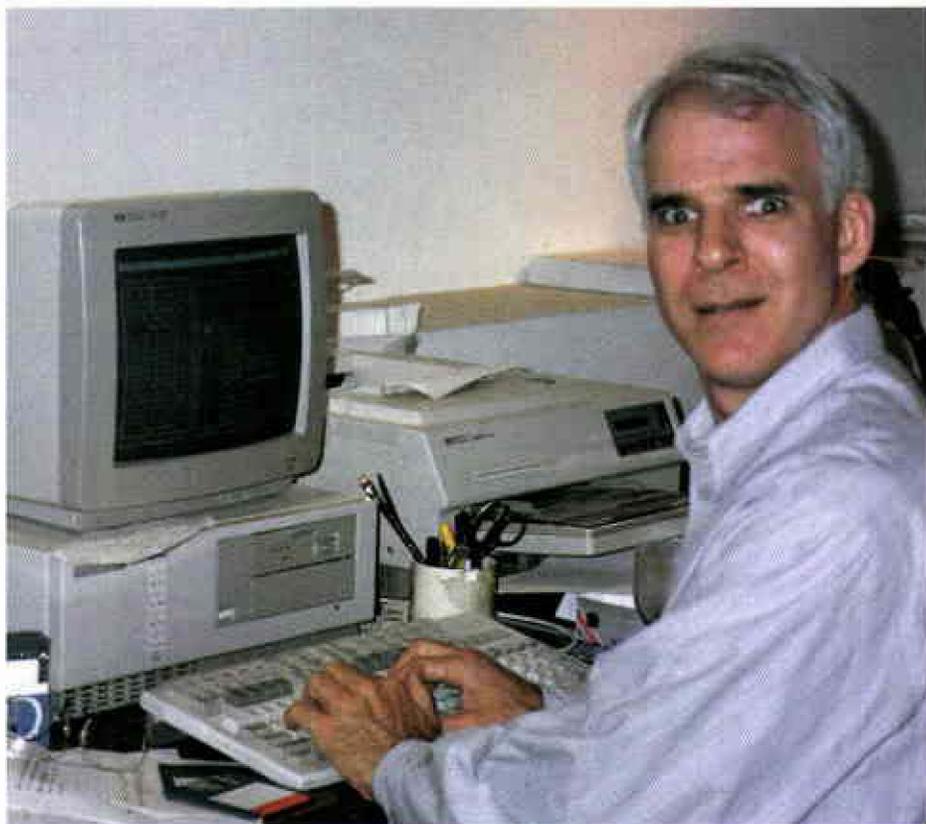
“I have lots of Hewlett-Packard equipment spread around various houses and apartments in Southern California and New York,” Steve told *Measure* during a July telephone interview from his Los Angeles office. “I have several QS/16s (HP Vectra computers) and LS/12s (laptop computers), HP LaserJet printers and so forth. Victoria (Steve’s wife, actress Victoria Tennant) gets my hand-me-downs.”

Steve’s love for HP equipment goes back more than three years when he first thought of buying a portable computer.

“I was thinking about buying a portable computer and a friend of mine told me about his HP Portable. I checked around and agreed it was the best, so I bought it. Ever since then it’s been money, money, money.”

Once a philosophy major at California State University at Long Beach, Steve became a household name in the early '70s by wearing a fake arrow through the head, balloon animals and bunny ears during on-stage comedy routines.

Since then he has recorded a gag song (“King Tut”) which sold more than a million copies; published a book of short stories (*Cruel Shoes*) that was No. 1 on the best-seller list; and starred in several successful movies, including a remake of *Cyrano de Bergerac*,



Obsessed with computers? No, says comedian Steve Martin, who mugs for the camera while using an HP Vectra computer and HP LaserJet printer in his Beverly Hills, California, home.

Roxanne, which he wrote.

In *Roxanne*, Steve plays a smart, likable fire chief with a nose about as long as a hook-and-ladder truck. An HP Portable PLUS personal computer plays a supporting role.

“I wanted the character to have a life at home,” Steve explains. “Originally in the script, he wrote some articles for the *Times* of London. But that didn’t make any sense, so we cut that out of the picture.”

“I wanted him to have a computer lying around with a bunch of scholarly books, so I brought my Portable PLUS for the movie. Actually, I use the Portable all the time. I used to go home at night and rewrite scripts, then bring in the PLUS to the set the next day to use during those long periods in between shooting.”

Steve says he uses one of the HP Vectra computers in his Beverly Hills, California, home to maintain his daily calendar. “The first thing I do in the morning when I get up is to check the computer and see what I’m supposed to be doing that day.” He also uses the Vectra to write letters and screenplays.

“One of my latest projects is *L.A. Story*, a (movie) screenplay I wrote. In fact, I wrote it entirely on HP equipment.”

Although Steve says he’s “strictly an amateur” when it comes to computers,

Ron Herman, owner and president of Blue Chip Computer Systems in Los Angeles — the computer store where Steve buys his HP equipment — says the silver-haired comedian is extremely knowledgeable about HP hardware and software.

“Steve comes in to Blue Chip about a half-dozen times a year and hides in a corner so no one sees him,” Ron chuckles. “He’s cordial, but very quiet. Three years ago, Steve knew nothing about computers, but we’ve turned him into a little hack—a real computer head.”

Why the fascination with computers?

“They’re very self-contained worlds of problem-solving,” Steve says. “If I wasn’t using the Vectra for writing, I’d probably still have a computer and play Pac Man or something.”

“It’s like music,” says Steve, an accomplished banjo player. “There are endless things you can think of to do with a computer. I’ll spend hundreds of hours trying to figure out how I can save a nanosecond. But obsessed? No.”

—Jay Coleman

YOUR TURN

Measure readers share their views on matters of importance with employees

(Not so) trivial pursuits

The May-June issue of *Measure* was excellent! I learned some very interesting bits of HP trivia in the 50th anniversary book of lists. Kudos to Vernon Andrews!

COLLEEN HEUTMAKER
St. Paul, Minnesota

Measure readers may be interested in knowing that Vernon—who has been the HP historian and visitor-relations coordinator—is putting his vast knowledge of trivia to good use. He has returned to the classroom to pursue a doctorate in sociology at the University of Wisconsin. Good luck, Vernon.—Ed.

What about DMK?

How refreshing it was to read about not another engineering or production site, but about the exciting world of distribution (May-June '89)—an overlooked, but critical part, of HP's business.

I was disappointed, however, that the article did not mention the Direct Marketing Division's (DMK) work. DMK is doing some incredible work in the area of distribution and is certainly a major player as HP strives to keep customers happy. Maybe next time.

MICHAEL JAMES WADE
Sunnyvale, California

Remember your customer

"Thinking globally" (March-April '89) was an excellent article that informed us very well about what HP must do in the world market of the future. To me, the key sentence was how HP people answer the question, "Who is my customer?"

To be effective "globally," HP must first make that goal an everyday accomplishment; this is done by practicing the concept with every customer we come in contact with.

PATRICIA JOHNSON
Loveland, Colorado



Sonny and Dana Margolis relax in their state-of-the-art Frisco, Texas, home.

The house that Sonny built

I was so impressed with your Extra-Ordinary People article on Sonny Margolis in the May-June issue. I have passed my *Measure* to many friends and relatives so they can see that even private homes have uses for HP equipment. This home must be amazing.

MURELL BARNETT
Marysville, Wisconsin

No more HP way?

The announcement that Hewlett-Packard will lay off 100 workers at the Apollo Division has caused considerable controversy and confusion. HP's reputation as an employee-oriented company is well known. This reputation is built in part on the fact that HP has had a no-layoff policy for its 50-year history. It seems that HP is setting quite a precedent with this layoff.

Does this represent a new corporate policy to undermine "the HP way?" Are

all HP employees subject to layoff when their job becomes "redundant"? These questions are of great concern to all HP employees and investors.

JOEL NEVISON
Fort Collins, Colorado

HP never has had a no-layoff policy—rather, we have a strong objective of employment security based on performance. I believe our record is outstanding in this area. HP's philosophy has been to enter markets selectively and hire conservatively instead of running a "hire-and-fire" company.

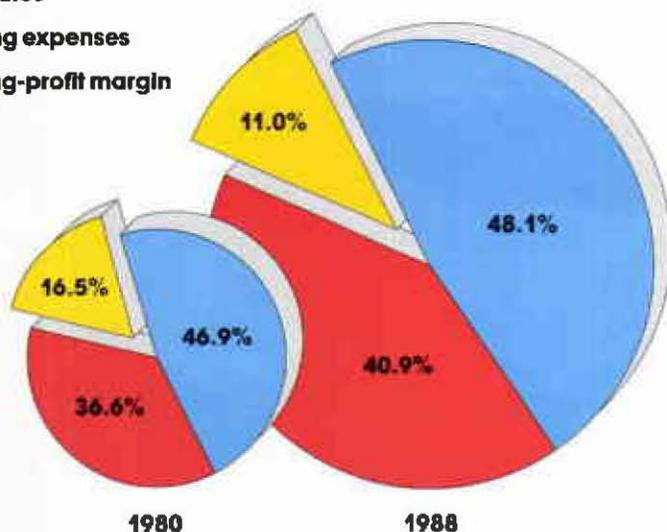
We are very cautious about adding full-time, regular employees. Hiring controls, while frustrating at times, are better than over-hiring. From time to time, we ask employees to work overtime to help HP meet short-term business needs. Similarly, our flex-force program enables us to meet special needs by supplementing our regular work force.

We knew prior to the acquisition that there would be some redundant positions in departments such as Corporate Legal, Tax, Treasury and Information Systems. All of these people are receiving generous severance payments and job-placement assistance within and outside of HP. We faced similar redundancies with acquisitions in the '60s. Outside consultants who have assisted in numerous mergers have said that the downsizing as a result of the HP/Apollo merger has been as well planned, implemented and generously handled as any they've witnessed.

As you can see, we use many alternatives to layoffs. In fact, we've never had to resort to layoffs in the normal, day-to-day operation of our worldwide businesses. Our track record is outstanding in this area. And let me assure you that our long-time objective of employment security based on performance hasn't changed one bit.

—Pete Peterson, Corporate Personnel operations manager

■ Cost of sales
 ■ Operating expenses
 ■ Operating-profit margin



While HP's net revenue has more than tripled since 1980, the company's operating-profit margin has declined.

Beware of profits

There has been a lot of talk around the company lately about our dwindling profit margins (May-June 1989 *Measure*). Once again we are being asked to tighten our belts in an effort to get profits back in line so that we might sustain our ambitious 20 percent rate of growth. For how long? Ad infinitum?

Has anyone stopped to think what the implications of 20 percent corporate growth are on our society? Isn't this philosophy largely responsible for the many grim headlines we are experiencing?

I want to feel secure that the future will allow me to continue to enjoy life as much as I do now. With profit as a primary objective, I don't have a lot of faith in such a future. The time has come for us to put our people and citizenship before profit. Failure to do so can only mean more of the same grim headlines in the 1990s and imminent global destruction.

BILL BOSCH
 Cupertino, California

Profit and growth are important objectives which help HP remain a

company that continues to provide all of us the secure future you refer to.

Where we apparently differ is that you see the emphasis on strong financial performance as getting in the way of keeping HP a special place to work, and being a company that can help contribute solutions to some of the major issues of our times, such as the environment. I see it just the other way around.

HP has succeeded over the years by being a company of integrity—one that places great value in its employees as individuals. Our ability, however, to offer employment stability based on performance, to be a credit to communities in which we reside, to be a positive force for change in such things as equal opportunity, is heavily predicated on our success in operating the company in a way that is financially sound.

Growth never has been viewed as a primary or independent objective at HP. That's still true today. If we don't grow in line with the markets we serve and maintain good profit margins, we'll eventually stagnate and be put in an increasingly risky position

with regard to our overall financial structure.

I also think most employees want to be associated with a winning effort, and that is judged by all of our constituencies—customers, suppliers, employees and shareholders—as being a successful enterprise. I firmly believe that HP has to maintain a strong financial performance to provide you and others the opportunity to make personal choices, and to feel secure in a working environment that continues to provide the basis for doing so.

— Dean Morton, executive vice president and chief operating officer

Please send mail

Do you have comments about something you've read in *Measure*? Send us your thoughts. We want to share them with more than 93,000 other employees.

If your letter is selected for publication, you'll receive a special *Measure* T-shirt with the 50th-anniversary symbol. Be sure to send us a return mailing address, and indicate your T-shirt size—unisex medium, large or X-large.

Address letters via company mail or HP Desk to Editor, *Measure*, Public Relations Department, Building 20BR, Palo Alto. Via regular postal services, the address is *Measure*, Hewlett-Packard Company 20BR, P.O. Box 10301, Palo Alto, CA 94303-0890 USA. Try to limit your letter to 150 words. We reserve the right to edit letters. Please sign your name and give your location. Names will be withheld on request.



Narin Som and Phalseila Senechal, assemblers in the manual and engineering change order departments, sort components at the Apollo manufacturing plant in Exeter, New Hampshire. The other Apollo plant is in Livingston, Scotland.

In nine short years, Apollo Computer grew from a living-room operation to a leader in the workstations market. Now, as part of HP's Workstation Group, the industry braces for

The "other" Apollo landing

Some 40 years after Bill Hewlett and Dave Packard made history in a Palo Alto garage, a group of entrepreneurs on the other side of the U.S. was making some history of its own—starting a new company to build a new kind of computer.

The company was Apollo and the computer was the workstation—a product that would deliver the computational power of a minicomputer and the advanced data access and communications capabilities of shared systems to a single user's desk.

In January 1980, that group of entrepreneurs began long days of product development and market strategy planning at company headquarters—then the living room of one of the seven founders.

Apollo's first offices opened in Lexington, Massachusetts, in May, and by September, working models of the first



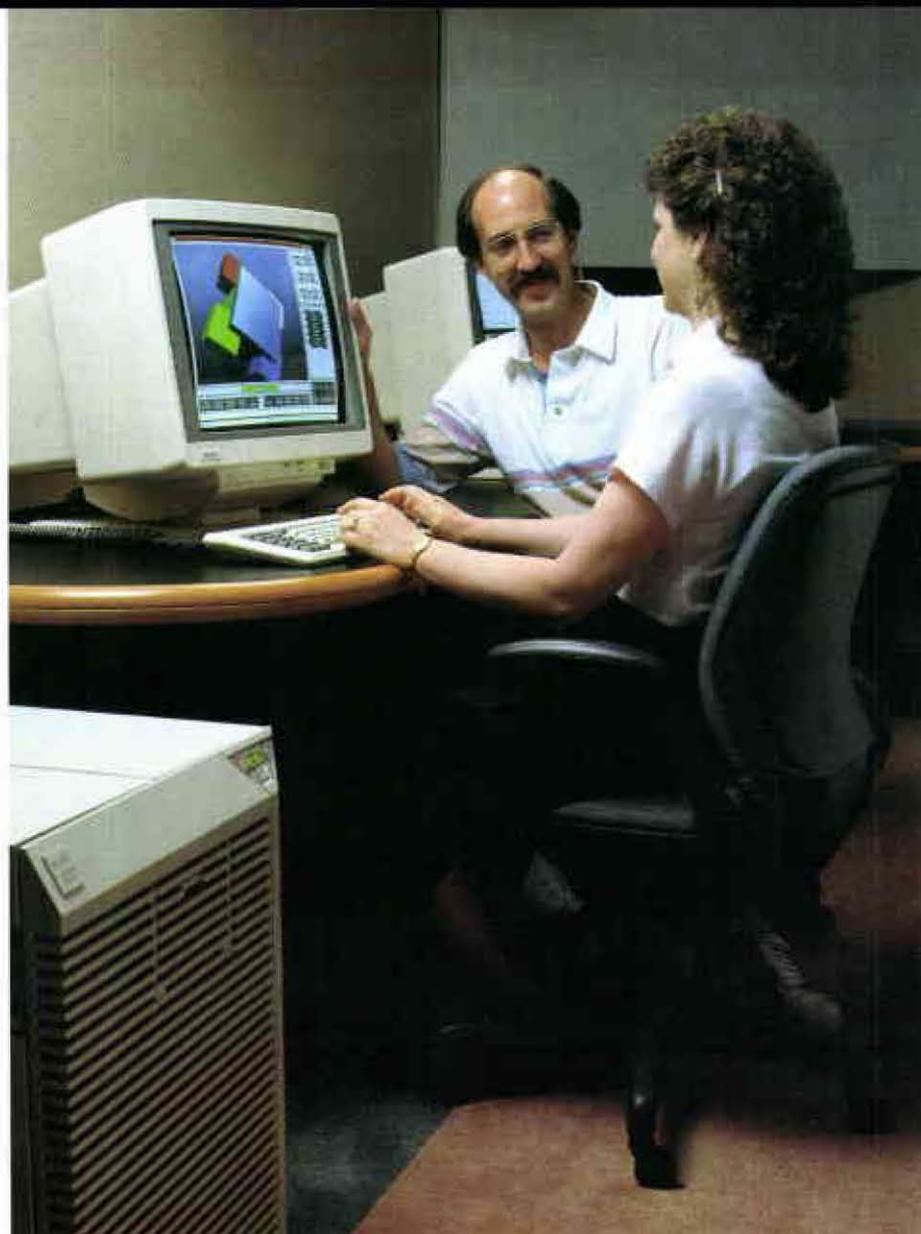
The Apollo acquisition means new HP sites in Chelmsford, Massachusetts, and 30 miles northeast in Exeter, New Hampshire.

workstations were running. Customer orders began in October, the first from Harvard University. Later that month, the company's first international customer—Rutherford Laboratories of Oxford, England—sent a blank check with instructions to deliver two workstations.

The last person hired by Apollo that start-up year was John Bowne, employee number 46. "We were starting a whole new industry," says John. "Judging by the amount of competition in this industry, it's obvious that the concept was a good one." In fact, the workstation market that Apollo pioneered in 1980 remains the fastest-growing in the computer industry.

Much like at HP, Apollo's founders had definite ideas about the principles the company would be based upon—excellence, action, ego, ethics, justice and fun.

Bill Poduska, Apollo's first CEO and one of the founders, wrote, "We are capable of doing more than we ever dared. The success of our company depends on each of us believing as much in ourselves as the company believes in us. We will not tolerate dishonorable conduct. We will preserve and foster what we have built—a company that takes pride and joy in doing things that are worthwhile."



Lynn Hansen and John Steinbrecher, technical marketing representatives at the Apollo Division offices in Chelmsford, Massachusetts, check out the graphics display for the DN1000.

By March 1983, Apollo had more than 1,000 employees putting these principles to work. The majority worked in a new corporate headquarters facility in Chelmsford, Massachusetts. Gone were the days of cramped quarters and shared desks. Apollo was now a worldwide company with international headquarters in Geneva and subsidiaries in the United Kingdom, France and West Germany. It was time to go public with the stock.

"Every person here felt a sense of ownership in the company," says Mary Allard, who joined Apollo in 1982. "I hadn't been here long before the company went public, but I can still remember how proud I was—how proud we all were."

Employee pride grew as the company grew. Sales quadrupled during the next year and totaled nearly \$216 million; the worldwide employee base exceeded

3,000 people by year's end.

Since then, even through challenging times, Apollo has remained a technology leader in the workstation marketplace. Well after Apollo introduced its first innovations in 1980, the company continued to be the leader to market with new technology. Most recently, Apollo introduced the first personal supercomputer, the Series 10000, and the first RISC (reduced-instruction-set computing) graphics supercomputer, the Series 10000 visualization system.

"(Apollo) has blazed a trail by exploiting a carefully selected market niche... high-powered, self-contained computer workstations for scientists and engineers," *Business Week* magazine wrote in 1984.

In 1987, Apollo introduced the concept of network computing with the

Network Computing System (NCS), a set of advanced software tools for creating unified computing environments. Today, NCS is an industry standard, adopted by computer suppliers and users worldwide.

Apollo also offers a full line of personal workstations, as well as software-development tools, and leading applications software through strategic alliances with companies like Mentor Graphics, Auto-Trol and CADAM.

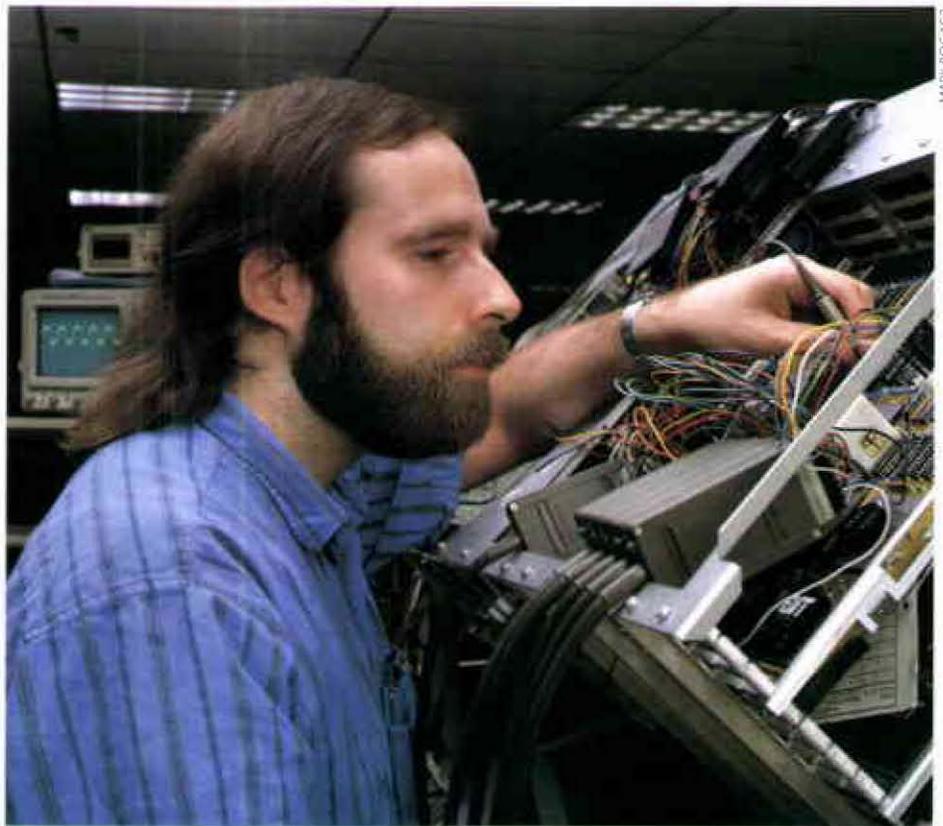
Today, more than 100,000 Apollo workstations are installed worldwide, primarily for scientific and engineering applications industries. Apollo products are also used in places like the Sistine Chapel, where historians are working to restore Michelangelo's frescoes, and in the design firm where graphic artists created the computer animation for the 1988 Summer Olympics.

These days, Apollo products can be found in HP booths at trade shows as the merged companies work to present a unified message in workstations. The strategy is working. As one analyst wrote after the April 12 external announcement of HP's intent to acquire Apollo, "You'll see a wave of happiness in the customer base."

Industry analysts and the press continue to praise the new partnership. "Hewlett-Packard is probably the best partner Apollo could have picked," commented another analyst.

Across the board, whether the issue is technology or corporate culture, signs point to more similarities than differences between HP and Apollo. And when there are differences, the signal from HP from the start has been "to retain the best of both organizations."

That is one of the principles guiding the transition process, announced by Workstation Group General Manager Bill Kay shortly after the merger was complete. "This has been a merger in every sense of the word," according to Byron Gayman, manager of the graphics hardware program at Apollo. "The bottom line is that we can accomplish



Wayne Dubois, engineering technician at the Exeter, New Hampshire, facility, tests a DN 1000 workstation. Apollo workstations have been used to restore the ceiling of the Sistine Chapel.

much more together than either of us can do individually."

An early decision was made to separate the business management from the merger management. Key to that plan were the appointments of Dave Perozek as Apollo's general manager and Brian Moore as merger manager. Under separate control is the process of technology convergence, which Alain Coudair, general manager of HP's cooperative computing environment architecture, is driving.

Companywide, there is a growing number of stories that demonstrate how well Apollo and HP have come together. Nowhere has the togetherness been more evident than at the May 50th anniversary ambassadors' event. The start date of this three-day global celebration in Palo Alto was May 19—the day after Apollo Computer, Inc. became a subsidiary of HP. Just days before, Rose O'Donnell, a senior consulting engineer in software engineering, and Jack Moher, a purchasing section manager, were chosen to attend the event as representatives for the newest HP division. Of her trip, Rose said, "I felt like I was being welcomed into a family." Jack added, "We were treated like royalty."

Looking to 1990 and beyond, a now expanded HP Workstation Group



Apollo Division GM Dave Perozek chats with employees at division offices in Chelmsford.

continues to innovate in the industry marketplace that Apollo Computer pioneered nine years ago. With the entrepreneurial spirit that fueled the fires inside Apollo and made HP the industry giant it is today, the company is destined to lead.

—Maureen Schickel

(This is the first Measure article by Maureen Schickel, the communicator for the Apollo Division.—Ed.)

LETTER FROM JOHN YOUNG

President John Young discusses HP's many new relationships

This issue of *Measure* highlights our increasing emphasis on working closely with organizations beyond HP.

We're forming alliances (page 12), making acquisitions (page 22) and developing other kinds of relationships: with independent software vendors, systems integrators, universities, dealers—the list goes on and on. Why are we reaching out in this way? Why are other groups increasingly important to our success?

At its heart, the answer is simple: Our customers' needs are growing more complex, and we cannot meet them all by ourselves.

In wanting to purchase complete solutions, customers present us with a tall order. More and more pieces make up a solutions puzzle. Varied software and hardware elements, both from HP and other vendors, often are required.

What's more, customers have increasing choices in how they can buy. Some like to purchase through HP's direct sales force. Others work through systems integrators who bundle solutions for them. Still others prefer the convenience and local services which dealers offer.

It's pretty clear that to meet these customer needs we must join with others.

You can see our need to work with others reflected in most every aspect of our business.

In the R&D arena, developing technology in conjunction with non-HP research organizations offers us many benefits. For one, it gives us access to other people's good ideas. For another, it helps us stretch our R&D dollar to cope with the growing costs of research.

We've recently undertaken a number of collaborative R&D efforts. To name a few: We've formed an alliance with Sony Corporation to develop and apply the technology of digital-audio tape. At Stanford University, we've established our first university research center, a program that allows engineers and scientists from HP, other companies and academia to work together on a partic-



HP President and CEO John Young talks with members of the media in July before a meeting on international competitiveness with U.S. Vice President Dan Quayle and high-tech execs.

ular technical problem. In addition to performing joint R&D with others, we're acquiring new technologies, as appropriate. This doesn't signal a weakening of our commitment to making technical contributions. We're looking for innovations to add to, not substitute for, our own. For example, the combination of HP's and Apollo's workstation efforts puts us in an even better position to meet customer needs.

Manufacturing is another area where we've benefited from forging tighter relationships with others—in this case our suppliers.

Of course we've always depended on vendors. But in the last decade, with our 10X goal to increase hardware quality and associated emphasis on TQC, we've seen just how important our suppliers' quality is to our own. Consequently, we're using fewer vendors, forming closer relationships with them and asking them for higher-quality parts. We've come to work with them as an integral part of our team.

In marketing, we're forming a myriad of relationships that help us sell our products. We work with third-party software suppliers to make sure the applications customers need will run on our computers—something that often can make or break a deal. We partner with systems integrators, OEMs and consultants who help our products get to customers, often as part of a larger package. We're selling more through dealers because cus-

tomers are asking for this accessible way to buy.

On the international scene, we've entered into many joint ventures that help us sell around the world by giving us access to a particular nation's market, and insight into the local needs and business practices.

Working closely with other groups requires us to learn new skills. We need to be able to manage complex relationships—say, where a company is an ally in one arena and a competitor in another. We also need to be flexible and sensitive in dealing with other groups who may have a different style of doing business.

In addition, it's important for us to re-examine our attitudes about new ideas. We've got to avoid the "not-invented-here" syndrome—not only in R&D, but in every function. Let's make use of the best ideas available, whether we find them within or outside HP. Because our success depends not only on what we can do ourselves but on what we achieve with others.

Extra

Who you gonna call?

In the blockbuster movie, *Ghostbusters II*, between the ghosts and the familiar faces of Dan Ackroyd and Sigourney Weaver, the familiar blue logo of HP will capture the eye of many HP people.

At Ghostbuster headquarters in an old firehouse, movie-goers will see an HP Vectra personal computer on the secretary's desk. At the university research lab of Dr. Egon Spengler, played by Harold Ramis, the camera zooms in on a table with another HP Vectra.

And, on top of the processor are two HP-labeled boxes,

one for the HP ScanJet interface. HP loaned the production company a variety of HP products. The film features HP equipment in a number of scenes, and although it looks quite familiar, the logo may seem out of proportion. HP permits film-makers to enlarge the logo to boost recognition of the otherwise subtle brand identification.

HP movie-goers also will find HP equipment featured in the Disney film, *Honey, I Shrank the Kids*.



Oregon State University bestows an honorary Ph.D. on John Young.



The popular movie *Ghostbusters II* features HP gear.

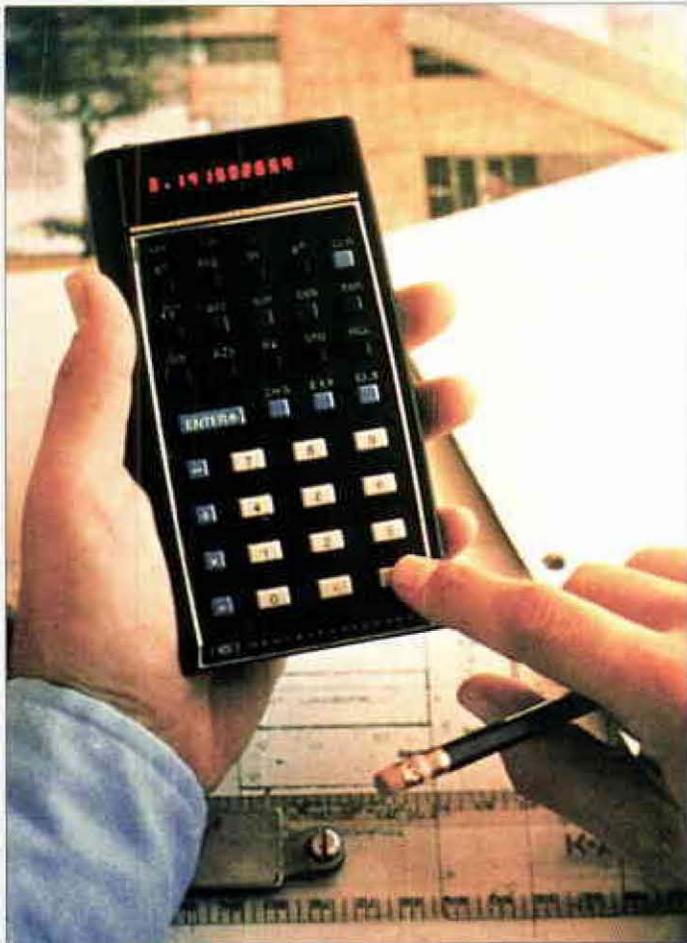
John goes back to school

From briefcase to backpack, HP President and CEO John Young returned to school in June to attend commencement ceremonies at Oregon State University, where he received an honorary doctorate of humane letters.

He was honored not only for leading HP, but for his unique commitment and contributions to society. The school recognized that HP, under John's leadership, loans professionals to teach at minority colleges and universities; actively seeks to hire minorities, women, Vietnam-era veter-

ans and the handicapped; supports the "Adopt-a-School" program; and donates millions of dollars annually to education, health, welfare, arts and culture.

It was a return visit for John. He graduated in 1953 from OSU with a bachelor's degree in electrical engineering. He went on to receive a master's degree in business administration from Stanford University in 1956.



The HP-35 calculator still wins awards years after its invention.

HP receives IEEE award

The Institute of Electrical and Electronics Engineers (IEEE) recently presented its 1989 IEEE Corporate Innovation Recognition award to HP for the 1972 invention of the HP-35 calculator.

The HP-35 is a pocket-sized calculator with the computational characteristics of a slide rule. In 1972, a time when other small calculators could only add, subtract, multiply and divide, the HP-35 mastered the four functions and 12 others as well. The HP-35 can do logarithms and trigonometry, eliminating conversion tables. It can provide additional calculations that could only be

found previously on computers or desktop calculators.

HP co-founder Bill Hewlett acknowledged the award at the IEEE Honors Forum in June in San Francisco. Bill was instrumental in the design and development of the award-winning HP-35. IEEE presented the award to HP "for the creation, development and introduction of the first full-function, shirt-pocket-sized scientific calculator."

CHART CHANGES

The Microwave and Communications Group has created a new Communications Test Business Unit under **Tom Vos** as GM. It comprises the Colorado Telecommunications and Queensferry Telecommunications divisions along with related activities in Australia and Italy.

In the Hardcopy Technology BU, the San Diego Division will now focus on large pen plotters and electrostatic plotters. A new San Diego Printer Operation under **Larry Brown** will be responsible for ink-jet color graphics printers.

Sale of Hewlett-Packard South Africa to Siltek Ltd. was final on July 1.

NEW NAMES

All entities in the Information Systems Group have new names reflecting HP's growing importance in client/server-based information systems: Roseville Information Systems Division (Office Systems Division), Santa Clara Information Systems Division (Personal Software Division), Pinewood Information Systems Division (Office Productivity Division) and Corvallis Information Systems Operation (Corvallis Workstation Operation).

In the Workstation Group, the former Workstation Technology Division under GM **Jim McCabe** has been renamed the Systems Division. HP 9000 Series 300 activities in its Fort

Collins, Colorado, lab will now report to the Apollo Division, while Apollo's graphics program becomes part of the Graphics Technology Division.

REDRAWING ANALYTICAL

The Analytical Products Group has created a Product Businesses Unit. Product lines of the former Avondale Division are now broken out under product-line managers (R&D and marketing) who report into that unit. Its other functions now form a new Avondale Operation under **Roger Nalepa** as operations manager, reporting to a newly formed Group/U.S. Factories Operations under **Mason Byles**.

Hans-Guenter Hohmann adds a hat as GM of a new Analytical BU—Europe, overseeing European analytical field operations as well as the Waldbronn Division.

FILLING OUT THE CHART

In the Medical Products Group, **Al Kyle** is GM of a new Imaging Systems Business Unit.

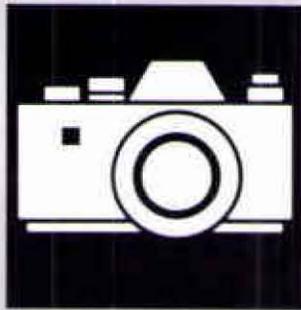
The Clinical Systems BU has created six application business units (ABUs): Interventional Cardiology ABU under GM **Jim Cyrier**; Diagnostic Cardiology ABU, GM **Ken Patton**; ICU (intensive care unit) ABU, GM **Paul Goldman**; Surgical Care ABU, GM **Frank Rochlitzer**; Obstetrical Care ABU, GM **Gerhard Kramer**; Clinical Information Systems ABU, GM **Mike Kramer**.

HP wins in photo finish

Scanning through the August edition of *Popular Photography* magazine, HP readers will recognize familiar equipment featured in an eight-page layout of the most advanced camera-testing lab.

Larry White, technical editor of the magazine, asked Applications Engineering Organization engineers in HP's Manhattan office to devise a system which would allow him to evaluate cameras entering the market. Previously, he had used a system based on the HP 1000.

HP computer test and measurement sales rep Robert Minaglia answered *Popular Photography's* request and asked sales engineers Steve Kruger, Bob Santariella and Jim



Carbone, and customer engineer Ken Schweigler to help. The team devised a system based on seven Vectra PC308s with Viper boards networked together to control the camera-testing devices.

Every major camera manufacturer attended a grand opening of the new super testing lab in June. "*Popular Photography* now has the most advanced camera-testing lab in the world," reports Robert.

A coup for NYU

HP has awarded the Leonard N. Stern School of Business at New York University a \$350,000 grant to set up a NewWave computing environment, complete with Vectra QS-16 personal computers and RS-25C servers.

Approximately 3,400 students attend the graduate school on a full- or part-time basis. Many were on hand for the dedication of the Hewlett-Packard Resource Center in June.

Manhattan Sales Rep Jim Sluis spent more than a year working on the project. "The grant gives HP an excellent chance to establish itself in the financial community, both from a recruiting and a business standpoint," Jim says.



BOTTOM LINE

Hewlett-Packard Company reported a 23 percent increase in net revenue and a 3 percent decrease in net earnings for the FY89 third quarter, which ended July 31. This reflects the effects of the Apollo Computer acquisition in May and two months of Apollo's operating results.

Net revenue totaled \$3.001 billion, up from \$2.434 billion in the year-ago period.

Net earnings totaled \$187 million or 79 cents per share on approximately 236 million shares of common stock outstanding. Net earnings for the year-ago quarter were \$192 million or 80 cents per share on some 240 million shares.

Orders totaled \$3.020 billion, up 20 percent from orders of \$2.527 billion in the year-ago quarter.

NEW PRODUCTS

The Software Engineering Systems Division has introduced the first of the **HP CASE** family of products for integrated computer-aided software-engineering (CASE) needs of customers... Apollo Division brought out a new version of the **Domain/CommonLisp** artificial intelligence language for software developers.

The new **Clinical Data Access Network** from the Medical Products Group lets a clinician access remote patient-care data at any time from many

information systems... Portable and low-priced: the **HP 8590B** RF spectrum analyzer and the **HP 8592B** microwave spectrum analyzer from the Signal Analysis Division are useful for cable TV, local- and wide-area networks and other price-conscious markets... The **HP 5347A** and **5348A** counter/power meters from the Santa Clara Division reduce the number of instruments for telecom field-service people.

NEW HATS

In a job exchange, Senior VP **Jim Arthur** to GM, Worldwide Customer Support Operations, VP **Mike Leavell** to director, U.S. Field Operations.

Terje Christoffersen to country GM, HP Norway... **Tom Saponas** to GM, Colorado Springs Division.

Mike Naggiar to Personal Computer Group marketing manager...

Roy Verley to director, Corporate Public Relations.

WORTH NOTING

China-Hewlett-Packard has reopened its Beijing and Shanghai offices after shutting down for several weeks when conditions became serious in China in early June.

HP is one of nine major U.S. computer systems companies who have formed the Computer Systems Policy Project: the first industry coalition specifically for this group.



Celebrate good times...

HP entities around the world continue to celebrate a golden anniversary with everything from Hula Hoop contests to formal evenings with big-band sounds.

Poodle skirts, leather jackets and tennis shoes are replacing dresses, suits and high-heeled shoes at many HP sites. Themes of the '20s, '30s, '40s, and '50s are bouncing to life as each site captures a glimpse of HP's historic 50 years.

Co-founders Bill Hewlett and Dave Packard were among 12,000 guests at the all-Colorado event in Colorado Springs in June, where many umbrellas danced overhead as thunder sounded and clouds, wind and rain filled the air.

Harvard University housed a 50th celebration for an all-New England event which included Apollo Division employees. Eight thousand celebrated together by eating, dancing and watching entertainment.

The Toronto, Canada, cafeteria became a USO Canteen, decorated with model airplanes and movie posters of the 1939 era. "In the Mood" set the theme and starred three senior male managers as the Andrews Sisters.

HP's Boise, Idaho, site held a 50th beer bust for 3,500 employees and community leaders. Governor Cecil Andrus and Boise Mayor Kirk Kempthorne officially proclaimed June 29 as "Hewlett-Packard Day."

In Geneva, Switzerland, 645 guests celebrated with Bill Hewlett, as he shared stories of HP's past.

In Ireland, employees gathered around a 50th



HILARY BURKOUHS

cake to sing "Happy Birthday" to HP. They went on to dance the night away to music of the '40s.

Dancing, singing and story telling have become a part of HP's anniversary party. Around the world, HP is celebrating good times.

—Lisa D'Amico

above

HP's 50th celebrations are coming up roses—the William David rose to be exact. HP Ltd. in the UK chose a golden-yellow rose to be named in honor of HP co-founders Bill Hewlett and Dave Packard. Next autumn, HP's anniversary will be remembered when 800 William-David rose bushes blossom at HP sites.



above

Blue June skies were abundant early in the day when more than 12,000 Colorado HP employees and guests joined in a statewide celebration at the U.S. Air Force Academy in Colorado Springs. The day-long activities featured a superstar obstacle course.

top right

As the sky darkened and an intense storm brewed, HP co-founders Bill Hewlett and Dave Packard trudged from the football stadium stands to a 50 yard-line stage. As the huddled crowd recognized the famous guests, spectators rose to their feet and applauded spontaneously—ignoring winds which ripped the stage canopies and rain which shorted out the sound system.

JOHNNEE FROST/HEWLETT



above

The Finance and Remarketing Division's 50th festivities included picnics and beer busts with a '50s flair—blue jeans, pony tails and Hula Hoop contests. FRD's Esther Fulbright, former Arizona Hula Hoop champion, spins away to '50s tunes.

JOHNNEE FROST/HEWLETT



above

Mickey Mouse (HPSA's Leonie Awar) makes a special appearance in Geneva to help commemorate HP's sale of the audio oscillator to Walt Disney Studios for the movie *Fantasia*. Mickey holds a replica of the historic product.

LUKE CAWBO



JILL COLVIN



above

HP Malaysia presented a golden evening in May complete with a beauty pageant. The night belonged to Koek Eng Kuan, who was crowned Ms. HP Malaysia.

top left

New England attendees stroll through a culinary journey at Harvard University where grazing stations were set up featuring exotic foods from many nations.

above

New Apollo Division employees join HP employees from the New England Region for a 50th anniversary cheer during the July festivities at Harvard University.

MCMINNVILLE STUDIOS PHOTO



left

HP's McMinnville (Oregon) site celebrated big with traditional beer busts and picnics. And, to make the party even bigger, attendees united for a grand blue-and-white anniversary wave to all HP employees.

PARTING SHOT

Not just another customer demo

Because HP Labs is a showcase for emerging technology, employees who work there are used to customer demonstrations.

But this was a very special visitor—U.S. Vice President Dan Quayle—and the occasion called for a special demonstration on superconductivity.

"The vice president!" summer intern Jeff Young exclaimed when he learned that he would conduct the demonstration during the vice president's visit to HP in July. "My body went numb when I first heard the news, and I could hardly eat. Including the weekend, I worked about 70 hours that week preparing, and I didn't sleep very well."

Jeff says the vice president asked several good questions and seemed interested in the demonstration. Jeff gave the vice president a superconductivity kit as a gift.

"The next morning my mom came into my room and told me I was on the front page of the newspaper," Jeff notes. "I looked once, then I went back to my room, got my glasses and looked again. It's still hard to believe."

After the tour of HP Labs, Vice President Quayle met at HP with Bay Area leaders



U.S. Vice President Dan Quayle practices a superconductivity experiment with help from (from left) Jeff Young, HP Labs Director Frank Carrubba, HP co-founder David Packard and HP Labs' Len Cutler.

to get a high-tech perspective on competitiveness.

He chairs a council on competitiveness whose mission is to establish federal policies to improve U.S. international competitiveness.

"The thing I accomplished was to get a good,

comprehensive overview of the issues affecting U.S. competitiveness..." the vice president told reporters.

HP President John Young, who chaired the President's Commission on Industrial Competitiveness in 1983-84, believes the meeting can produce posi-

tive results.

"He seemed genuinely interested in our views," John says, "and I'm confident he will carry our message back to his own Council on Competitiveness."

John chairs the private Council on Competitiveness, which he founded.

—Hans Kuendig

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