May-June 1992

MEASURE

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out of the
Apple market

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Cover photo (and bites) by Tom Upton

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. HP employs 89,700 people worldwide and had revenue of $14.5 billion in its 1991 fiscal year.

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MOVED LATELY? REPORT YOUR CHANGE OF ADDRESS TO YOUR PERSONNEL DEPARTMENT

KEN WEST

The story of Adam and Eve sealed the apple's fate as a symbol of temptation. Today, HP is tantalized by one kind of Apple in particular— the Macintosh.
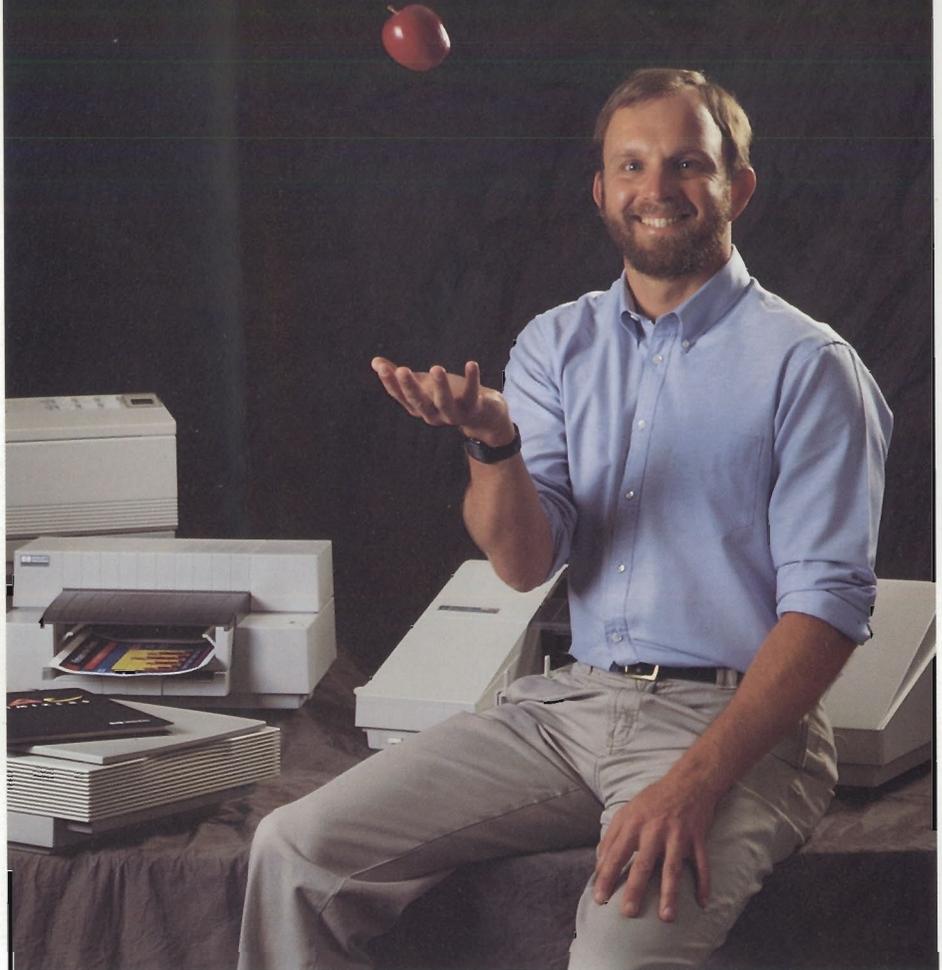
Only one company sells more Macintosh peripherals than HP—and that's Apple, says HP's Bob Dey, who's surrounded by some of the Mac-friendly HP products.

Taking a bite
out of the Apple market

By Jean Burke Hoppe

Macworld, one of the most popular magazines for Apple Macintosh computer users, just gave its annual Editor's Choice award for color inkjet printers for the Mac to Hewlett-Packard for the HP DeskWriter C.

Another publication, *Macintosh News*, once named HP's Bob Dey as one of the 20 people most influencing the Mac market.

Rich Phelan, HP DeskWriter product manager in the Vancouver (Washington) Division, thinks these facts will come as a surprise to most HP employees. "A lot of people are completely unaware of how popular HP peripheral products are with Macintosh users. Since HP printers and scanners for

the Mac first came out in 1987, the line has grown to more than 15 products and has made millions of dollars for the company."

In fact, says the influential Bob Dey, who coordinates Macintosh product marcom for the Ink-jet Products Group in San Diego, California, HP is the largest third-party supplier of Mac peripherals, second only to Apple itself and way ahead of other competitors.

Bob says HP's entry into this market was a real grassroots effort on the part of employees in R&D, manufacturing and marketing in San Diego, Vancouver and Greeley, Colorado. These people saw tremendous opportunities and worked hard to make them reality. Soon an inter-divisional Mac Team started to shape HP's strategies in this market and to give the effort a unified vision.

Hewlett-Packard and Apple may seem an unlikely combination, but stranger things have happened—such as the recently announced Apple-IBM alliance.

"It's funny," says Rich, who, until his recent move to Vancouver, was the Mac Program manager in Cupertino, California. "Apple has a real mystique about it, and many Macintosh users see themselves as a different breed. They talk about the 'purity' and ease-of-use of the Mac system.

"When the Mac first came out, it was marketed as the IBM alternative in anti-establishment ads that I think most people will remember. We've had to design our products to appeal to these customer needs while providing better-value solutions than Apple

or other vendors selling Macintosh peripherals."

HP's Mac strategy today is broader than it was when the program was born five years ago in light of profound industry changes. It used to be there were "Mac" people and "IBM-compatible" or "DOS" people, and they had completely different needs and attitudes about personal computing. You couldn't move files between the two environments or work on the same network. Says Bob, "In 1987, IBM-compatible PC users didn't even know what a font was, while Mac people had them at their fingertips."

HP's first Mac products, therefore, were aimed strictly at Mac people.

A lot has changed since then. IBM-compatible PC users now have windows, fonts and more graphic capabilities. You can exchange files

A nibble here, a nibble there

Apple Computer, of course, isn't sitting still while HP continues to munch away at the Macintosh peripherals market.

In March, Apple introduced a nibble of its own—the Personal LaserWriter NTR, a four-page-per-minute printer that connects directly with Macintosh *and* IBM-compatible computers running Microsoft Windows.

According to the *San Jose Mercury News* newspaper, analysts see the expanding printer line as "an indication of Apple's intention to be a more significant player in the growing but highly competitive PC printer market." The new printer, analysts say, "will help Apple guard its own market against increasing incursions from PC makers..."

between the two environments now and hook into the same network. The Apple File Exchange translates from popular MS-DOS(R) applications into ones that run on Macs. Lots of companies—WordPerfect and Microsoft Corp., for example—have developed

separate Mac and IBM-compatible versions of software for both environments.

"User needs are converging; these customers are starting to look and think more and more alike, to have the same needs and attitudes," Rich says. "Our strategy is to focus on the individual personal-printing needs of Macintosh users as well as the 'mixed environment' that is evolving. This emphasis will result in products covering a wide range of customer needs."

In addition to its reputation as a world-class peripherals vendor, HP has other big advantages over Apple because it offers Macintosh users solutions and values that Apple doesn't.

That Mac customers like the HP products is clear from sales and the many awards HP peripherals have won in the Mac media.

Rich and Bob say there are mixed feelings at Apple Computer about

HP products for the Mac	Closest Apple offering
HP DeskWriter (Vancouver Division) **HP DeskWriter C** (Vancouver Division)	**StyleWriter** 🚫
HP PaintWriter (San Diego Printer Division) **HP PaintWriter XL** (San Diego Printer Division) **HP PaintJet XL300** (San Diego Printer Division)	🚫
HP LaserJet IIP (Boise Printer Division) **HP LaserJet IIIP** (Boise Printer Division) **HP LaserJet III** (Boise Printer Division) **HP LaserJet IIID** (Boise Printer Division) **HP LaserJet IIISi** (Network Printer Division)	**Personal LaserWriter NTR** **Personal LaserWriter NTR** **LaserWriter IIf** 🚫
HP ScanJet IIc (Greeley Hardcopy Division)	🚫
HP ScanJet IIp (Greeley Hardcopy Division)	**OneScanner**
2 Network Mass Storage devices (Disk Storage Systems Division)	🚫
Disk Drive for Apple Quadra 900 (Network Server Division)	🚫
DAT back-up drive (Network Storage Division)	🚫

Hewlett-Packard's foray into the Mac peripherals market.

At first, says Bob, Apple was happy to see HP enter the market to bolster its then-meager offerings for Mac peripherals. "They encouraged us, and offered us technical support when we developed our scanner and color printers for use with the Mac. It helped validate their place in the market as a standard.

"Everything was fine until we came out with our inkjet and laser printers for the Mac, and it really threatened the Apple ImageWriter and LaserWriter," Bob says. "Our price was lower, so they had to respond. Since then, they've seen us more as a competitor than a company who was helping to broaden their appeal. It's made Apple more aggressive in its marketing and pricing."

HP's first products for the Mac—the HP PaintJet interface kit and the HP ScanJet Plus—came out in 1987 and were shortly followed by the HP DeskWriter printer.

Four new products have been added to the Mac lineup this year: the HP

PaintJet XL300 color printer from the San Diego Printer Division, the HP ScanJet IIp from the Greeley (Colorado) Hardcopy Division, the HP LaserJet IIISi

printer with EtherTalk from the Network Printer Division and the HP DAT Macintosh Backup Solution from the Network Storage Division.

The PaintJet XL300 color printer provides laser-quality color and text, plus connectivity, and is expected to fill a large need in the market, says Debra Gandolfo, marketing-support representative. It's designed to connect with PCs, Macs or workstations and can be shared or networked, making it perfect for today's multiplatform office environments. The ScanJet IIp can scan an eight-bit gray-scale or line-art image measuring up to 8.5 by 11.7 inches. It features hardware resolutions of 300 dots per inch (dpi), which can be increased to 1,500 dpi through software and hardware controls.

Bob Weis, marketing manager for HP's Ink-jet Products Group, who is based in Vancouver, says HP's success in the Mac market mirrors the success of HP peripherals in general.

"Adapting our products to meet all different kinds of needs in computing

environments is what has fueled the growth of our peripherals business in general," he says. "I think Apple has come to the same conclusions. People out there need productivity tools and output devices that work with all kinds of platforms.

"I think it's clear," Bob says, "that Apple will continue to do well in the years ahead, and we even expect to see some Mac clones in the next couple of years. They're making a really big push into offices and mainstream business. HP's going to continue to concentrate on this market with hardcopy solutions that cross computing environments."

And if history dictates, HP will continue to eat away at the Macintosh peripherals market for years to come. ∎

(Jean Burke Hoppe is a San Francisco, California-based freelance writer and a former Measure editor.—Editor)

Hard data, not hunches

By Mary Anne Easley

Quality is one of the key companywide processes identified by President and CEO John Young and Chief Operating Officer Dean Morton as needing improvement in their plan for this year. Their goal is to make TQC (total-quality control) a way of life at HP.

While HP has earned a reputation for the quality of its products, the company has a way to go to incorporate the statistical methods of TQC into all areas of its business, to continually improve every process based on hard data, not hunches.

TQC requires belief and discipline. But those HP people who've embraced its principles and methods say it pays off in many small advances that eventually compound—and one day you realize you've achieved a breakthrough.

"A lot of people say 'Show me the evidence it (TQC) works,'" says Gina Chen, TQC/customer-satisfaction manager at New Jersey Division and a Baldrige Award examiner (see story on page 10). "But you can't wait. If everybody sits and waits, we'll never get started."

Here are four HP entities that are well on their way—and have seen the payoff from TQC.

BOISE, Idaho—Software defects can mean the difference between introducing a product on time or losing the market opportunity altogether. And missing a market window in laser printers could have a crippling effect on HP.

Although HP is clearly the market leader, with more than 5,000,000 LaserJet printers in dependable operation around the world, recent versions—the HP LaserJet III and HP LaserJet IIISi—owe their timely introductions partly to TQC.

"We started a software quality section (serving both Boise Printer Division and Network Printer Division) in 1987," says section manager Billy Knorpp, "and began tracking defects. Until then, we had estimates of time required to complete the design of software for a product, but when it came time to find and remove defects, we didn't have a handle on how long it would take."

Software engineers began collecting data while developing the HP LaserJet IID, noting the kinds of defects, and the number of engineers and hours required to find and fix them. They didn't have enough data, though, until the next project—the HP LaserJet IIP—to notice a repeating pattern of defect removal. More important, the new data made it clear the project team was going to miss its deadline for release to manufacturing, which would cause the product introduction to slip.

"We immediately made several mid-course corrections," recalls Billy, including adding resources and testing more often to speed defect removal.

By the third product introduction, the HP LaserJet III, they began to see even earlier the payoff from TQC. R&D Section Manager Janet Buschert affirms, "Before we even started testing we could accurately predict the number

It now takes 22 hours instead of four to six months to authorize returned materials at the Support Materials Organization! Material handler Eddie Shipman and other members of his quality team speeded up the process using TQC methods.

of defects and how long it would take to correct them."

Billy adds, "Unfortunately, using current resources, that would take 12 to 14 months—and we only had seven!"

By doubling their resources and modifying the testing process, they could find and fix defects fast enough that they overshot the deadline by only seven days.

The real benefits of TQC were obvious to everyone on the most recent product, the HP LaserJet IIISi, introduced in March 1991. Realistic plans were set from the beginning, stating the specifics of testing and how many engineers and technicians were needed to make the market introduction date.

"Lots of activities go into making a product successful. But the fact is, if we hadn't used the TQC tools of establishing a fixed process and measuring the results—we'd be in real trouble," Billy says. "HP can't maintain its market lead in laser printers by missing product intro dates."

ROSEVILLE, California—On their most recent HP Employee Survey, 85 percent of the people in the Support Materials Organization (SMO) said TQC has positively affected their life.

It's no wonder. Since 1984, they've:
- reduced test and repair of defective PC boards from five days to seven hours;
- cut warranty returns in half;
- increased orders shipped the same day from 65 to 88 percent;
- reduced returns where no trouble was found from 35 to 8 percent; and
- improved profits fivefold!

"When we started our quality program, we wanted to improve our profits and customer satisfaction. But, to be honest, our primary objective was to improve our reputation with employees as a place to work," says Ron Black, TQC trainer/consultant for SMO.

"Our people were consistently applying for job openings in all the other entities on the site. They just wanted to get out.

"Today," he says proudly, "we're a very desirable place to work."

SMO is a worldwide supplier of support parts for HP's computer, instrument, medical and analytical customers. Forty percent of their customers are retailers or government agencies; the rest are HP customer engineers (CEs) with whom SMO has forged close working relationships. CEs annually answer a 65-question survey that determines what processes need to be improved. SMO chartered 60 teams to focus on these improvements.

In 1986, SMO merged with the Corporate Parts Center, doubling in size to 800 people and increasing its part numbers from 3,000 to more than 100,000! While the merger created some difficulties, it contributed, along with TQC, to a fivefold increase in SMO's profitability in the last eight years.

"TQC can't do everything," admits G.M. Tom Ashburn. "But its customer focus, its Hoshin planning process and

its problem-solving tools provide a solid foundation for success."

"All TQC efforts are aimed at improving customer satisfaction or our own internal efficiency," says Ron. "We don't do anything with TQC unless it directly contributes to our business success."

"But you *can* take TQC too far," says Tom. "You have to be careful to balance continuous improvement with asking why you're even doing some things at all.

"Our quality teams have to see a correlation between their activities and results," he adds.

Eddie Shipman, a material handler and quality team member, agrees. "My first experience on a quality team was not successful. We were just practicing TQC and weren't focused on things that really mattered. People lost interest quickly."

With guidance from Ron and Quality Manager Bob Fuentes, the teams learned to select processes that were most critical to their own success. They set specific improvement goals and deadlines. Today, how well they meet those goals is reflected in employees' performance evaluations.

"That made it exciting—even fun!" says Eddie. "We could see what we accomplished.

"Recently we applied TQC to our process for authorizing returned materials. It used to take four to six months. We got it down to 22 hours!"

"TQC is like watching your kids grow," says Ron. "It happens slowly and it takes a certain amount of patience. Looking back, we were babes in the woods. We still are, compared to YHP (Yokogawa-Hewlett-Packard, HP's joint venture in Japan). But we can really see the progress we've made!"
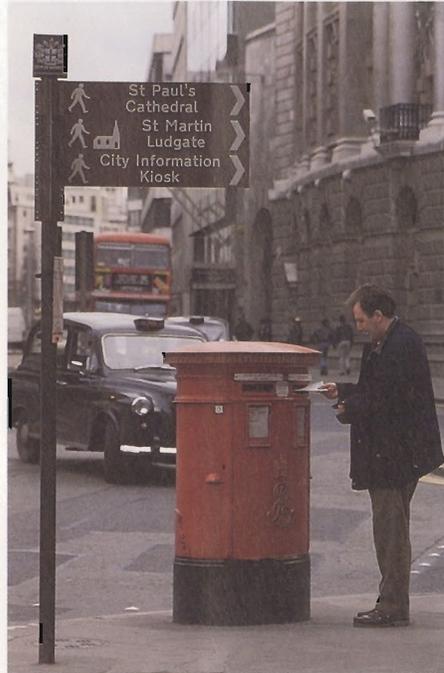
The U.K.'s Royal Mail was so impressed with HP's quality program, it awarded HP $1 million in additional business.

UNITED KINGDOM—Customers in the U.K. are so impressed with the results of the U.K. Sales Region's quality program, they're adopting it themselves and even attending HP's TQC training course.

They include some of the U.K.'s biggest banks, High Street retailers, pharmaceutical companies, the Royal Mail and the National Health Service—the largest employer in Europe.

That's just what was intended when the program was launched in June 1990 by then-G.M. John Golding, who is now U.K. managing director, and Brad Harrington, who was the region quality manager. "Involving everyone in a concerted total-quality effort is the only way to remain competitive and cost-effective," John said at the time. Within

20 months, every manager and supervisor attended a TQC training session to learn how the region would achieve its objective to become "*the* quality company" in the U.K.

After the 1989 annual Worldwide Customer Satisfaction Survey—sent to 4,000 U.K. customers—senior managers who were part of the region's quality committee, which John chairs, were each assigned 10 of the most dissatisfied customers to contact.

"They jumped in the deep end," says Philip Nield, quality consultant. "Their first-hand discussions confirmed what statistics showed, and what our sales reps had been insisting for some time: Our biggest problem is deliveries."

Since the problem with deliveries is worldwide, not unique to the U.K., they've taken the lead in the European-wide initiative, code-named Eagle (see story on page 21).

Parallel TQC efforts begun a few years earlier in the Customer Response Center at Winnersh produced dramatic results and convinced employees of TQC's benefits.

"We completely changed longstanding processes to fix customer software problems and reduced outstanding calls by 64 percent," says team leader Craig McKenzie, who is one of more than 100 engineers staffing the Response Center.

"I'm totally sold on TQC," Craig adds.

Alan Tyson led another team that changed the process for delivering software "patches" (corrections) to customers. The engineers avoided these calls because the process was labor-intensive, time-consuming and prone to error. Using TQC, the team simplified the process and automated much of it. The time to install each patch was reduced from nearly five hours to 50 minutes at most. Their goal now is to get it to 10 minutes. Estimated savings is $200,000 a year.

When it had its first QMS review in 1989, the U.K. region had made little use of TQC, and the score reflected this. "By our second review (conducted 18 months later), the U.K. Sales Region achieved the biggest quality improvement in the company!" says Region Quality Manager John Hamilton.

PENANG, Malaysia—At HP Malaysia, where about 3,000 employees manufacture optoelectronic and microwave components, they've been practicing TQC since 1980. Sixty percent of the employees participate in 160 quality teams.

The division, which produces some 5,000 products, is the winner of numerous quality awards, including the Malaysian Best Quality Management Award in 1989, its inaugural year.

Using TQC methods, shipping-department quality teams reduced processing and shipping errors from 170 per million shipped to fewer than 40. They achieved this while orders rose 30 percent—from 63,400 in 1989 to 82,500 in 1991.

HP Malaysia's customers complained regularly about one product—the seven-segment numeric display—which is used as a digital readout on instrument panels. It had a failure rate of several thousand parts per million.

A team of engineers from manufacturing and quality worked on a solution for two years—with impressive results.

First, they added a high-temperature baking process, which reduced the failure rate to about 1,000 parts per million. Unfortunately, baking added two days to production time.

They then changed the wafer-dicing process, which brought the failure rate to less than 100 parts per million. But

Die fab engineer Chun Hean Cheah (left) talks with engineering section manager Chee Mang Ng (center) and project leader Tong Fatt Chew about a new process that significantly lowered failure rates at the Penang, Malaysia, plant.

this didn't eliminate the need for the time-consuming baking process.

In late 1991, after some study, the team changed the design of the lead-frame (a metal strip on which wafers are placed). This change reduced the failure rate to zero—and also made the product so tough, the baking process was no longer needed.

As a result, customer complaints and returns have been reduced to zero.

Siew Lan, a senior supervisor who helped launch HP Malaysia's TQC efforts in 1979, says, "TQC has fostered team spirit among people and created a sense of pride." Production supervisor Rahim Yusoff adds, "You learn new skills, apply them immediately, see the results and it makes you hungry to learn more skills." ■

(Mary Anne Easley is manager of Employee Communications and a recent convert to TQC.—Editor)

Measuring quality the HP way

QMS (Quality Maturity System) is the measure HP uses to track progress in instituting TQC.

Each HP entity is involved in a two-day QMS review every 12 to 18 months by a team comprising people from HP's quality community and entity management. It's an honest evaluation of the entity's "maturity" in key areas, such as planning, focus on customer needs and full employee participation.

Each entity receives a score, which remains confidential except to people in that entity, ranging from 0 (no knowledge) to 5 (exemplary). In March 1992, John Young initiated a President's Award to be presented to entities with good business results and a QMS score of 3.5 or higher.

What does it take to
win a Baldrige?

By Jay Coleman

Four HP employees share their experiences as Baldrige Award examiners

In five short years, the Malcolm Baldrige National Quality Award has become the most coveted barometer of excellence among American companies.

Baldrige winners trumpet their achievement proudly—a few of them ad nauseam.

But there's a big difference between Baldrige winners and Baldrige "wanna-be's." Ask people who have judged the competition, including four HP employees, and you get a good insight into what motivates Baldrige applicants.

"Some companies see quality as a survival issue," says Gina Chen, manager of TQC (total-quality control) and customer satisfaction at HP's New Jersey Division and a Baldrige examiner in 1990 and 1991. "Sometimes they don't focus on quality until they're in trouble."

An act of Congress established the award in 1987 to promote quality awareness, recognize quality achievements of United States companies and publicize successful quality strategies. It's the American equivalent of the Deming Prize, the prestigious quality honor that HP's Japanese joint-venture, Yokogawa-Hewlett-Packard, earned in 1982.

"Winning the Baldrige Award isn't important in and of itself," says Craig Walter, HP director of Corporate Quality and a senior Baldrige examiner in 1988. "The important thing is the quality program you have in place that enables you to win the award."

Craig knows the Baldrige Award inside and out. HP was one of several companies that funded a foundation to administer the award, and Craig had a hand in shaping the original criteria.

"It was a valuable experience, although none of us knew that the personal commitment would be so extensive," he says. He estimates that it required about six weeks' worth of his evenings and weekends to judge the initial stream of applications.

"We were developing our own QMS (Quality Maturity System) in HP at the time to measure how well HP entities had applied TQC. Also, one HP entity—the Roseville (California) Terminals Division—had applied for the award, so I thought it important that I be involved from two perspectives."

Merely applying for the Baldrige Award can be a rigorous process. Companies complete a maximum 75-page application with information on all existing systems and procedures. As many as six examiners review and evaluate each application independently, spending about 20 hours on each, then conduct a conference call for selected applications to compare evaluations.

Senior examiners pore over the initial reviews and choose Baldrige finalists. Finalists then host a week-long site visit by a team of examiners. The team's

"Sometimes (companies) don't focus on quality until they're in trouble," says two-time Baldrige Award examiner Gina Chen.

report is used to help determine the winners. (Gina Chen is the only HP examiner who has made a site visit.)

"You can find out a tremendous amount about a company just by reading its application," says Don Morris, manager of the R&D design center at the Integrated Circuits Business Division in Corvallis, Oregon, and a 1988 Baldrige examiner. "I could tell on one application that the company's quality manager wrote the report the best he could, but that there was no particularly strong quality program. It was almost embarrassing.

"To win the Baldrige Award," Don adds, "you have to have all of the Baldrige precepts infused throughout the division or company."

Don and other Baldrige examiners have to be purposely vague in their comments. The 220 examiners—chosen from 1,200 applicants—pledge not to

Baldrige basics

Name: Malcolm Baldrige National Quality Award

Established: August 20, 1987

Named after: The late Malcolm Baldrige, former U.S. secretary of commerce

Purpose: Promote quality awareness, recognize quality achievements of U.S. companies and publicize successful quality strategies

Criteria: Leadership; information and analysis; planning; human-resource use; quality assurance of products and services; quality results; and customer satisfaction

Fees: Initial payment, $50; review of written examination, $4,000 ($1,200 in small-business category); plus additional fees if extra documentation is needed or if site visits are made

Awards: Winners receive a medal in a crystal base. Up to two awards may be given each year in each of three categories: manufacturing companies or subsidiaries; service companies or subsidiaries; small businesses.

Additional benefits: Virtually unlimited opportunities to publicize, advertise and brag about the accomplishment

reveal any specifics about the company applications they evaluate.

Tom Beilman, a manufacturing-development engineer at the Ink-jet Components Division in Corvallis, is serving in his second straight year as a Baldrige examiner. He says the experience has been invaluable, despite the demands.

"Part of the examiner's job is to provide written feedback to the applications—feedback which often triggers productivity improvements in those companies," Tom says. "Contributing to national competitiveness in this way is very satisfying."

In the true continuous-improvement spirit, Tom made several recommendations to improve the Baldrige Award criteria after his first year as an examiner. As a result, the 1992 criteria place a greater emphasis on the methods companies use to determine customers' future requirements and expectations.

And what good ideas did the examiners learn from the Baldrige judging process that they've brought back to HP?

"HP is pretty advanced and probably more knowledgeable about quality systems than most of the companies I reviewed," Gina says. "We don't have to go outside of HP to learn how to improve our processes. We just have to do a better job of leveraging best practices, lessons learned and metrics."

Consistency, Don adds, is the key. "Our quality program is above the median as a whole," he says, "but unfortunately, that high-quality program isn't consistent over the entire organization or over time."

"One item that leaps out is HP's emphasis on designing quality into our products and services," Tom says. "This puts us ahead of many Baldrige appli-
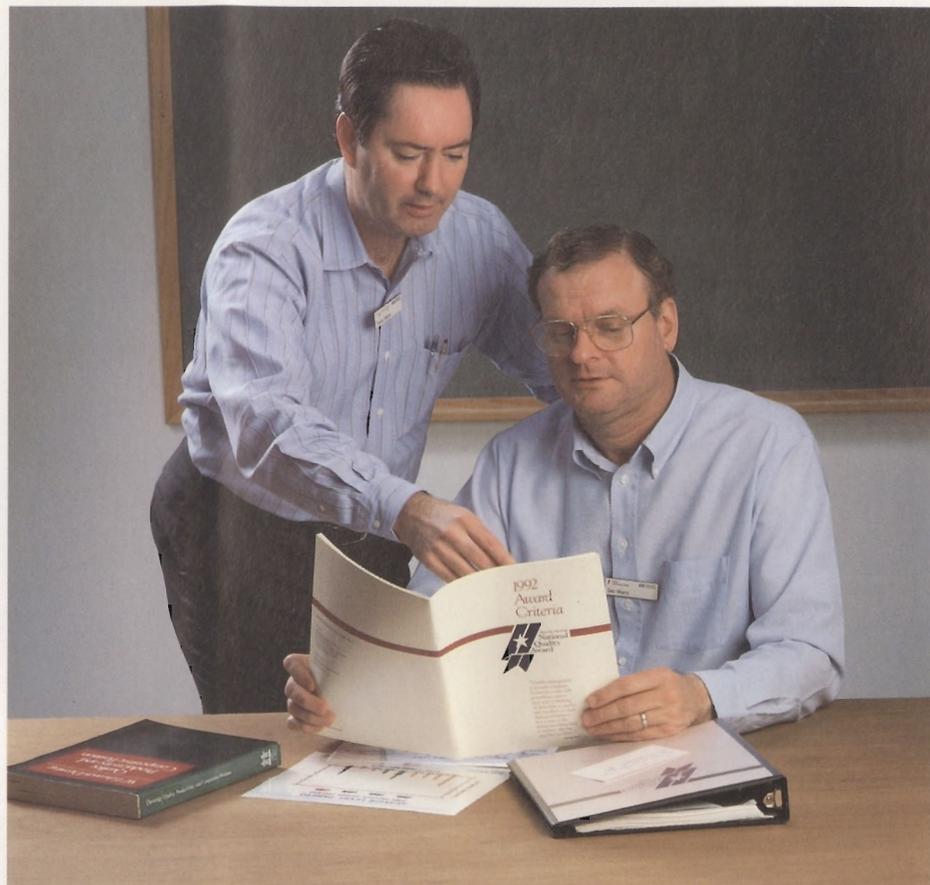
Don Morris (right), one of HP's first Baldrige Award examiners, compares notes with Tom Beilman, a current examiner, during a break in Corvallis, Oregon.

cants, yet there's still room for improvement in our use of these techniques."

A lot of people argue over whether or not the Baldrige Award is relevant or worthwhile, Craig notes. "Winning a Baldrige doesn't guarantee business success," he says. "It's like the Olympics: You can do an awful lot of training, but

that doesn't mean you'll win a medal.

"The Baldrige Award has created a good deal of controversy among the experts and quality gurus," Craig adds. "But it absolutely has heightened awareness of the importance of quality programs in the United States—and that will benefit all of us." ■

QMS versus Baldrige

If the Baldrige Award is such a great way to measure your quality program, why does HP emphasize its own Quality Maturity System (QMS) instead of the Baldrige criteria?

"Yes, the Baldrige award can be a good way to look at a business, but it doesn't necessarily show a direct link between a company's quality program and its business results," says Bill Kay, director of HP's Product Processes Organization.

Bill says that recent changes in

HP's QMS review (see John Young's letter on page 27) have strengthened the relationship between quality and bottom-line results.

"We have a lot of respect for the Baldrige Award, and I imagine some HP divisions will apply for it in the future," Bill adds. "However, we believe that, overall, QMS is a better tool to enable HP business managers to drive their entities' total-quality programs."

HP relies on a network of key partners throughout Europe to provide a strong and valuable link to thousands of HP customers.

I t is January 1991, and the snow is still on the ground outside when a telephone rings on Vivian Schulman's desk in Geneva, Switzerland. Vivian is manager of the European Business Partnership Program for HP's Computer Products Organization, and her job is central to HP's relationship with its highly prized resellers.

The caller is a dealer from Spain. He wants to know the dates and venue for the 1991 European VID (Very Important Dealer) Club Conference. The question surprises Vivian: The conference isn't until November, but the Spanish dealer insists that in the four years since HP Europe began running the VID conference, it has become one of the most important events in his busy schedule. So he doesn't want to miss it.

The Spanish dealer isn't unusual. His eagerness to be where the action is typifies the enthusiasm which Europe's resellers—from simple box-movers

Vivian Schulman, who manages HP's European Business Partnership Program, chats with Michael Berman, an HP dealer, during a stroll in London.

Very Important Dealers

By David Freedman

to high-value-added businesses—are showing for HP's partnership with them.

The VID Club Conference—which, as the Spaniard discovered, took place in The Hague, Holland, in November 1991—included top speakers such as former Belgian Prime Minister Leo Tindemans.

But the VID is only one example of the partnership—a much over-used word in this industry, but one which actually means what it says in this case. The dealers from around Europe are independent companies. Many have outlets all over the continent. They sell equipment, supply software, provide maintenance and carry out training for most of HP's competitors as well.

One of the "hot buttons" among the reseller community is the setting of the prices that distributors and dealers have to pay HP for the goods supplied to them for resale. Basically the debate—encouraged by HP—centers on whether dealers should have financial incentives for the number of products they sell (volume discount), or for the level of added value they offer their customers and their suppliers (functional discount), or both.

Those who advocate functional discount argue that very different channels would co-exist and the customer would choose the channel that suits him best.

Talk to the resellers and you'll find general agreement that only HP offers the true partnership that others lay claim to. That's why so many of them are involved in building and strengthening that relationship.

For example, some reseller representatives sit on the advisory board of one of the most innovative academic/business partnerships anywhere in the world: the Hewlett-Packard INSEAD Distribution Academy, a new and exciting initiative in Europe. It is believed to be the only senior executive program at a major business school dedicated specifically to the business management issues raised by the dynamic changes in the distribution industry.

Kleber Beauvillain, managing director of Hewlett-Packard France, is a member of the Academy board. He sees the value of the Academy as an enhancement to an already firm relationship.

"The dealer channel represented some 60 percent of all the goods sold by HP in France last year. That's why we go out of our way to help them understand HP," Kleber explains. "We organize trips to our factories and explain new products to them as far ahead as possible. And when times get tough—as they have been for dealers in Europe recently—we help, as it is normal to help a partner."

Alex Sozonoff, general manager, Dealer Channel Europe, agrees that support to the dealers is vital. "Many of the less-well-managed dealerships have disappeared since the boom of the 1980s. HP is trying to help as many as it can return to profitability through help with stock management, and marketing and discounting, and by offering the services of an independent consultant specializing in the business performance of dealer channels."

How do the dealers feel about HP? Four of them share their experiences with *Measure* readers:

Vikas Tibrewala:

Vikas Tibrewala has come to the beautiful French town of Fontainebleau from India, via the United States.

Fontainebleau is the home of one of Europe's leading business schools—INSEAD—and from this year, of the INSEAD HP Distribution Academy.

Vikas, assistant professor of marketing, is the program director for the Academy. He's excited by the curriculum, which will include modules on corporate and marketing strategy, and management of people, finances, strategic costs and service.

"HP's knowledge of and access to the industry, coupled with INSEAD's reputation for innovative quality teaching, make this a unique program," Vikas says. "And it'll be fun to teach—getting dealers away from the day-to-day cares of managing the business and helping them view their companies as a whole, strategic enterprise."

Thomas C. Weissmann:

The company Also Holding AG is based in Hergiswil, in German-speaking Switzerland. Its chief executive officer is Thomas C. Weissmann, whose unshakable belief is that he and HP are working together for the good of the end customer. Thomas has been in or around the technology business since the HP electronic calculators made their debut.

"If you think back to those days," he says, "HP was really making product improvements that actually helped the customer, rather than just satisfying the development engineer. Even though the range of technology is infinitely more complex, it's the same story today."

The Swiss, Thomas says, value quality and have high expectations from business suppliers.

"HP has really helped me meet those expectations in the last few years and understood the importance of distribution logistics," Thomas says. "My customers know they can rely on the HP equipment I sell them, which is good news for all three of us."

Laszlo Rack:

They do things a little differently in central and eastern Europe.

Hungary was on its way toward a free-market, western-style economy before *glasnost, perestroika* and the fall of the Berlin Wall, but it was still a technologically underdeveloped nation. And selling PCs and peripherals there is an interesting proposition.

"HP has given us a lot of support," says Laszlo Rack, who heads Rack Computer Electronic Ltd. in Budapest. He says that help has been worthwhile, given the obstacles he faces.

"One problem is that business users here do not yet think in terms of advanced computer solutions—and if they do, they can't always afford them because of the sheer difficulty of obtaining capital," Laszlo says. "We often find that for purely financial reasons customers prefer to buy the cheaper, lower-function machines imported from the Far East rather than the quality equipment such as HP Vectra PCs."

Laszlo is doing everything he can to distinguish his company as *the* quality supplier in Hungary. Working with HP—selling some medical equipment alongside his PCs and peripherals—is part of that.

Obtaining capital is a major challenge in Hungary, says dealer Laszlo Rack (left), during a meeting in Budapest with HP's Alex Sozonoff (center) and René Alder.

Michael Berman:

Protek is a company with a royal connection. It counts His Royal Highness Prince Edward among its customers.

Now Protek has relocated to Maidenhead, a town in the Royal County of Berkshire, near Windsor Castle.

The new location is also less than 20 minutes' drive from HP's United Kingdom headquarters. That's no accident. Protek bills itself as "the Hewlett-Packard specialist" and Michael Berman, Protek's managing director, has built his business on a partnership stretching one decade.

HP's commitment to the partnership is evident. In trying to consolidate its revenue around a more service-oriented business, Protek looked to HP for advice and got more. Michael was offered a senior HP manager to work full-time inside the Protek organization—at HP's expense—for 18 months.

The experiment has been a great success—the kind of creative thinking from HP's U.K. organization that has helped make the British dealer channel probably the most advanced in the worldwide industry.

Back in 1989, Michael was chairman of the VID Club Conference in Vienna, an event which he says marked the start of a new era in the relationship between HP and the channel community.

"It was the first time HP had seized an opportunity to hear the dealers preach to HP, rather than the other way around," Michael says. ∎

(David Freedman is a U.K.-based communications consultant.—Editor)

An international view

I have always enjoyed *Measure's* many articles on the global, multinational, multicultural nature of Hewlett-Packard. I think we are all aware of the importance and value of being a global company.

So I am struck by the absence of any foreign nationals on our Board of Directors. It seems to me that the addition of Europeans and Asians to our Board would strengthen our global strategy.

Are there any plans to place foreign nationals on our Board?

SETH FEAREY
Palo Alto, California

It's primarily a matter of logistics, explains Jack Brigham, vice president of Administration and HP general counsel. Attending Board meetings six times a year is difficult for foreign nationals, especially those who are senior company executives. Shozo Yokogawa, founder of Yokogawa Electric Works and "father" of YHP—HP's joint venture in Japan—faced those logistical difficulties during his tenure on HP's Board from 1983 to 1987.

"While we currently don't have any foreign nationals on our Board," Jack says, "several of our Board members have many years of experience with major international companies such as Boeing, Chevron and Ford Motor Company. In addition, Condoleezza Rice, HP's newest Board member,

brings exceptional expertise in Eastern European affairs. She is an associate professor of political science at Stanford University, a former special assistant to the President of the United States and senior director of Soviet Affairs for the National Security Council."—Editor

A perfect solution

In the January–February 1991 issue, *Measure* ran an article describing HP's Integrated Systems Division's (formerly AMSO) role in developing the Ford Service Bay Diagnostic System (SBDS). I'm pleased to report that Ford Motor Company considers the systems extremely successful.

The system's significance is its ability to diagnose vehicle problems and help technicians fix the vehicle right the first time. In the August 1991 issue of *Automotive News*, Ford reported that there have been more than 36,000 diagnoses without a single repeat repair.

During 1991, *Popular Mechanics* magazine included SBDS in its "Innovative New Products" list, and Ford honored SBDS with its prestigious "Customer Driven Quality" award.

More than 2,000 SBDS carts have been installed at Ford and Lincoln Mercury dealerships throughout North America, and Ford has ordered an additional 3,250 carts. Follow-up products are planned for introduction in Europe during 1995.

BOB BRENNAN
(SBDS program manager)
Novi, Michigan

How we make 'em

As an HP 75C (portable computer) fan, I enjoyed the short piece on Tony Amos and his faithful HP 75C in the March–April 1992 *Measure*.

Tony certainly is correct: we 'don't make 'em like that anymore!' Compared to 10 years ago, HP's handheld products are much more capable, significantly less expensive and, by any objective measure, at least an order of magnitude more reliable.

We make 'em a whole lot better than we used to!

DENNIS YORK
Corvallis, Oregon

Please send mail

Do you have comments about something you've read in *Measure?* Send us your thoughts. If we publish your letter, you'll receive a free Measure T-shirt (one size fits all).

Address HP Desk letters to Jay Coleman; by company mail to Jay Coleman, Building 20/BR, Palo Alto. Via regular postal service the address is *Measure*, P.O. Box 10301, Palo Alto, CA 94304-1181 USA. Please limit your letter to about 150 words, sign your name and give your location. We reserve the right to edit letters.
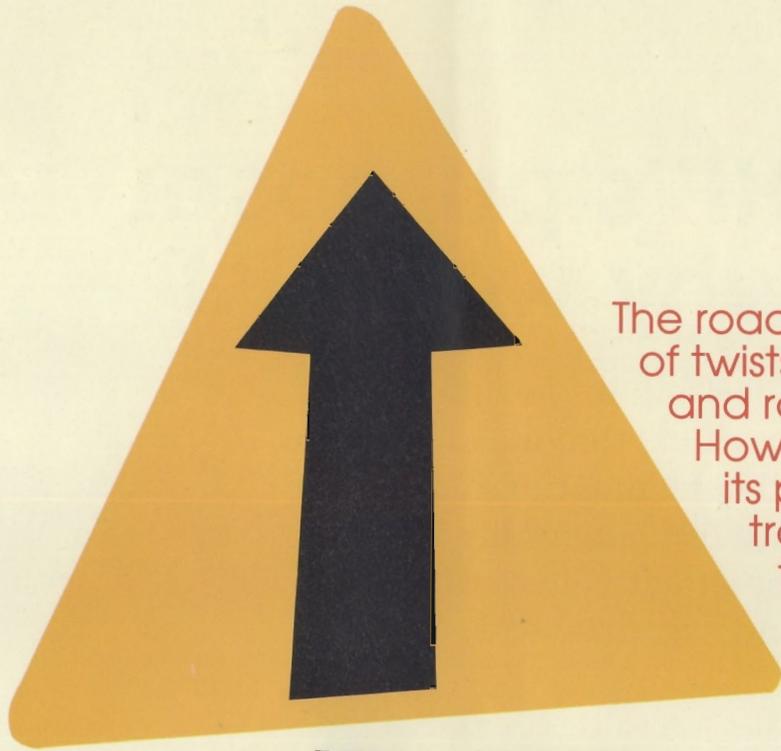
The road ahead is full
of twists and turns
and rapid change.
How will HP fulfill
its purpose as it
travels toward
the future?

HP
directions
for the '90s

HP's purpose: why we exist

To create information products that accelerate the advancement of knowledge and fundamentally improve the effectiveness of people and organizations.

What does it all mean?

Create—We make a contribution in our fields of interest; we're not a clone company.

Information products—We have a broad range of equipment—measurement, computation, communication—and service and support.

Advancement of knowledge—We extend people's ability to understand their world.

Fundamentally improve—What we do makes a real and positive difference in our customers' lives.

The effectiveness of people and organizations—We aim to improve how people live and work. Our focus is on work, but the benefits we provide encompass the environment, health and the home.

Driving toward the future

By Rhea Feldman

Can you imagine life without the automobile? Back in 1900, a Mercedes-Benz study estimated that worldwide demand for cars never would exceed one million. In 1990, more than 123 million cars were on the road in the U.S. alone.

Are there existing technologies today just waiting to catch on in a big way? Could they affect our lives as dramatically as the automobile affected the people who lived almost a century ago?

Yes, say experts. The merging of computing and communication technologies is about to cause a transformation of our civilization.

Imagine if you could have any information you wanted, or communicate with anyone you wanted to, anywhere any time:

■ You wouldn't have to read through articles or reports because you "might need" the information at a later point. When you required data on a topic, you simply could ask your information tools to find it and sort it for you.

■ You could talk to experts "face-to-face" through your television to receive advice on anything from remodeling your bathroom to treating a bee sting.

■ You could receive an individualized newspaper each morning with coverage of the issues that interest you most, including personal information such as your appointments for the day.

■ Your children's education would benefit; for example, if your daughter

were preparing a report on American history, she could download a document from the Library of Congress to her home PC.

This isn't a "pie-in-the-sky" vision. It will come, experts say, by the end of the decade.

Senior managers at Hewlett-Packard concur we are on the verge of a new "information age." They believe the information environment of the future will be characterized by four trends:

The first: As the telecommunications industry moves to digital technology, data communications will

merge with telecom, creating an "information utility"—a global network that enables people to share information of any kind (video, audio, text) as easily as they now can access electricity from a power plant.

With a global, public network, mail will routinely reach its destination in seconds instead of days. Consumers will be able to broadcast their needs to suppliers, creating a kind of reverse advertising. Doctors will be able to advise patients in remote locations. And people will be able to work at home easily.

There are many challenges to making this information highway come about. One, HP managers say, is that software will need to become more sophisticated and reliable to make possible complex data exchange. And diverse computers, networks, instruments and other information tools around the world must have standard interfaces if they are to communicate.

In addition to the creation of a global information utility, HP managers foresee a second trend: the rise of personal information appliances.

"The term 'information appliance' is a marvelous name," says Bob Frankenberg, vice president and general manager of HP's Personal Information Products Group, "because it calls to mind commonplace items, like a toaster or a dishwasher. Each is made for a specific purpose, which it does extremely well. They're almost intuitive. You just

3

look at the controls and know how to use them. Information tools should be that way, too. We should be able to get information as easily as we set up a load of laundry."

What will these appliances do for us? Consider the following scenario:

You fly into a big city. You want to find a good Italian restaurant near your hotel. So you take your information appliance out of your pocket. You hit a couple buttons on its key pad and suddenly you see a listing for Italian eateries near where you'll be staying. You press more buttons and the local food critic's reviews scroll by on your screen. Another button, and you can see menus. You make your choice. Your appliance calls the restaurant for you. You talk into it to make your reservation.

"That's very likely to exist in five years," says Bob.

The third trend HP managers envision is the blurring of boundaries between consumer and professional electronics products.

Says Joel Birnbaum, vice president of R&D and director of HP Labs, "Professional products are becoming more like consumer items, because customers want the electronics they buy for work to be affordable and easy to use.

"And consumer electronics is growing more capable, taking on the performance of professional machines. For an incremental cost, it may soon be possible for common household entertainment systems to enable banking, shopping, publishing and a host of other activities to take place in the home."

The fourth trend that HP managers see affecting the information environment is the blending of computation and measurement technologies. The distinction between instruments and computers is growing faint. HP developers are using expert computer systems in instruments to turn measurement data into meaningful information. Measurement technology is becoming increasingly important to advancing the science of computation, particularly in the area of networking.

"There's a great deal of change on the horizon," says HP CEO John Young, "and plenty of opportunities for HP, in communications and other areas. We're working today to help shape the information environment of tomorrow."

The following pages offer a few examples of how HP is driving toward the future.

(Rhea Feldman is a speech writer in HP's Corporate Communications department.—Editor)

The information highway

" *As the telecommunications industry moves toward digital technology, there will be a convergence of datacom and telecom—with the same network or "information highway" carrying voice, data, text and images. Wireless communications will enable people to access information any time, anywhere. With HP's combined expertise in both measurement and computation, we can help create this environment in more ways than just about any other electronics company.* "

—John Young, president and
chief executive officer

A fine view

As networks grow in complexity, so does network management. HP OpenView, HP's network-management software, simplifies the task, for example, by allowing a systems manager to map a complete network in minutes—a project that could take hours or days if done manually. HP OpenView is emerging as a de facto standard. IBM licensed the technology, and the Open Software Foundation selected it as the core of the OSF Distributed Management Environment.

Rules of the road

Just as people need a common language to communicate, so do machines. They must share a standard interface. So to create a global network, companies must make their systems "open" by complying with existing standards and developing new ones. That's just what HP has been doing for many years.

For example, HP's Network Computing System is the keystone of the Distributed Computing Environment, a standard developed by the Open Software Foundation.

HP's support organization helps customers move from proprietary to open systems, select standards-based products, and integrate and migrate their software and hardware.

4

Instrumental role

"As the world's leading supplier of test and measurement instruments, HP will play a key role in building and maintaining the information networks of the '90s and the 21st century," says Ned Barnholt, vice president and general manager of HP's Test and Measurement Organization.

HP makes more than 100 instruments that can be used to install and maintain telecommunications networks. Some 400 HP test products are suited to the R&D and production-test requirements of network equipment.


HP is facilitating communication in the land down under through a joint venture with Telecom Australia, one of several HP relationships that address the communications industry.

In the '90s, satellite and microwave communications, as well as cellular radio and lightwave transmission, will combine to offer voice, video and data when and where the user wants it.

Bedside manner

One day the medical world will be widely interconnected, and even remote locations will have access to special medical expertise. All patient data will be accessed easily from any source in the hospital, and beyond. An early step in this direction is the HP CareVue 9000 clinical information system. It gathers data at the bedside from various vendors' instruments, including HP's Component Monitoring System, to create an automated patient chart.

At your service

HP computers are acting as "servers" that make the information utility—or highway—truly useful. Servers pull data from a variety of systems, manipulate and store that data, and enable end-users to tap into it from their desktops. Servers allow people to gain new insights from information that was previously inaccessible or fragmented. HP's RISC-based computers and personal computers are well suited to the server role, with industry-standard networking, the performance to quickly manipulate data, and applications to make the data meaningful.
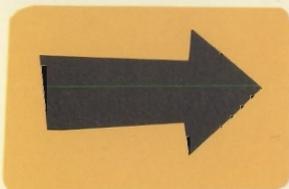
HP Unified Lab

HP's analytical business is guided by the vision of a "Unified Laboratory"—chemists linking a wide array of analytical instruments and computers into a network that allows data to be shared easily and, consequently, turned into useful information more quickly. Unifying individual labs is just the first step toward a time when analytical information will be shared easily on a global network among chemists working on a common problem.
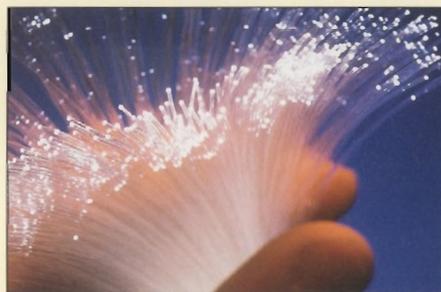
HP is designing couplers that allow fiber-optic cables to connect and communicate.

In the fast lane

Fiber-optic communication—light pulses traveling through glass fibers—enables vast amounts of information to be transmitted at high speeds. One fiber-optic telephone cable, for example, can transmit 1.3 million conversations. HP is designing leading-edge components based on fiber-optic and other technologies such as optoelectronic, radio-frequency and microwave to help create the global network of the future.

5

Personal information appliances

> *I think of an appliance as a means to an end. Users care about what a product does, not how it does it. Appliances don't have to be hand-held and they don't have to be cheap. But they should allow a person to solve a specific task so easily that using the appliance is second nature.*
>
> —Joel Birnbaum, vice president of R&D and director of HP Labs
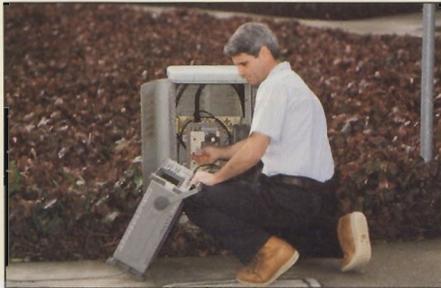
Using a credit-card-size ROM card, a technician can customize HP's 8591A portable spectrum analyzer to measure the quality of cable TV signals.

High-tech tools

HP's product portfolio is full of appliances for technical professionals. For example, the HP 16500A logic analyzer is an indispensable tool for engineers doing complex digital design.

Technical appliances of the future could include a handheld gas chromatograph that can analyze the concentration of pesticide on an apple while it's still on the tree— for example—and then transfer the data via wireless communication to the lab.

Easy does it

Could a computer workstation become a commonplace appliance? Only if it becomes simple to operate, say industry experts. HP is making workstations easier to use with the company's award-winning graphical user interface, the HP Visual User Environment (HP VUE). The HP Series 700 workstations, with industry-leading performance, have the horsepower needed to mask a computer's complexity.
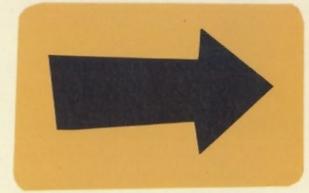
Personal power

HP's 95LX palmtop computer is the first product to combine the power and applications of a PC with the convenience of a calculator. With Lotus 1-2-3 software built in, the 95LX is particularly well suited for people who use spreadsheets. It can be customized for other uses, too, with software and hardware soon to be available from more than 1,000 vendors. And because the product can connect to other computers, through wireless, infrared, phone-line and traditional serial-wire communication, users can send and receive information any time and just about anywhere.

The HP 95LX puts the power of a computer in the palm of your hand.

6

Consumer and professional electronics converge

CHUCK FOX

> ❝ *Technology has gotten to the point where sophisticated capabilities—like desktop publishing—are becoming affordable to consumers. Good news, because people would like to broaden their work environment to include the home. That doesn't mean all HP products are likely to become consumer-oriented in the future. But some of our developments will be used by a broad audience. And every part of the company will benefit from focusing on three factors that are vital to success in the consumer business: making what you sell easy to use, easy to buy and a good value.* ❞

—Dick Hackborn, executive vice president, Computer Products Organization

Making electronics shopping easy.

One-stop shopping

People want to buy computers and other electronic products as easily as they shop for groceries. Today more than half of HP's computer business flows through dealers and other resellers. The company is working to meet the needs of this dynamic channel with packaging that tells clearly what's inside to help customers make buying decisions; products without options, so they're less complicated to sell; and information links between HP and dealers, so HP can keep abreast of product purchases as they happen and quickly resupply what's needed.

About 40 percent of HP printers were used in the home in 1991 compared to less than 10 percent just two years before.

Interactive TV

Now you can "talk back" to your television...almost. This year HP announced an agreement with TV Answer Inc. to manufacture interactive television appliances for the U.S. market. Using a satellite-based digital transmission system, the network will allow people to send messages, and participate in interactive entertainment and education as well as shop, bank and order goods, all directly from home television.


ANDY FREEBERG

HP's Bob Frankenberg and his wife, Linda, give interactive TV a try.

7

Instruments blend with computers

Computational horsepower helps the HP SONOS 1500 produce an ultrasound image of the heart.

> *Measurement and computation technologies are used together so frequently now, you often can't say a product is just an instrument or just a computer. It's both.*
>
> —Bill Terry, executive vice president, Measurement Systems Sector

As government requirements for environmental testing grow, buyers of analytical instruments need more productivity. Computers can help them get it.

Smart network

Instrument technology is embedded in a new version of HP's EtherTwist hubs and bridges, hardware used in local-area computer networks. These advanced products allow systems managers to monitor and predict network activity with much greater accuracy than before, thanks to the addition of measurement capability on the network.

Heart to heart

The HP SONOS 1500 cardiovascular imaging system has the computational speed of 533 million calculations per second. With breakthrough Acoustic Quantification technology, the SONOS 1500 is the first ultrasound system that can measure the heart's performance in real time, non-invasively.

Chemist's computer

Virtually every piece of HP analytical equipment is operated through a PC or workstation. The computer provides a common interface for instruments, making them easier to use. It also manages the data that instruments produce and quickly turns those measurements into meaningful information. In the future, expert computer systems will help chemists interpret data more rapidly.

HP EtherTwist, with embedded instrument technology, helps work groups keep their local-area computer networks running smoothly.

> *By helping create the information environment of the future, HP will fulfill its purpose—to accelerate the advancement of knowledge and fundamentally improve the effectiveness of people and organizations. I'm convinced the '90s will be the most exciting and rewarding decade of our history.*
>
> —John Young

A taste of Sonoma County

In the heart of a region famous for its picturesque vineyards and fine wine lie two "vintage" towns with Hewlett-Packard facilities.

Santa Rosa and Rohnert Park, California—about 15 miles apart—are nestled in beautiful Sonoma County, north of the San Francisco Bay Area. With the majesty of the ancient redwood forests and the ruggedness of the Sonoma County coast, it's an area that attracts a loyal band of HP employees.

The Microwave Technology Division shares the Fountaingrove site in Santa Rosa with the Santa Rosa Systems Division. HP also has another small facility known as the Valley site in that town. The Microwave Instruments Division and the Printed Circuit Assembly Center are located at the Rohnert Park site.

HP began operations in Santa Rosa in 1972, and opened the Rohnert Park site 12 years later. Today, HP is Sonoma County's largest private employer, with 2,100 people in Santa Rosa and 1,200 in Rohnert Park.

In the spirit of this world-famous wine-sipping region, *Measure* offers readers a "taste" of HP in Sonoma County.

—*Jeff Weber*

(Measure *thanks Jeff Weber and Susan DeFevere-Prouty of HP's Sonoma County Public Affairs department for their work on this photo feature.—Editor*)
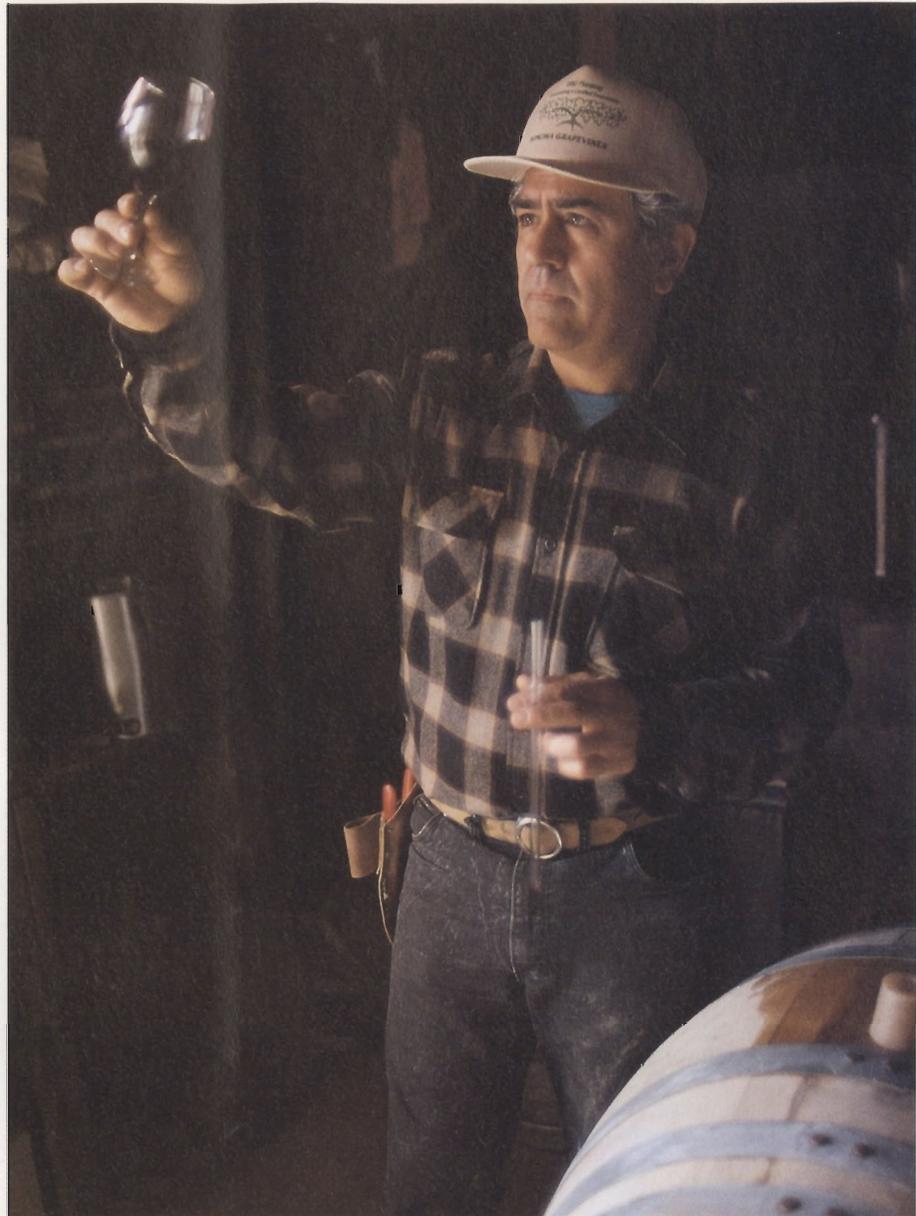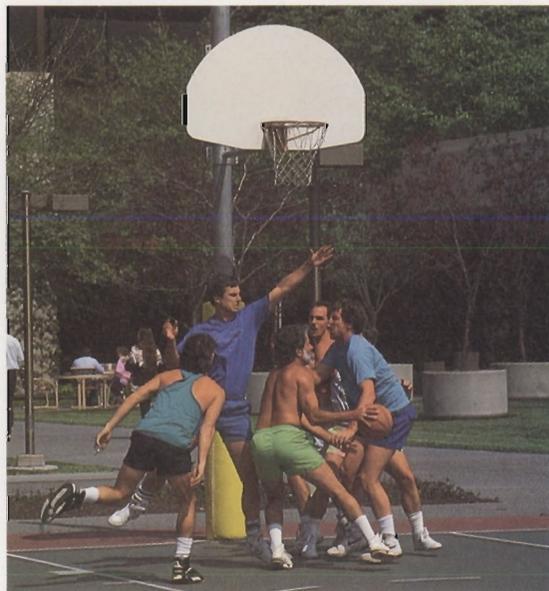
above

Device engineer Carmine Indindoli inspects the fruits of his labor. Carmine, who works at the Fountaingrove site, has a vineyard and produces modest quantities of wine for his family and friends.

left

A group of dedicated basketball players gets together nearly every rainless lunchtime for a game at the Rohnert Park site.

Sonoma

right

Janet Film takes a noon walk on Fountaingrove site's par course. The horses, on "sabbatical" from a local riding stable, are boarded free of charge because their grazing helps keep the summer fire-hazard in check.

below

Eleven-week-old "Wayne" goes through his paces with Cindy Strauch of the Fountaingrove site. Cindy volunteers at Rohnert Park-based Canine Companions, a nonprofit organization that supplies dogs trained to assist the physically challenged.

above

Journeyman machinist Dan Walton monitors the Fountaingrove site's new precision diamond lathe, capable of machining parts to within millionths-of-an-inch accuracies. The lathe is used to produce calibration standards for HP Sonoma County's network analyzers.

right

Rohnert Park site process supervisor Joanne Canillo assists Angela Gonzalez in negotiating the pathways at picturesque Santa Rosa Junior College, where she attends classes. Both women are on the board of directors of Becoming Independent, an organization that enables mentally retarded or developmentally disabled people to become integrated, participating members of their communities.

above

Pauline Alvis, an assembler at the Rohnert Park site, uses an ergonomically correct lifting machine to place finished instruments on racks before they are packaged and shipped to customers.

left

Mechanical inspectors Elaine Loy and Mircea Manu face a lineup of some of the most successful instruments manufactured at the Rohnert Park site—HP 3562A rugged portable spectrum analyzers.

right

Mike DeMarco operates a sequencer at the Printed Circuit Assembly Center in Rohnert Park. This machine puts components in proper sequence on a spool, which is used in auto-loading PC boards.

below

High-jumping employees reach new heights in a lunchtime game of team-Frisbee on Fountaingrove site's baseball field.

Flying like an Eagle

By Betty Gerard

A worldwide campaign is under way to reach near-perfect performance on booking and delivery of orders.

The strong image of an eagle in full flight is beginning to appear on posters and brochures throughout HP.

It signals a worldwide campaign to reach virtually defect-free delivery of orders to customers: the Eagle project.

That's a noble goal, admittedly, since the best guess is that fully half of HP's deliveries require rework today at some point in the process before the customer accepts delivery and pays the invoice. Studies have shown 10 to 15 percent of valuable HP field time is spent dealing with such problems. Achieving perfection will be no easy task—it will require the combined efforts of the field and all HP suppliers.

Europe has taken the lead in examining why HP's order-fulfillment process doesn't equal the high quality of HP products.

The Eagle project started in Europe in 1990. It has adopted the name of the historic little craft from Apollo XI that made the first moon landing in 1969. Intercontinental Operations and North American Field Operations (NAFO) have since adopted the Eagle name for their own initiatives to improve order fulfillment.

Heinz Fischer, European admin manager and Eagle project leader for Europe, says, "To be one of the winners, we must combine the best order-fulfillment processes with the best products."

The first step was to identify what could go wrong with the delivery of an HP order, as seen from a customer's perspective: not on time, incomplete, product not working, documents wrong, bad

packaging, defects in installation and an open-ended "other." These defects might appear at the time of delivery, installation or payment.

Then, if you know what might go wrong and when, you need to find out how well you're doing today in order to have a baseline to measure against as you work toward 100 percent defect-free delivery. (The goal is actually 6 sigma or 99.9996 percent quality, which is becoming a customer standard to which suppliers must conform.)

To break down the data sampling of defects into manageable pieces, the European Eagle team asked a single country to measure a defect in some cases, and assigned other defect types to several countries to measure in parallel. Each of HP's six businesses was looked at separately.

Belgium, for instance, is keeping detailed track of medical product orders that are incomplete at the time of delivery, with customer engineers reporting the errors. At the same time, five countries are keeping tabs on all defects in the documentation sent with medical

shipments as reported at the time payment is due. Pooling all this data will give a reasonably reliable picture of HP's order-fulfillment performance across the board.

HP Finland, which began measuring delivery times in 1990, now analyzes other defects as well. Explains project

> **"To be one of the winners, we must combine the best order-fulfillment processes with the best products."**

manager Maria Lehtonen, "Suppliers were not the greatest defect generators as we thought. Our own part of the delivery process caused more than half the defects."

Intercon is using a different approach, with all countries stressing their own TQC (total-quality control) projects—more than 100 are under way. Of these, 29 focus on defects on booking. A Tai-

wan team, for example, has reconstructed six months of defects on booking and is analyzing the problems revealed.

NAFO will build on some projects started last year, such as task forces that have studied ways to improve invoice quality and quoting. The Systems Support Organization started reporting installation defects last year.

In addition, NAFO plans to educate everyone involved with order fulfillment on the importance of detailed documentation of defects, says Dick Wilson, NAFO order-fulfillment and delivery manager.

The QUODEM system (which stands for QUality in Order and DElivery Management) will be the worldwide tool to automate data collection now being done manually or by local systems. QUODEM will measure how long it takes an order to complete the order cycle and the accuracy with which HP delivers what is promised.

The first release of QUODEM rolls together data from such existing worldwide systems as the Customer Feedback System (CFS/FACTS) and

> **"It's important... everyone understands reporting bad news is a good thing."**

the Defect on Arrival data collection platform. New areas of reporting will be added. It will be possible to slice the comprehensive QUODEM data by geography, business, major accounts or whatever.

Europe began pilot operation of QUODEM a year ago under the leader-

U.K. receives quality kudos

In March, the U.K. Sales Region received ISO 9002 certification for order fulfillment—a first for HP for this process.

Customers joined employees at a Quality Recognition Fair held in Amen Corner, England, on April 2, when the coveted certificate was formally presented by the British Standards Institute (BSI) to Managing Director John Golding.

BSI conducted the thorough-going assessment of activities at three of the sales region's major sites. It cov-

ered all phases of the supply and delivery of HP products and consumables—from receipt of order all the way to delivery and invoicing.

The U.K. Sales Region will share with Corporate Quality the techniques used to achieve certification in a fast-track six months. (There are plans to develop a training model for use worldwide.) As part of the U.K. effort, a project team of employees made a videotape about ISO 9002 to deliver the message of its importance to everyone in the region.

ship of Max Fallet as the worldwide project manager. Intercon and North America began rollout this May.

The Eagle project is starting with the end of the line—Defects on Arrival (DEFOA)—as seen from a customer's perspective. QUODEM, however, will collect an even broader range of data that includes Defects on Booking (DOB). (Some countries are already looking at DOB.) In time, Eagle will spread its wings to cover the order-fulfillment continuum worldwide.

In all three field operations, top management has set a breakthrough (Hoshin) goal for significant improvement in order-fulfillment quality during 1992. But before things can get better, they are likely to look much worse as

At HP's Espoo, Finland, office, Panu Greis, traffic coordinator, checks delivery times with the driver from John Nurminen Oy, a freight forwarder.

"We'd like 100 percent participation and 100 percent reporting…"

HP pays closer attention to the process.

"It will be important to change the mindset so everyone understands that reporting bad news is a good thing," says Earl Evens of Corporate Logistics, who chairs the QUODEM project in North America. "We'd like 100 percent participation and 100 percent reporting—and that's bound to result in a higher number of defects at first."

As Chuck Marr, Corporate Logistics engineering manager, says, "The more bad news we hear, the better we'll feel. If

we can get up to a number and stabilize, we'll have a pretty good idea of what's wrong and can go after root causes."

Doug Peterson, Intercon's QUODEM manager, believes the worldwide system will provide "a single, consistent and inarguable source for data that we can all turn to and agree is the right information."

In the U.K. Sales Region, going after the facts has included sending an employee to work for a dealer for a month, to find out firsthand what it's like to place orders with HP.

"We learned a lot," says Bruce Hitchcock, U.K. Region admin manager. A member of both the European Eagle and QUODEM teams, Bruce is a firm believer that quality in order fulfillment

will be a competitive advantage for HP. "The really good companies are all trying to do the same thing," he says. "Those who get there first and do the best will come out on top."

Taking full advantage of new defect visibility may require changes in attitude and perhaps even the way the order-fulfillment process is organized, believes Stefan Dunin-Wasowicz, Euro-

"Those who get there first and do the best will come out on top."

pean manager of customs, traffic and licensing and chairman of the joint QUODEM teams.

"We need to manage order fulfillment in the same way that manufacturing manages product quality," he says. "You have to have your processes right."

It could be more important to take time to do a thorough technical check than to get out a shipment at month-end, for instance. "Everyone will need to move from an output-control mentality to looking at the total quality of the way we conduct business," Stefan says.

"We've been selling on the quality of our products and manufacturing processes. Now we must also sell on the quality of our transactions." ∎

An original best seller

Barb Stinnett isn't faster than a locomotive, and she doesn't leap tall buildings. But her "almost anti-sales" sales style is super.

By Melinda Sacks

For Barb Stinnett, working 60 hours a week to achieve another record sales year, living on the road almost half of every month, and attending regular night meetings and sales dinners is not grinding hard work—it's fun.

And the 1991 announcement that she had been named to HP's prestigious President's Club—as one of HP's top 100 sales people—was just icing on the cake.

Since she was 21, the management-information-systems and marketing major from the University of Wisconsin has stunned her colleagues and competitors alike with a remarkable ability to sell HP products to a wide variety of industries and accounts.

Barb broke her sales quota to the tune of 148 percent in 1990, and had even higher percentages in each of her previous eight years as a commercial sales representative for HP's Midwest Sales Region office in St. Paul, Minnesota.

Yet the 33-year-old Midwesterner's style is a far cry from flashy or aggressive sales bravado.

"My vision of Barb is that she's very laid-back," says Paul Schoenholz, one of her long-term clients and the director of corporate information for Cray Research Inc. in Minneapolis. "She's relaxed, and her style is very sincere and results-oriented."

In the process of setting up an automated manufacturing environment for

ALVIS UPITIS/GAMMA LIAISON

"I like walking on the edge. That's where I have the most fun. I like to create new ways to work out problems and new ways to look at an account," says the Midwest Sales Region's Barb Stinnett.

Cray, Barb had to be particularly creative, Paul says, because HP's product did not fit the bill in one case. "She was willing to look for a solution from a third party, and that did a lot for her credibility," Paul says. "She was looking for a long-term relationship with Cray and she got it."

That selling style—"almost anti-sales," Barb says—results in about $3 million yearly in sales. She approaches a new client by meeting with top management to hear their needs, then looks for opportunities "that make sense."

"I say, 'We'd love to work with you and your people—if you're interested—to explain why open systems is a key success factor in your business,'" Barb explains. "It's more of a 'soft-sell' to help clients feel comfortable with us, and to earn the right to sell to them by learning their business before we discuss computer systems."

Barb works with Fortune 500 accounts—mainly 100 percent IBM customers—to spread the word about open

Understanding customer needs is important for Barb, who meets with **Donald Kilgard, director of information services for Onan Corporation, a generator-manufacturing company in Minneapolis.**

> ## "I don't go in trying to sell. I go in to look and listen."

systems and how HP can be a strategic partner in their business.

She begins by spending time with the chief financial officer, reviewing the company, its business goals and where it is competitively in the marketplace. "I listen for opportunities where information technologies may help them reach some of their goals faster," Barb says. "After the first couple of meetings, we ask for a meeting with the CEO and chief information officer (CIO)."

"That's when the fun begins," she says. "We have such a good story to tell.

I feel the key is to help the clients know that we are part of their team and we'll work with them on being successful long term."

Barb occasionally enlists help from John Young, HP president and CEO, and Dean Morton, chief operating officer, when she tries to penetrate accounts that are IBM strongholds.

"When the CEOs, CFOs and CIOs of those companies meet with John or Dean, HP gains a lot of respect and credibility," Barb says. "It opens the doors for those accounts that may not be as receptive at first to hearing our story. John and Dean make lasting impressions on those accounts, whether they're discussing global issues or how the PA-RISC (Precision Architecture, reduced-instruction-set-computing) chip was designed."

"Our executives are a perfect example of the open-door policy. They've always been willing to listen and help in any way they can—by letter, phone call

or, when it makes good business sense, a visit to the account. Their enthusiasm and willingness to listen are rare in a company our size."

Says John, "(Barb) is very skillful in making high-level calls. She knows how to leverage her resources—including me. She's willing to go out of her way, and it wins clients over."

Barb's key to success, she believes, is her ability to go into a new account without preconceptions. "I don't go in trying to sell," she says. "I go in to look and listen. I need to understand their issues first. I look for an area where information technology might be a help. I try to take my time so they don't feel rushed. You have to be patient."

From the beginning, Barb learned that patience was a virtue. In fact, it was her patience and perseverance that finally landed her a job at HP in 1981. It wasn't until the seventh interview that she finally got hired.

Best-seller

Barb attributes her job success to several factors. "I believe in the company, our products and services," she states simply. "I also feel very loyal because HP took a risk and hired me right out of school into a position that usually requires four to five years of experience. It made me want to return the favor."

In 11 years at HP, Barb has become a master of evaluating new clients' needs, then figuring out the best—and often most creative—solutions to sometimes complex problems. She has worked to break into IBM mainframe shops, helping them move to the open-systems arena. She continues looking for new places for HP to make a difference.

"I believe HP is the right answer," Barb says, in response to the always-present competition of other companies. "The feedback I receive from the prospects and clients I call on tells me that HP is at least two to four years ahead of IBM and DEC in terms of open systems.

"Clients tell me that we're the *only* vendor that can show them how to move forward. We also hear that we

Never one to take things lightly, Barb moves a portion of the 12 *tons* of boulders—along with 50 kinds of rock-garden plants—she added to her yard last summer.

> **"The feedback I receive... tells me that HP is at least two to four years ahead of IBM and DEC..."**

really understand the business issues in their marketplace, as well as the technology issues."

Does she ever feel the effects of burnout? Yes, she admits that she does get tired. And to be successful, she knows she must be able to balance her personal and professional life. That's why planning and taking vacations is so important to her.

"I like walking on the edge," she says, describing her choice of vacations as well as career. "That's where I have the most fun. I like to create new ways to work out problems and new ways to look at an account, and I like to find new places to visit and new things to do."

Her vacations have included a month in Greece, backpacking through Canada, white-water rafting and 10 days of herding cattle through Montana a la "City Slickers"—a year before the movie was made.

Never content with the status quo, Barb recently enrolled in a masters program in international business, focusing on multilingual negotiations. In three years of night classes, she will finish the degree she hopes will make it possible for her to move into management and, perhaps, a special-projects assignment in international relations for HP. Her studies in Japanese and French also should help.

"There's a lot more to learn in my field," she explains. "Every day there's

something new. It's a really dynamic field. It's hard to ever reach a peak because my job is different every year."

And as far as ever leaving her home base, Hewlett-Packard, Barb has just one thing to say: "I think I'm a lifer." ∎

(Melinda Sacks is a free-lance writer based in Palo Alto, California. —Editor)

Send your ideas

What HP employee—or group of employees—best demonstrates HP values? Who consistently excels away from HP as well as at work? Send your nominations for "People" stories to Jay Coleman, *Measure* editor, at mailstop 20BR, or P.O. Box 10301, Palo Alto, CA 94304-1181.

HP's president and CEO reports on the quality program's midlife crisis—and changes taking place.

John Young, HP president and CEO, demonstrates the capabilities of TV Answer, an interactive television device announced in February. HP will manufacture and market the product with TV Answer Inc.

I n this issue of *Measure*, there are three features about quality and the positive impact it's had on the lives of HP people. In this message, I'm glad to report that the quality movement at HP has survived its "midlife crisis." Let me explain what I mean, using the rhythm of people's lives as an illustration.

Consider the enthusiasm of youth. Upon entering adulthood, people begin to feel their own potential. Nothing's impossible. No mountain is too steep to climb.

Then, one moves towards maturity. This is a stage marked by lots of hard work, when people have little time to review their direction or progress.

Sometime along the way, people's lives reach a plateau. They pause for breath, survey the scenery and think about what path to take next. Some even wonder if the mountain's too steep to climb. That stage is what's often called a "midlife crisis." It's an apt description of what HP's quality movement has recently experienced.

In the early '80s when quality was in its youth at HP, the movement had strong momentum, fueled in part by the 10X challenge I posed. People were enthusiastic about the possibilities of TQC—total-quality control. Entities competed to see which could show the greatest improvements in failure rates.

From there, we moved toward maturity. The decade of the '80s represented a lot of hard work for HP people. Quality improvements don't come overnight, nor do they come easily. But perseverance pays off. By the end of the 10 years we had allotted to our 10X hardware goal, we could see incredible benefits from our quality efforts.

Even though we fell short of 10X—we only achieved an eight-fold improvement—we could point to $800 million in savings in warranty costs and to hundreds of millions of dollars we don't have tied up in either inventory or accounts receivable. The people directly involved benefited from clearer insights

into their work processes, well-understood measures and goals, and the satisfaction of controlling their work instead of being controlled by it.

As we moved toward completion of our decade-long quality quest, we asked ourselves what would be a logical follow-on. Our way of ensuring continued progress was to devise what we called the Quality Maturity System (QMS). Its goal is to keep us on the learning track—to lead us to maturity.

The QMS review evaluates and measures how an entity is doing in five key areas: planning, customer focus, process management, total participation and improvement cycle. QMS serves as a "checkup" of how well an entity is applying quality concepts to its management processes. The two-day review process is a candid dialogue ("dog-and-pony shows" are discouraged) between QMS reviewers and an entity's management team. A real learning experience

> ### "... the quality movement at HP has survived its 'midlife crisis.'"

for everyone involved, the review creates a specific set of action items the entity can undertake to improve.

To measure our progress, we gave QMS a five-point scale, with a "stretch" goal of achieving a companywide average score of 3.5 by 1994. That may appear unambitious on a five-point scale, but it's a demanding metric. In our view, the 3.5 score would make HP

a serious contender for the Baldrige Award.

How have we done relative to our QMS goal? We've been sitting on a plateau, with QMS scores improving more slowly than hoped for. And some HP managers said the standard QMS review

> ### "Our expectations are as high as ever, and the changes we're making strengthen the program."

format didn't match the specific needs of their businesses. These issues led us to form a task force of HP managers who did TQC *on* our TQC program and recommended refinements.

The most basic change involves the 3.5 goal. All HP entities are now being asked to achieve a baseline score of 2.5 on QMS. After they attain that basic level of competence, they may choose either to continue with the standard QMS review or to define a specific quality goal critical to the success of their business. This entity-specific goal must be approved by the group general manager, who will become more involved and responsible for all quality reviews.

Does this change in the QMS goal mean we've lowered our sights on quality? Not at all! Our expectations are as high as ever, and the changes we're making strengthen the program. I've initiated a President's Award for any HP entity that achieves 3.5 and has good business results. Because any entity that's reached the 2.5 baseline may choose a subsequent quality goal tailored to its business priorities, the linkage of quality to business

results is strengthened, as is local management's ownership.

Improved quality is essential for business success. Quality by itself won't guarantee success because it can't, for example, compensate for a flawed strategy. But a business surely can't win in the long term without it. We want HP to be successful at the turn of the century, not just the next quarter. We believe that QMS is the right way for HP to make continuous improvement a way of life. Patience and perseverance are needed and will pay off.

That's what surviving a "midlife crisis" is all about. It's about getting halfway up the mountain, pausing for breath and reassessment—and having the maturity and endurance to continue aiming at the peak. The quality movement at HP has moved to a new level of maturity—one benefiting from the wisdom of experience, the conditioning that comes from having come a long way already and the resolve to continue the trek.

John

News from around the HP world

Will Arduino, general services manager for the Fort Collins, Colorado, site, uncovers evidence on a "dumpster dive."

Former Academies student Javier Navarro, an employee at the Vancouver Division, counsels students on careers.

Dumpster diving

When employees at the Fort Collins, Colorado, site wanted to check how effective their recycling programs were, they jumped into the project with both feet—literally.

Since 1990, Will Arduino's resource-recovery department has conducted quarterly "dumpster dives" to find out first hand—rubber-gloved hands, he notes—if site employees were getting the recycling message.

The team follows a trash-collection truck from the Fort Collins site to the local landfill and sorts through 40 cubic yards of trash about 8 feet high, 8 feet across and 20 feet long.

"We've found everything from sensitive, confidential information—such as departmental organization charts, shipment reports and purchasing forecasts—to perfectly good binders, floppy disks and an HP sales training videotape," says fellow "diver" Mike Greenfield.

Two years ago, about 70 percent of the trash was paper and cardboard. Now, after ongoing awareness programs, Mike says they find almost no paper, binders or confidential material.

"We've shot photos and videotape during the 'dumpster dives,' and shown them to our site General Manager Bob Perich and at coffee talks," Mike adds.

"This is just another communication tool to show employees that recycling is important. Believe me," Mike adds, "the tape leaves a lasting impression."

Getting the scoop on getting a job

What skills do today's students need to compete successfully in tomorrow's job market? HP people helped answer that question and others recently at the fifth annual Partnership Electronics Academies Career Fair in Cupertino, California.

The Partnership Academies program is an alliance of the state Department of Education, Silicon Valley companies and area high schools. Using a modified high school program and innovative instructional strategies such as team teaching, the program builds academic and vocational skills.

Each of the 48 academies is oriented to a specific subject area such as electronics, and has specialized classes and relationships with area businesses.

At the fair, more than 200 students met with representatives from 24 Silicon Valley companies, including HP, Tandem, Lockheed Missiles and Space Co. Inc. and Apple Computer. Students heard about career options and practiced interviewing skills in mock interviews with industry volunteers, many of whom are mentors for students in the program.

"The career fair is one of the activities we offer to better prepare students for life after high school," said Myra Kelley, industry liaison for HP.
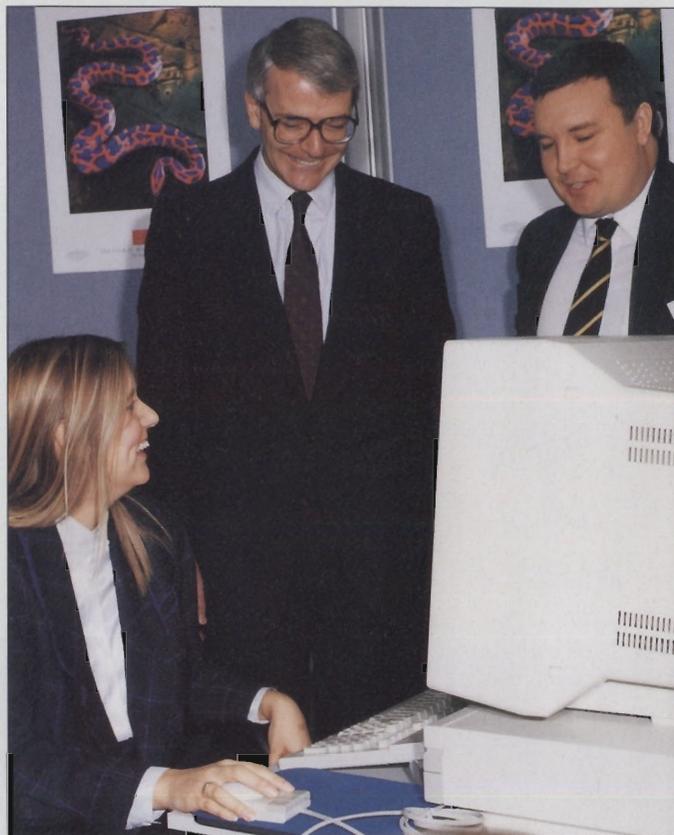
Oxford Molecular Limited's Dr. Catherine Burt and Dr. Tony Marchington (right) demonstrate OML software on an HP Apollo 9000 Series 720 workstation to the Right Honorable John Major, prime minister of England.

A Major occasion

It was a demonstration fit for a king—or at least a high government official—recently when the Right Honorable John Major, Prime Minister of England, visited Oxford Molecular Limited (OML). Mr. Major saw a demonstration of OML software on an HP Apollo 9000 Series 720 workstation.

OML works with research scientists at Oxford and other universities to promote the commercial development of software design from higher education institutes. Dr. Tony Marchington, OML managing director, described the HP/OML relationship to the Prime Minister as "a strategic partnership essential to OML for gaining international recognition."

The HP Apollo 9000 Series 700 workstation is the leading platform for all of OML's application software.

BOTTOM LINE

Hewlett-Packard reported a 49 percent increase in net earnings and a 13 percent increase in net revenue in the first quarter of its 1992 fiscal year ended January 31.

Net earnings totaled $306 million or $1.21 per share on some 253 million shares of common stock outstanding (compared with $205 million or 83 cents per share on some 247 million shares in the year-ago quarter).

Net revenue totaled $3.9 billion (compared with $3.4 billion in Q1 of FY91). Orders for the quarter were $4.2 billion (compared with $3.7 billion).

VICE PRESIDENTS

Elected vice presidents in March: **Rick Belluzzo,** G.M. of Ink-jet Products Group; **Doug Carnahan,** G.M. of Printing Systems Group; **Ray Smelek,** G.M. of Mass Storage Group; and **Dick Watts,** worldwide sales, distribution and support manager, all of the Computer Products Organization, and **Dick Love,** G.M. of Computer Manufacturing, Computer Systems Organization.

Vice President **Hal Edmondson** retired from the company March 31.

GETTING TOGETHER

HP and Yokogawa Electric Corporation have formed a new independent joint venture, Yokogawa Analytical Systems Inc. (YAN), to manufacture and sell analytical laboratory instruments and systems in Japan. President is **Hideomi Nakashima.**

HP is among nine companies forming the Precision Risc Organization (PRO) to advance PA-RISC technology. HP's **Jim Bell** serves as PRO president.

HP forms strategic relationship with Convex Computer Corp. and takes 5 percent equity position... HP and TV Answer Inc. to develop the first national interactive TV system in the U.S. ...HP and IBM announce a strategic alliance to develop and make fiber-optic components that both will market.

NEW HATS

Terry Cheng to G.M., China Hewlett-Packard. **Greg Barton** to G.M., New Zealand.

Larry Cattran to manager, Group/U.S. Factories Operation of the Analytical Products Group. **Jerry Harmon** to operations manager for the Puerto Rico Manufacturing Operation, part of CSO Computer Manufacturing.

Back in the slammer, again

One-half of all parolees go back to prison again after being on parole. Yet, until a new system was developed using HP hardware, software and the Oracle database, the Parole and Community Services division of the state of California Department of Corrections (CDC) tracked released prison inmates manually.

With the parolee population increasing at 20 percent or more a year, monitoring California's parolees is a critical challenge.

The new system uses HP 3000 Series 900 computers, HP Vectra PCs and the Oracle relational database to serve the CDC Parole Division's 140 statewide offices. Once installed, connections can be made to the California Law Enforcement Telecommunication System, the Criminal Identification and Investigation System and FBI records through the National Law Enforcement Telecommunications System.

The Oracle database allows parole agents to conduct inquiries faster and more accurately. "For example, we may want to know, 'What parolees over 6-feet tall rob liquor stores?'" said Frank L. Russell, parole administrator.

Before the HP/Oracle system, there was no way of going through 81,000 files to look for matching information. This expanded intelligence capability will aid in solving and preventing crimes.

T&M CHANGES

In Loveland, Colorado, the Electronic Instruments Group (EIG) has combined the former Loveland Instrument and Measurement Software divisions into a new VXI Systems Division under G.M. **George Sparks. Bill Tippett** is G.M. of the new Loveland Manufacturing Center, which will handle manufacturing for the two T&M divisions on site, along with other functions.

EIG also has changed the name of the Lyon Instrument Operation in France to Lyon Instrument Systems Operation.

The Microwave and Communications Group has replaced the former Signal Analysis and Network Measurements divisions with a newly formed Santa Rosa Systems Division under G.M. **Scott Wright** and the Microwave Instruments Division under G.M. **Duane Hartley.**

NSG CHANGES

Within the Networked Systems Group (NSG), the Workstation Business Unit (WSBU) has formed two new entities: the Entry Systems Division under **Denny Georg** as G.M. and the Advanced Systems Division, headed by WSBU G.M. **Gary Eichhorn** in an acting capacity.

Ed Muns to G.M. of NSG's newly formed OEM Systems Division. **Kurt Friedrich** to G.M., Open Systems Software Division.

HP LABS CHANGES

HP Labs formed two new centers, each comprising three Palo Alto labs:

☐ Computer Research Center under **Dick Lampman** as director—a new Computer Research Lab, a restructured Software Technology Lab, and Computer Peripherals Lab (new director, **Howard Taub**).

☐ Measurement Research Center under **Ed Karrer** as director—Instruments and Photonics Lab, High Speed Devices Lab, Analytical/Medical Lab (new director, **Barry Willis**).

Two new labs were formed by HPL - Bristol: Intelligent Networked Computing Lab under **Virgil Marton** as director, and Personal Systems Lab under **Bill Sharpe** as director. Sharpe also will manage a newly announced Extended Office Initiative.

MARTIN FORSBERG

Auto art

The beauty and texture of this old Renault automobile caught Martin Forsberg's attention while on a holiday outing in July 1991.

"The photo was taken in the countryside in county Värmland in Sweden," he explains. "The location is about four kilometers from the Norwegian border."

Martin is a logistic/demo coordinator in HP's Malmö, Sweden, sales office.

MOVED LATELY? CHANGE OF ADDRESS SHOULD BE REPORTED TO YOUR PERSONNEL DEPARTMENT.
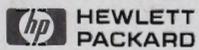
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