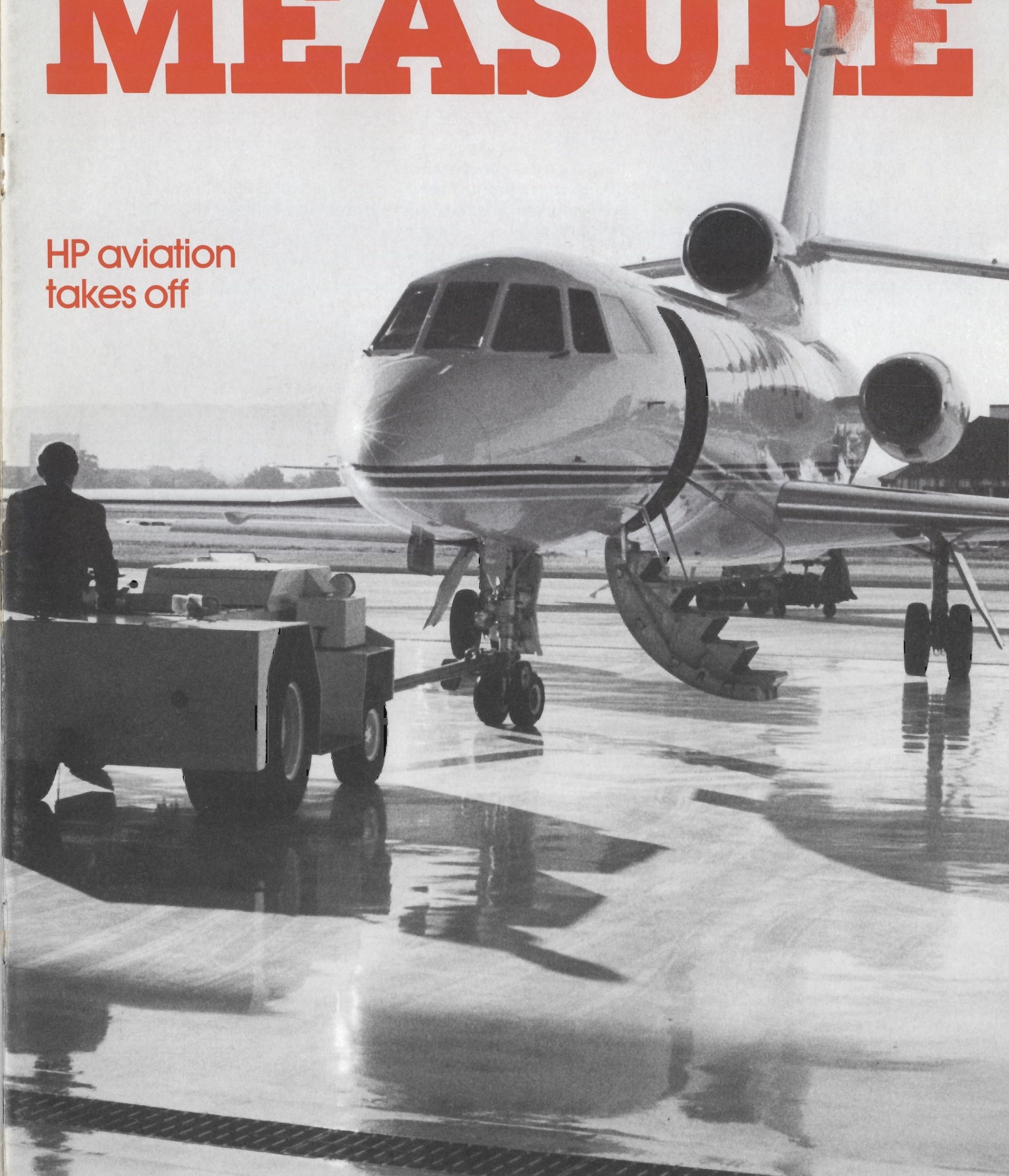


For the people of Hewlett-Packard

May-June 1988

MEASURE

HP aviation
takes off





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HP weathered the business storms of the early 1980s better than most companies with a variety of programs aimed at balancing the work force.

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An HP model maker and his wife shed new light on the illuminating craft of creating holograms.

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HP's high-flying airline celebrates its 16th year of service with a sparkling new facility and a first-class reputation. Cover photo by Sharon Hall.

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Five years ago, pricing HP products sold outside the U.S. was a crude art form. Today it's a science.

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Hewlett-Packard Company is an international manufacturer of measurement and computation products and systems used in industry, business, engineering, science, medicine and education. HP employs more than 82,000 people worldwide.

Gaining a delicate balance

When you talk **A**bout the “good ol’ days” at Hewlett-Packard, some would argue that you need go back only as far as the early 1980s.

With a booming business and an abundance of orders for new products, the work force grew by more than 20,000 employees between 1981 and 1985.

At the same time, the makeup of HP’s business was changing. The competitive environment was more intense as the company continued to emphasize its computer business and began facing industry leaders such as IBM and Apple head-on.

The best year ever for companies such as HP, IBM and Digital Equipment Corporation came in 1984. In the wake of that prosperity, everyone made projections based on a tremendous ’84. There wasn’t enough business to go around for everyone. That became painfully evident in 1985.

HP instituted a number of changes. Some processes were shifted to new locations. A few operations were consolidated. Some processes were replaced. A few businesses were phased out.

Just as HP’s employee population was bulging, segments of the industry were flattening. Soon the work force was out of balance with the business needs. Some HP locations needed more employees while others had too many. It was a time for creative solutions.

“In some ways, the early ’80s gave us too much momentum,” explains Jennifer Konecny, manager of the Corporate Human Resource Planning Department. “We added new skills by recruiting, rather than stopping to look closely at our employees’ current skills in relation to the company’s needs.

“In 1985 we needed a variety of programs to help



Balancing



balance our work force. Some of those programs bubbled up from entities which had to deal with the situation faster than others.”

HP locations most affected by the balancing programs included Fort Collins, Loveland and Colorado Springs, Colorado; Avondale, Pennsylvania; Rockaway, New Jersey; Boise, Idaho; and San Francisco Bay Area sites in Cupertino, Santa Clara, Sunnyvale and San Jose, California.

The primary programs included:

- Voluntary Severance Incentive (VSI) allowed HP employees to leave the company and receive as much as 12 months' salary and accrued retirement benefits. Enhanced Early Retirement (EER) was a one-time program offered to employees 55 years and older with 15 years or more of HP service to retire with full accrued benefits and up to one year's salary.
- Shared Expense Relocation Program (SERP) and Distribution of the Work Force (DOWF) enabled HP to move trained employees from one division to another to meet skills needs.
- Retraining programs in the San Francisco Bay Area such as the Software Job Skills program and Partnerships for New Careers helped people gain skills for high-demand engineering and administrative careers.
- Temporary Employee Movement Program (TEMP) and the Loaned Labor program placed excess employees from one division in another HP division with a labor need.

While most of the balancing programs took place in the U.S., a number of relocations were made in HP locations in Europe and programs were designed to meet local employment practices.

While business trends will continue to be cyclical, Jennifer says, HP now has a set of management practices to deal with the changing climate.

“Looking back, you'd have to agree that HP weathered the business 'storms' of the mid-1980s better than



Production Supervisor Phyllis Kirby was ready for a new adventure, so she relocated from Loveland, Colorado, to Waltham, Massachusetts.

most companies,” Jennifer notes. “The balancing programs we've used in the past three years were highly successful because they helped HP achieve its business objectives while providing new and—our survey shows—popular alternatives for HP employees.

“It was painful at times, but now we have a variety of proven tools to use when the need arises.”

Measure talked with four HP employees—and one former employee—about the impact “balancing” had on them.

Relocation offers Phyllis a moving experience

Phyllis Kirby has always been somewhat of an independent sort.

She has lived in Illinois, Missouri, Texas and Colorado, and prefers working the graveyard shift because of the added freedom. So when she had the chance to relocate from the Rocky Mountain beauty of Loveland, Colorado, to the historic New England area near Boston, she jumped at the chance.

“I guess I just had itchy feet,” says Phyllis, a third-shift production super-

visor in the Printed Circuit Division's operation in Waltham, Massachusetts. “I had visited Boston on vacation and liked the history and the greenness of the area. I enjoyed my work, the people and the climate in Loveland, but I was ready for a change.”

That was nearly two years ago when Phyllis, a technical supervisor in printed circuit board fabrication in the Loveland Instrument Division, traded a 17-year HP career in Colorado for a 2,000-mile move to the East Coast.

“We had experienced several years of prosperity in Loveland, but business had slowed considerably by 1986,” Phyllis remembers. “I didn't know a soul in Waltham; I just knew that it was time for a new adventure.”

Moving was a breeze. As a participant in the Shared Expense Relocation Program (SERP), Phyllis had help from HP selling her Loveland home. Within 60 days after first interviewing for the Waltham opening, she was living near the

seat of American independence.

"I never could have made the move on my own," Phyllis says. "HP made it all easy and painless to relocate.

"The biggest changes from Colorado to Massachusetts are the cultural differences and the ethnic diversity. There are a lot of strong, extended families here in Boston. You don't see that as much in Colorado because most people there move in from somewhere else.

"Plus, there's so much to see and do. The architecture is marvelous and it's amazing to think about the history that's so much a part of Boston."

Skyrocketing housing costs were a big adjustment for Phyllis. She found affordable housing in Sturbridge—about 60 miles west of Waltham—and makes the hour-long commute daily to HP. It's a far cry from the 10-minute drive she left behind in Loveland.

"I'm sorry to say that I've not kept in touch with several friends in Colorado," Phyllis notes, "but the relocation was good for me personally and professionally."

Voluntary Severance catered to Carolyn's dream

Carolyn Benson's first day as a professional caterer was a disaster.

It began when Mother Nature dumped several inches of snow on Fort Collins, Colorado. Then a brand new oven refused to work. Later the chef cut his hand. And Carolyn's inexperienced assistants kept making mistakes.

"Somehow we made it," Carolyn now says with a laugh. "I called my first clients—some friends from the HP credit union—and told them the delivery was going to be a little late. It was horrendous, but we survived."

Carolyn had worked for HP for 13 years, including the last seven as the cafeteria supervisor in Loveland, before taking advantage of the company's Voluntary Severance Incentive (VSI) to leave HP and begin a catering business in 1987.

While at HP, Carolyn used the tuition reimbursement program to earn a degree in business with a minor in information systems from Colorado



Carolyn Benson used her HP management skills and money from the Voluntary Severance Incentive to launch a gourmet catering service.

State University. VSI was the perfect solution for Carolyn when HP's business slowed in Colorado.

"It was hard to leave the security of a regular paycheck, the insurance and all the other benefits," she explains. "It took guts and some money to start my own business, so VSI was right for me."

Today, Carolyn's Cuisine is a full-service catering company which handles everything from weddings and parties to gourmet meals—such as beef medallions with a Madeira sauce and chocolate mousse cake—delivered to your home. Although many of her clients are former co-workers, she's building a loyal following outside of HP.

"The catering business is highly competitive," Carolyn says, "but being customer-oriented gives me an advantage. All of the HP classes I took concerning management and customer satisfaction really have paid off.

"I'm not making what I was at HP, but business is good and I'm learning a lot. It's a struggle at times, but I've learned a lot about marketing, sales, production, public relations—the whole thing. It's been an experience I wouldn't have

wanted to miss."

HP still plays a key role in Carolyn's Cuisine. Carolyn uses an HP Vectra personal computer, an HP ThinkJet printer and an HP-18C handheld calculator to run her growing business.

She's hoping that her HP experience and a strong belief in Carolyn's Cuisine will be the perfect recipe for success.

"I have a three-year lease on a building and I intend to make this venture work," she vows.

The (not-so) hard road to software engineering

Chuck deSostoa's lifelong goal was to be a hardware engineer.

He earned an electrical engineering degree from Michigan State University in 1979 and immediately took a job as a hardware engineer at Delcon, an HP division and telecommunications test

Balancing



equipment designer in Mountain View, California.

Chuck even stayed with Delcon when it moved to Colorado Springs, Colorado, and became HP's Colorado Telecommunications Division. In 1982 he transferred to the former Information Networks Division (IND) in Cupertino, California, and designed automated test stations.

Everything was on track for a career in hardware engineering when a funny thing happened. "By 1985 it was obvious that most of the available jobs were in software," Chuck explains. "The choices were to relocate, retrain to be a software engineer or to leave HP and go to work for another company as a hardware engineer.

"I was very happy with HP and thought it might be time for new challenges, so I signed up for the training."

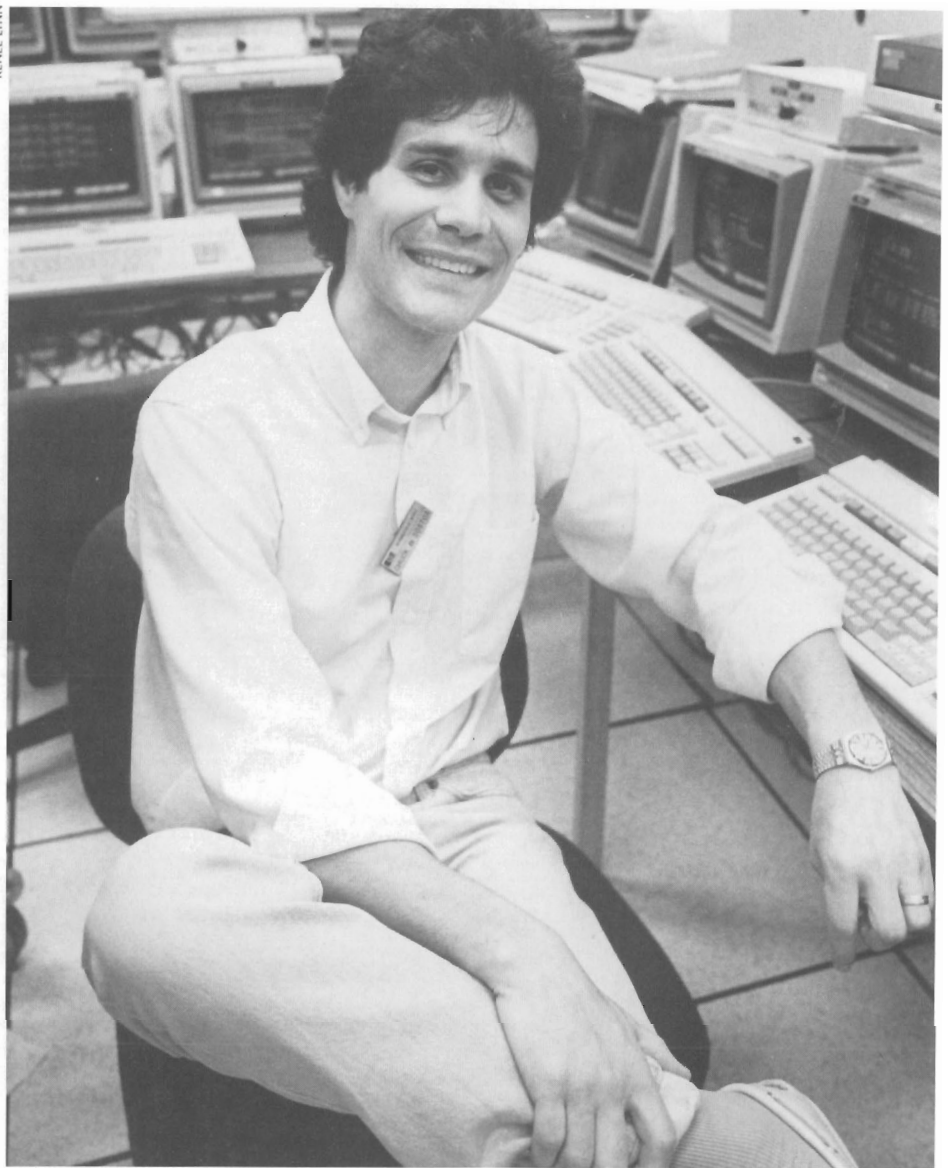
Like most hardware engineers at IND, Chuck enrolled in an intensive, 17-week Software Job Skills course.

"Our goal was to develop engineers to be more current," says program coordinator Daniel Wu of Corporate Engineering. "Without continuing education it's easy to be obsolete because the technology changes so fast. The training is demanding, but the engineers know that the course information is essential to learn."

Chuck says it's an exciting time to be a member of the technical staff at the Business Networks Division (one of two entities created in a split of IND) where he designs and develops networking subsystems for HP's business computers. There's the continuing challenge of learning new operating systems, networking and new architectures.

He tells friends interested in engineering to specialize in software because "that's where the jobs are."

"Being a hardware engineer can be frustrating; sometimes you're required to solve basically unsolvable problems



Retraining opened up new opportunities for Chuck deSostoa, who now is a software engineer at the Business Networks Division in Cupertino, California.

without redefining the constraints.

"Software can be frustrating in its own way because of the magnitude of the programming job. You know what has to be done, but sometimes you're overwhelmed with the project's scope.

"The way I see it, an engineer is an engineer, regardless of whether your specialty is electrical or computer science. You're still in the problem-solving business."

I want to be 'a loan'

Business was slowing down at the Northwest Integrated Circuits Division (NID) in Corvallis, Oregon, in the fall of 1986, so the division made some of its employees an offer:

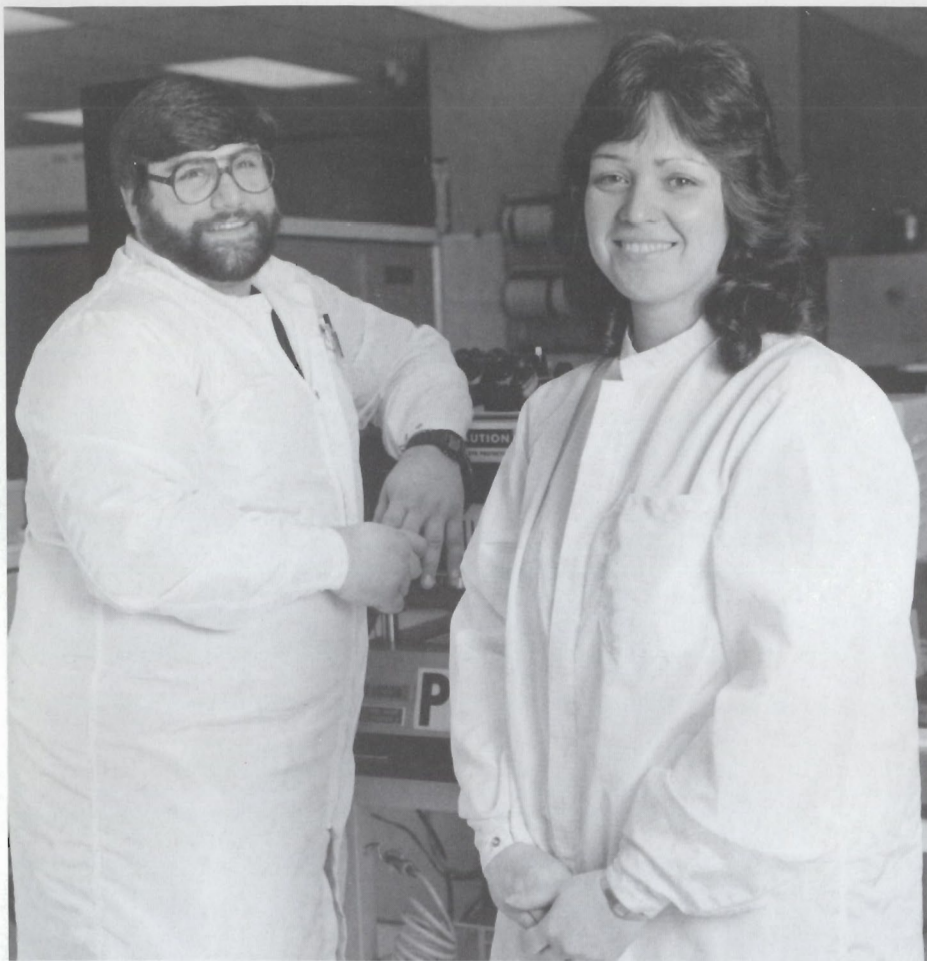
"How would you like to work at

another HP division for a few months?"

For Russ Gaylor, a production worker in NID's die fab test area, and his wife, Barbara, in NID's receiving department, the "loaned labor" offer was too good to pass up.

"I was curious to see how another HP division operates," says Russ, a seven-year HP employee. "It was a nice change of pace and a chance to see another part of the country," adds Barbara, also a seven-year employee.

The Gaylor family accepted a temporary assignment at the Lake Stevens (Washington) Instrument Division (LSID). They put their belongings in storage and moved into a furnished apartment in Mill Creek, about 25 minutes from LSID. HP gave the Gaylor family a monthly



Russ and Barbara Gaylor got an inside look at a second HP division when they accepted a temporary assignment at the Lake Stevens Instrument Division.

allowance to cover living expenses.

Barbara worked first shift and Russ worked third shift, so someone was always home to care for their two preschool daughters.

Both Barbara and Russ learned new skills to work at LSID. Barbara was trained for printed circuit board assembly and Russ switched from microelectronic assembly to building signal generators.

"There was a drawback at first," Russ explains, "because we replaced some temporary workers. Over time we became friends with the people there. Barbara still keeps in contact with people she worked with at Lake Stevens."

In all, 120 employees from Corvallis participated in the loaned labor program, temporarily relocating to sites in Roseville, Santa Rosa and San Diego, California, as well as to McMinnville, Oregon, and Lake Stevens.

Russ and Barbara eased the 350-mile separation from their friends and family by driving to Corvallis six times during their six-month stint at LSID.

"We never felt cut off from NID," Bar-

bara notes. "People from the personnel department at NID came to visit us a few times, and my supervisor from NID kept in touch with me so I still would feel like I was part of that group. That really helped."

"HP treated us very well the entire time," adds Russ. "I can't think of a better way for a company to handle a labor need and a labor reduction than by one division helping another."

"After six months we were getting a little homesick to get back to our own home and our own bed, but overall it was a very positive experience. We would volunteer again if we had the chance." —Jay Coleman

Balancing programs rate high marks

Just how successful were HP's balancing programs in the past two years?

Highly successful in the case of Voluntary Severance Incentive (VSI) and Enhanced Early Retirement (EER) explains John Mohr, personnel section manager at the Loveland Instrument Division.

John headed a project to survey HP employees nine to 12 months after they left the company as part of the VSI and EER programs in 1986.

"We heard rumors," John says, "that people weren't happy with their decision and were having trouble finding other jobs. Judging by the surveys we received, that simply was not the case."

HP surveyed all 1,600 employees who left under VSI and EER, and received 818 responses. Additionally, the company surveyed 1,200 people who decided to stay with HP rather than take the VSI; 483 people responded. The results showed:

- 90% of employees who opted for EER said they made the right decision.
- 75% of VSI employees said they would take the plan if they had to do it all over again.
- 87% of the people who took VSI said they had either found employment or weren't looking for work.
- 78% who had looked for new jobs said they found work within six months.
- 75% of active employees said they felt positive about their decision to stay with HP and would make the same decision again.

"The survey showed that the programs fit the need for the majority of people," John adds. "And it demonstrated that HP is concerned about the communities around us and our impact on those communities. The programs met our business needs and our employee needs."

Extra

ORDINARY PEOPLE



Tripping the light fantastically

An HP model maker and his wife shed new light on the illuminating craft of creating holograms

Greg Cherry and Nancy Gorglione have given new meaning to the institution of marriage by developing a truly multi-dimensional relationship.

They make holograms.

Most everyone's seen examples of holography, the technique of producing photographic images that give the impression of depth and form. Visa and MasterCard holders need only check their wallets to see examples of the three-dimensional images.

But few know that holograms are created by exotic helium-neon or argon lasers, and even a smaller number of people actually use lasers as an art form.

In an unlikely coupling of high technology and rural living, Nancy and Greg are forging holographic breakthroughs at their home in the apple-growing Northern California community of Sebastopol. The husband-and-wife team has built a national reputation on holograms made in their basement.

"We figured if we ever sell the house, this can be the rec room," says Nancy, gesturing toward what would be the pingpong table—a 5,000-pound slab of concrete on which many of their holograms are created. Resting on inner tubes, the concrete counter absorbs movement-causing vibrations that ruin holographic photography.

Around the corner is a darkroom used in developing the three-dimensional photographs. It's small but could be converted into a cozy handball court by new recreation-minded owners.

Not that Greg and Nancy are thinking about selling. In fact, they're talking about building a larger hologram-making station, this one in an area suitable for shuffleboard.

It should be obvious by now that this is not a standard American household, nor are Greg and Nancy an average couple. Indeed, theirs is not your typical love story.

A shared desire to expand the techni-



A vibration-absorbing, two-ton 'pingpong table,' a series of mirrors and a laser beam help Microwave Technology Division's Greg Cherry and his wife create holograms.

cal and artistic horizons of holography originally brought them together, but what happened afterward had as much to do with biology as technology. They became acquainted while Nancy was working behind the counter at Holo Gallery, a San Francisco shop specializing in holograms.

One thing led to another after discovering their common enthusiasm for holography, and soon they were collaborating on a variety of projects. "Eventually," says Greg, "we decided our holographic interests just needed to be together."

Nancy has a more romantic version of their partnership. "First," she says, "we fell in love."

Now the \$64,000 question: who's the technician and who's the artist?

Actually, they're both involved in creative and technical aspects of holography. But if there's any distinction, it can probably be found by examining their backgrounds.

Greg has been a prototype model maker at Hewlett-Packard's Microwave Technology Division in Santa Rosa since 1979, designing and building a variety of parts for engineers. Before joining HP, he worked for six years in tool room machining at Fairchild Semiconductor. Greg was born in Los Angeles but grew up in San Rafael, a suburb of San Francisco, and attended machine and metal technology classes at the College of Marin.

A native of New York, Nancy hoppedscotched around the country with her family, living in Oklahoma, Kentucky and Massachusetts before making California her home at the age of 18. A self-described "lifelong artist," she

attended San Francisco City College and San Francisco State University as well as a school of holography headed by a pioneer in the field.

Nancy's formal training contrasts with Greg's education in the discipline. Mostly self-taught, his early involvement in holography paralleled the size of his bank account. "When I could finally afford a laser (which start at around \$500), I bought one and started making holograms," he says.

Greg makes it sound simple. It isn't. Holograms are made by the interference between laser light reflecting from an object and another "reference beam" of laser light. Many of Nancy and Greg's holograms are produced by splitting a helium-neon or argon laser beam into two beams, one of which evenly illuminates an object placed in front of holographic film. The second beam evenly illuminates the film, and when the two beams meet at the film, an interference pattern is created. Holograms are the photographic recording of this interference.

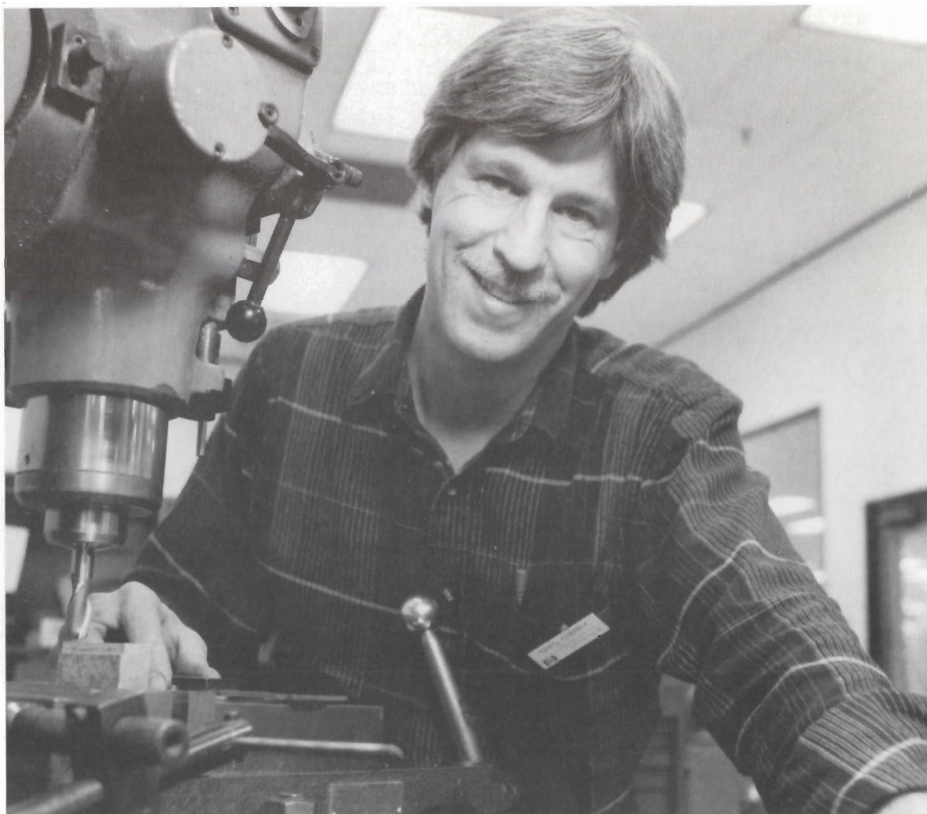
Before she became a holographic artist, Nancy made and sold stained glass in the early '70s. Later she became fascinated with vacuum deposition—an advanced technique using thin film to turn sunlight into rainbow colors. Some of her vacuum deposition art still brightens the couple's home.

Always determined to use the latest technology in her work, Nancy formed a non-profit organization, Laser Affiliates, and was conducting laser light shows when she met Greg. Together with a few friends and associates they staged a series of Bay Area events incorporating light, sound and motion. Sev-

Extra

ORDINARY PEOPLE

CHUCK FOX



eral of the multimedia shows were held in McKenna Theater at San Francisco State University, where Nancy was teaching holography through the school's physics department.

Greg's interest in electronics has perfectly complemented Nancy's artistic training. "Holography is sculpting with light," says Greg. "The development of equipment to create laser art is as interesting to me as the art itself. Nancy applies her art to the technology, while I develop technology and apply it to the art."

Capitalizing on each other's strengths has allowed them to expand the creative boundaries of laser technology. "I'll get an idea—an overview of how it should look," says Nancy, "and Greg will make it practical."

Their holographic work is vibrant and varied, from whimsical cartoon-like characters to pieces of fruit, from pictures within pictures to floral arrangements. They even transform routine items such as coins and gears into striking holograms.

Nancy and Greg's talents have become so refined, in fact, that they are among a small number of artists worldwide who are marketing holograms. Through their company, Cherry Optical, they have sold more than 1,000 of the 3-D photographs over the last five years.

"Some like it for the magic," says Greg, explaining why people buy holograms. "It's a novelty to them." Others, he says, fancy themselves as collectors. "They believe holograms will eventually be worth a lot of money."

Denis Gabor might have thought so in 1947, when he created the world's first hologram. Measuring only a few millimeters, the invention was nevertheless a big hit in the scientific community: Gabor was awarded the Nobel Prize in physics for his work in holography.

With advanced laser technology, holograms have evolved from humble beginnings to an art form with potential limited only by imagination. Nancy and Greg have been on the crest of this surge in creativity with displays in museums and galleries nationwide. They recently were curators for and participated in a California holography

Greg uses his creative talents every day as an HP model maker who designs and builds a variety of parts for engineers.

exhibition at the Museum of Holography in New York, and installed a permanent display of holography at the Lawrence Hall of Science in Berkeley.

But they're not resting on their laser laurels. A new project at the Exploratorium in San Francisco is bound to "push the media" in new directions, according to Nancy. Titled, "Equus/Underwater," it's an entire stage set of thematically linked holographic images and laser effects.

"This is our attempt to show that holography can be used on-stage," Greg says. "We've incorporated a lot of laser scanning and computer-generated animation, plus fluorescent and phosphorescent silkscreened backdrops, to create some ghostly effects." Got all that? If not, don't feel like a laser illiterate. It's simply a no-holograms-barred way of advancing the state of the art.

"If it is wildly successful, a Broadway producer will hire us to do a set," says Greg, who will join Nancy in answering any questions about their art during several weekends of the May 21-June 17 Exploratorium exhibit. Underwritten with grants from the California Arts Council and San Francisco Grants for the Arts, "Equus/Underwater" features approximately 50 holograms and represents six months of work.

Nancy and Greg admit their feelings about holography straddle the fine line between passion and obsession. That

line was crossed, along with a number of state lines, on a recent trip to Florida's Epcot Center. Sure, it was a nice vacation, and the exhibits of different countries were interesting. But the real attraction was a promise of seeing—you guessed it—a holographic display.

"We went specifically to see holograms," Nancy says, "but there was only one in the entire center." The picture is even bleaker at Disneyland in Anaheim, California. The magic of 3-D art has yet to be discovered at the Magic Kingdom.

Such a sorry state of affairs won't last forever, at least if Greg and Nancy have anything to say about it. "We're dedicated to increasing public access and recognition of this new art form," says Greg.

And they've got a two-ton pingpong table to prove it.—Jeff Weber

(Jeff Weber handles employee communication and press relations for HP's Microwave Technology, Network Measurements and Signal Analysis divisions in Northern California's Sonoma County.)

YOUR TURN

Measure readers share their views on matters of importance to employees.

They're "Made in Grenoble," too

I generally appreciate *Measure* and its journalistic qualities, so I was a bit surprised to see statements like "Made in Roseville" on the cover and on pages 3-7 of the January-February issue. Not only were they incorrect (the same terminals are produced in Grenoble, France, which becomes not that clear even after reading the article), but they also give the impression that only the U.S. operations of HP count.

Working for an international company, with operations around the world, I would appreciate a more careful wording, such as "there are activities in Europe, in Asia, etc. . . ." People working there also are reading *Measure*.

CEES LANTING
Grenoble, France

The Grenoble Personal Computer Division (GPCD) plays an integral role in the production of the new HP 700 family of personal computers, as GPCD Procurement Manager Jean Paul Moiroux explains in the "Made in Roseville" article. In no way was the article intended to slight the involvement of HP employees internationally.

However, the real story about the HP 700 series is that high-quality personal computers can be produced in the U.S. and still be cost competitive. Few companies other than HP—if any—can make that claim. —Ed.

More help on the way for disabled people

I found the article "HP ingenuity gives disabled students a head start" in the January-February 1988 *Measure* to be interesting and informative.

I would like to know if there is an HP office, department, etc. that can be

considered as a "reference point" to address different requests and information about special hardware, software and new products developed for disabled people.

If this is not the case, I would like to propose the creation of a "centre" where requests for information could be channeled from all over the world. This would give all countries the opportunity to benefit by knowing the latest hardware, software and other tools for the disabled.

ALFREDO SCARFONE
Milan, Italy

Bob Ingram, HP specialist for worldwide equal opportunity development, responds: "HP employees in Italy should be proud of their efforts on behalf of persons with disabilities, especially their program to provide teleprinters for visually impaired employees there."

"We are working to set up a system such as Alfredo suggests for sharing accommodations and best practices internationally. In the meantime, I welcome information and ideas from all employees to add to our data base. Please contact me if you have questions regarding people with disabilities."

Emergency number needed in Korea, too

Brad Whitworth's article "Enhanced 911: a new emergency lifeline" (January-February 1988 *Measure*) broadened my point of view of emergency problems encountered in Korea.

Emergency calls from too young or ill people cause serious difficulties in identifying their location and situation. We have tried to suggest and develop ANI and ALI systems for the Korea Telecommunications Association through the enhanced degree of leadership. The idea could save many lives. By the way, the emergency number in

Korea is 119—the reverse of the number to call in the USA.

I am very impressed by the quality of diverse topics such as "emergency lifeline" in the fantastic bimonthly magazine *Measure*.

YOUNGHO LEE
Seoul, Korea

A division is a division...

The article in *Measure* (March-April 1988) to clarify the meaning of today's divisions in HP was very good. It looks like there no longer are rigid rules for defining a division.

The divisions are new organizational tools to deal with various business situations. The challenge for management is to use this instrument wisely.

ABBAS RAFII
Palo Alto, California

Please send mail

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

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What ... leaves on time 99 percent of the time? ... won't lose luggage? ... doesn't "bump" passengers? and ... safely transports 17,000 people a year?

HP aviation

From one airplane and a modest leased hangar in 1972 to a fleet of seven and a facility that's larger than a football field today, Hewlett-Packard's aviation department is quickly climbing to new heights as a marketing tool, while it continues its traditional role of providing quality air service for HP people.

"Although our role is evolving as the company grows, our mission is essentially the same today as it was 16 years ago," says Manager Ken Peartree. "We want to provide safe, convenient and efficient air transportation to HP employees traveling to areas that are not well served by commercial airlines."

The new cornerstone of today's aviation department is a 30,000-square-foot hangar and support facility that John Young called "a headquarters worthy of the service Corporate Aviation provides."

Completed last fall, the facility looks like many other HP buildings—from the outside.

Inside, passengers find a check-in window where reservations are confirmed and boarding passes collected. For early arrivals, there's a comfortable waiting area with a commanding view of San Jose International Airport's main runway. But late arrivals will have no time to relax and might need to change their travel plans since more than 99 percent of HP's regular flights leave on time.

The facility's most impressive feature is its 20,000-square-foot hangar. While planning the project, then Aviation Manager John Kendall, Corporate Construction Project Manager Ed Stelingsma and Ken visited several other corporate aviation facilities to, in Ed's words, "use the best design aspects of each to accommodate HP's needs."

HP's hangar is built with growth in mind; the north wall can be moved to double the capacity of the space. The hangar, as high as a three-story building, is large enough to house all seven aircraft in the HP fleet (see sidebar) or fit most "visiting" aircraft owned by HP customers.

The facility's additional 10,000 square feet includes a machine shop used for repairs and parts fabrication, office space for the 23-member corporate aviation team, a conference room,

kitchen and dining area.

The new facility is typical of a more marketing-oriented HP.

"It's important that the company makes a good impression with its customers. For a customer who's flying in to meet with HP people, this facility may be their first look at HP," says Ken. "So far, customer feedback indicates we're making an excellent impression."

Aviation at HP has come some distance since humble beginnings in late 1972. Back then, the locations of HP's U.S. manufacturing entities prompted the company to investigate having its own aircraft to facilitate transportation and communication needs.

FMC Corporation, then based in San Jose, was looking for a buyer for its five-person, one-airplane aviation department. Bill Hewlett, on FMC's board at the time, heard about the offer and put in place the chain of events that led to the creation of Corporate Aviation.

The first HP flights, under the management of John Kendall, served a relatively new Santa Rosa, California, operation and the Loveland and Fort Collins, Colorado, entities. Aviation headquarters was a 9,000-square-foot leased hangar on the east side of the San Jose airport.

As the service changed and planes were added to the fleet, HP outgrew its original facility. "Just a year ago if we wanted to park all the planes in the hangar, we had to have a wing of one plane crossing over the fuselage of another," says John.

Sixteen years after its first flight, Corporate Aviation employs 12 pilots, an eight-person maintenance team and three administrative support people.

The seven-airplane fleet helps Corporate Aviation cover the company's travel requirements. It also provides HP with flexibility, a critical factor when one considers the demands placed upon this system.

The regular weekly flight schedule includes eight round-trip flights to Northern Colorado (served by at least one of the Sabreliner jets) and 14 flights to and from Roseville, California (the rugged 19-passenger Twin Otter turbo-prop handles this run). Last year, the regular schedule accounted for 90 percent of the department's 3,253 flight

SHARON HALL



HP aviation's new 20,000-square-foot hangar at San Jose



International Airport easily accommodates all seven aircraft, including the Falcon 50 (foreground, right), the flagship of the fleet.

hours. The service moves nearly 17,000 people annually.

HP aviation also arranges as many as 11 special flights each week for division reviews or meetings. These flights are served by the 11-passenger Falcon 50—HP aviation's flagship. More and more, special flights are being used as marketing tools "not just to bring customers to HP, but also to take a marketing team directly to the customer," says Jack Brigham, vice president—Administration.

"Major customers expect vendors like HP to 'do things right,' and this applies to services like Corporate Aviation," says Jack. "When we sell to the customer, we're showing them the very best of HP. Our aviation operation can be a very effective tool to reinforce the high quality standards we have."

The department is evaluating the use of the two nine-passenger Piper T-1040s, which are not used in the present flight schedule. A third eight-passenger Sabreliner is for sale.

Although the department has the capability to service East Coast and non-U.S. entities, Ken says the demand hasn't been there. "We have used the Falcon for flights to Mexico, Canada and Puerto Rico, but there is an expense involved in the service that someone has to cover."

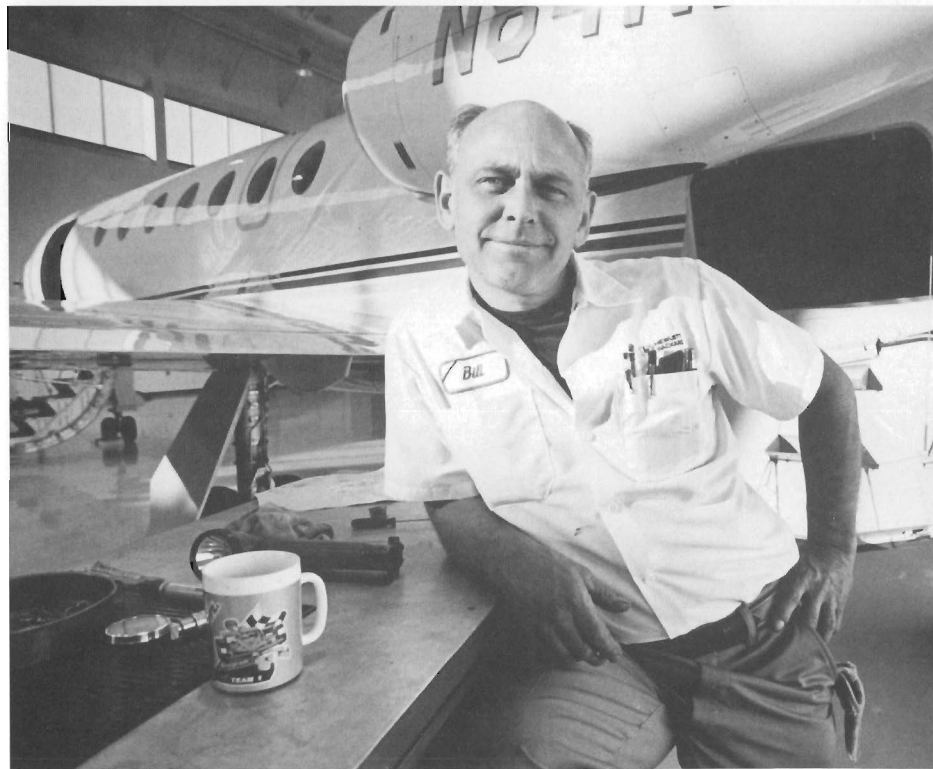
HP's aviation service is actually smaller than that found in many large corporations, but the greatest difference is in how the service is used. "Many companies reserve their aviation service for top management," Ken says. "It makes sense and is certainly in keeping with the HP way to make our service available to any employee. If our service makes an employee more productive, the whole company benefits."

As HP aviation looks forward, the department is considering the acquisition of larger and more powerful aircraft that are well-suited to marketing-oriented activities. And, Ken says, "as Roseville continues to grow, we are looking for the right combination of aircraft, seating, speed and schedule times to most efficiently serve our customers' needs."

"I think HP's air service is far better than that offered by commercial airlines," says Eric Flink, research and



Passengers board the 19-passenger De Havilland Twin Otter turboprop for one of the late-afternoon flights to Roseville, California.



Senior maintenance technician Bill Kerchenfaut takes a break before continuing a maintenance check on the Falcon 50 jet.

PHOTOS BY SHARON HALL



HP people leave the aviation facility's passenger area in preparation for boarding the De Havilland Twin Otter (seen in the window reflection).

development engineer for Fort Collins' (Colorado) Technical Systems Division and a frequent HP aviation passenger. Colleague Ken Sandberg, also a research and development engineer for TSD, agrees. "Flying on the HP jet is a much better use of time when you have to fly," he says. "It saves me a minimum of four hours on every trip to the Bay Area. You also have the benefit of being able to discuss any subject without being concerned about who's listening."

HP aviation's strongest commitment is to safety and service for its passengers. Ken says, "I feel strongly that our department is a committed part of HP's total efforts to encourage teamwork and provide the best service possible." Clearly, HP aviation means friendly skies and more. —Kevin O'Connor

The nuts & bolts of HP aviation

Founded: 1972

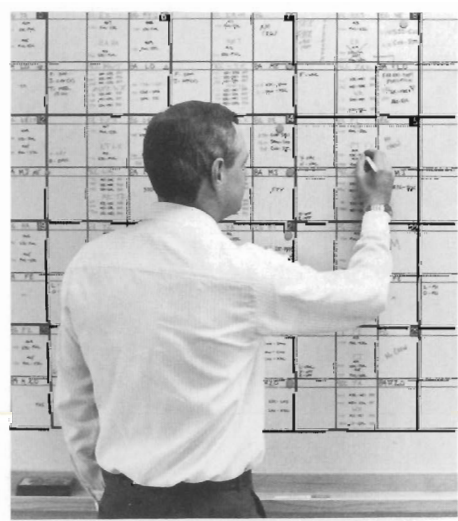
Staff: 23 people, including
 12 pilots
 6 aircraft maintenance technicians
 2 building services people
 2 administrative support people
 1 manager

Fleet: 7 aircraft, including
 1 Dassault-Breguet Falcon 50 (jet)
 3 Rockwell Sabreliner 60s (jets)
 1 De Havilland Twin Otter (turboprop)
 2 Piper T-1040 (turboprop)

Flights per year: 2,206 in 1987
Flight hours: 3,253 in 1987
Passengers flown: 17,000 in 1987

Facility: 20,000-square-foot hangar
 10,000-square-foot passenger area and support facility

Location: 1210 Aviation Avenue
 San Jose (California) International Airport



Pilot David Englehart makes an addition to Corporate Aviation's schedule board. The board tracks aircraft availability, 176 regular flights and any special flights on the HP schedule during a typical two-month period.

Making ure the price is right

Five years ago, pricing HP products sold outside the United States was a crude art form. Today, it's a science.

The dilemma is this: How do you know what price to charge a customer in pounds (or francs or yen or any other non-U.S. currency) for an HP product? And will HP still make a profit considering local tariffs, fluctuating exchange rates, competitors' prices, transportation costs and other shifting variables?

Since orders from outside the U.S. accounted for almost half of HP's \$8.4 billion in total orders last year, the problem is not insignificant. Over the years, the company's been able to refine its techniques for setting product prices in foreign currencies.

"Five years ago, determining the local currency price was a straightforward, cost-plus exercise," says Jeff Booth, sales region controller for HP's sales operations in the United Kingdom. "We fed in factory price, the exchange rate, slapped on an uplift, turned the handle and didn't worry too much about the product price that came out."

But HP improved the process by taking into account more factors from the local markets, starting with competitive pricing analysis. "Determining the local currency price is now a cooperative effort of the local marketing, sales, treasury and controller organizations," says Yves Couillard, HP France treasurer.

The improved process includes inputs or approvals or both from product group marketing managers, division general managers, marketing center managers, the European and Intercontinental financial directors

and product group controllers. Dennis Raney, director of finance and admin for HP in Europe, sees the process as an effective team effort.

"Treasury helps set pricing rates. Countries prepare pricing worksheets and competitive analyses. They talk to the marketing centers. The divisions determine factory surcharges. Everyone must work together to make this happen smoothly four times a year," says Dennis.

The company attempts to recover most of its product development costs and "regular" (read "U.S.") marketing costs by establishing a reasonable factory base price (FBP). This is a price set in U.S. dollars by the manufacturing division and the price that appears on the Corporate Price List. The FBP is the price that sales reps quote to U.S. customers.

But when that same product is sold to a customer outside the U.S., the process becomes more complex. The company has to find a way to recoup additional costs. For example, there are the added costs for freight, duty and import services when the product moves across borders; for translation of sales literature and product manuals; and even for running a local sales force. These costs are added to the FBP and constitute trading income (see box on page 17).

One important factor in setting the local currency price is the exchange rate: How many deutsche marks equal one dollar today and in the future? The fluctuating exchange rate can create friction between customers and HP.

"When the dollar's value is increasing against other currencies, customers demand local price stability," says Bob Venus, HP's treasurer in the U.K. Bob is a member of the pricing council for his country's sales organization. "But when the dollar weakens, customers want instant action from HP in terms of lower local currency prices."

But the foreign exchange rate (internally called the pricing rate because it

includes the cost of a special sort of insurance against exchange rate changes called "forward exchange coverage") is only one of four factors that determine the local currency price (see box on page 17).

HP adapts its pricing to meet local market customs. In Spain, for example, the local currency price includes the cost of a longer payment history.

"In the Spanish market, average payment terms are 90 days—three times longer than in the U.S.," says Antonio Aleman, area admin manager for HP Spain in Madrid. "That means our Days Sales Outstanding (DSO) is considerably higher, a local cost that our customers must pay through higher product prices." This practice is reflected in Spain's markup.

Markup percentages are determined by completing a six-factor pricing worksheet for each product. "We are actually dealing with more than 200 different markup percentages for the thousands of products sold by HP France," says Frederic Lemee, financial analyst supervisor. All of these worksheets are computerized and easily modified each time the company needs to set new local currency prices.

There are four pricing rounds each year and local currency prices in most countries last for three months. The most important round takes place during December to set January 1 prices. That's when the numbers from the new targets approved for the fiscal year which started November 1 are worked into the price lists. The second most

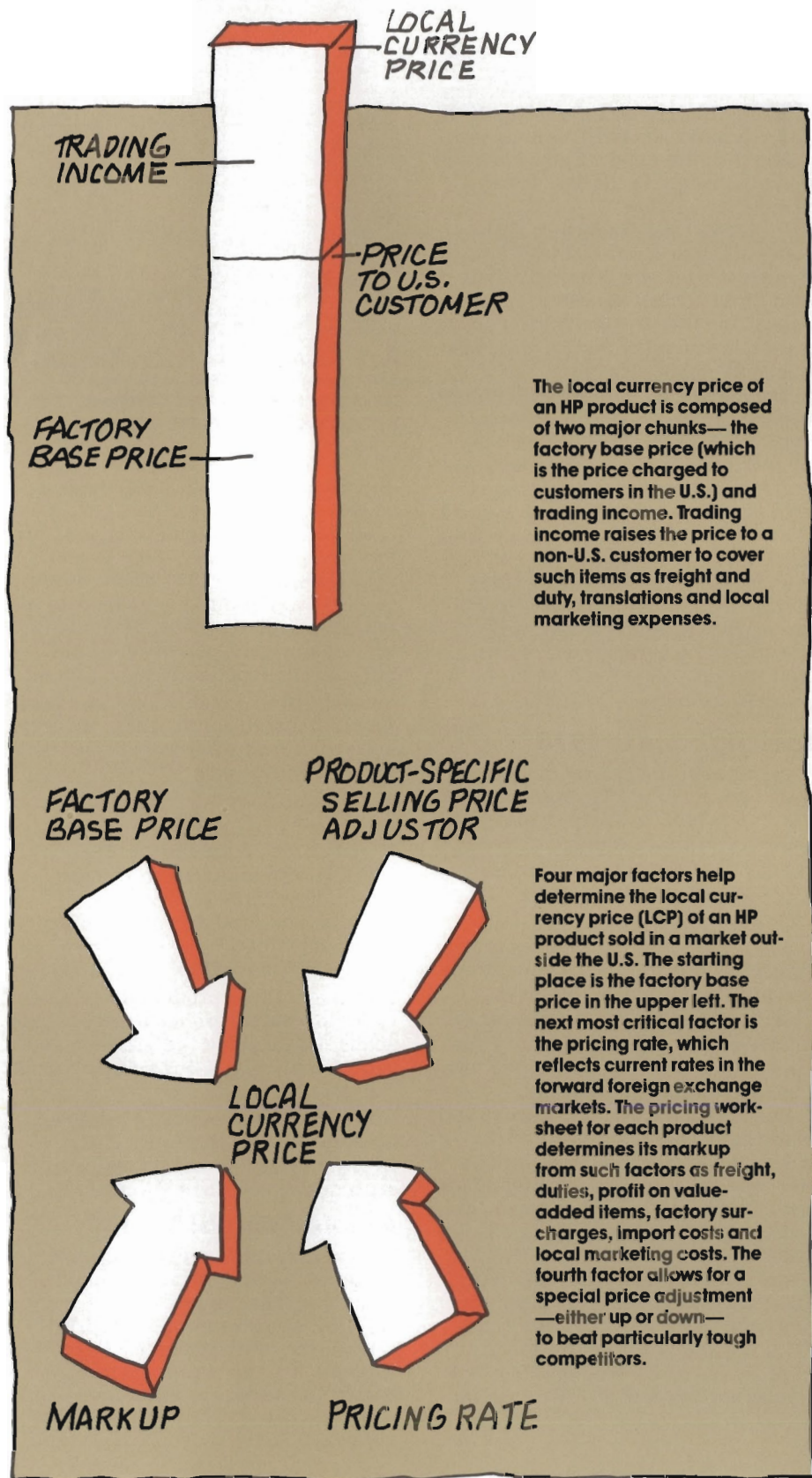
important round of pricing takes effect July 1, when factory costs are adjusted halfway through the fiscal year.

"We try to keep prices constant for three months at a time, but often competitive pressures don't allow us to wait that long," says Jacques Delvaux, sales region controller for HP France. Last year, for example, a decrease in HP's factory-based price for personal computers was passed along immediately to international customers rather than waiting for the next pricing round.

The pricing process is showing a heightened responsiveness to market conditions. HP's European and Asian marketing centers have introduced product-specific selling price adjustors (PSSPAs) to the process. "These help specific products in specific countries meet special needs," says the U.K.'s Jeff Booth. "There are no upper or lower limits. In a sales environment where price is under pressure—for example, your competitor is taking all your sales away—you can ask the division for a PSSPA with the backing of your product marketing center."

Most HP products don't have PSSPAs. But some carry adjustments above or below the "pure" local price determined from the FBP, the pricing rate and the country's mark-up. The country sales organization, the marketing center, the business product sector and the manufacturing division must all agree that a PSSPA is necessary.

"Today, the rules of the marketing game are more complex," says Jeff Booth. "For a major customer deal, we have to be well positioned. Local currency price becomes a major issue. I'm glad to see we have improved these tools so HP can present the best possible price."—Brad Whitworth



LETTER FROM JOHN YOUNG

President John Young reflects on his 10 years as Hewlett-Packard CEO.

KELLY MITCHELL



John Young toured the Optoelectronics Division recently with OED's Michael Bertagne, left, and Jim Johnson, right.

This May, I will celebrate my 10th anniversary as HP's chief executive officer. Let me give you a very personal view of the decade we've just completed together.

"How did it feel to step into the big shoes of Bill Hewlett and Dave Packard — men who became legends in their own time?" That's a question I get asked from time to time. And for good reason, because Bill and Dave are true giants in business history.

Ten years ago, I came up with my own two-part answer to the question of legends. First, I wasn't going to be a one-man show. My job was to develop a post-founder organization that wouldn't depend on any one individual. Instead, it would be led by a team of people who could carry the company forward. Second, I wouldn't try to emulate either Dave or Bill because I was clearly a different person. What I needed to do was to develop my own style and my own agenda—and then to stake my reputation on it.

Looking back to 1978

In preparing for this message, I leafed through the 1978 annual report and copies of *Measure* from that year. Some interesting highlights:

- Of HP's \$1.875 billion in orders for 1978, fully 48 percent were international.
- For the first time, sales of computer products had exceeded revenues from test and measurement products.
- We had 36 different divisions and 42,000 employees. And *Measure* was running articles titled "Is There Still a Place Here for the Individual?"

So many of the issues that we've been working on were becoming evident a decade ago. International markets were already a significant factor in our growth, and yet there were major challenges affecting our ability to be a global competitor. In moving into the computer business, we were entering an area where we were no longer predominant. We needed new skills, new attitudes and new organizational approaches. And even then, HP people were grappling with growth, change

and what all of that meant to them as individuals.

My own agenda as CEO was probably first articulated at our 1980 general managers' meeting. The theme of that session was "learning to compete in the new global environment." That theme led to many of the efforts we've been pursuing as a company. Among them:

- moving from a technology-based culture to an organization whose strategy and structure are based on key markets and customer needs;
- increasing our international presence to tap new markets and to ensure market access around the world;
- reducing manufacturing costs by pursuing our 10X quality goals, by standardizing and consolidating key manufacturing processes and by forging closer relationships with suppliers;
- shortening our product-development cycles to respond to shorter product life spans and to exploit the flexibility and cost-effectiveness of our manufacturing capabilities;
- and increasing our emphasis on human-resource planning to help HP people learn the new job skills and attitudes we need to be successful.

A marathon, not a sprint

We've made good progress in all of these areas—and yet much remains to be done. The competitive race we're running is a marathon, not a sprint.

While the race never ends, it's good to pause for a moment to catch your breath and see where you've been. And when I do that, I'm very proud of what we've done so far.

□ HP's sales have grown 20 percent annually for the past decade—despite the recessions of 1981-82 and 1985-86. That's well above the average growth rate for the U.S. Fortune 500.

□ HP employment grew only 8 percent annually over the same period. That means increased productivity, a key to competitiveness.

□ At year-end 1987, HP's 257 million shares of stock outstanding had an aggregate market value of almost \$13 billion. This shareholder value, as it's called, compares to just under \$2 billion at the close of 1977.

□ Over the course of the decade, we've acquired some essential new institutional skills. We've learned to use Total Quality Control. We've learned how to sell through multiple sales channels. We've learned Just-in-Time manufacturing. We've learned how to use information systems to improve the effectiveness of our operations. And we've learned how to work across organizational boundaries to provide the complex systems solutions our customers require.

Recently, a reporter asked me what standards I would use to judge my tenure as HP's chief executive officer a success.

My answer was this: If we continue to be leaders in our fields of interest — and, at the same time, maintain our respect for the individual—that will be a success.

Separately, neither accomplishment would satisfy me. Achieved in concert, that's the very best that business has to offer.

John Young may or may not be a legend, and it's not really important. But Hewlett-Packard is legendary. Our challenge is to think of the legend not as a story that belongs to the past, but as a future we are creating together. As we start my second decade, we've never looked better.

EXTRA PRESSURE



Ray and the HP 43400B patient analyzer are king of the mountain.

HP climber doesn't miss a beat

When manufacturing engineer Ray Cavola and other folks at the McMinnville Division were working on a new ambulatory ECG system, he didn't expect to climb to the top of 19,340-foot Mt. Kilimanjaro wearing one of the units.

But the coincidental timing of the debut of the HP 43400B patient analyzer this February and a long-planned Kilimanjaro climb by Ray and his wife Nina in March was too good to pass up.

"Physiologists have been studying high-altitude climbers to see how the body responds to lack of oxygen," Ray explains. "People with heart problems at low altitude have symptoms much like healthy climbers experience at high altitude." Researchers could get useful information through Ray's unique application.

The walk-about patient unit is especially suited to detect arrhythmias: heart-beat irregularities that vary in medical significance. Ray has an undiagnosed mild arrhythmia, which gave him a personal interest in monitoring his own heart beats during the climb.

The brain of the system is the compact patient analyzer Ray wore on his belt. It was connected to five leads taped to his chest. He wore the analyzer on the final day of ascent, watching his heart trace in the display window while the unit recorded and analyzed every beat.

"I also wanted to find out how the system would perform in a cold environment and at high altitude," Ray says. The temperature went down to 0 degrees Fahrenheit at night but the patient analyzer never faltered. He had a chance to report its success to the design team in McMinnville before transferring to the Vancouver Division.

A neighborly visit in Atlanta

When Bill Hewlett and David Packard went to Atlanta, Georgia, to be inducted in the U.S. Business Hall of Fame in April, they stayed an extra day to visit HP's sales and service facility in Atlanta at the invitation of Southern Sales Region General Manager John Salyer.

Neither of HP's co-founders had seen the present complex of three buildings, built in 1980 in a wooded campuslike setting in Atlanta. The site houses SSR headquarters, the Atlanta sales office, and the Atlanta Customer Response

Center. Bill and Dave visited each, speaking at group meetings and shaking lots of hands on the way in and out.

Introducing them, John Salyer said simply, "I guess we all have heroes, and Bill and Dave have always been mine." Looking at the employees on tiptoe, cameras at the ready, he added, "and I would guess they're yours, too."

Although Dave and Bill are both known to drop in on HP facilities on their individual trips, it was a special treat for SSR people to see them together. "It's been a long time—I'd forgotten how friendly an area this is," Bill told them.



Gary Moss demonstrates predictive support to Dave and Bill.



BILL COLBY

Joe Gill and Diane Bazaz help dedicate the Vince Yaras Library.

Vince would have liked this place

"Mentor to many, inspiration to all."

That's the inscription on the plaque which marks the Vince Yaras Memorial Library at the Burlington, Massachusetts, sales office. It's a fitting way to remember Vince, who died in 1985 after 33 years with the company. HP's first sales rep in New England, he had a thirst for knowledge and a desire to help others.

The new library named in Vince's honor has three rooms for periodicals, tapes and manuals. Some of his own books on leadership and self-improvement are part of the collection.

Vince once told his long-time friend Joe Gill, now New England Area general manager, that when he was a young soldier in the South Pacific he picked up Dale Carnegie's book *How to Win Friends and Influence People*. It shaped his own life, just as the library named for him will help others grow.



ARC salutes Spokane Division

The Spokane, Washington, Association of Retarded Citizens (ARC) recently honored HP's Spokane Division (SKD) as Outstanding Employer of the Year.

SKD was recognized for its work with ARC in establishing an Enclave program

to employ developmentally disabled adults.

"The Enclave" employs eight workers at SKD, primarily in the printed circuit board area. The program may be extended to the instrument assembly area.

Enclave workers are employed by ARC, which contracts with HP for their services. The program and the use of temporary workers are two areas SKD is using to address work force balancing and flexibility.

NEXT PHASE

With the Spectrum program successfully launched, two new groups have been formed in the Systems Technology Sector to move ahead in significant new areas:

- The Information Architecture Group under Vice President **Joel Birnbaum** will concentrate on the next generation of systems architecture: Cooperative Computing Environment (CCE). **Herb Blomquist** will head CCE Planning and Program Management.
- The Networked Systems Group under VP **Wim Roelandts** brings together networking and computer-development activities: the Information Networks Group (ING), which remains intact as a group, and the two divisions of the former Information Technology Group. **Dan Warmenhoven** becomes ING general manager. The former Information Networks Division splits into two specialized divisions: the Business Networks Division for MPE systems, under GM **Rich Sevcik**, and the Technical Networks Division for HP-UX systems.

PERIPHERALS GROUP

Rapid growth of the Peripherals Group has led to formation of three business units:

- The Mass Storage BU under GM **Ray Smelek**—Disc Memory, Computer Peripherals Bristol, and Greeley Storage divisions.
- The Publishing Products BU under GM **Doug**

Carnahan—Boise Printer, Greeley Hardcopy and Network Printer operations (the latter was formed in March under **John Stedman** as operations manager). The Boise Division no longer exists.

□ The Hardcopy Technology BU under GM **Bob Watson**—San Diego and Vancouver divisions, Barcelona Peripherals Operation, and inkjet technology centers in Corvallis and San Diego.

The Corvallis Division has now transferred into the Peripherals Group.

OTHER NEW HATS

Marv Patterson to director of Corporate Engineering ... **Jean Pierre Mainguy** to operations manager for the Lyon Manufacturing Systems Operation (now part of the Engineering and Manufacturing Systems Group)... **Steve Boettner** to operations manager for the Evaluation and Architecture Operation.

WORTH NOTING

James D. Hodgson and **Antonie T. Knoppers**, M.D. retired from the Hewlett-Packard Board of Directors on February 23 after serving 11 years and 14 years respectively.

HP breaks into the top 50 in the Fortune 500, based on 1987 sales, moving up to 49 from 51....

Yoshio Nishi has been elected an IEEE Fellow....

Jane Evans has been elected a Fellow of the Society of Women Engineers.



Steve wrote the book on HP.

Doing his job by the book

If you've seen the 768-page *Test and Measurement Catalog* for 1988, you know the incredible amount of detailed technical information about HP products in it.

For 22 years, Steve Duer of the T&M sector's catalog operations managed the immense job of producing the annual publication most valued by HP customers. He took it over in 1967, when the company began handling the job internally rather than hiring an ad agency. For 11 years before that he'd been a contributor.

Every year Steve has worked with some 400 people at HP divisions around

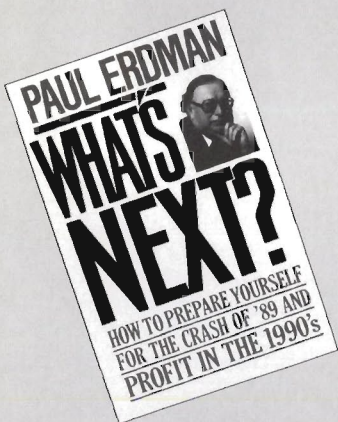
the world who send in product information. As one edition comes off the press in November, work is already under way on the next year's catalog.

Steve retired this April and will become a rancher in western Colorado. "With the HP catalog you had to round up 50 different stray divisions," one friend told him. "In ranching, you'll have to round up 50 different cattle—but if you get mad at them, you can eat them!"

The Crash of '79 or The Last Days of America.

Now comes his latest, *What's Next?*, a slim book subtitled "How to Prepare Yourself for the Crash of '89 and Profit in the 1990s." It's not fiction, but an economist's forecast of a crash in 1989, a deep recession, then a rebuilding of the U.S. economy.

As part of his recovery strategies, Erdman believes "the best investment is in Basic America." He lists a dozen companies that "represent the industrial foundation of this nation." He expects them to be in the top rank of capital producers in the U.S. and "well-positioned in foreign markets." Yes, one of his picks is Hewlett-Packard. For the others, and the rest of his predictions—read the book.



Bracing for what comes next

Paul Erdman usually writes lively and scary fiction about economic and political forces at play in the great world out there. His scenarios have just enough of the ring of truth to be pretty darned gripping—such as

HP leads the pack for best U.S. products

When *Fortune* magazine asked experts what are the 100 products that America makes best, one company name was mentioned again and again—Hewlett-Packard.

HP is credited with making six of America's best products in *Fortune's* March 28 issue—the most mentions of any other U.S. company. General Electric was mentioned four times, and 3M, AT&T and du Pont three each.

Fortune consulted with quality experts, management consultants, security analysts, academics, major customers and others to determine its list. Products had to be made by a U.S. firm, in the U.S., using at least 50 percent U.S. parts.

The six HP products mentioned were atomic clocks and frequency and time interval analyzers (both from Santa Clara Division); digital plotters (San Diego Division); financial, engineering and scientific handheld calculators (Corvallis Division); multimeters (Loveland Instrument Division); and minicomputers.

Among *Fortune's* 100 best-made American products were:

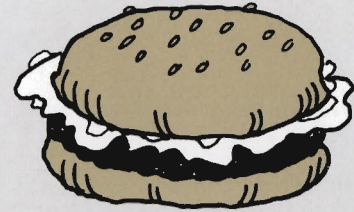
Aluminum foil: Reynolds Metals

Atomic clock: Frequency Electronics, **HEWLETT-PACKARD**

Ball-point pens: A.T. Cross

Bamboo fly-fishing rods: Walt Carpenter

Camera film (color): Eastman Kodak



Charcoal briquettes: Kingsford Products

Clothes dryers: Whirlpool
Copiers: Eastman Kodak, Xerox

Digital plotters: **HEWLETT-PACKARD**

Dishwashers: General Electric
Dustbuster Plus handheld cordless vacuum cleaners: Black & Decker

F-16 jet fighters: General Dynamics

Fast food (hamburgers): McDonald's

Financial, engineering and scientific handheld calculators: **HEWLETT-PACKARD**

501 jeans: Levi Strauss

Flutes: Wm. S. Haynes

Frequency and time interval analyzers: **HEWLETT-PACKARD**

Handbags: Coach
Leatherware

Instant camera films: Polaroid

Jet aircraft (747 family of planes): Boeing

Locomotives: General Electric

Lycra spandex fiber: du Pont

Microwave ovens: Litton

Minicomputers: **HEWLETT-PACKARD**, Digital Equipment, IBM

Multimeters: **HEWLETT-PACKARD**, John Fluke Mfg.

Paper towels: Proctor & Gamble, Scott Paper

Pianos: Steinway & Sons

Post-it note pads: 3M

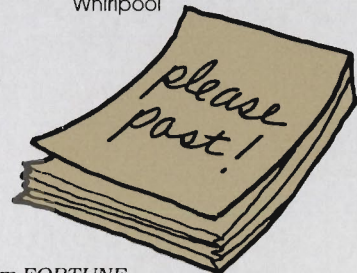
Soft drinks: Coca-Cola

Sunglass lenses: Corning Glass Works

Telephone sets: AT&T

Tractors (100 hp and over): Deere

Washing machines: Maytag, Whirlpool



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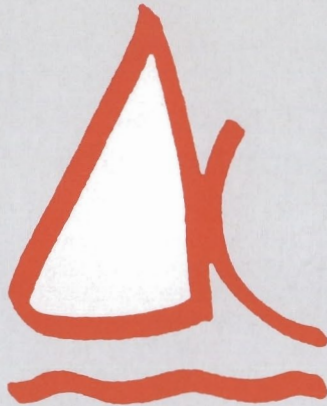
Smooth sailing courtesy of HP

Letters from appreciative customers always are welcome, but a recent letter to HP President and CEO John Young was extra special.

"Each time we use the Hewlett-Packard 71B hand-held computers sent to Sail America by Hewlett-Packard, I am reminded of the support your company gave to us during our campaign to bring home the America's Cup," wrote Dennis Conner, skipper of the victorious *Stars & Stripes* yacht.

Conner said his crew used the computer daily to navigate and analyze the ship's performance, and referred to the HP computer as a "indispensable member of our racing team."

"We were especially pleased with the data we received from the HP-71B that helped us both pilot



our course, determine our relative position in the race and determine whether we were running ahead or behind," Conner wrote. "Fortunately, we were usually ahead."

The *Stars & Stripes* team also used HP plotters on shore to analyze data between races.

The America's Cup was hotly contested when Conners' team defeated Australia's *Kookaburra III* in 1987, but HP and the *Stars & Stripes* proved to be a winning combination.



We'd like to thank Johnson for volunteering to chair the next T&C project.

NEW PRODUCTS

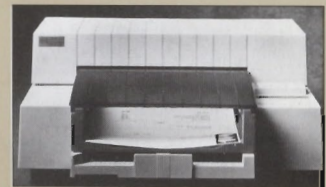
Seven new HP 3000 and HP 9000 models based on HP-PA include a high-end HP 3000 Series 955 with mainframe-class performance at half the price of comparable systems from IBM, DEC... From the Technical Computer Group: the HP 9000 Model 835 superworkstation (HP's most powerful workstation to date), a TurboSRX graphics subsystem, and a CPU upgrade for the HP 9000 Model 835SRX and Model 825S.

HP SONOS 1000 is a cardiovascular-imaging system with wide-aperture transducers that deliver fine-textured, sharply focused images of anatomy— including blood-flow information. It's the newest addition to the Medical Products Group's ultrasound-imaging product line, now renamed HP SONOS.

From the Network Measurements Division: the HP 8701A lightwave component analyzer system for use with fiber-optic communications systems; the HP 8720A microwave network analyzer with a powerful feature set at a low price; and an rf network analyzer with such major enhancements as swept harmonic measurements of amplifiers.

The Scientific Instruments Division's HP 59940A MS ChemStation allows users to handle several tasks at one time. It's based on the UNIX operating system, a first for benchtop mass-spectrom-

eter workstations... Making it easy to upgrade a liquid chromatograph system in stages, five new modules (HP 1050) from the Waldbronn Division complement the HP 1090 integrated HPLC system.

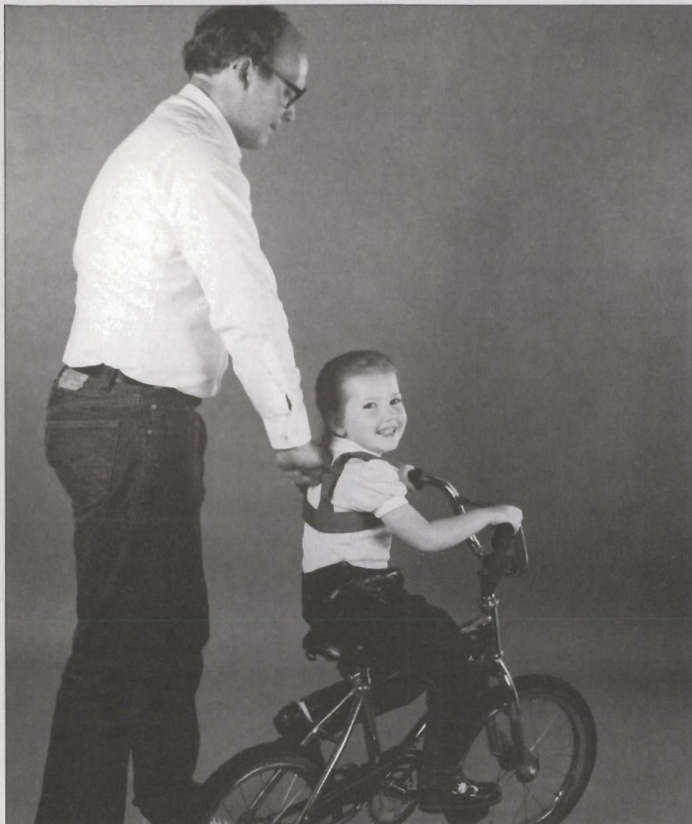


HP DeskJet printer

HP DeskJet is a personal printer from the Vancouver Division that uses inkjet technology to provide laser-quality output at a price under U.S. \$1,000... From the Personal Computer Group comes the HP 700/44, HP's first terminal for PC-based multi-user environments and the first to be handled by dealers also.

Major news from the Logic Systems Division is a breakthrough in entry-level microprocessor-development tools: the HP 64700 series of stand-alone in-circuit emulators and emulation analyzers... To manage wide- and local-area networks, the Information Networks Group has a new multi-product offering called HP OpenView. Core is HP OpenView Windows (a graphical user interface running on the HP Vectra) that integrates data from other new and existing products.

Loveland Instrument Division's HP 3458A multimeter is designed for computer-aided test applications.



Ray and daughter Katie have a handle on learning to ride a bike.

Harnessing kids' peddle power

Like most parents, Ray Wardell tried to teach his son Nicholas to ride a bicycle by holding on to the back of the bicycle seat and running alongside.

True, it was great exercise, but Nicholas wasn't learning how to ride. After countless hours of frustration, Ray, a marketing and communications manager at the McMinnville (Oregon) Division, had a brainstorm. And before you could say "goodbye training wheels," he had invented the Safety Trainer harness.

It's a simple device made of nylon webbing—like a seatbelt—with a plastic handle. The child wears the harness and the adult holds on to the harness and walks alongside.

"With the parent holding them up the kids know

they're safe, so they can concentrate on learning and not worry about falling," Ray says. "Using the Safety Trainer, Nicholas learned to ride in an hour."

About 100 bicycle shops across the U.S. have sold some 300 of Ray's invention in the past year. Parents are using the device for bicycle, skateboard and roller skate training. Ray is negotiating with a major retailer for sales rights. The Safety Trainer's suggested retail price is U.S. \$14.95 (Icon Enterprises, 607 W. 19th St., McMinnville).

"The handle is what makes it unique," says Ray. "It's a simple concept—that's probably why no one thought of it before."

Charity begins at the office

Only giant IBM outranks HP when it comes to philanthropy, according to a recent survey by the Taft Group, a Washington, D.C.-based publisher of fund-raising materials for non-profit organizations.

Hewlett-Packard Company and its foundations contributed \$65 million to charity in 1986—the most recent year for which the Taft Group has figures.

IBM was the runaway leader with \$188.4 million in contributions.

The top corporate givers—listed in millions—in 1986 were:

1. IBM, \$188.4
2. **Hewlett-Packard**, \$65
3. General Motors, \$61.2
4. Exxon, \$56.5
5. General Electric, \$36.4
6. AT&T, \$36.2
7. RJR Nabisco Inc., \$32
8. du Pont, \$24.3
9. Amoco Foundation, \$23.8
10. Chevron, \$22.4



Finding a book is no longer in the cards

Traditional card catalogs—for decades the fastest way to find a book in the library—are being replaced with high-tech computer systems with the help of HP.

The City of Sunnyvale, California, for example, recently replaced its 10-year-old Digital Equipment Corporation system with a new HP system. Library patrons can use any of 10 HP 150 online terminals, while library workers use 24 HP 150 support term-

inals. The terminals are connected to an HP 3000 Series 68.

In addition to logging books in and out, the new system replaces the 750,000 3-inch by 5-inch cards in the card catalog.

It takes only seconds to learn if the book you want is on the shelf or checked out. About 30 percent of libraries in the U.S. use online catalogs, according to Beverly Simmons, Sunnyvale's director of libraries.

Sunnyvale chose HP over DEC and other vendors based on a combination of price, performance and service.

PARTING SHOT

Showing grace under pressure

Bill Russ of the Scientific Instruments Division and Randy Coverstone of HP Labs look like nice guys. So why were they trying to break some miniature bridges built by kids?

The bridge-building competition, it turns out, was HP's part of the Northern California Mathematics, Engineering, Science Achievement (MESA) Day held at Stanford University in April. Bill and Randy led the HP judges who tested models (built ahead of time) to see how they would withstand stress.

The MESA program encourages able minority youngsters and young women to prepare for careers in math and science by taking the right courses in secondary school. More than 1,000 members of junior-high and high-school MESA chapters came to the all-day Saturday event to make a paper airplane from a single sheet of paper, build and launch a rocket, and construct a container in which to drop an egg five stories.

Volunteers from eight sponsoring universities and

RENEE LYNN



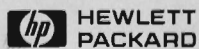
HP Labs' Randy Coverstone, left, and Bill Russ, far right, apply their version of Stanford 'vice.'

cooperating companies ran the contests. HP's prize for a bridge that showed grace under pressure was an HP-12C handheld calculator.

HP also sponsored several events—including a science

program and paper-airplane-making contest—at the recent Southern California MESA day in which more than 800 students took part.

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