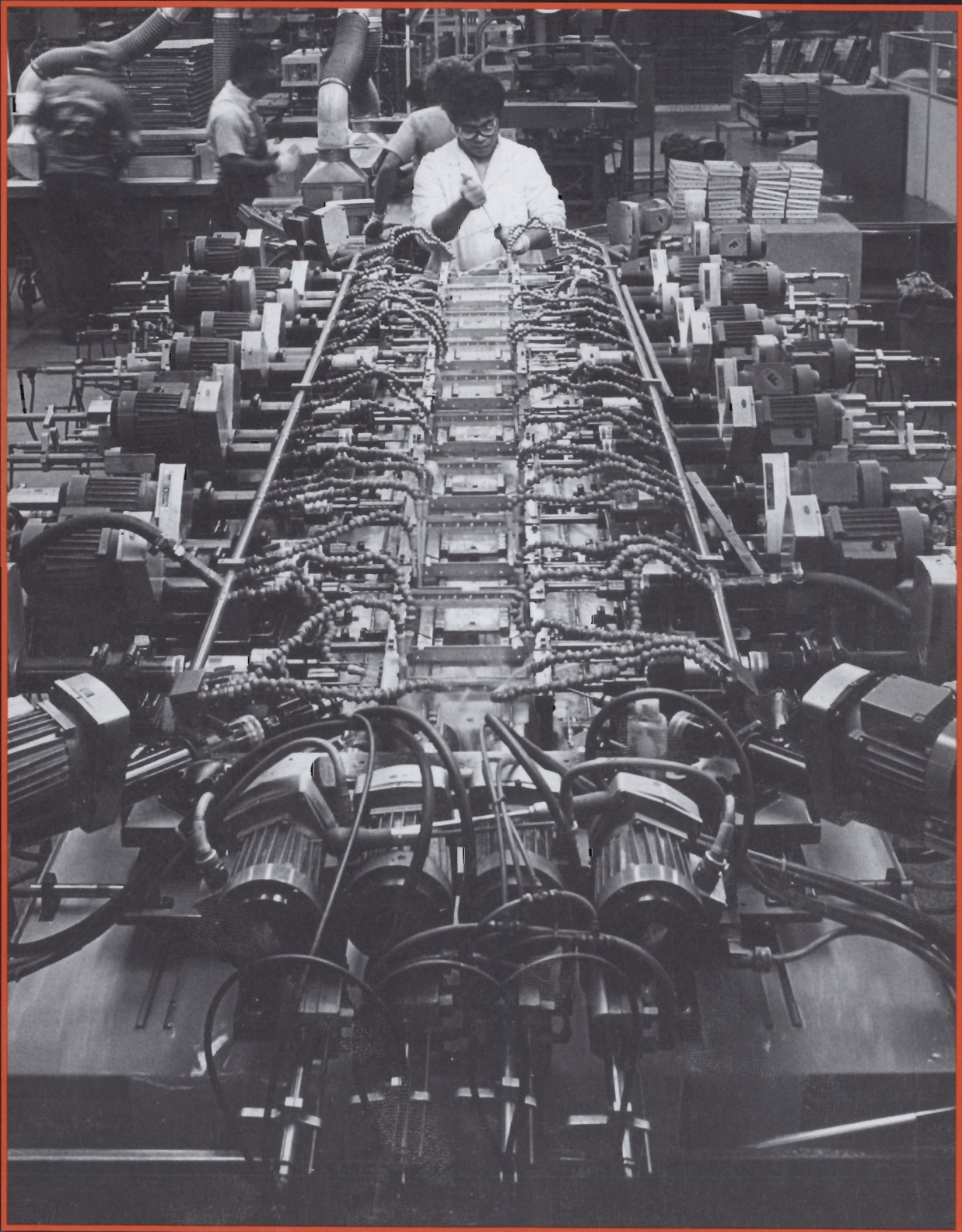


MEASURE

For the people of Hewlett-Packard

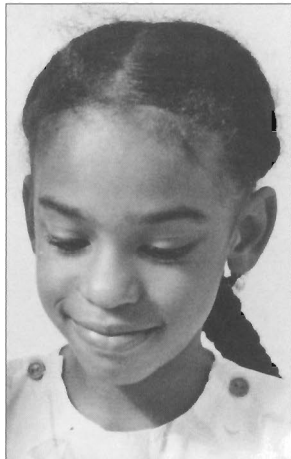
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Consolidation of manufacturing activities has begun in Cupertino, Roseville, Palo Alto and other HP locations. Cover photo of Stanford Park sheet metal worker Sione Panisi by Chuck Fox.

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You probably didn't get through 1986 without hearing the terms "rows and columns." But do you know what they're all about?

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MEASURE

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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.

Building new muscle

HP begins to combine some manufacturing activities in new ways to gain greater efficiency.



At Stanford Park Division's Palo Alto site, sheet-metal journeyman Jess Cooper checks dimensions on a part. Reconstruction is under way for a new fabrication center.

"Please share your questions and concerns," reads the sign on the Merge Board.

Located in the middle of reconstruction for HP's new Bay Area Fabrication Technology Center, the Merge Board tells everyone what's happening in the big job of fitting together the sheet-metal shops from three divisions onto a single site.

By mid-February, people and equipment from Data Systems, Santa Clara and Stanford Park divisions will be consolidated in an upgraded facility in Palo Alto to provide more than 30 HP divisions with quality sheet-metal fabricated parts and assemblies.

And some questions and concerns are an inevitable and human part of this consolidation and the others going on throughout HP.

Manufacturing is the latest area to focus on the efficiencies that can be gained from larger-scale operations. To survive in heavy competitive surf, HP knows it must be in sleek shape—both organizationally and operationally. From a common-sense standpoint, the company can no longer afford the redundancy of 63 separate manufacturing activities.

Combining some manufacturing to gain economies of scale and managerial

scope is already under way—properly so, in the eyes of Hal Edmondson, vice president and director of Corporate Manufacturing. "While I think many of the aspects of our small, well-focused businesses are great, we've overdone it," he told HP manufacturing managers at their annual meeting. "Small may be beautiful but teeny is not."

Other areas of the company have already turned to consolidation in one form or another. The Information Technology Group now combines all Spectrum-related hardware and software R&D. In the field, computer and instrument sales forces have been combined and marketing sales centers established. Customer Support has response centers to answer customer inquiries. At some sites, such as Singapore, all entities are served by common personnel, finance and information systems functions.

Now manufacturing is seriously exploring the efficiencies that are possible through consolidation. It might involve pulling together specialized facilities, as in the case of the Bay Area sheet-metal move, or creation of a focused factory devoted only to manufacturing certain products. HP has already taken steps to consolidate integrated-circuit facilities and created a



Pierre Patkay (left), who heads the Cupertino Manufacturing Operation formed last fall, and production manager Ed Heinsen get together in the HP 9000 Model 840 test area.

Printed Circuit Division responsible for reducing p.c. fab shops in number.

After considerable discussion, the HP top management team has clearly arrived at manufacturing consolidation as a major theme.

The computer side of the house has already gone ahead decisively with the consolidation approach. Dick Love, who became general manager of Computer Manufacturing in June, was a catalyst in the creation last year of the Cupertino Manufacturing Operation (CMO) and the Roseville Manufacturing Operation (RMO), both in California.

In Cupertino, the manufacturing function has been pulled out of the neighboring Data Systems and Computer Systems divisions and merged into a separate organization under Pierre Patkay, reporting to Dick Love. The original divisions become customers who market the products coming off the CMO line. Such an independent

"We don't want to be mired in the past. We want to look ahead and be winners."

manufacturing unit fits neatly into the "rows and columns" concept that's gaining widespread acceptance within HP (see page 7).

RMO will manufacture high mix, low volume products for the Roseville Networks Division (RND) and Office Systems Division (OSD), with capacity to serve some other divisions which have compatible needs. It is structured less independently and now reports to RND management. Jack Barbin will be the manufacturing manager for RMO, serving both divisions. He also reports strategically to Dick Love.

Neither CMO nor RMO is an operation with a capital "O" according to HP's definition. Each focuses strictly on manufacturing and looks elsewhere on the site for its functional services.

Chief Operating Officer Dean Morton made the final call to go ahead with the high-visibility formation of CMO after a study. He emphasizes that each possibility for consolidation will be looked at individually. "At this point we don't have a plan that tells everyone exactly

what we're going to do. We're still gaining useful experience with our first moves in this direction."

Executive Vice President John Doyle, to whom Dick Love reports, first pointed out the need for essential changes three years ago. "We have gone overboard in our proliferation of organizations," John says.

He believes it's unrealistic to have an organizational solution for every need. "The smaller the unit, the smaller the span of control (the number of people reporting to a manager)."

He agrees it's understandable that people want to work in small units where they know their management. "But above all they want to work in successful units," John says. "We don't want to be mired in the past. We want to look ahead and be winners."

Helping to drive consolidation is the Spectrum program's success in developing a leveraged family of computers with a common HP Precision Architecture. It opens up new options for manufacturing in the most cost-effective way. It's essential for HP to capitalize on these new possibilities.

A Spectrum Manufacturing Council was formed by Dick Love early in the program, with representatives from all sectors. It became clear there was a need to focus and consolidate operations around common products, processes and suppliers. Recalls Dick:

"All the manufacturing folks felt, 'Yes, we should do this,' but we had a lot of boundaries to cross."

He's aware that some out-of-the-ordinary measures are called for.

"To get to where we want to be as a world-class competitor in computers, we'll have to set high expectations for significant gains," Dick says. "We need to rethink how we're doing things. That means re-set, not just fine-tune."

The challenge of "re-set" is that the known and familiar are likely to change, making people uneasy.

Manufacturing staffs of three Roseville divisions served on subcommit-

"We need to rethink how we're doing things. That means re-set, not just fine-tune."

tees last summer to study possible consolidation. They "put on their HP hats" and kept turf considerations to a minimum—even though everyone's managerial assignment was on the line if consolidation were indeed recommended.

Marly Allan chaired a key subcommittee on manufacturing engineering and production. "We tried to get the best decision for the site—one that would give us the most manufacturing leverage but continue to meet product

objectives," she recalls. "We didn't want to compromise any product."

The group's recommendation was ultimately selected by management for the site. It was to combine the manufacturing of the Roseville Networks and Office Systems divisions, which had compatible product mixes and volumes, and leave Roseville Terminals Division intact except for consolidating all traffic and requisition buying.

Jack Barbin is aware that a risk in structuring a consolidated "column" manufacturing function is the loss of functional linkages, and he's determined not to let that happen with RMO.

"The coupling of the lab and marketing with manufacturing has been extremely important to our business over the years and will remain so," Jack says. He expects RMO to work closely with the other two functions on such cross-divisional activities as the transfer of products and sharing of processes.

Jack says the task facing RMO is to recognize the savings and efficiency of

"People don't realize the knuckle-biting concern for people that goes into these decisions at HP."

combining two manufacturing organizations without weakening traditional links either locally, or with other entities that may choose to use the RMO manufacturing engine.

Having more engineers on the staff will mean a chance to do innovative projects. "It will be a major advantage to leverage greater engineering resources," says Dave Hubka, RMO manufacturing engineering manager. "The challenge will be to work with more R&D labs and still respond to their needs.

"What we absolutely have to keep as a vision is that we want to be the preferred source for our products."

In 15 years with HP, RMO production manager George Henry has been through the split of the old Microwave Division and reorganizations in Santa Rosa, California. "To some of us, a



Dick Love pulls together HP's worldwide computer manufacturing.

change like this is old hat," he says. "People for whom this is a new experience don't realize the knuckle-biting concern for people that goes into these decisions at HP. Other companies have moved faster but there's more blood on the floor."

Says Jack Barbin, "You can't sugar-coat the fact that putting together two organizations will result in some duplication of jobs. But we're really lucky that an expanded Support Materials organization will be coming on site — at the right time to provide some interesting new opportunities for people who are flexible and willing to enhance

their skills."

In Cupertino, Pierre Patkay has had his hands full since last August managing the merge of two groups into CMO without dropping a beat in shipments and new product introductions.

"We made a commitment to our customer divisions that the consolidation would be self-funding," Pierre explains. The incremental cost of merging processes and systems will be paid through the saving from productivity improvement.

He expects a 15 to 20 percent reduction in people count. "We're already halfway there through normal turnover and the voluntary severance incentive and enhanced early retirement programs. The remaining excess will occur gradually over the year so we can support each individual in finding a meaningful job."

CMO is expected to have lower costs and the critical mass to make serious investments in supplier development, process and system development and competitive analysis. "Today we measure ourselves against how we performed last year or compare ourselves to other HP organizations," Pierre says. "The true measure is how we perform relative to our competition—it's essential we understand manufacturing in our industry in setting our expectations."

CMO faces a number of short-term challenges. Manufacturing is still housed in two buildings that are a long

each other.

LMSO, for instance, is the master at system integration, while Grenoble Networks Division handles all low-volume, high-mix sub-assembly. Each "center of expertise" has certain support functions of its own, with the rest consolidated for the two sites.

All the manufacturing managers meet monthly to keep the interchange running smoothly. Eventually everything hardware-related will be done in Grenoble and everything system-related in Lyon.

Consolidation with a French accent

HP's sites in Grenoble and Lyon, France, have an original approach to the concept of consolidating manufacturing resources.

Last summer the three entities in Grenoble and the Lyon Manufacturing Systems Operation (LMSO) determined their respective areas of expertise in processes. They now serve as subcontractors for



The Roseville Manufacturing Operation under Jack Barbin serves two divisions.

hike apart on the site. A new roof and other renovation will be necessary before Building 41, the original building on the site, can house all of CMO, and interim moves must be made.

Meshing systems and processes is complicated by marked differences between CSY and DSD manufacturing (to use the old names). CSY, with few products (the HP 3000 family), uses a small number of p.c. boards and turns out products on a regular schedule. DSD, on the other hand, has hundreds of products, uses hundreds of p.c. boards, and has volumes that range from 200 a week for some products to once or twice a year for others.

Devising a sophisticated planning and tracking system to serve both types of needs is the assignment of Jack Faber, CMO manufacturing services manager. "Systems are not just appli-

"You can't sugar-coat the fact that putting together two organizations will result in duplication of jobs."

cations software but involve other processes and affect other areas," he says. "It's a chicken-and-egg situation; there are few things you can do unilaterally."

A similarly massive effort is under way to combine demand-pull (building an assembly or product as actually needed) with build-to-order for this much more complex manufacturing environment. Engineering manager Wade Clowes has the perspective of having served as manufacturing manager for the Guadalajara Computer Operation in Mexico. As he sees it, "If we don't achieve greater efficiency at HP, we won't be competitive internationally."

The announcement of the consolidation particularly troubled DSD people — proud of their division's history and already on edge due to a number of false starts on a move off site. To get feelings into the open, supervisor Karen Scussel in CSY Human Resources put together a communications plan. It included coffee talks, meetings, communications sessions,

a lot of casual talking with people by managers, a rumor box and a newsletter to answer questions candidly.

"The perception of winners and losers in the consolidation was the hardest thing to fight," Karen says.

Steve Helland, manufacturing manager for the Corvallis, Oregon, site, is already a veteran of consolidation. He says, "Any site that goes through this will face the same issues. It's an especially difficult transition in HP because of the culture we have."

The first phase of consolidation — warehousing and machine shops — was completed by the time the more difficult second phase started in Corvallis in January 1986. That involved the final assembly of products for one division and two operations on the site.

Kent Stockwell, who had been the manufacturing manager for portable computers and low-end work stations, became production manager in the consolidated shop with 650 people. Both Steve and Kent and their staffs were heavily involved in implementing the change. Steve says, "It's extremely important to involve all your key people in decision-making in a move like this."

"It took a major effort to keep the ship afloat and business going while we reorganized," Kent says. Of the 22 people who report to Steve directly or are on the next level of management, 17 had a new job or a new boss or both.

Steve has a theory about requirements for managers in a consolidated organization. "You can't just run to one general manager to tell you how to be successful. You have to get inputs from a lot of different sources and translate them into a different language.

"At the higher levels of a consolidated organization it takes much broader individuals, able to serve a broader cus-

tomers base. In contrast, those in lower-level positions who focus on processes tend to be much more specialized. This is what will allow us to be more competitive in the future."

With no single pattern for consolidation having yet emerged, decisions are being made on a case-by-case basis — usually with considerable local input. It's not yet certain if the trend in computer manufacturing will hold for instruments.

In Northern Colorado, for instance, five manufacturing managers began studying the possibility for consolidation last August. Multiple sectors and groups, instrument and computer products, and analog and digital technology were represented. "We decided to proceed with caution and do what-

"Other companies have moved faster but there's more blood on the floor."

ever made sense," says Jerry Harmon of the Fort Collins Systems Division, who chaired the task force.

"We want to be sure we don't give up gains we've made in linkages with R&D and marketing when we go to a new way of manufacturing," Jerry explains.

"And we must know how we can put in place appropriate ties to the various business units." (Unrelated to the task force, consolidation of the Loveland Tech Center and Fort Collins IC Division as part of a new Colorado IC Division was announced in December. At the same time, surface-mount p.c.-board production processes from Loveland, Greeley and Fort Collins have been rolled into one operation in Loveland.)

More consolidation of manufacturing will take place around HP where it makes sense. Agreed, you don't build muscle without some pain, but the result will be a heavyweight manufacturing function in top fighting shape.

—Betty Gerard

Rows and columns defined

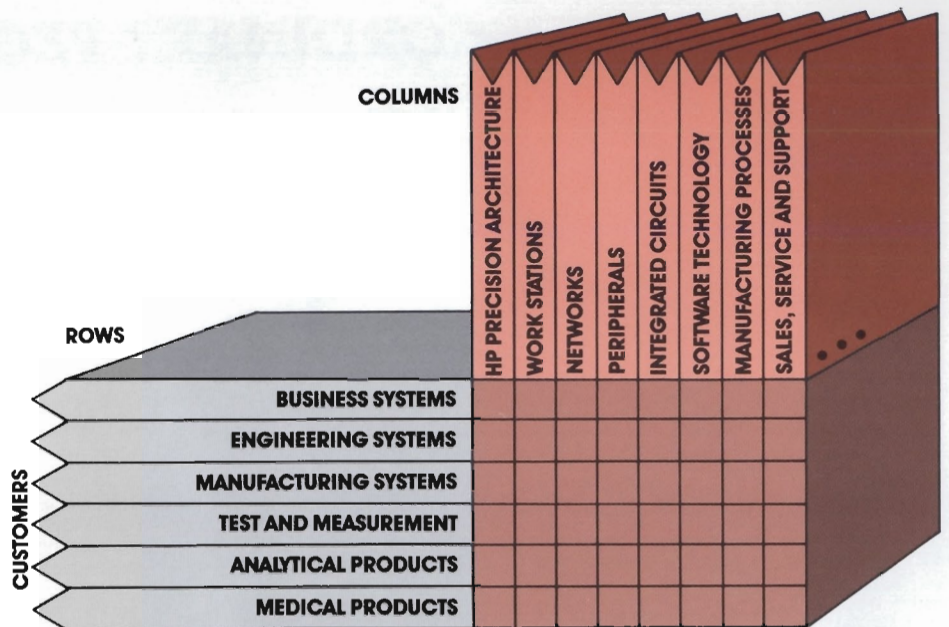
Over the past year, a new phrase has slipped into the HP lexicon—"rows and columns." It's hardly a catchy slogan. Yet the term has stuck, growing as familiar in some circles as Management by Wandering Around and other HP-isms. Why the popularity for such an unlovable phrase? What are rows and columns?

First used in HP's 1986 management retreat, the rows-and-columns concept made sense to HP's senior managers because the idea helped crystallize their understanding of the HP organization and the many ways its entities work with each other.

HP is a complex and highly interdependent company. The complexity is quite evident in HP's organization chart and the many geographically dispersed manufacturing and sales organizations it shows. The interdependence is less evident, but it's there. HP has many "linkages"—products, technologies, applications and distribution channels that are shared by several HP businesses. Integrated circuit technology and networks are examples of linkages—technological resources that are shared across the company and brought to market in different ways. Likewise, some HP functions, such as common manufacturing processes and marketing activities, are linkages common to all the company's businesses.

Viewing roles a new way

From a strategic perspective, linkages are desirable. They enable HP to reap the maximum return on its investments by using the same technology, product, application or distribution channel for many different purposes. But linkages also make HP a very complex company, and here's where the usefulness of rows and columns comes



This chart doesn't show all the possible rows and columns, but it does illustrate the different roles HP entities can play and how interdependent they have become.

in. The concept isn't an organization chart. Instead, it's a way of viewing the roles that different entities play in the many businesses HP pursues.

At the broadest level, HP has six major rows, which are the fields of interest shown on the matrix on this page. They look somewhat like HP's group and sector organizations. These are our basic businesses. (There are also "separate product" businesses, such as components or calculators. But for purposes of simplicity, we won't discuss these.) Row managers are responsible for determining what is needed to be successful in the market and for providing HP products or systems directly to serve our customers. To do this, row managers call upon the resources available to them—the columns, which have as their customers other HP entities.

While row managers are responsible for understanding the marketplace, column managers are charged with understanding and developing the technological capabilities or superior support functions that will give HP a leading edge. Since they're responsible for activities that span HP's many businesses, column managers play a strategic role in making sure HP's entities don't go in so many different directions that the company's resources get spread too thin. HP's consolidation of its printed-circuit-board operations is an example of a column's role.

Does it affect you?

How do rows and columns affect the average HP employee? Very little, in terms of day-to-day activities. But the concept should help people understand

some of the changes evident in how divisions make plans and how their performance will be measured in the future. Divisions can act as rows or columns, or both. What's important is to recognize the role being performed and measure an entity's contribution accurately.

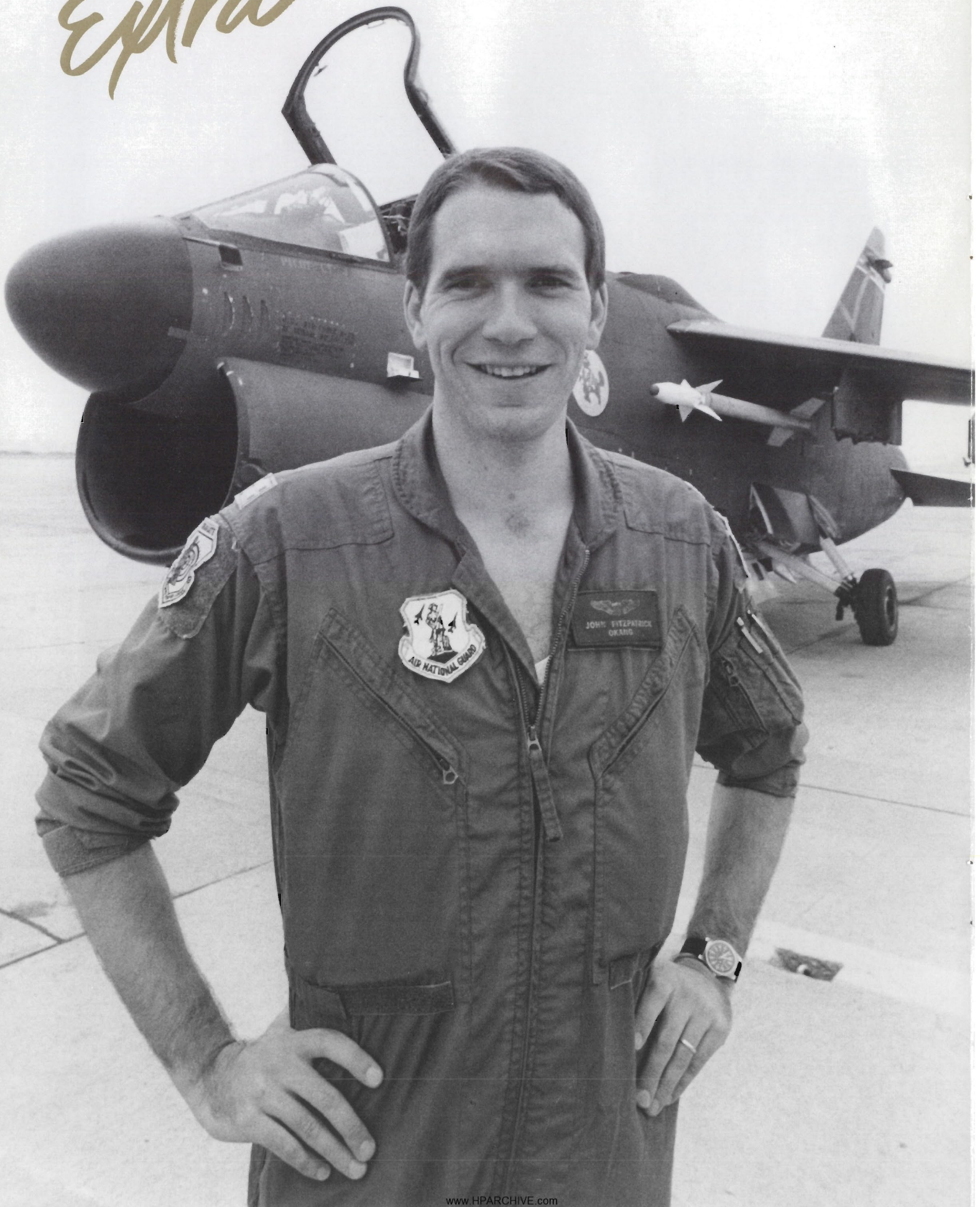
Rows and columns also help explain why some divisions that used to manufacture their own computers no longer do so. The new HP Precision Architecture computers are a column—a resource that will be used by all of the company's businesses. With the formation of the Computer Manufacturing Operation, divisions like Data Systems and Computer Systems, which formerly produced their own computers, can now focus their resources on marketing and providing the specific applications their customers require.

Finally, rows and columns are a way of visualizing the amount of teamwork and coordination necessary for HP's success in the systems business, where many HP entities contribute to the solution we bring to market. Making those relationships evident—and helping to define the roles we all play—is what has made rows and columns so popular.

—Katie Nutter

(Katie Nutter is manager of executive communications in Corporate Public Relations.)

Extra ORDINARY PEOPLE



When John Fitzpatrick was a college student, he knew he wasn't cut out to be a nine-to-five engineer. He's not. He's Hewlett-Packard's Top Gun.

Meet systems engineer John Fitzpatrick from HP's sales office in Tulsa. When he's not developing computer-aided design solutions for his HP customers, you'll probably find him screaming through the Oklahoma skies at more than 650 mph in an A-7 Corsair jet fighter. Meet Captain John R. "Fitz" Fitzpatrick III, Oklahoma Air National Guard pilot.

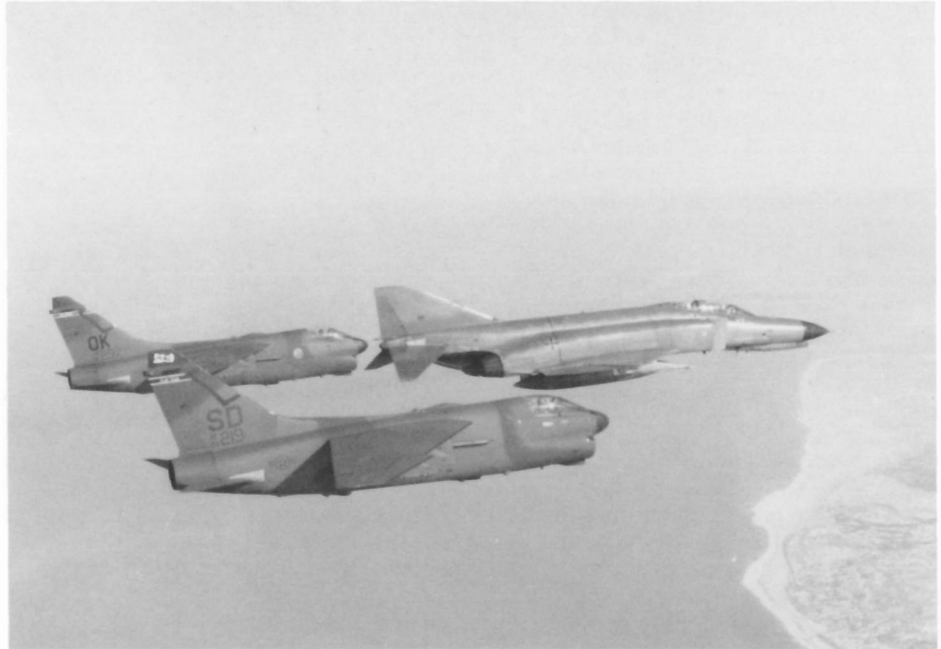
John's combined his interest in engineering and a passion for flying into a two-career lifestyle that keeps this 30-year-old Okie moving.

Fitz joined HP in May 1982 as a technical-computer sales rep and later switched to selling personal work stations to major accounts. Today he's found a niche as an application engineer where he develops demos and helps sales reps make presentations to customers. "I enjoy sitting down with my customers to understand what they do for a living. Then it's my job to help them," says John.

But it's John's after-work activities that set his lifestyle apart from most other HP employees. He's one of the brightest stars flying at Tulsa International Airport. For starters, he's earned the title of Top Gun, a phrase that's now well understood because of the Tom Cruise movie of the same name. Top Gun means John graduated first in his class at Fighter Weapons School (FWS)—the elite training academy for pilots. During the 75-day school, he learned air-combat tactics, low-altitude maneuvers, weaponry and how to instruct other A-7 pilots.

"The movie was very realistic—the aerial special effects made me sweat," admits John. "The major difference was that none of my instructors looked anything like actress Kelly McGillis."

John's knowledge of HP's handheld computers came in handy at FWS. Since the HP-41C is "the computer of choice" at the school, "I ended up teaching that section of the course," says John. Pilots use the compact HP machine as a navigational aid to augment on-board computing systems.



HP's John Fitzpatrick piloting the U.S. Air National Guard fighter jet (rear, left), flies with a West German Air Force plane over the European skies during a special six-week mission.

Fitz was the youngest flight lead in his guard unit and the youngest to attend instructor pilot school where he learned how to teach others about the jet fighter. "My superiors went out on a limb to send me to instructor's school. I was under a lot of pressure to perform."

Pressure's a regular part of the job for fighter pilots. Because the A-7 is a single-seat fighter, it's up to the pilot to handle everything that a crew of two would do in other military aircraft. The list covers it all—from navigation to weapons to self-defense—performed while flying a \$9 million hunk of steel.

"Your performance in a combat aircraft is directly related to what kind of shape you're in," says the 6-foot-2-inch pilot. To stay fit and trim, John swims one mile and runs six every day. When the weather's bad, he lifts weights. An at-rest heartbeat in the low 30s proves he's in shape to handle the Gs (the gravitational force on a body that's accelerating) that high-speed climbs exert on the cardiovascular system. Not one to let his athletic conditioning go to waste, John competes in charity triathalons and bike-a-thons in Tulsa. He got HP to sponsor him for a multiple-

sclerosis triathlon in June.

John's an interesting study in both self-confidence and modesty. His military training has given him an air of self-assuredness. "They teach you how to tap your own hidden talents. You leave school feeling there's nothing you can't do," says John. He figures the U.S. government has invested more than \$15 million in his training to date.

That training has had its payoff at HP, too. "I'm not afraid of getting up in front of a customer even though I may not have all the answers then and there. I know I have all my own skills and resources to draw upon and HP's there to back me up."

But there's an accompanying dose of humility in John, particularly for a fighter pilot. "My older brother got the brains of the family and my sister got all the looks," the brown-haired, brown-eyed engineer says modestly. John also stands in awe of the accomplishments of his father—the man he credits for

BRAD WHITMORRIS



John feels equally comfortable in \$9 million fighter jets, single-engine planes or ultralights putt-putting at tree-top level.

his early interest in science and engineering.

John's dad earned 17 patents for design work during his 20 years in the oil industry. "I remember how he designed a 24-inch valve in one weekend. He did all his work by hand on a drafting table in his den. I can't help but think how much more productive he would have been if he'd had the kinds of computer tools I work with every day at HP."

John appreciates HP's willingness to give him the tools and training he needs to do his job. "I knew little about computers going to school. Most of what I know I learned at HP," says John.

There's also an appreciation for HP's willingness to let John serve in the guard. "My schedule sometimes hacks some people off because I'm not always there when someone needs an instant answer. But there are times when I'll put in 50- and 60-hour work weeks at HP before or after a guard mission."

John describes an underlying similarity in the cultures at HP and the National Guard. "The work places may be quite different, but the enthusiasm and respect HP employees show for the company via the HP way is the same as the patriotism I see in the guard."

HP's personnel policies allow military leaves of absence and accommodations for employees who enlist in the military, are called to active duty or serve in reserves. For example, John attended FWS in Tucson, Arizona, while on a military leave from HP.

Toward the end of FWS, John learned that he would be one of four U.S. pilots picked to serve six weeks in Germany. "It was really a big deal for the National Guard to be in on it," says John. Flying alongside the Richthofen squadron of the German Air Force was an eye-opener. "This was the first time I'd been to Europe, and you realize just how close you are to the Soviet threat. My West German colleagues know that they're just cannon-fodder in the next world war. It's interesting to view and

witness a society that lives with that kind of reality hanging over them," says John.

There are about 30 pilots with John's National Guard squadron in Tulsa. Despite missions such as the German one, they often must fight the popular image of being weekend warriors—part of a happy-go-lucky, raise-hell flying club. But guard pilots fly before work, after work *and* on weekends to keep their flying skills sharp.

In fact, there's little difference between a guard unit and one in the "regular" U.S. Air Force. "Perhaps a guard unit makes some sense in today's economy because there's less overhead," says John. "We don't have a hospital or a commissary, for example."

What the guard lacks in overhead, they make up for in technology. John's squadron is one of three in the world to be equipped for low-altitude, night-attack flying. The A-7 Corsair soon will

have a pod on its starboard side with infrared equipment to "see" shapes on the horizon. The pilots will have night-vision scopes as part of their electronics-laden helmets.

"About 40 percent of the United States' tactical air force is in the guard," says John. His unit has flown to Panama and England and helped provide a show of force during the U.S. invasion of the Caribbean island of Grenada.

He did slow down for a mission of a different sort last year—he took a honeymoon cruise with his wife Luanne. She had been a receptionist at HP in Tulsa when they met. She left HP and joined a temporary agency so she could follow John to Fighter Weapons School.

"Luanne spent her days in Tucson getting her pilot's license," says John. "She impressed me with her natural flying skills the first time she took the controls. It's nice that we have similar interests and that we can speak another lingo."

In what few spare moments he has, John sits down with a book, usually just before bed or on the weekends. "I find with my schedule that there's almost no wasted time." He can't remember the last time he sat down and watched a televised football game on a weekend afternoon.

What's next for HP's Top Gun? "I'd like to try to get into the Thunderbirds, the Air Force's aerobatic drill team," says Fitz. "If I could do that, I'd be the first from the Air National Guard to fly with them." Given the historic separation between the "regular" Air Force and the guard, it may be an uphill battle. But if anyone can make it, John Fitzpatrick can.

—Brad Whitworth



YOUR TURN

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

Special people get special notice

I wish to commend you on the September-October issue of *Measure* magazine. The Carnation "kitty" article and the "ExtraOrdinary People" article were most interesting and informative.

At Waltham Medical Division, I worked on a one-to-one basis with a handicapped person, which was a delightful and enlightening experience for me. This fellow hand-tested thousands of ICs daily at a rate and accuracy that was phenomenal. His attitude toward his job and the opportunities afforded him were reflected in the caliber of production he accomplished. He was a credit to the company and himself and it made me proud to be affiliated with him.

Even though I'm retired from HP, I'm always eager to learn of the progress and success of HP. Thank you for the opportunity to contribute to be a remote part of the great HP organization.

ELEANOR HOLMAN
Virginia Beach, Virginia

I thought the September-October "ExtraOrdinary People" article was terrific, and wholeheartedly agree that employers should help handicapped people to expand their horizons to more fully match their true capabilities. However, there is one implication in the article with which I take issue.

In discussing Vanguard's employees, you describe the tremendous success of a cerebral palsy victim, but the rest of the article implies that CP victims are necessarily mentally retarded. I think that you would agree this is exactly the kind of stereotyping the article is encouraging us to avoid. But I really enjoyed the article and find this kind of human interest story particularly enjoyable.

FRANK McNEICE
Andover, Massachusetts

Publicity stunt not extraordinary

I enjoyed the articles on China and NPR in the November-December 1986 *Measure*, but I was disappointed by the selection of your "ExtraOrdinary People" story about the Stanford Park Division's "street fighting" campaign and by the photograph on page 12.

Measure should be a reflection of the HP way of community involvement and of employee's personal commitment to others outside of work. Previous profiles of "extraordinary" people covered individual employees' efforts which went beyond most of our daily business lives. In this case, you chose to display one division's publicity stunt, a poor representation of the HP way. *Measure* has an obligation to represent the best HP can offer and to show that HP really is different. I believe you owe the employees an apology.

DAVE STOFF
Spokane

I understand Dave's disappointment with the SPD story; however, I feel he misunderstood the message. The street-fighting concept was a way for SPD marketing management to dramatize the seriousness of the competitive situation: the competition is getting as tough as a street fight.

The symbolic transformation from conservative businessmen to street fighters was first used at a presentation for our sales force. A series of similar presentations were given to SPD employees. The presentations were well received by employees. There were many positive comments from SPD employees and from people at other divisions, including Spokane.

The thrust of the campaign was that every HP employee at every level needs to be aware of the competitive situation and what to do about it. Each needs to be better than his or her counterpart at a competitive company.

We understand how some people were offended by the street-fighter image. But, don't forget the street fighter is a symbolic concept: the Pittsburgh Pirates are not really pirates; the Los Angeles Raiders

are not really raiders.

And finally, we have emphasized throughout the whole campaign that the highest standards of business conduct and ethics will always be followed.

MIKE CUEVAS
SPD Product Marketing Manager

As I write this, we're having a blizzard here in northern Colorado—excuse me, I have to shovel more coal into the HP furnace—there, I'm done—anyhow, as I write this, I can't help but chortle at the three "street fighters" pictured on page 12 of the November-December *Measure*.

The guys with the true grit are the grounds crew guys I'm watching out the window who are clearing the sidewalks and starting stalled cars. Those page 12 pretenders—including their shiny little (expensive) shoes—don't at all show the kind of mean and hungry look you'll find here on the high prairie. In fact, my eight-year-old daughter, who we named Buffalo Wallow Girl, would have those softies hog-tied in two shakes of a bull's tail.

JOHN MONAHAN
Fort Collins

Please send mail

What public issues affect HP people and their jobs? Do you disagree with something you've read in *Measure*?

Send us your thoughts. We want to share your opinions and comments with more than 82,000 other employees.

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 extra-large.)

Address letters via company mail to Editor, *Measure*, Public Relations Department, Building 20BR, Palo Alto. Via regular postal service, the address is *Measure*, Hewlett-Packard Company 20BR, PO Box 10301, Palo Alto, CA 94303-0890. Try to limit your letter to 200 words. Please sign your letter and give your location. Names will be withheld on request.

As 1997 draws near, when Hong Kong will return to the People's Republic of China, the British territory is experiencing a brain drain as natives attempt to migrate to other countries. Will HP operations in Hong Kong be affected?

We'll know more after 1997

Esther Chan, personnel manager for HP Asia and HP Hong Kong, says the Number One threat to HP's growth in Hong Kong is hiring. Good people are getting harder to find and keep.

Esther says she now asks applicants different questions than she used to. Along with the usual inquiries concerning job qualifications, she's also asking potential job candidates questions such as: Do you have a passport from another country? Are you in the process of migration? Do you intend to migrate?

She's asking such questions because HP in Hong Kong lost 14 employees between 1985 and 1986, and many of them were leaving for Australia, Canada and the U.S. They're part of what the Hong Kong-based *The Asian Wall Street Journal* called a "professional exodus," the impact of the Hong Kong 1997 issue that will return this British territory to the control of the Chinese—the People's Republic of China.

The Asian Wall Street Journal reported that many local workers, including professionals, are finding ways to leave the island before 1997, adding that the loss of skilled labor and professionals is straining many domestic and international companies, large and small. Hong Kong is the world's third largest financial and banking center, following only New York and London.

But Far East Operations managing director Walt Sousa says HP hopes for the best. "The PRC and Britain agreed in 1984 that Hong Kong's social, political and legal systems will remain unchanged for 50 years after 1997. We're hopeful this will be the case because, when you think about it, the PRC has always had the ability to take Hong Kong back. All they had to do was cut off the water supply. But they chose not to—even at the height of the Cultural Revolution—because Hong Kong is extremely important to the PRC

in its present form."

Hong Kong became a British territory in 1841 when the first Opium War resulted in the Convention of Cheunpi, which ceded the island to the British, though this treaty was apparently never signed or ratified. Not satisfied with what the British considered a "barren island," further skirmishes gave Britain control of Kowloon and five more ports for trade. The lease that gave the British control of the New Territories and 235 islands expires June 30, 1997.

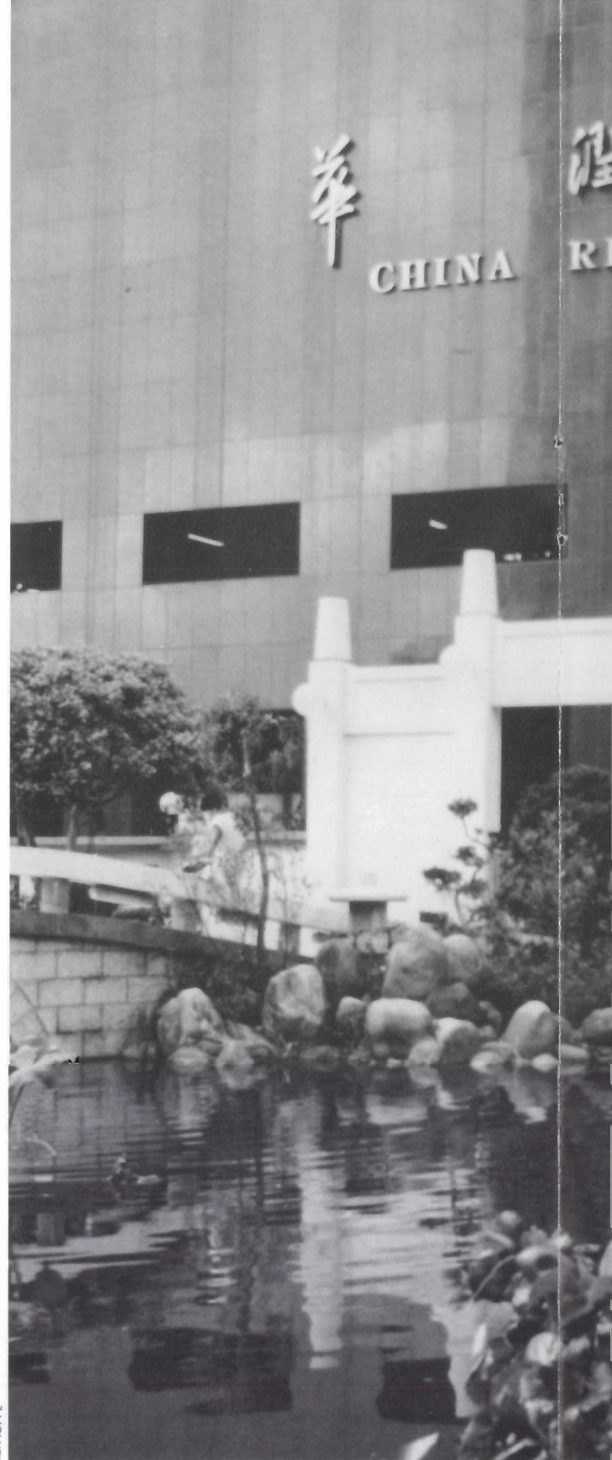
Neutral, not negative

As 1997 approaches, China and the Hong Kong government have negotiated seriously about how the transfer will occur, says Walt.

"For HP, I think it will be a neutral instead of a negative change," he says. HP has a very good relationship built with the PRC, with China Hewlett-Packard now more than a year old. Offsetting the "brain drain" syndrome, many employees from Hong Kong have 'joined' the PRC by supporting sales there or even transferring to China Hewlett-Packard for a time.

"The PRC wants to modernize. They need access to sophisticated management skills and abilities. They're using Hong Kong as a base in trying to incorporate some of these skills," Walt says. "That's why they've set up so many joint ventures in Hong Kong. There will be many questions, of course, and we'll face them from the Far East Region as they arise. For example, we don't know how the U.S. will treat Hong Kong, or if it will make business more difficult. We don't know if Taiwan will do business with Hong Kong.

"But the Far East Region has been the company's fastest-growing region the past few years and that should continue the next few years. What makes it such an interesting place is that it's so multidimensional and this is a good example of that. There are so many



HP's Far East Operations offices are located in this office building.

issues, so many balances to maintain. There are exciting, diverse, dedicated and hard-working people throughout the entire region. They're goal-oriented. I believe we'll achieve results, even in these emotional times."

Jack Lee, general manager of HP Hong Kong, says the agreement means that during the 50 years after 1997, Hong Kong will be governed by Hong Kong officials and administrative teams from the PRC. It will be a "one-country, two-systems" setup, he says, governed by a common set of laws now



Living in Hong Kong. Both HP Hong Kong and HP Asia are feeling the brain drain.

being drafted. "What they seem to be saying is that they will not immediately impose a socialist economic system."

Jack still believes Hong Kong offers a lot of opportunity and points to the number of companies still moving into the country despite enormous operating costs and sky-high building and leasing costs. "Hong Kong is perceived as the gateway to the People's Republic of China and everyone wants to tap that market. Many companies set up here instead of the PRC because it's too expensive to do business there, the

selling cycle is long or they don't have enough political influence to get established there."

Jack, who serves on a number of government committees, believes that the only thing that stops a person from growing is himself or herself. "My advice to people is: 'You are Hong Kong. If you give up, there is no future. If you hang in and help and we give good advice, we'll excel. The Chinese government is going to need competent people to run the show. If we can prove our value in this way to the government, we

have nothing to fear. The PRC couldn't run this place alone now. Together, we can make it work.'"

The brain drain is painful

But even Jack admits this positive attitude and the struggles now to form laws to make the new system work are purely ideas and no one can be sure what will happen. "There is so much working against it. . . so many fears. Fear is like an infectious disease. The brain drain is painful. We look at each other and scratch our heads, and wonder what it will be like. Our HP people are trying to get transfers to HP operations in other countries. Some are asking for leaves of absence to try to find work at other HP entities. They want to establish themselves long enough to get a passport from a free country. They're thinking of their children and what their future might hold. They're worried about preserving their personal freedoms. But most of them wish to return to Hong Kong. For so many, this is home."

Esther Chan says she supposes all of HP's Hong Kong-born employees have seriously considered their futures. And like the others, she thinks of hers as well. "Hong Kong is such a cosmopolitan city," she says. "The population is 99 percent Chinese, but there are also many Filipinos, British, Americans, Indians, Malaysians, Portuguese, Australians, Japanese—and so many more. I love it here. My ties with this place go back 30 years. I thrive on the enthusiasm of the city, the nightlife, the people, the shopping. It's very fast-paced. Hong Kong is made up of hard-working Chinese people who are very money-motivated. That means there are always new ideas, new ways to do business, snap decisions to be made. You can grow addicted to the place. It would be very hard to leave."

—Jean Burke



Listening to the needs around us

In 1986, Hewlett-Packard granted \$65 million to institutions such as the Morehouse School of Medicine in Atlanta, Georgia.



Dr. James H. Carter Jr., director of the Family Practice Residency Program at Southwest Community Hospital, shows his sons Kamal, 12, and Kwesi, 14, around the clinic.

Just 20 graduates—most of them black—were members of the 1985 charter class at the Atlanta, Georgia, Morehouse School of Medicine, the first to complete all four years of their medical training at Morehouse.

Few in number, they are also distinguished from their peers in a more significant way: They have eschewed the more lucrative medical specialties and are headed for remote communities, such as Hayneville, Alabama (pop. 473) or cities, such as Washington, D.C., and Memphis, Tennessee, with high minority populations. There they will serve as primary-care physicians—family practitioners, pediatricians, psychiatrists, obstetrician/gynecologists and internists.

Morehouse School of Medicine is the first predominantly black medical school established in the U.S. in this century and it's one of only four in the country. Its mission since 1978 has been to train primary-care physicians so desperately needed in the country's heavily minority communities, where often there is only one doctor for as many as 25,000 people, compared with one for only 250 in many affluent areas.

When approached in 1983 for a grant of HP medical equipment, District Sales Manager Harold Norman of HP's Atlanta office decided, "To make the grant effective, we needed to provide equipment that would strengthen Morehouse's family practice curriculum. The best way to do that," he says, "was to give them experience in using the most modern of often-used equipment."

Since Morehouse students complete residencies at three Atlanta hospitals, the equipment, while granted to Morehouse, was installed downtown at Grady Hospital and Hughes Spalding Hospital, and on the edge of the city at Southwest Community Hospital. All three hospitals serve primarily minority neighborhoods.

Helping communities

"That equipment," says Jim Phelps, Medical Group personnel manager, "is also benefiting the community, which was the final determining factor in making this grant."

The equipment, installed in phases

by expert volunteers from the Atlanta sales office, included one REALM (Regional ECG Analysis and Management) station and three ECG transmitting carts serving Grady, Hughes Spalding and Southwest Community hospitals. Later, two defibrillators, two fetal monitors and a neonatal monitor—equipment commonly used by family practitioners—was apportioned to the three hospitals. Total value of the grant is \$83,000.

The REALM station, connected to Grady's existing ECG management system which uses an HP 1000 computer, allows Morehouse interns and staff physicians to take patient ECGs, which are then analyzed by the central computer and sent back to the REALM station for physician review and editing.

Enthusiastic about the HP equipment grant, Morehouse Vice President Dr. Joseph Gayles says, "It means a great deal to our residents to have access to the latest technology. And it means as much to the college to have the support of a company like Hewlett-Packard."

Nurses and technicians at Southwest Community Hospital's sparkling Family Practice Clinic mirror Dr. Gayles' gratitude. "HP is the best," asserts one technician. "Do you think you can get us some more equipment?"

Morehouse College is but one recipient of the \$65 million Hewlett-Packard Company granted last year to educational, health, human services and cul-

tural organizations worldwide.

According to an independent study of the nation's philanthropy, HP is one of the top five U.S. philanthropic donors. Following the trend of corporate donors often outpacing private foundations, HP was ahead of the Rockefeller Foundation while IBM, the largest contributor among U.S. corporations, gave more than the Ford Foundation.

HP grants, mostly in the form of equipment to educational institutions, leaped to \$65 million in 1986 from only \$10 million as recently as 1981. Since HP's increased philanthropy to certain recipients in technical education qualifies for an enhanced tax deduction, the actual cost to the company of last year's grants was only \$27 million.

Which is which?

A great deal of confusion exists among HP employees and the public alike over Hewlett-Packard Company and its separately incorporated Hewlett-Packard Company Foundation, as well as the separate granting activities of the company's founders (see stories, pages 16, 17).

The tax-exempt Hewlett-Packard Company Foundation was established in 1979 by the company's Executive Committee with an initial grant from the company of \$925,000. Cash earned in the company's good years was intended to sustain philanthropic activities during lean times. The company gets a tax deduction for its contributions and the foundation is able to invest the funds to earn more money. The foundation's current cash balance is about \$800,000.

But since the company's revenue and earnings have enjoyed steady growth, the foundation's coffers have only occasionally been invaded to make grants.

The growth of HP philanthropy in recent years prompted the formation of a task force in 1984 to examine all its aspects. Headed by Frank Urban of the Logic Systems Division, the task force recommended some changes that were implemented last year.

First, a permanent Philanthropy Council was formed. Chaired by Vice President of Administration Jack Brigham, it sets overall policy and maintains close contact with the Exec-

Morehouse student Dr. Millard Collier Jr., opposite page, is chief resident at Atlanta's Southwest Community Hospital Family Practice Clinic. He's giving Funmilayo Carter a routine check-up.

utive Committee on philanthropic matters. One of its early recommendations was for more visibility for HP grants, both inside and outside the company.

Second, the Corporate Grants department, now under the direction of Rod Carlson, who also serves as executive director of the HP Company Foundation, was reorganized to reflect the two separate parts of grant-making activity: university giving and non-university giving. All university grants, which account for more than three-fourths of the total, are managed by Jane Evans. Non-university grants are managed by Tony Napolitan Jr. Jane and Tony chair separate supporting advisory boards with representatives from the various product groups, HP Labs, corporate offices and the sales organization.

The wide array of HP philanthropic programs can be grouped into four main categories:

- Community grants are determined by local contributions committees made up of HP employees at all levels with a particular interest in the grant-making process. Since the available funds for each committee are determined by a \$14-per-employee guideline, in many instances entities which are geographically close have banded together to increase their impact.
- National grants, encompassing both Tony's and Jane's programs, are primarily to causes related to education in science, engineering, technology, medicine and business, or to arts and human services organizations when bridges between the sciences and humanities can be built. These include

the San Francisco Symphony Orchestra, which has one of the most advanced business computer systems of any arts organization worldwide as a result of an HP grant.

A percentage of grants in this category are also designated for Affirmative Action-oriented programs like Morehouse School of Medicine.

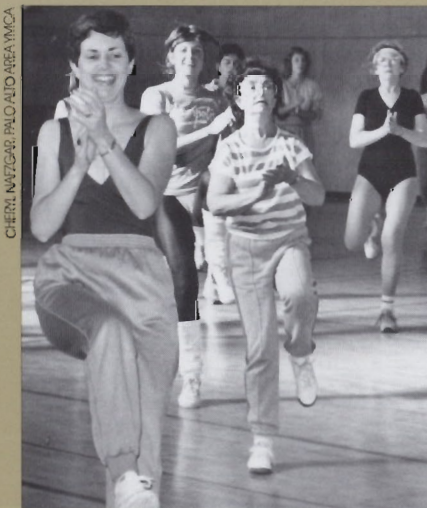
- Employee-driven grants constitute a third category. In these programs, HP employees' personal cash contributions for recipients they designate are multiplied by company resources. One example is the company's one-to-one match of United Way pledges which places it among the leading contributors to United Way in the U.S. Employees can also steer grants to schools of their choice through two programs. One encourages employees to contribute

The David and Lucile Packard Foundation

The annual report of The David and Lucile Packard Foundation reads like a major university-course catalog, with separate sections devoted to each of the foundation's funding areas, from ancient studies and archaeology (a field of special interest to son David W. Packard) to public policy. But the foundation's primary concerns since its founding in 1964 have been health programs (which account for nearly a fourth of its donations), community services, education, the arts and conservation.

Except for a few grants earmarked for Pueblo, Colorado, where Dave Packard was born and grew up, the Packard Foundation's generosity benefits primarily four northern California counties: San Mateo, Santa Clara, Santa Cruz and Monterey.

An eight-member board of trustees, including Dave and Lu Packard and their four adult children, meets quarterly to review grant proposals (they fund about one out of eight) and re-evaluate areas of interest.



One recipient of a grant from the David and Lucile Packard Foundation was the YMCA in Palo Alto, California.

Executive Director Cole Wilbur and a 12-person staff administer the contributions, which in 1985 totalled nearly \$8 million. The foundation's policy is to use all of the income earned in a given year on its \$130 million in assets to cover that year's grants and expenses.

In January, the Packard Foundation relocated to a new building in

downtown Los Altos, California. The 23,000-square-foot building includes 14,000 square feet of retail and office space intended to generate additional income for the foundation.

Community grants totaling nearly \$1.5 million in 1985 went to programs for seniors, child care, youth and criminal justice. "We think of our grants as investments in non-profit agencies," says Cole. "The 'bottom line' is either an improvement or an increase in the services provided, so that our communities will be better places to live."

Behind the Packard Foundation's varied interests is a desire to improve the health, education, care and growth potential for children and young people. Despite significant support of education programs, especially in math and science, Cole says, "We're careful not to give any money for computers since we want to avoid even the perception of a conflict of interest with HP."

Contrary to common belief, the \$40 million Monterey Bay Aquarium, a well-known Packard family project, was not funded by the foundation, but instead with family funds.

products to any school, from elementary through university, by matching their contribution three-to-one. The other—a cash program for universities only—matches employees one-to-one.

- The fourth category—international grants—includes programs in countries where direct contributions of cash and equipment are permitted and encouraged. In Europe, these are coordinated by Georges Vallet, personnel manager for European Operations, and in Intercontinental countries by Sy Corenson, public relations manager for Intercontinental Operations.

HP philanthropy is guided by the company's citizenship objective which states, "To honor our obligations to society by being an economic, intellectual and social asset to each nation and each community in which we operate."

In the spirit of this objective, thousands of employee volunteers are involved in the granting process—making decisions about recipients, determining the appropriateness of equipment grants and ensuring their proper installation and maintenance, as well as following an agency's progress with a grant. The HP field organization plays a vital role in the grant process.

In recent years, new programs have been added, many of which are pioneering efforts. HP Labs initiated grants to 21 U.S. universities totaling \$50 million in equipment and software for research and instruction in artificial intelligence. A national program is awarding equipment grants to community colleges, and mini-grants programs in several U.S. communities are

providing up to \$500 in cash each to teachers of kindergarten through 12th grade with creative science and math programs.

In addition, a new program was established to better meet HP community needs by funding community-hospital grants from the national program instead of local divisions.

—Mary Anne Easley

(Mary Anne Easley is manager of public relations services in Corporate Public Relations and sits on HP's National Grants Advisory Board.)

The William and Flora Hewlett Foundation

The William and Flora Hewlett Foundation, with annual grants now totaling nearly \$33 million, is the fourth largest charitable donor in the San Francisco Bay Area, behind HP, the San Francisco Foundation and Chevron Corporation.

The Hewlett Foundation wasn't always this big. In its first granting year—1967—contributions totalled \$225,000.

First incorporated in 1966 by Bill, his first wife, Flora, and one of their three sons, Walter, it was called The W. R. Hewlett Foundation. For nearly 10 years, it was run out of Bill Hewlett's office at HP. From time to time, the family gave the foundation HP stock and made charitable grants, which reflected their interests, primarily in education, the environment and religion.

The board grew in the '70s and now includes three family members and six non-family members. Annual contributions reached \$3 million in 1975, prompting the hiring of a full-time executive director

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The William and Flora Hewlett Foundation grants funds to the performing arts, as well as to other programs.

and a small staff.

When Flora Hewlett died in 1977, the foundation was renamed The William and Flora Hewlett Foundation to recognize her considerable role in its inception. That same year, Roger Heyns, who had been chancellor of the University of California at Berkeley during the mid-'60s, assumed the presidency of the considerably expanded program which resulted from a \$200 million distribution to the foundation from

Mrs. Hewlett's estate.

The foundation's interests are national or international in scope. Only one-fifth of the grants are made in the San Francisco Bay Area. Contributions are made in performing arts, education (particularly higher education), population programs, the environment, community development, youth employment and programs aimed at conflict resolution.

Grants to education exceed all other categories, most of them to research universities and liberal arts colleges, but also to libraries, school-university partnerships, and science and engineering programs for minorities. A few also support theological education, reflecting the family's religious interest.

Vice President and Corporate Secretary Marianne Pallotti, one of 14 staff members, clarifies the Hewlett Foundation's focus: "We are mainly interested in building institutions—strengthening and stabilizing organizations in areas where they work effectively." To this end, the foundation prefers giving general support funds instead of aiding specific projects.

LETTER FROM JOHN YOUNG

HP's president puts 1986 in perspective and discusses the promising year ahead.

JIM ADAMS



John told Cupertino employees in November that 1987 is HP's year "to pull out in front of the pack."

In this issue of *Measure*, I'd like to look in two directions—back at our 1986 fiscal year's performance and forward to what 1987 might hold in store for us.

I think we can feel reasonably pleased with our performance in 1986. A strong fourth quarter boosted our orders to a year-end total of \$7.2 billion, 13 percent ahead of 1985. These results compare quite favorably to the 1 percent growth we reported in 1985, as well as to the results published by some of our competitors. Demand for our medical, analytical and peripheral products was particularly strong. Similarly, we had good growth in

income derived from maintenance contracts, supplies and other services. These support services are less affected by business cycles than equipment sales and now represent just over one-fifth of net revenue. I highlight these results because it's worth noting that the breadth of HP's offerings helps sustain the company's overall performance.

Of course, what really sustains HP is its people, and I'm grateful for your many fine efforts during the past year. 1986 wasn't an easy time for anyone. Its challenges included unpaid time off, the pressures of product development schedules, and uncertainties created by the ongoing evolution of our organization and business strategies. HP people met these challenges with their usual good grace and resilience, and I must say that I'm proud to be associated with you all.

How does 1987 look to me? I see a few encouraging signs in our business environment. In the U.S., electronics industry orders began to grow at mid-year, a welcome development after 18 months of declining order rates. However, I continue to be concerned about the low rate of capital spending in the U.S., and the loss of the investment tax credit and other tax law changes. These, combined with a trade deficit, will make it hard for key U.S. customers to move ahead.

Internationally, economic expansion is continuing at stronger rates than in the U.S. The decline in the value of the dollar has given us more pricing flexibility, but I have two notes of caution about the dollar's decline. First, the substantial rise in the value of the yen has weakened the performance of an important group of HP customers—Japanese exporters. Second, the dollar hasn't declined as much as some indices would suggest. Against currencies from South Korea, Taiwan, Hong Kong and Canada, the dollar remained constant or even had strengthened at the time we closed our books of fiscal year

1986. So it's safe to say that we at HP aren't going to depend on exchange rates or other changes in our business environment to bring us success.

Instead, we're going to make our own future, and 1987 is the year to do it. First, we're going to control our costs with a set of very tough but realistic expense targets. In 1986, our expenses grew 6 percent faster than revenues. As a result, our operating profits, which are the basis for our profit-sharing program, showed only modest growth. I'm sure I'm not alone in wanting to see our profit-sharing percentage move up to its historical levels. To achieve that goal, we've targeted for expenses to grow more slowly than revenues in 1987. That means that we'll all be operating with fewer resources than we might like. We'll have to pick our priorities quite carefully and pursue only those programs that can make a real, positive difference in our performance—in short, that time-tested recipe of making a contribution.

If we can strengthen our self-discipline in the area of expense growth, I believe that 1987 can be a good year for us. We're at the beginning of a new-product cycle that will be one of our strongest offerings ever. Our organization and staffing are well matched to the programs we've planned. And we have a talented and committed group of people to carry those programs forward. I look forward to 1987 with confidence and hope it will bring each of you a rewarding new year.

EXTRA MEASURE



JOHN HARDING

Spectrum model goes out in style

A truck filled with new HP 9000 Model 840 computer systems got an official sendoff from employees in Cupertino, California, November 20.

The first shipment of the Spectrum program systems was celebrated with fanfare, including a press conference, a program featuring HP President John Young, balloons, trumpets and a giant beer bust.

The signal for sendoff was a ribbon-cutting and the release of 5,000 balloons by two of the HP people involved in the project: Joe Mixsell represented those

involved in hardware development, and Gary Ho those who worked on software development. Shipping papers were signed on behalf of all HP employees by Cary Coutant, whose name was drawn from a number of nominees who had made significant contributions to the new machine.

The new Model 840, designed for general-purpose technical computing applications, is the first system to employ HP Precision Architecture based on the principles of reduced-instruction-set computing (RISC).

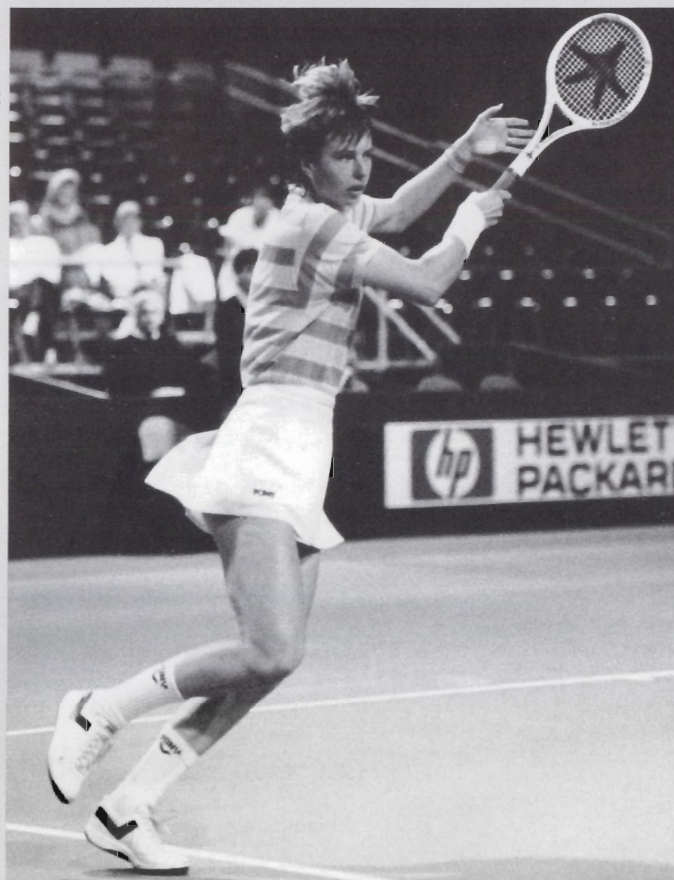


FOTO RIEN HOKKEN

Helena Sukova won the singles competition at the HP-sponsored women's tennis tournament in The Netherlands.

A job well done

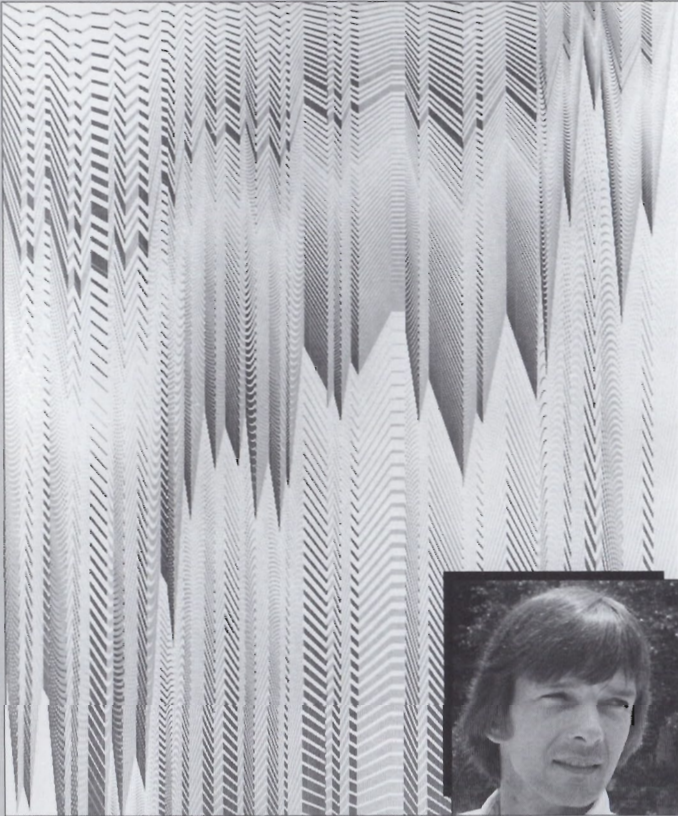
For the second year, HP sponsored an international women's tennis tournament in The Netherlands, which was played in October 1986.

HP was visible at the event with on-court signs, television coverage and the presentation of trophies by The Netherlands general manager Hans Van Der Velde. HP software programs used with HP Vectra personal

computers allowed local TV stations to display tournament scores immediately.

Czechoslovakia's Helena Sukova, ranked sixth in the world at the time of the tournament, won the singles competition, and also the doubles with her partner Kathy Jordan of the U.S.

JEFF AMBERG, COURTESY OF THE S&P



HP stock provided Roy Drasites a nice upward pattern as it rose in a three week period from June to July of 1984.

HP stock as art

A University of South Carolina associate professor of art is inspired by the performance of Hewlett-Packard stock. Roy Drasites has created a series of computer-drawn images of the stock performance, a project he's been working on for years.

The *State* newspaper staff writer Charles Twardy said of him, "Roy Drasites figures there are just two kinds of artists: those who make art about art and those who make art about life. 'I am the art-about-life type,' says Drasites."

Roy has been working with programs he wrote himself and using the university's HP 7475 color plotter to render his works.

His project started three or four years ago, he said, when he got interested in the stock market for strictly personal and capitalistic reasons. He began using his home personal computer to plot the common stock of different companies using the variables of time and price.

This project is what steered him into using computer graphics in his artwork. But he still gets up at 5 a.m. every day to scour the business section, charting the progress of the stock of 150 different companies.

Roy studied math and physics, and taught physics before he switched to architecture and then art.

BOTTOM LINE

Hewlett-Packard reported a 9 percent increase in net revenue and a 5 percent increase in net earnings for its 1986 fiscal year ended October 31. For the fourth quarter, net revenue increased 15 percent compared with the year-ago quarter and net earnings increased 23 percent for the same period.

FY86 revenue totaled \$7.102 billion, compared with \$6.505 billion for FY85. Net earnings for the year were \$516 million or \$2.02 per share compared to \$489 million or \$1.91 per share in FY85. Orders for the year totaled \$7.201 billion, up 13 percent from \$6.395 the preceding year.

For the fourth quarter, net revenue totaled \$1.933 billion, compared with \$1.685 billion for the year-ago quarter. Net earnings amounted to \$157 million, equal to 62 cents per share on approximately 256 million shares of common stock outstanding, up from net earnings of \$127 million or 50 cents per share in the fourth quarter of 1985 on 257 million shares. Incoming orders were \$1.912 billion, up from \$1.595 billion in the year-ago quarter. International orders gained 40 percent, to \$882 million.

TECHNICAL SYSTEMS

In the Technical Systems Sector, the Manufacturing Systems Group has created two new entities as the result of the introduction of the HP Precision Architecture product, the HP 9000

Model 840. The Technical Computer Operation under Operations Manager **Ed Hayes** takes over all marketing responsibility for the Model 840. The Industrial Application Center under Operations Manager **Laura Cory** provides value-added applications software for industrial users.

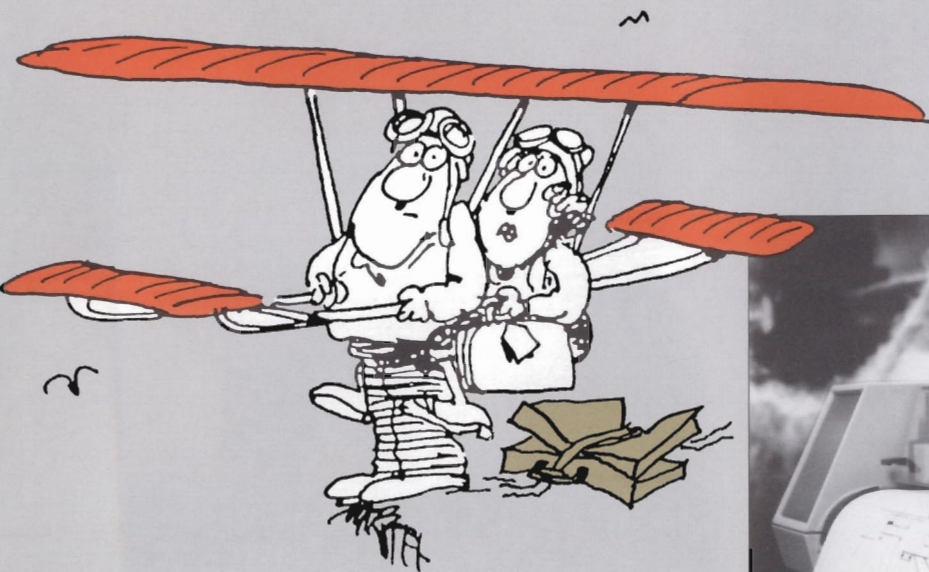
In the sector's renamed Engineering Systems Group (formerly Design Systems Group), a new Design Systems Business Unit under General Manager **Larry Potter** consolidates the former Electrical Engineering and Mechanical Engineering BUs. The Mechanical Business Operation now reports directly to BU management.

CHART CHANGES

Labs and programs of the former Integrated Systems Center have transferred from HP Labs to the Circuit Technology Group as the nucleus of a strong group R&D function. **Chuck Tyler** becomes group R&D manager.

In the Personal Computer Business Unit under **Bob Puette**, **Larry Mitchell** becomes GM of operations (continuing as GM of the Roseville Terminals Division). **Jacques Clay** reports to him as operations manager of a newly formed Sunnyside Personal Computer Operation taking over a number of activities from the former Personal Office Computer Division.

Major Accounts Marketing has formed the Federal Systems Operations under **Carl Cottrell** as GM.



A funny thing happened on the way to Bloemfontein

In a recent issue of *Interface*, the employee publication for HP in South Africa, Rob Johnston recalls a story from his days as calculator repair-center manager.

Kit Bruyns, an HP 41-CV owner and a pilot, had left his briefcase containing his calculator on the tail of his Beechcraft Baron at Port Elizabeth's airport while he changed into his pilot's uniform.

When he finished his pre-flight inspection, he forgot about the briefcase as he buckled in and took off. "The next thing I knew,"

says Kit, "just outside Bloemfontein, the air traffic controller asked if I was on the plane because they had just found my briefcase at Port Elizabeth."

The man who found it was a Boeing pilot on a flight from Johannesburg. He had run over it.

The briefcase sustained heavy damage, but the HP 41-CV was still working with only a cracked display glass and case.

Rob Johnston says the employees at the repair center liked the story so much they gave Kit a brand new calculator and kept his as a museum piece.



HEWLETT-PACKARD

HP reunited with Disney

HP still keeps its early ties with the Walt Disney Studios, the company's first big customer in 1939.

San Diego Division's HP 7585 plotter is playing a starring role in Disney's

current film, *Flight of the Navigator*, the story of a Miami boy who is whisked away by an alien craft and returned to earth eight years later.

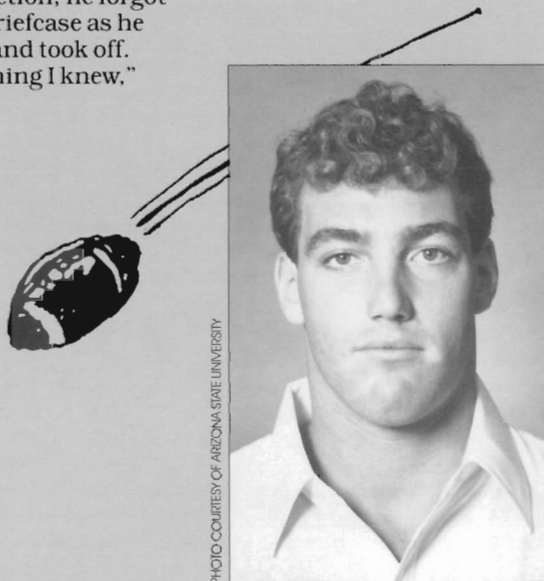


PHOTO COURTESY OF ARIZONA STATE UNIVERSITY

Sun Devil pegged "Hewlett-Packard"

The November 17 *Sports Illustrated* magazine noted that Arizona State University's Todd Kalis, guard on the Arizona State Sun Devils football team, has been nicknamed "Hewlett-Packard" by his coaches and teammates. "He's known," said writer Rick Reilly, "for his continual cross-examin-

ing of coaches with the question, "What if. . ."

And as of this writing, the Sun Devils of Tempe, Arizona, were mostly wondering "What if. . . we win the Rose Bowl?," in which they played January 1 for the first time since joining the Pac-10 in 1978.



Psssst. . . hey kid, need an alibi?

Nationally syndicated columnists Franklynn Peterson and Judi K-Terkel proposed an interesting application of HP's ThinkJet printer in one of their 1986 *Business Computer* columns.

In their spoof report on 1986's best new computer uses, they included the following:

"John's Lies, Madison, Wisconsin. This clever busi-

ness operates under John's trench coat on a corner near West High School. He invested in a Radio Shack \$399 laptop computer, attached it to an old shoulder holster harness, and added a tiny but fast Hewlett-Packard ink-jet printer.

"John caters first to kids hitting West High who missed school the day before. He charges \$6 for a doctor's note, \$4 for a mother's note, and \$20 for a parole officer's letter. Just after the bell rings, John picks up a few extra bucks ink-jetting late-to-school notes.

"John gives no money-back guarantees because his spelling suffers from the same computer-age neglect as his customers'. But because computer consumers like to buy without good guarantees, he doesn't plan to change his methods even after his spelling checker arrives."

Chez Joel

Twelve winners of an ITG United Way raffle received a gourmet lunch, served by Joel Birnbaum, vice president and general manager of the Information Technology Group, and his staff last October.

A corner of Cupertino's Peppertree Cafeteria was transformed into the "Peartree Cafe." (Birnbaum means Peartree in German.)

The exclusive establishment offered HP Precision Architecture cuisine, including Precision salad with HP 3000 Model 930 dressing; *Cheetah* Chicken, served with white wine sauce and grapes; and



Pears Spectrum, poached and served with hot chocolate sauce and almonds.

NEW PRODUCTS

The Fort Collins Systems Division has brought out a new high-end work station, the HP 9000 Series 300 Model 350, believed to have four times the computational power of a DEC/VAX 11/780 minicomputer. Available in six configurations, the system is said to provide the industry's lowest-priced entry into high-performance CAE/CAD.

The HP-28C from the Handheld Computer and Calculator Operation is the only scientific professional calculator that goes beyond numeric calculations to use symbols or variables—making it possible to handle algebra and calculus operations with a few keystrokes.

A number of Business System Sector entities share credit for the HP MICRO 3000 and HP MICRO 3000XE systems which replace the HP 3000 Series 37, 37XE and 42 systems. More powerful and less costly, they are the first commercial HP computers to use HP's NMOS III chip technology.

The new HP 661A water purifier from the Avondale Division was developed in conjunction with Elga Ltd., Europe's leading specialists in water-purification for labs which insist on having ultra-pure water.

An industrial version of the HP Vectra personal computer has been introduced by the Data Systems Division. It is ruggedized and rack-mountable for harsh manufacturing environments.

The Logic Systems Division's HP 64000-UX micro-

processor-development environment (hosted on the HP 9000 Model 320) for the first time has a emulator/analyzer combination to shorten the design cycle for development related to the Motorola 32-bit MC68020 microprocessor.



HP LED lamp (left)

The Optoelectronics Division (OED) has introduced the first HP LED lamp designed specifically for backlighting as an alternative to small incandescent lamps in such applications as auto lights. Also from OED: emerald-green hermetic lamps and displays that conform to the specs of MIL-L-85762 for an aviator's night viewing.

YHP's new capacitance meter (C-meter), the HP 4278A, measures capacitance and dissipation factor with both high speed and accuracy. Designed for production test and incoming inspection of ceramic and film capacitors, it can test chip or leaded components. . . . The Manufacturing Test Division's new Sim-Plate board-test fixture represents a quantum leap in testing surface-mount or conventional technology. It has fewer parts, lighter weight and is easily maintained.



Eastern Sales Region triathlon participants, from left: Paul Cannon, Alan Morse, Bruce Killen and Chris Eberly.

No guts, no glory

HP athletes prevailed in 1986 both in Pennsylvania and in Florida.

In Fairmount Park in Philadelphia, Pennsylvania, a four-man HP team took second place out of 140 competitors in the Manufacturers Hanover Corporate Team Triathlon. Earlier in 1986, the same team had placed second in the Thomas Jefferson University Hospital's Second Annual Corporate Team Triathlon.

The team includes: cyclist Bruce Killen, applications engineer; swimmer Alan Morse, systems engineer; runner Paul Cannon, applications engineering district

manager, and runner Chris Eberly, systems engineer.

Meanwhile, in Orlando, Florida, HP's 24-member team in the national Corporate Battle of the Stars, swept the two-day competition and won first by the largest point margin in "Battle" history.

A two-hour television special of the finals was shown in the U.S. on Christmas Day and New Year's Eve.

JAPAN

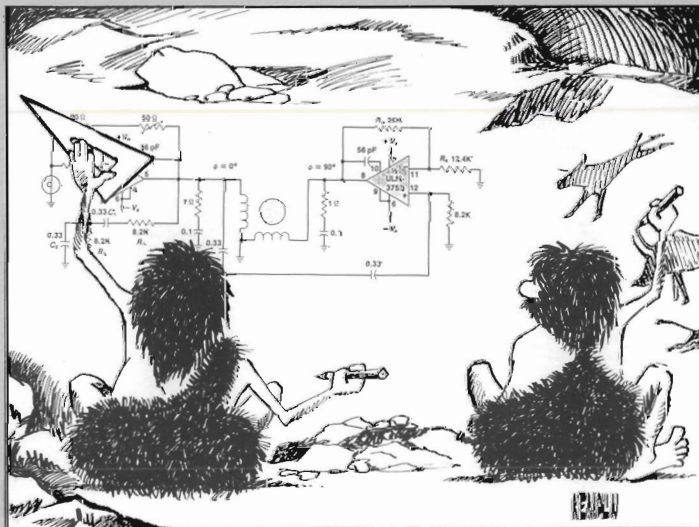
When in doubt, write a book

Back in 1981, two HP buddies stood looking at a bookstore shelf full of books about the superiority of Japanese management style. "This sounds awfully one-sided and simplistic," agreed Don Riccomini and Phil Rosenzweig. "You can't really transfer these things wholesale from one culture to another."

The result, four years later, was publication of their book "Unexpected Japan" by Walker and Co. of New York. Told in parable form, it uses a main character sent by his company to learn the "secrets" of the

success of the Japanese way of doing business. The authors take aim at American management fads and suggest ways in which American business can use its own resources to revitalize productivity.

"It's simple on the surface but has a deeper meaning," says Don, marketing engineer for the Santa Clara Technology Center. (Phil left HP last fall to work on his Ph.D. at the University of Pennsylvania's Wharton Graduate School of Business.) The book has already been the subject of several scholarly papers by academicians and was included last fall in a book exhibit that toured the P.R.C.



PARTING SHOT

HP sets sails into the sunset

A new luxury sailing cruise ship began operating in December 1986, combining age-old power and modern technology. HP computers drive its sails, while other computers monitor its water, electric, navigation, ballast and air-conditioning systems.

The ship, operated by the Windstar Sail Cruise Company in Miami, Florida, cruises small island destinations such as Saint Lucia, Martinique, Grenada and other small islands and can carry from 150 to 170 passengers.

The *Wind Star*, built by the Société Nouvelle des Ateliers et Chantiers du Havre in Le Havre, France, is the most advanced sailing vessel in the world, as well as the world's largest cruise ship under sail.

The masts of *Wind Star* are 60 meters tall and support six sails with a total area of 2,200 square meters. The sails are controlled by HP 9133 disc drive, HP 9000 Series 300 computer, augmented by an HP 6940B multiprogrammer and an HP 6941B



LEWIS T. FINEMAN

extender. This system does the work of a crew of sail riggers.

The sail computers respond to most wind conditions and work with the ship's navigational system to provide the proper wind power to maintain the set

course. The computer is fed wind speed and direction information from sensors on the top of the masts. The preset program then directs the sail system to set the necessary amount of sail

and the boom angle. The sail system can also be operated manually from a special console in the wheelhouse. Even then, it takes only one person to do all the sail rigging.

—Lewis T. Fineman

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