

MEASURE

For the people of Hewlett-Packard

May-June 1983



A profile of HP's president

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MEASURE

"Man is the measure of all things."
—Protagoras (circa 481-411 B.C.)

Measure is published six times a year for employees and associates of Hewlett-Packard Company. Produced by Corporate Public Relations, Internal Communication Department, Gordon Brown, manager. Address correspondence to *Measure*, Hewlett-Packard Company 20BR, PO Box 10301, Palo Alto, California, 94303-0890 USA. Report change of address to your local personnel department.

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Hewlett-Packard Company designs and manufactures computers, electronic test equipment, handheld calculators, electronic components, medical electronic equipment and instrumentation for chemical analysis. Manufacturing facilities are located in 22 U.S. cities in eight states and in 10 cities in nine countries in the rest of the world. HP sales and service offices can be found in more than 80 U.S. cities and (including distributorships) in approximately 200 cities in 70 countries around the world.

ON THE COVER:

Illustrator Dick Cole captures HP's president and chief executive officer in a typical pose. Editor Brad Whitworth profiles John Young and his first five years in the company's No. 1 role, starting on page 3.

UPFRONT

Media events focus international attention on HP in California

The eyes of millions peeked inside Hewlett-Packard twice in three weeks as the company welcomed NBC's Today show co-host Jane Pauley to Palo Alto and Queen Elizabeth II to Cupertino this winter. (See pages 11 and 19 for more details.)

As Hewlett-Packard has grown in size, the public's awareness of the company has grown proportionally. HP, while it's been well known in a number of select circles in the past, is becoming more and more of a household word. Glowing reports of the company in *Fortune* magazine and in the syndicated newspaper column "The Money Tree" have sparked even more interest in HP as a progressive employer and a good place to work.

Early-morning TV viewers in North America heard HP's name mentioned every time the Today show switched from its New York studio to HP's computer room in Palo Alto. Coming back from one station break, Jane Pauley demonstrated an HP 75 portable computer that had been programmed to plot a Today show logo on an HP 7470

plotter. In describing the computer's power she explained that "until this year if you wanted to do the work that computers like this can do, you'd have to sit at your desk. Now it's portable—like having a brain in your briefcase." It's hard to put a dollar value on such unsolicited testimony.

More than 100 press people covered the royal visit in March, including network television crews from NBC, CBS, ABC, CNN and Britain's BBC and ITN. Millions watched the queen as she watched Data Systems Division assembler Leona Plouffe solder a capacitor on an IC leg. Millions more read written accounts of the tour.

Such "media events" will become even more commonplace as HP's name and reputation spread. Each will probably require some sacrifices—of time, energy and money—that will pull the company, at least temporarily, away from its daily business. But the rewards from the coverage can, in the long run, far outweigh the costs. And after all, HP is in business for the long run. **M**



Dave Packard shows a printed circuit board to Queen Elizabeth II during her tour in March.

DAVID FORBES

John Young



Five years ago Bill Hewlett relinquished the titles of president and chief executive officer of Hewlett-Packard Company to John Young. Industry observers watched closely as day-to-day management control shifted from one of the most successful American business partnerships to the then 45-year-old executive vice president. Perhaps those observers expected HP to follow the behavior of other large corporations, where new leaders are picked by internal struggles that result in survival of the fittest. But in HP's typical low-key fashion, the torch was passed without a lot of fanfare. "It wasn't too exciting. As a matter of fact," says John, "it was more of an evolutionary process." Measure looks at John Young and his first five years as CEO.

John

“John Young is the kind of person everyone would like to work with—someone who keeps his promise, is easy to get along with, shows good judgment and tries to see the other person’s side of things,” says Ernie Arbuckle, a member of HP’s board of directors since 1959. “He’s the kind of person you’d like as your next-door neighbor.”

In fact, the two *are* neighbors in Portola Valley, a short 10-minute drive from HP’s Palo Alto headquarters. When Ernie had plans to sell part of his property a few years ago, John was in the market. “It was such a delight to deal with him in a real-estate transaction,” says Ernie. “As the plans were being developed, we worked together on where his house would sit on the lot. And when it came time for landscaping, he wanted to make sure that his trees were planted to afford us maximum privacy.”

“John is completely unselfish,” says Bill Swanson, John’s close friend and fishing companion for the past 24 years. “He’s in many ways a product of the people-oriented philosophy Bill Hewlett and Dave Packard put in place. John truly believes that people at Hewlett-Packard who do well will be recognized for their accomplishments.”

In 1982 John Young received top honors from *The Wall Street Transcript* as best chief executive officer in the minicomputer, microcomputer and peripheral equipment industry. *Financial World* magazine picked him as a silver medalist in its CEO of the year awards program last year.

An industry analyst feels “you have to give Young credit because it was difficult to attain the comparable level of excellence of his predecessors. We were cautious as Young came in to fill their shoes. We have seen our best expectations fulfilled by a man who was able to carry on the tradition of excellence in that company.”

John’s own assessment of his first five years: “I’m really pleased with the progress we’ve been able to make in a number of areas.

“In quality, for example, we’ve set an objective of an order of magnitude (tenfold) reduction in product failure rates in the ‘80s. That’s the kind of goal that gets people’s attention. You usually



John Young flies his own Beechcraft Bonanza for business and pleasure. “He’s one of the most cautious pilots I’ve known,” says his secretary, Nancy Thoman.

don’t improve things by a factor of 10 unless you’re a really poor operator doing everything wrong. But if you’re already a leader, as HP has been, how do you move ahead? We found a lot of ways to do that and we’re one-third of the way there. We found that improving quality had so many side benefits in other areas of our business that many related goals became easy to accomplish.

“We wanted to improve our asset turnover to be able to self-finance higher growth rates. Our order growth hasn’t been quite so high in the last year or two, but in the first part of my five years, we were growing at 30-plus percent per year in sales. So we were able to move our self-financed growth rate up to over 25 percent per year, mainly through a \$400 million reduction in inventory and accounts receivable.

“What this really amounts to in the end is the ability to take advantage of more opportunities for the company which lead, in turn, to more opportunities for HP people.”

One important way John Young keeps tabs on HP is by attending division and region reviews. He’s known for taking notes on the pad he keeps in his shirt pocket, and then following up on those

later. “In the last five years he’s only missed two reviews,” says Nancy Thoman, John’s secretary of 16 years. “He doesn’t feel he *has* to go—he *wants* to go to learn what’s going on.”

John is ever-conscious of the company’s bottom-line results. Some people peg him as a “numbers man.” He doesn’t see himself in the same light.

“The numbers are an underpinning, an essential ingredient in most everything we do, but in no way are they an end in themselves. Numbers can be deceiving. They often don’t tell you what you think they do. I made a commitment early on to understand numbers since they’re a necessary part of business basics—something every good manager must master,” says John.

“My dad is an extremely logical person,” says John’s oldest son, Greg, who works part-time for a venture capital firm while going to school. “Numbers are one of the tools a logical person uses. Sometimes people who see he’s right on the numbers overlook the fact that he’s right on most other things, too.”

Despite the success of his first five years, the chief executive sees a range of challenges ahead.

“A lot of the issues that we’re facing

BRAD WHITWORTH

as a company aren't the kinds of problems that you finish, but rather that you pursue.

"Issues that are going to be critical in the years ahead include improving our low-cost manufacturing capabilities; working harder on our international presence to meet the country-level competition in electronics; and continuing to balance our organization to accommodate growth and our changing product mix with the traditional HP division structure.

"I think we've done some things well, but we've also got our full agenda of things to work on."

Ernie Arbuckle thinks John is up to the challenge. "I can remember when Bill Hewlett told a board committee, 'I think John Young is the best manager in the country. He has things to learn and he's learning them.' In a world where things are changing so fast, he's done a remarkable job of accepting the situation of becoming CEO."

To make the job even tougher, people still compare John with his two famous predecessors.

"Bill and Dave are not just two people. They're legends in HP and in the business world," says Greg. "The direct comparisons were probably toughest during that first year.

"It's like the pressure that baseball's Carl Yastrzemski felt when he took over for batting champion Ted Williams. Carl told people that the pressure on him to perform that first year was greater than anything he's felt since—even greater than in World Series games. Nothing has flustered him since," says Greg.

Nancy Thoman sees part of the pressure as demands for John's time by outside organizations. "As Bill and Dave moved into semi-retirement, there have been more and more requests for John's time. Other organizations want HP's top executive, and it's tough for one person trying to replace two people. Last month he received requests from 10 companies to serve on their boards. He's had to learn to say 'No.'"

But John knows there are certain requests which require a "yes."

"There's a whole special set of activities in which only presidents of companies like HP are involved—like the

Business Roundtable and the Business Council," explains John. "I don't consider these activities optional. Companies, particularly large companies like ours, must work hard to be understood and represented in the business community and in the governmental process."

"I think we've done some things well, but we've also got our full agenda of things to work on."

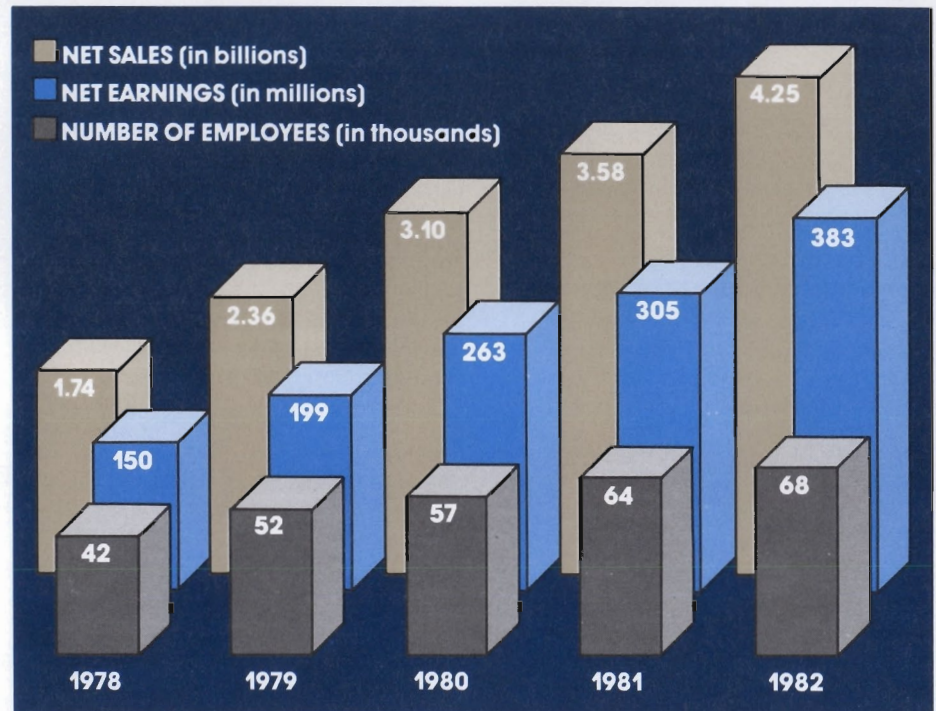
The 50-year-old president has continued to strengthen his ties to Stanford University, serving as a member of the board of trustees and the advisory council for the Graduate School of Business. He's also been part of the university's fund-raising activities: as

national corporation chairman of the \$300-million Campaign for Stanford program and more recently as chairman for a \$16-million drive to fund the new Center for Integrated Systems.

John is a director of the Wells Fargo Bank, Wells Fargo & Company and SRI International. He is co-chairman of the Western Technical Manpower Council, a member of the Executive Committee of the Machinery & Allied Products Institute, and the National Industrial Advisory Council of the Opportunities Industrialization Center.

In July he becomes national chairman of Junior Achievement, and currently serves on the board of governors for the San Francisco Symphony Association and the board of the Bay Area Council, a business-sponsored organization that puts the private sector's best thinking to work on regional problems.

"John is pretty careful about his time and his commitments," says Ernie. "There is a strong temptation for a per-



During John Young's first five years as president and CEO, HP has increased its net sales, net earnings and number of employees despite a difficult economy.

John

son in John's position to take on too many public roles and not have time to do them all well. I think John understands this."

John also knows how to manage his time effectively. He believes in handling a piece of paper only once and in delegating appropriate parts of his workload.

"John doesn't like things dangling," admits Nancy, pointing to his tidy desktop. "He's a living example of the motto 'Don't put off until tomorrow what you can do today.'"

"A lot of people assume that with a job like his, it's always work, work, work," says son Greg. "But Dad's always felt that his family life is important to him, and he's home a large part of the time. That was true even before he became CEO, while we were all growing up."

John and his wife Rosemary have three children, all grown and out on their own now.

Greg is the oldest at age 26. His part-time job in Los Altos, California, and his full-time classwork at Stanford keep him busy. After he receives his M.B.A. degree in June, he'll work full time in the venture capital field.

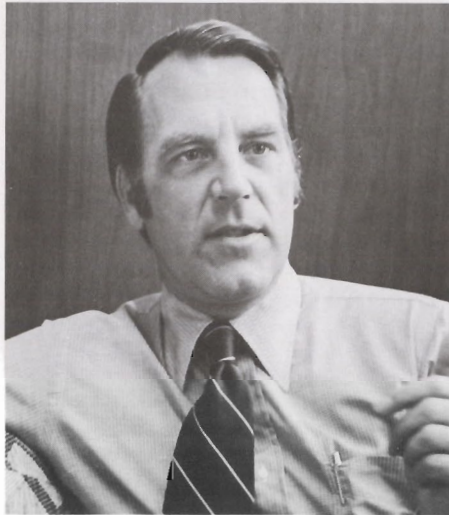
"It only takes John about 12 minutes to make the transition from CEO to private pilot or fisherman."

"Greg's tremendously energetic and productive," says John. "He's always worked while going to school. I guess he found that schoolwork wasn't quite enough to satisfy his energy."

"I'm a lot like my dad in that respect," says Greg.

Son Pete, now 24, works at nearby Apple Computer and was part of the design team for the recently introduced Lisa personal computer. He joined the company a year ago after he earned his computer science degree at the University of California at Santa Barbara.

"We usually don't talk about the personal computer business around the dinner table," admits John, "other than a few friendly jabs. But Greg, Pete and Diana all have a lively interest in business issues."



CHUCK FOX

John Young becomes national Junior Achievement volunteer chairman July 1. JA provides practical business training for high school students.

Daughter Diana, 22, was graduated from Stanford in December and took a marketing job with a new high-tech firm in March. Because of the secret nature of the start-up operation, she can't tell her dad or brothers any details of the new Silicon Valley venture.

John's wife Rosemary leads a busy schedule of her own. "She's very interested in conservation and environmental issues," says John. "She's been an officer and director of the Peninsula Open Space Trust for a number of years and is a director of the Conservation Foundation in Washington. She's also a board member of the Museum of Modern Art in San Francisco."

John also praises his wife's culinary talents. She's an accomplished gourmet cook and the Youngs' home has a sizable kitchen where she can prepare her specialties, "everything from French to Chinese," says John. "Diana shares this interest and the two make a formidable team."

John's devotion to spending time with his family is possible only because he's very organized and simply doesn't waste his time, according to Greg.

Nancy Thoman agrees. She helps John fill his travel schedule completely. "If he's going to the East Coast and has a few extra hours, he'll set up a meeting with a major customer in the area."

Even John's early-morning exercise regimen serves double duty. As he puts the requisite miles on his stationary exercise cycle, he's also doing some of his business reading. A music stand attached to the handlebars features a pair of spring clamps to keep the book in place for rough rides.

An exercise cycle isn't the only thing John Young pilots. He's been flying single-engine aircraft for about 10 years. (His car's license plate frame reads "I'd rather be flying.") His plane also proves to be a time-saver. The Youngs can reach their ranch in Southern Oregon in just three hours by plane. By car, the trip takes more than nine hours.

When John is away from HP, whether for a weekend of cutting wood at the ranch or a week of trout fishing in the wilds of Montana, he leaves his work behind him.

"It only takes John about 12 minutes to make the transition from CEO to private pilot or fisherman," says Bill Swanson. "He doesn't think about the office when he's fishing. He just wants to have a good time fishing. Luckily he has the ability to put everything else out of his mind while he's doing it."

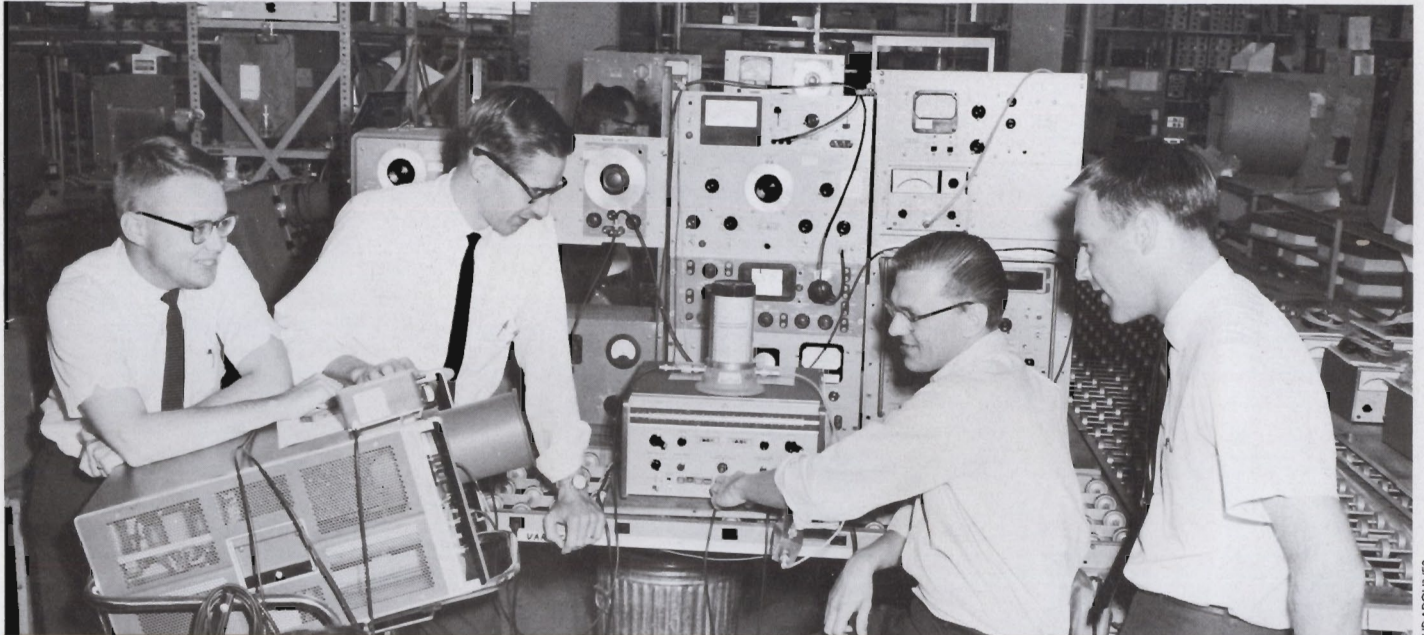
"To John, dry fly fishing is a kind of art form," adds Bill. "It's something he's done since he was a boy, and he's excellent at it. He can analyze the situation very well—the positioning of the fly in relation to the currents and the depth of the water, the length and kind of leader, the type of fly, the wind conditions and the time of day—and then proceed to catch more fish than anyone else. And he always throws them back."

"I think John simply enjoys being outdoors. After all, trout live in very beautiful places."

Greg feels such vacations are part of John's formula for success. "One of the reasons my dad is so effective working is because he takes such breaks."

John is modest about his own performance. "As Dave Packard told me five years ago when I became president, I may find myself in a no-win situation. I'm at the top now and the only way I can go is down."

"And in the last five years," he adds with a quick smile, "I haven't been promoted." **M**



HP ARCHIVES

From left to right, Bill Terry, John Minck, Tom Yarnall and John Young test an HP product under development in a Palo Alto lab.

THE ROAD TO THE TOP

Born in Idaho in 1932, John grew up in Oregon and earned an EE degree at Oregon State University in Corvallis in 1953. After two years in New Mexico as an Air Force research and development officer at a missile test range, he headed for California and the Stanford Graduate School of Business.

"My first contact with HP was a summer job, between school years at Stanford, assembling microwave test equipment. HP looked like a nice-sized company—\$30 million in sales and 1,700 employees. So after receiving my M.B.A. in 1958, I was very pleased when I was offered a full-time job with the company."

John joined Noel Eldred's marketing planning staff that year, the first of several jobs envisioned for him. "We thought it would be a good idea to hire bright, young kids who could spend a couple of years in marketing, then a couple in finance, and slowly be exposed to a variety of HP operations," remembers Ed van Bronkhorst, senior vice president and HP's chief financial officer.

"At least that was the original plan. Shortly after John joined my staff in finance, he was given an assignment to implement HP's acquisition of eight of its independent sales organizations," says Van. "He did such a good job with that project that Packard asked him to look at a large Eastern firm as a possible acquisition."

Bill Hewlett remembers the final product. "The first time I was really aware of him was when he completed that acquisition proposal. Some employees always stand out."

"When he finished that project, he didn't come back to finance and learn what we do most of the time," says Van. "We didn't get to keep him for the rest of the two years as a trainee, and we didn't get another trainee after him."

John moved on to the Microwave Division as marketing manager and was appointed the division's general manager in 1963. Over the next five years he was in charge as the division expanded three-fold.

In 1968 John was named vice

president and general manager of the newly formed Electronic Products Group (EPG)—made up of his old Microwave Division and its spin-off Manufacturing Division plus Santa Clara Division and HPA (now the Components Group).

Other instrument divisions joined the group over the next two years. In 1974 EPG was reorganized and took its place in the group line-up as it is known today. That year John was appointed executive vice president responsible for HP's Instrument, Computer and Components groups.

The move to his present role started in September 1977 when the board of directors elected him president and chief operating officer, effective November 1 of that year. Six months later he was elected chief executive officer.

At the time, John told reporters that nothing significant had happened. "Three letters—CEO—moved from Hewlett to me. That's all."

His performance as CEO has proven otherwise.

A growing European presence



MANUFACTURING

● Completed

● Planned or under construction

SALES AND SUPPORT

■ Completed

■ Planned or under construction

It was 25 years ago that a young Hewlett-Packard Company struggled to get a toehold on the European continent for its sales and manufacturing operations.

That toehold is now a growing set of footprints across most of Western Europe. In the last two years the company has added more than 900,000 square feet of office and factory space, and another 1.5 million square feet are either now under construction or planned.

"An HP-owned building makes a strong statement to our customers," says Lloyd Taylor, U.S. marketing controller who spent four years in Geneva as director of financial services. "Although it's only bricks and mortar, a building tells the world, 'We're here to stay.'"

There are growing pressures on HP to strengthen its presence in Europe—an area that represents about one-third of all HP sales. Like the U.S., many European countries have been battling a tide of rising imports. In an effort to balance imports and exports, many governments are pushing protectionism—a bureaucratic effort to limit purchases to those products which are manufactured by local companies.

The move to buy products from a local company often solves more than

a trade deficit. "A European customer ready to make a major investment in computers or instruments is bound to ask himself, 'What kind of support am I going to get after the sale?'" says Lloyd. "If HP's answer is 'This product was developed and manufactured right here in Germany,' we're in a much stronger position than if the answer is 'Our factory support is in Colorado.'"

It's important for HP to grow closer to European customers. "No one's in a better position to understand the local languages, laws, regulations and customs than someone who lives in that country," explains Franco Mariotti, vice president—Europe. "HP's application software centers are good examples of meeting customers' needs on a local basis." Four of the original five application centers are located in Europe. Customer training programs in local languages have been held for several years in major European cities.

"As the market has developed, it has reached a level of sophistication that requires a great deal of local support," adds Dick Alberding, senior vice president—International. "Fortunately HP has a strong base upon which we'll be able to build with new approaches like our application software and marketing centers."

HP's growing local presence and the company's 25-year reputation in Europe help attract the right people to the expanding organization. "A Dutch college graduate's first choice might be to work for a large Dutch company like Philips; a U.S.-based firm with a strong local organization might be a close second especially if it offers challenges beyond sales and service," says Lloyd.

There are also changes underway that will improve matters for existing members of the European sales force. Yearly sales quotas for sales representatives had been based on U.S. dollars. But extreme fluctuations in currency exchange rates have often resulted in unrealistic sales goals. The new method sets quotas in local currency denominations—the money HP's local customers will be spending—and allows more balanced evaluation of the sales performance.

The continued strength of the U.S. dollar against other major currencies has had a chilling effect on growth. While German sales, for example, over the last two years were up 20 percent in local currency, they were down by 7 percent when translated into dollars.

HP's European operations are vulnerable to such fluctuations be-



HP's new operation in Bristol, England, manufactures disc drives for HP computer systems.



Robert Eckhardt, German region operations manager, shows where the new country headquarters will be built outside Frankfurt.

cause in practically all of the European countries, HP is net importer—it sells more products to customers (which must be shipped from U.S. factories) than it manufactures locally.

Less than four of every 10 HP employees in Europe work in a manufacturing facility. In the U.S., factory workers account for eight of every

10 employees.

HP's growth in Europe has come a long way since 1959 when the company's first manufacturing facility was set up in the back of a garment factory.

"The initial investment for the European operation was \$50,000," says Franco. "Ever since then our European operations have been self-

financed. I think Bill Hewlett and Bill Doolittle's original idea of being one of the first and finest high-technology companies to be established in post-war Europe has really paid off. And the next 25 years should offer us even more opportunities for growth." **M**

THE MAN WHO PUT HP ON THE (EUROPEAN) MAP

The last thing in the world Bill Doolittle wants to do is travel when he retires in May as HP's senior vice president of international operations. That's because he's already flown the equivalent of about 350 times around the world!

Since 1959 when Bill became the company's first employee outside of Palo Alto, he has traversed the globe to first build, then oversee HP's international sales, service and manufacturing activities.

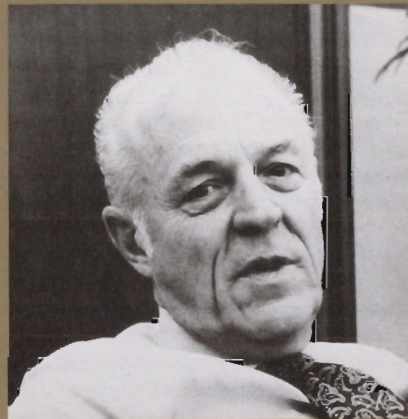
Dick Alberding, who has the task of succeeding Bill, calls him "a true pioneer who played an exciting role in all of HP's early international activities.

"When Bill moved to Geneva, the company had no real relocation policy. Without knowing the language, he moved his family there, bought his own home and established our sales headquarters. It was a remarkable experience and he carried it off in a remarkable fashion."

How did a former production supervisor make such a radical career switch? "Noel Eldred (HP's first sales manager and later marketing vice president) convinced me there was a 'richer' reward in the marketing field," recalls Bill.

That was in 1953 when the company relied on sales representatives to sell the small but growing HP product line. The few sales outside the U.S. were handled by a San Francisco export house.

"We never went after the international market," says Bill. "It was more a case of building a better mouse-trap. The U.S. military had taken our



Bill Doolittle

JOANNE ENGELHARDT

equipment all over the world during the war, so after the war overseas companies approached us to buy our products."

To establish closer communication lines with other countries, an export section was established within the sales department in 1954. Again it was Noel who saw Bill's potential. "Noel was looking for an expert on selling to an international market. He couldn't find one so he asked me to help him until he did."

The rest, as the saying goes, is history.

Bill spent from 1959 through 1961 in Geneva establishing the headquarters operation there as well as working with Ray Deméré (now vice president of manufacturing services) to start the first European manufacturing operation in Böblingen. A third accomplishment was setting up a branch of HPSA in Frankfurt, Germany. This was to be HP's first effort at selling its products directly to the user.

When Bill returned to Palo Alto, he

became manager of international operations, which included all manufacturing and marketing activities outside the U.S. In 1963 he helped forge the partnership between HP and Yokogawa Electric Works; and he has been involved in every international start-up operation from Canada to China.

"One of Bill's greatest strengths is his ability to organize," Ray emphasizes. "When we were in Europe, we were pretty much on our own with a tight budget and a lot to do. Bill did a masterful job in increasing our sales there."

For his part, Bill says he's grateful to have been a part of it all. "The most impressive thing has been the excellent people we have been able to hire to run our international operations. I feel very fortunate that I've developed some wonderful friendships over the years."

Bill foresees no letup in the future growth of HP's international operations. "There are as many challenges and opportunities in the future in the vast field of electronics as there have been in the past," he says. "Electronics is just now coming of age—and HP is taking all the right steps to be a part of it."

He recognizes that the company is becoming "more of a dominant force in some of the major international markets. This means we will have to be very sensitive as we expand, and we must continue to do a respectable job in our 'good citizenship' role."

"If you were taking a poll about the quality of many companies' international activities, HP would be right up there on top," says Dick Alberding. "For the most part, that's due to Bill."

A tour fit for a queen

It lasted only an hour—from the time the royal motorcade pulled up in front of Hewlett-Packard's Cupertino, California, facility until the time it whisked away to an official dinner that evening at a San Francisco museum. But the visit of Queen Elizabeth II and the Duke of Edinburgh on March 3 was a once-in-a-lifetime event for hundreds of HP employees who lined the tour route.

The royal visit had become *the* topic of conversation weeks in advance. British flags popped up everywhere and the cafeteria served typically British fare of English meat pies, fish and chips, and barley soup the day of the visit.

Threatening skies began to clear when the motorcade reached HP, eliminating the need for the royal umbrella carriers who'd been one step behind the queen all week long. Board chairman Dave Packard greeted the queen and then escorted the royal party around the 98-acre complex which is home for five HP computer divisions. Dave was helped by the local management team: Ed McCracken, Doug Chance, Paul Greene and Franz Nawratil.

After a 10-minute briefing on computer technology, the plant tour was underway. The queen watched employees at work in a Cupertino Integrated Circuit Operation clean room and a Data Systems Division printed circuit board assembly area. The last stop was in a product demonstration room where she tried out an HP 250 computer system like the one which will be installed at Buckingham Palace as a gift from U.S. President Ronald Reagan.

The Hewlett-Packard stop was just one of 20 public appearances by the queen during her week-long visit to the stormy West Coast. She had specifically asked to visit a high-tech firm during the trip and HP provided her with a rare sunny day for the stop. "I knew before we came that we have exported many of our traditions to the United States," she said at that evening's banquet, "but I had not realized that weather was one of them." **M**



Dave Packard and Queen Elizabeth II exchange farewells after an hour-long tour. Behind Dave are Doug Chance, vice president of the Computer Products Group, and David Baldwin, HP's managing director in the United Kingdom.



Several hundred employees watch the queen's arrival at Cupertino's circular driveway, one of two viewing spots at the site.



Last-minute preparations for the queen's visit include hanging flowering plants, polishing brass door handles and sweeping sidewalks.

PHOTOS BY DAVID POWERS



PAY AS WE GROW

*HP's policy of self-financed growth is rooted in
the belief that success must be solidly
based on performance.*

Results of *Fortune* magazine's recently published (January 10, 1983) survey of the reputations of 200 major U.S. corporations were highly gratifying to Hewlett-Packard people. Executives in 20 industries were asked to rate their peers on the basis of eight attributes ranging from quality of management to wise use of corporate assets. Of the 10 ranked companies in the measurement and scientific equipment industry, HP placed first in six responses and overall first in total score. Even more pleasing, comparison of results between industry groups produced a tie with IBM for first place in total points.

Yet there are some HP people who think we might have done even better. They suggest that general perceptions of financial soundness tend to be related to the size of an organization—the Rock of Gibraltar image. This seems to be the case in the survey. Although HP scored very well on financial soundness, it was outscored on this point by companies that either are substantially larger or largest in their category.

For all that, happiness is a tie with Goliath. And certainly there's no sentiment at all that we should attempt to

...self-financing is becoming a rarity where once it was almost a standard...

force our growth in order to win at the polls. Our philosophy of growth, as the headline suggests, is based on self-financing, or pay-as-we-go. Dave Packard has talked about it as "growth from performance," Bill Hewlett as "financing by reinvestment," while John Young has described it as "financing

based on success." Still others have called it "affordable growth."

Given those descriptions, as well as the company's record of performance, you might think that self-financing would have been adopted far and wide by other growth-minded industrial organizations. On the contrary, the industrial world seems to be going in the other direction to the point where self-financing is becoming a rarity where once it was almost a standard, at least for smaller companies.

That standard, some observers feel, began to erode as memories of the Great Depression faded, and as financing became more available and competitive. When opportunities presented themselves or when the "cash box" ran low, more and more firms had public issues of their stock or turned to the money market for loans. In effect, they "leveraged" their company to compensate for inadequate profits or to fund extraordinary investment opportunities.

In this sense, both pay-as-you-go and the alternatives are seen as almost purely financial strategies. At HP, on the other hand, self-financing is more a matter of corporate philosophy and, as such, is reflected in the company's management practices.

The formula, as expressed by Dave Packard in 1957, is quite simple: "The percentage increase in sales which you can finance each year is equal to your percentage of profit after taxes times (multiplied by) your capital turnover." He defined capital turnover as the number of sales dollars produced each year for each dollar invested in the business. A 10 percent after-tax profit and a capital turnover of 3 times would pay for a 30 percent growth in sales.

However, Dave noted that application of the formula was not all that simple, and that there are opposing forces—or trade-offs—for every action taken.

Suppose, for example, that you want to finance a higher growth rate by in-

creasing your profit margin. You could try to do this by raising prices or cutting service, quality and other costs. But how would customers react to this? Or you could drop your prices in hopes of capturing the lion's market share, meanwhile hoping to reduce unit costs as sales increase. Would your competitors let you get away with it? Either way presupposes favorable market conditions.

What profit, then, should HP aim for? "For our business," Packard said, "we think a figure in the neighborhood of 10 percent is about right. Our customers

**...the formula is simple:
Potential sales growth =
after-tax profit x turnover
of capital.**

seem willing, year in and year out, to give us this kind of return, and with it we can finance an adequate rate of growth."

He pointed out that the other half of the equation—capital turnover—is not as well understood. It involves working capital assets (money used on a day-to-day basis to buy inventories, to finance accounts receivable and to fund cash expenditures including salaries), and fixed assets (money invested over the years in facilities, cars, tools and equipment).

Again, suppose you want to grow in the fast lane! Your accelerator in this case is rate of capital turnover. You could, for example, reduce fixed capital by leasing plant and equipment or contracting out large volumes of work. All or most of your capital will then be available as working capital. By keeping inventories low, encouraging customers to pay accounts promptly and employing cash carefully, you turn over that



working capital as often as you can.

That's what many wholesale and retail businesses do. But then, their profit margins usually are quite narrow. Turnover is life or death. Could an HP do the same—and still gain the multiplying benefit of its larger profit margin? How about a 10 times turnover at 10 percent profit after taxes!

Such a scenario, leading to a potential growth rate of 100 percent, not only is unlikely but more than probably would be self-defeating. The limiting factor is people—the ability to recruit, train and place people capable of doing a good job on short notice. As Packard put it: "By having the proper tools, facilities and equipment you can usually produce a better product, keep your costs down and, therefore, your profit up. There is an interrelated balance in adding to your machinery and equipment at a rate which will not unduly reduce your capital turnover, yet which will give you the things necessary to do a good job."

Nevertheless, there are still some powerful factors that can be exercised in the area of capital turnover. HP has learned to do some of them very well, and it is in precisely this area that HP people—large numbers of them—can have a direct impact.

As Dave Packard mentioned, major contributions can be made by the way HP people manage inventories, receivables and cash. But it goes on from there: improving the turnaround time and cost of lab projects; designing and building quality into products and processes; getting more productivity per square foot of building space; introducing new products on schedule; creating fast, error-free order processing systems; and integrating information systems that help tie together the decentralized activities of the organization around the world.

John Young put a timely perspective on some of these factors in a recent talk to executives of a major customer. John first noted that HP had had a fairly traditional approach to asset management until, in more recent years, we found ourselves growing faster as we got bigger—"and that confounds conventional wisdom." The challenge became

HP people—large numbers of them—can have a direct impact.

how to finance this growth without resorting to outside sources of capital.

"As a division manager years ago, I used to think that having four months' inventory on hand was pretty good. There was no history that a better job could be done. Step number one, then, has required a change in everyone's expectations of what could be done in inventory performance. Today, two months' inventory is quite common, though that depends largely on the nature of a division's product lines.

"Overall, inventory went from 21 percent of sales in 1976 to about 16 percent today. That's 5 percent saved on \$4 billion in sales—\$200 million in 1982—a very significant number."

John then described how HP tackled the problem of accounts receivable, specifically, the average number of days that customers take to pay us—"days sales outstanding" as it is called.

"It used to be our conclusion that

when customers weren't paying promptly it was because business was down or interest rates were going up. But we looked at it again and found that wasn't the problem at all: It was because we didn't send the customer the correct invoice."

Correcting the billing has meant getting quote, order, shipment and invoice information right the first time, and integrating it all through distributed systems that provide live files on products and customers in all major sales offices. Today, complicated quotes can be prepared in minutes instead of hours; customer requests for order and shipping status can be answered almost instantly; and invoice errors have been reduced by a factor of six to one. Overall, the cost of processing an order has been cut to one-third of the 1976 figure, another substantial saving. Meanwhile, days sales outstanding

...self-financing establishes a potent form of self-discipline...

(DSOs) has been cut from an average of 62 to 52 days, probably the best record in our industry, and representing an annual saving of close to \$100 million.

Looked at competitively, HP has gained some distinct advantages in taking the actions it has in the areas of asset management. It's known, for example, that a number of major competitors have DSOs that range from

20 to 30 days beyond the HP figure, and that some have much slower rates of inventory turnover. Singly or together, these tie up a lot of their working capital, and it's no coincidence that they've "gone to the well"—often, in some cases—to raise money through equity offerings (stocks or bonds) or long-term borrowings. The net effect shows up when comparing earnings: To achieve the same ratio of earnings-per-share as HP (whose only "dilution factor" is stock purchases by employees), they have to earn relatively more each time they dip into the well.

There are precedents in HP's history for taking such action. Company veterans can recall the efforts of 1972: After several years of worldwide recession and slow growth, HP faced a rebounding market. With limited cash to work with, it was giving serious consideration to some long-term borrowing. Then Dave Packard began asking whether we really needed to do this; couldn't we instead attack the problem through reduced inventories and tightened management of receivables? We could, and the company went on to experience a very high growth in sales for the year without resorting to long-term debt.

But it was close, and that experience naturally raises the issue of just how determined we are to preserve an unbroken tradition of self-financing.

Right off, both Dave Packard and John

Young have publicly stated their willingness to consider other financing options for special needs. Such a need might arise if sales growth were to exceed growth in net worth over a period of time. Or we might decide to go into leasing our products in a major way. Either of these would create abnormal capital demand. As it stands, however, the policy of self-financing has never restricted the company's growth, and financing alternatives to it have never been developed. Young reports that with the reductions in inventory and accounts receivable we can finance a 25 percent annual growth rate every year.

...growth that has been conservatively financed offers a high level of employment security.

This means doubling the size of the entire company every 36 months. This is not a rate we have achieved over a sustained period, and to do so implies many problems beyond just finances.

Reasons for sticking with self-financing are closely linked to HP management beliefs and practices. They boil down to the fact that self-financing

establishes a potent form of self-discipline as well as support as we attempt to fulfill all of our corporate objectives.

Since our ability to self-finance growth is based on profitability (plus funds from employee purchase of HP stock), it provides a clear measure of performance. And, as the first corporate objective puts it, "Only if we continue to meet our profit objective can we achieve our other corporate objectives."

The self-discipline factor works in many ways. For example, all investments in new facilities, processes, equipment and products must have clear expectations of contributing to adequate profitability. That expectation is now part of each major product group's capital-requirements planning, just as it always has been for the company as a whole.

Closer to home for HP employees, growth that has been conservatively financed offers a high level of employment security. In tough economic times the company, without a large overhanging burden of debt, has been able to reduce expenses close to the level of business activity without having to let people go. That same pillar of financial strength serves to protect the company and employees from radical changes in ownership. Desirable as HP might seem to some acquisition-minded companies, we are simply not a real takeover target. Too sound! **M**

"In our economic system, the profit we generate from our operations is the ultimate source of the funds we need to prosper and grow. It is the one absolutely essential measure of our corporate performance over the long term. Only if we continue to meet our profit objective can we achieve our other corporate objectives.

"Our long-standing policy has been to reinvest most of our profits and to depend on this reinvestment, plus funds from employee stock purchases and other cash flow items, to finance our growth.

"Profits vary from year to year, reflecting changing economic conditions and varying demands for our products. Our needs for

capital also vary, and we depend on short-term loans to meet those needs when profits or other cash sources are inadequate. However, loans are costly and must be repaid; thus, our objective is to rely on reinvested profits as our main source of capital."

—First three paragraphs from the first corporate objective: Profit

CLOSEUP

Zooms in on the ever-changing world of HP people, products and places

FAST SERVICE

When a Sydney, Australia, hospital needed a backup part for its new HP carbon monoxide analyzer, there was no time to spare.

The instrument monitors the lung function of cancer patients undergoing chemotherapy. A part with a normal life expectancy of six to nine months was replaced with a spare, so Chris Butchers, medical service manager, called the Corporate Parts Center (CPC) in Mountain View, California, to order a new backup part just before closing time on the day before the long Thanksgiving holiday.

CPC found the part, completed the paperwork (because the part contains sulfuric acid, special documents were needed) and put the part on the next flight to Sydney.

Meanwhile, HP worked with Australian customs officials so that when the package arrived, officers cleared it in 40 minutes during their lunch break. The part was rushed to Prince Alfred Hospital where senior service engineer Mike Taylor had the backup ready for use in just 20 minutes.

The operation took 20 hours from Chris' phone call until the machine had its backup. That's fast!



JOANNE ENGELHARDT

MAGAZINE FOCUSES ON HP RUNNERS

Most photos of HP runners show them as they cross the finish line. All of that will change when the May issue of *Runner's World* magazine hits the newsstands.

The magazine's editors contacted HP's Paul French to recruit company runners as models for a story on running gear. Paul rounded up some co-workers in Cupertino and also called HP's Santa Rosa site where there are nearly as many runners per square foot as there are grapes.

Early in February, 10 HP runners and photographer David Keith spent several hours in a city park shooting dozens of photos.

"It was really a lot of fun," says Paul. "We got a chance to meet other company runners—and we each got a mug from the magazine."

Besides Paul, the HP runners who make their modeling debut in May are Ed Wong, Mike Pechulis, Bob Poulos, Peggy Izzett, Monica Stein, Dan McCullough, Betty Miles, Judi Cowell and Laurie Lamantia.



HP HELPS FIGHT FIRES IN AUSTRALIA...

Bush fires killed 71 people, gutted seven townships, destroyed more than 2,000 homes and raced out-of-control across parts of southern Australia in mid-February.

Although no HP people lost their homes, several in the Australian headquarters building in Melbourne spent tense hours as flames threatened their properties. HP's Warren Jones and Gary Sullivan, both volunteer firemen, helped fight the infernos that started on a day now known as Ash Wednesday. But high temperatures, gale-force winds, low humidity and extreme drought worked against them. During his 96-hour ordeal, Warren managed about five hours of sleep.

In the wake of the fires, HP employees decided to contribute their own money to a relief fund for victims. With a dollar-for-dollar matching contribution from the company, the total reached 9,000 Australian dollars.

...AND MASSACHUSETTS

When an arson fire destroyed the costumes, sets, props and rehearsal space of the Wilmington (Massachusetts) Spotlighters in November, HP helped stage a rescue effort.

The 12-year-old community theatre company needed money to rebuild the fire-damaged building into a community arts center. The troupe scheduled a fund-raising performance in February. HP's Waltham Division employees volunteered their services as ushers. The division made a cash donation to the Spotlighters to help get them back on their feet and also booked the group's touring dinner theater for a special HP performance at a nearby hotel.

"The esprit de corps here at HP is really amazing," says Celia Bartolotti, who works in Waltham's personnel department and is president of the theatre group. "It's as though the Spotlighters' loss was HP's loss, too."



MICHAEL K. NICHOLS

BUT SIRIUSLY, FOLKS

When American President Lines' 860-foot containership, the President Lincoln, was launched in November 1982, it carried a "star" named Sirius.

Sirius is the brightest star in the sky and a crucial aid to ocean navigation. Sirius also stands for Shipboard Information Resource Integrated User System, and is actually an HP 250 computer which helps the crew with the business of operating the ship.

Sirius keeps track of such information as spare parts inventory, preventive maintenance schedules and vessel stability and trim. The President Lincoln's HP computer won't be the only one sailing the Pacific Ocean. Two sister ships, the Presidents Monroe and Washington, also will have their own stars by which to sail when they're launched in 1984.

YOURTURN

Invites Measure readers to comment on matters of importance to HP employees

LET'S HEAR IT FOR HP!

HP computers played an important role not only in the animation of the movie *TRON* (see January-February *Measure*), but in its soundtrack as well.

Composer Wendy Carlos used an HP 9825 desktop computer to help synchronize the music with the visual action. After storing the visual cues and a series of possible music tempos, the computer calculated the required music cues. Carlos then selected the set of tempos and cues which provided the optimum match with the film.

Carlos is best known for the album "Switched on Bach" and other synthesizer renditions of baroque and classical music.

TERRILL TANAKA
Santa Clara Division

ON TRACK WITH RETRAINING?

HP, just like the national work force, is currently faced with rather significant shifts in employee skills requirements. In some job categories we are facing a severe oversupply of talent, while other skills face shortages. HP's policy is to not lay off excess people. We do not want to lose a valuable reservoir of experience and talent. Are there currently plans at the corporate level to develop or coordinate a skills retraining program to help HP as a company address this problem? I doubt that there is enough critical mass at any one entity to meet the problem effectively.

JOHN SEYFARTH
Data Systems Division

You've hit upon the set of challenges that HP is facing now and in the future. There are shifts in the kinds of skills HP will need in the workforce, and that leads to an oversupply of talent in some areas and a shortage in others.

Your assumption that this problem will surface in HP entities throughout the world is true. However, the retraining needs are not as universal as the problem. We'll continue to seek local solutions to local problems... solutions developed and implemented by individual entities. A number of these programs already exist. For instance:

- A San Diego Division program

teaches production workers office and clerical skills.

- *Avondale has just converted its two-year electronic technician program into a four-year program which will equip participants with additional skills needed for the future.*

- *Data Systems Division has retrained a number of hardware engineers in firmware design.*

Where retraining needs cross division and regional boundaries, corporate training will initiate efforts to develop companywide skills retraining programs as you suggested.

And, perhaps just as important, we are attempting to develop better methods for forecasting the skills mix the company will face in the years ahead.

DEBRA ENGEL
Corporate Staffing
Palo Alto

MEDICAL MALPRACTICE

I usually listen to "All Things Considered" on NPR while driving home each night and was surprised and proud to recently hear, during the credits, the words "...and by Hewlett-Packard, worldwide leader in computers and instruments for science and industry."

I have only one question! Why wasn't it "...science, industry and medicine."? Hopefully this is not a manifestation of the suspected corporate feeling that the U.S.A. stops at the Mississippi River? After all, even though the Medical Products Group is centered in Massachusetts, it is now larger in sales (\$VAS) than the whole corporation was just a short 14 years ago!

LARRY BANKS
Andover Division

HP's support of science reporting on National Public Radio is now entering its second year. I feel that underwriting science reports provides a natural tie to HP's greatly expanded equipment grants program—both serve to enhance scientific, engineering, technological and medical literacy. The credit line which ran day after day on the 276-station NPR network last year was "...and for the coverage of science, Hewlett-Packard, world-

wide manufacturer of computers and instrumentation for industry and science." (Federal Communications Commission regulations limit HP and all other program underwriters to a simple, non-self-serving mission statement of no more than 10 words.)

During our second year, HP will add a second mission statement (to be heard in odd-numbered months), "...computer and instrument supplier to science, industry, education and medicine."

I apologize to anyone who felt left out of our first statement, and I offer a challenge to all of HP's creative employees. Write an alternative to the preceding two mission statements and I'll be delighted to consider it for future use on NPR. Remember that the statement must describe the mission of the entire corporation, be non-self-serving and fit within the FCC limit of 10 words or less. Crank up your word processors and send me your ideas.

EMERY ROGERS
Executive Director
Hewlett-Packard Company Foundation
Palo Alto

MOTHER KNOWS BEST

Your March-April Closeup item about two HP Santa Rosa employees in the grape stomp competition caught my eye. You mention that Steve May and Glenn McCarthy were "stomped" by the defending world champions. The champs happen to be my son, John Tillema, and his friend, Mike Codioli. While they're not HP employees themselves, at least one of the champs is related to an HP employee!

EDIE TILLEMA
Stanford Park Division
Palo Alto

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.



DAVID POWERS

NBC Today show's Jane Pauley listens to Phil Wilson's description of the HP corporate data center during a Sunday afternoon briefing.

HP hosts pre-dawn broadcast

After midnight it's usually calm in Hewlett-Packard's corporate data center in Palo Alto. But the joint was jumpin' from midnight to dawn on February 14 when NBC's Today show came to Silicon Valley.

"Stand by to cue Jane. Coming up on one," called the director. "Cue Jane."

"I am standing like an alien in a colossal electronic brain. This half-acre of computers is Hewlett-Packard's corporate data center. Under my feet is enough cable and wiring to extend from Palo Alto to Chicago. Over my head... all of it. The memory space of these computers would fill 2,000 encyclopedias. It's all pretty awesome," says Jane Pauley, co-host of the early-morning television news program.

Jane and her 20-person production and technical crew came to HP for a two-hour remote broadcast about the computer revolution. What better staging area than one of the companies that started the Silicon Valley phenomenon?

Saturday and Sunday were used for equipment set-ups, lighting, rehearsals

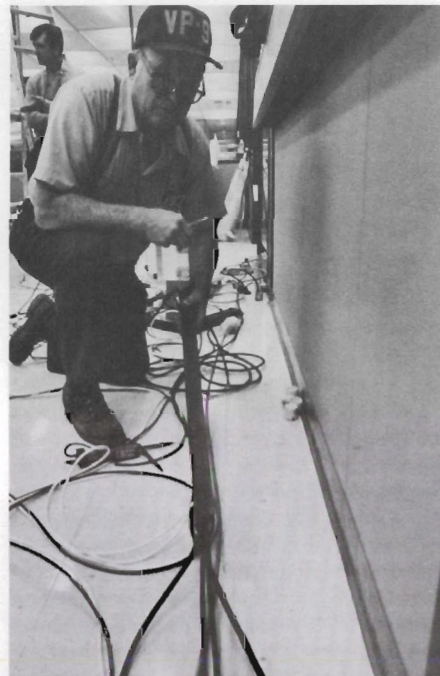


BRAD WHITWORTH

Randy Rambaugh and Phil Seastrand design a Today show logo for the HP 2700 color graphics terminal seen on the broadcast.

and production meetings. In two short days the data center control room was transformed into a miniature television studio with the requisite lights, cameras, monitors, mikes and miles of cable snaking across the tile floors. Nearby conference rooms became support rooms for the broadcast: videotape editing room, office, director's booth.

About midnight Sunday the momentum started to build. The crew gobbled a quick breakfast at 2 a.m. and downed gallons of coffee as the start of the show grew near. At a minute past 4 a.m. (which coincides with the 7 a.m. New York start of the live show) Jane got her first cue. For the next two hours she played host to a talking computer from Pittsburgh named Hal, Advanced Micro Devices president Jerry Sanders, cyberphobia (fear of computers) expert Richard Byrne, Stanford University computer music professor John



BRAD WHITWORTH

HP's Bert McDougle installs extra electrical conduits for studio lighting and TV cameras.

Chowning and Atari founder Nolan Bushnell.

And at 6 a.m., about the time most HP employees in California were waking up to the first day of a new week, Jane and her crew called it quits for a Monday morning. "This is Today on NBC." **M**

A FRESH LOOK AT TECHNICAL TRAINING



BETTY GERARD

"Super! You did a great job," flashes the computer screen.

Earphones on her head, Rosa Gonzalez is taking a community college course on electronics at a learning station in the Stanford Park Division where she is a production I. She has just used a schematic diagram to calculate the current flow in a problem, and the computer confirms that her answer is right.

The use of interactive video on site is one of the new approaches to technical skills training that is being seen around Hewlett-Packard. The company is adjusting to new methods of instruction available and to the effect of changing technology on jobs—such as increased use of numerically controlled equipment, plastics, and microprocessors.

The past two years have seen a new emphasis on manufacturing training, with a number of divisions developing a role for technical trainers who are part of the manufacturing organization. Their efforts are directed across the board from brand-new employees to experienced people.

LEARNING BY VIDEO

Rosa's training is part of a pilot program developed by the College of San Mateo and funded by the California Worksite Education and Training Act.

The first two modules (on direct and alternating currents) of the five-module electronics course are now available to students. Others on electronic circuits, semiconductor devices and digital electronics are still under development.

Rosa and other students in the program fit in their time at the learning

station before or after work or during lunch hours. With three children in elementary school, Rosa likes being able to do her course work at HP before she picks them up at a day-care center.

The learning station is equipped with all the basic electronic test equipment needed to do the experiments in her workbook, including an HP 32-E handheld scientific calculator. The earphones block out any background noise so she can concentrate on the information provided by the computer screen. Every five minutes or so it poses questions to reinforce the lesson. If she enters the wrong answer, the pertinent information is repeated and she is retested.

As backup, a field instructor from the college comes to HP twice a week. When a student has a question at other times, there is a telephone hotline to the college some 20 miles away.

"We wanted to pilot some people through the course and compare their results with those of people studying electronics in a traditional college classroom," says Ray Saturnio, production section manager at Stanford Park. "We realize that learning on your own doesn't work for everyone."

Hewlett-Packard is one of a number of companies trying out the program. (Data Systems Division and Computer Systems Division are also using it.) The company has contributed an HP 3311A function generator to every work station. It has also donated video equipment, computer terminals and a library of its own training videotapes to the college's Hewlett-Packard Learn-

ing Center in the electronic engineering department which is developing interactive computer instruction.

In addition, Floyd Peterson of Stanford Park is spending several days a week on loan to the college to develop an 18-week course in microwave training. He works with a scriptwriter to turn lab experiments into easily understood videotape lessons.

"In my videotaped experiments, everything always works," Floyd says with a smile.

Students will use a computer at their place of work for lecture material while lab experiments will be done in a van that will rotate among all Northern California companies in the program. It will be equipped with \$200,000 worth of HP test equipment and microwave components. Identical training and equipment will be available in Southern California through Los Angeles Community College.

THE HP CAMPUS

Four years ago the Colorado Springs Division decided to stop recruiting electronic techs from other areas of the country and to give its own employees a chance to grow into the job.

Since electronics classes at local Pike's Peak Community College were already overflowing, the division suggested, "Let us be your campus."

The result was establishment of the company's first two-year electronics program in which related studies and on-the-job training were taught on site during working hours. (Students can receive an associate of science degree in electronic technology by completing half a dozen additional requirements.)

Since 1981, 31 HP people have been graduated as production technicians and another 12 will finish next year.

In the first year students split their time between work and class. The second year, they are transferred to test supervision and receive training in analog and digital circuits and microprocessors.

Their faculty is made up of the division's own engineers and mathematicians, who are paid by the state for their extra-hours teaching duties.

"Originally we mirrored the college's curriculum," says Colorado Springs training manager Bob Montoya. "Now



Colorado Springs Division has its own two-year electronics tech program. Senior tech Paul Hemingway (center) is lab instructor for Karl Terrell, Carol Benson and others.

we far exceed what the college requires." The HP training has provided a model for strengthening the Pike's Peak program, and the division has donated state-of-the-art equipment to the community college.

SHARING MATERIALS

When Nate Biggs first joined the Colorado Telecommunications Division as technical skills coordinator, he brought along modules and materials developed at the Santa Clara Division.

"Modules are neat and popular throughout HP because they do not necessarily have to be taught sequentially," explains Nate. He presently offers some 30 hours of technical skills training in seven modules: quality; general soldering; printed circuit soldering, assembly and inspection; hardware and assembly; component identification and color code; electrostatic discharge; and safety.

"Our focus is at both the front end and experienced end, not necessarily just for novices," says Nate. "It's gratifying when a 20-year employee comes up after a session and says he or she learned something we just assumed everyone knew."

Now the three divisions in Colorado Springs are working together to develop modular training for all levels of test technicians.

When the technical trainers from Colorado divisions got together last fall, Nate was pleased to discover that training materials he'd shared had been passed along to additional divisions. Now a regional network is forming.

"Divisions take a look at the material that's available and then adapt it to their style," says Nate.

When the Lake Stevens Instrument Division was planning to move from Loveland, Colorado, to Washington state, Jean Vantine was hired as manufacturing training supervisor to develop a training class for brand-new employees.

To build her two-week course, she drew on a basic skills program at the Loveland Instrument Division, then added a great deal more material.

The original leaders' manual that she developed is now kept in an HP SLATE word processing file.

"It's very easy to change materials on the computer when we need to update workmanship standards," says Jean, "or to expand a particular subject, such as hardware sequencing."

Other technical trainers at HP have done their own customizing of Nate's and Jean's materials. Pat Hudson, production staff trainer at the Greeley Division, developed more than 50 hours of training courses for new employees—then boiled the material down to a shorter program to help current em-

SUSAN MCLEAN

ployees understand what the new people had been taught.

STAYING FLEXIBLE

Bob Schultz, technical training manager at the San Diego Division, has never been afraid to pioneer a new idea. These days he's taking a serious look at emerging job categories.

He's currently leading a team to develop a category for a CAD-CAM operator (computer-aided design and computer-aided manufacturing). He's working with Palomar Junior College on a one-semester course on CAD-CAM that will be done by July, and is writing a proposal for a more developed three-phase college program.

Bob also sees plastics technology as an area which will be of increasing importance at HP. He plans to put together a technician program from materials which the California Polytechnic Institute is developing for engineers.

As robotics and numerically controlled machines gain wider usage, revision of N/C maintenance training will be essential. Plans are drawn up to develop the following courses which will be piloted at the San Diego Division and taught at the community college: hydraulics, pneumatics, servo-systems, N/C controllers and programming, microprocessor-based systems including intelligent automation, and electro-mechanical troubleshooting.

The latter course will probably not be a regular apprenticeship program (with structured coursework and on-the-job training) but will lead to journeyman. "Apprenticeship is too inflexible for technicians," Bob believes. "You have to be able to change the course almost monthly."

The division is still committed to apprenticeships for certain types of high-skill training. In March, the state certified its two new four-year apprenticeship programs in tool and die and in model making.

Apprenticeship programs have operated successfully in the Bay Area for 30 years. Pat Pinney, now coordinator of regional apprenticeship programs for the Bay Area, last fall developed for Corporate Training the company's first resource document on apprenticeships. (At present, 23 U.S. divisions



Spokane Division's Nancy Douglas explains p.c. soldering to tech David Braunberger. Experienced assemblers are instructors for 48 hours of structured skills training.

have active apprenticeship programs.)

Pat sees apprenticeships as being flexible enough to answer a wide variety of training needs. "Apprenticeship, like today's technology, is going through a transition. The stereotype of apprentices just in manufacturing doesn't apply anymore."

Pat recently added a Bay Area apprenticeship program for a water treatment tech and is looking at apprenticeships for computer operators and CAD-CAM operators.

The Personal Office Computer Division has a revised N/C technician apprenticeship program up and running. It combines two years of electronic tech training and two years of solid mechanical background.

"We're trying to prepare ourselves for the robotic revolution," says Neil Neilson, process engineering supervisor. "The old N/C program was written around numerically controlled machines in the shops. Techs will now be called upon to service a wide range of electro-mechanical equipment."

"Apprenticeship will be just what we at HP want to make it," says Pat Pinney.

THE VISUAL APPROACH

The Corporate TV Studio continues to produce high-quality training videotapes for use within HP and, in many cases, for sale to customers.

The next hit promises to be "Microprocessor Troubleshooting", which is designed to provide background theory

and an understanding of systems to electronic technicians who are increasingly called upon to repair microprocessor-based systems. The first two modules are now available, and a third one will be completed by the end of the year.

A number of HP's technical trainers have incorporated into their programs the basic videotapes developed by Harry Logan of the TV studio on soldering, component identification, color code and quality.

Also on videotape is a 30-minute presentation on electrostatic discharge by Dick Moss, reliability engineering manager in Corporate Quality.

Converting some of these videotapes to computer-aided instruction is clearly a possibility, although no timetable exists. (Corporate Training now offers a general workshop on developing CAI programs.) The breakthrough in technology came with the introduction two years ago of the random-access videotape player that can be shuttled quickly forward or reversed in response to a student's answers. Says Chuck Ernst, video marketing manager, "Many of our technical training videotapes are ideally suited to be made interactive."

Segments of HP's videotapes have already been incorporated into the courses Rosa Gonzalez is taking. Someday it may be commonplace for HP people to have the training option of studying on their own with a friendly computer as teacher. **M**

JOHN YOUNG

HP's president describes changes in HP's Europe during the last 25 years

Early in March, Hewlett-Packard staged a series of events quite apart from everyday activities. The Queen of England's visit to Cupertino was in the capable hands of Dave Packard and other managers from our computer area and went off without a hitch.

Meanwhile Bill Hewlett and I were in Geneva, Switzerland. Following a meeting with our European general managers, we took part in a dedication of our new, very attractive European headquarters building. These events gave us an excellent opportunity to discuss the European business and political climate with many of our managers, key customers and government officials. The business picture still has numerous impediments in 1983, such as the strength of the U.S. dollar and the continuing recession. There are also overall structural problems: European countries have high social costs compared to the U.S. and they're still trying to develop new export business to offset sagging basic industries. Despite these problems, in most countries HP is still doing reasonably well compared to competition, but our growth rates are less than half those in the U.S.

The final and perhaps most significant event of our stay was the celebration of the 25th year of HP-owned operations in Europe. Our company couldn't have grown from more modest beginnings. In 1958 HP had 1,700 employees and total sales of \$30 million. Exports outside the U.S. accounted for just a few percent of those sales.

Bill Hewlett and Bill Doolittle, retiring senior vice president of International (see story on page 10), got HP started in Europe by locating the sales headquarters in Geneva and soon after established a manufacturing division in Böblingen and a sales office in Frankfurt, West Germany. Other facilities followed quickly to provide a base in each country and today our European capability is of impressive dimensions.

We have 3,800 people in six manufacturing and research locations in the U.K., France and Germany. The proprietary product lines they've developed over the years contributed \$165 million to worldwide sales in 1982. The support they provide for U.S.-designed



John Young chats with HP retiree Frank Cavler at the company's annual meeting in February. Frank was a member of HP's board of directors through 1976.

products gives our European customers local sources with the in-depth knowledge so essential to our complex product line.

European sales are roughly one-third of HP's total—an impressive growth from our starting point and among the highest such proportion in American-based businesses.

The basic building block of HP's European sales and support structure is the country organization. The three largest and most complex country organizations—the U.K., Germany and France—are also designated as sales regions. (Those three countries account for two-thirds of our total European sales.) Two other regions, embracing the northern and southern countries, complete the structure. More than 6,500 people are employed in these sales organizations.

In meeting HP people throughout Europe, one learns quickly that we have a truly international workforce. Excellent language skills foster mobility among professionals and managers. However, the country management teams are made up entirely of nationals and there are essentially no Americans in the senior management structure in Europe. Those management teams' knowledge of the European market may be one of our greatest strengths for the future.

I've mentioned before that, despite today's slower growth rates in electronics caused by the worldwide recession,

the long-term outlook is strong. Improvements in the price-performance of electronic products through developments in technology should allow electronics to grow faster than other industries and probably become the second largest industry in the world by the turn of the century.

Nearly every European country is looking for new industries, especially those with export possibilities. With its growth potential, it's no surprise that electronics is at the top of the list in investment interest. Whether it's Germany, France or Spain, governments have active investment programs and are spending large sums on R&D support, company grants, and other incentives. Governments have unusual powers: They can limit who they will permit purchases from and the conditions under which non-local products can enter the country. They can set the rules governing the purchase of non-local products entering their borders.

In this environment, maintaining access to markets is vital to the continued development of our European organization. Access also allows us to continue U.S. exports: About one-fourth of the jobs in U.S. divisions exist because of our international program.

This is where our strong, locally based European organizations are particularly valuable. By being responsive to individual needs and by having a stake in each country's plans, we can help assure that we are viewed properly as being part of the solution and not part of the problem.

We'll see many changes over the next few years, not only in products but in our organization, as we decide where and how we add value for customers. When we have our 30th European anniversary I know it will be different. But the strong team of capable people we've developed will help ensure as much as anything can that we'll be in position to continue to grow and develop with all the market opportunities—here and abroad.

NEWSCLIPS

Recaps the newsworthy events, changes and achievements within HP

FIRST QUARTER FY83

Hewlett-Packard Company reported a 13 percent increase in sales and a 16 percent increase in net earnings for the first quarter of its 1983 fiscal year ended January 31.

Sales totaled \$1.06 billion, compared with \$936 million for the corresponding quarter of FY82. Net earnings amounted to \$85 million, equal to 67 cents per share on approximately 126 million shares of common stock outstanding (compared with net earnings of \$73 million or 59 cents per share on approximately 123 million shares for the same quarter in FY82). Incoming orders for the quarter were \$1.13 billion, up 7 percent over orders during the first quarter of FY82.

CHART CHANGES

The Personal Computer Group has created a new Grenoble Personal Computer Division under GM Robert Aydarbian. It encompasses all Grenoble activities related to terminals and personal computers, and shares a site with the existing Grenoble Division. The former Personal Computer Division and Corvallis Division have been combined into a new Portable Computer Division under GM Dan Terpack. In April the Vancouver Division was transferred from the Information Products Group to PCG. Dick Love is now manufacturing operations manager for the group.

In the Computer Products Group, the former Desktop Computer Division and former Engineering Systems Division at the Fort Collins, Colo., site have been consolidated into a new Fort Collins Systems Division under GM Fred Wenninger. A newly formed Engineering Productivity Division, headed by Dick Moore as general manager, will be responsible for internal and external computer-aided design tools and applications programs.

Don Schulz is the new GM of the Greeley Division.

Two new operations were formed within the Waltham Division in February. Division GM Ron Rankin is acting operation manager for the Bedside Terminals Operation and Gil Merme is operation manager for the Medical Systems Operation.

MEMORABLE MARCH 3

In Cupertino, Queen Elizabeth II and the Duke of Edinburgh visited HP's computer facility, with Dave Packard as host. In Switzerland, Bill Hewlett and John Young took part in ceremonies inaugurating HP's new European headquarters outside Geneva.



HP's new European headquarters building features a three-story interior courtyard.

TOP MANAGEMENT

The Board of Directors on March 25 elected Bill Hewlett to the newly created position of vice chairman of the board,

with Dave Packard continuing as chairman. Both are leaving the Executive Committee, which Hewlett has served as chairman since 1977. Succeeding Hewlett in that post will be John Young, who continues as president and chief executive officer.

In other board action, VP Dick Alberding was elected a senior vice president of the company, and Dick Hackborn and Lew Platt were elected vice presidents. Alberding becomes head of international operations April 30, Hackborn is general manager of Information Products Group and Platt is GM of Analytical Products Group.

NEW PRODUCTS

The HP Series 200 Model 36C technical computer from the Fort Collins Systems Division is a color-display version of the Model 36 workstation. Its BASIC and PASCAL languages offer graphics-language extensions which allow production of sophisticated graphics programs—up to 16 colors can be displayed at once, or 16 levels of grey for a realistic image. Also new is the Series 200 Model 20 modular instrument controller. It is in a rack-mounted package that can withstand the dust in production testing areas, and gives the user a choice of two keyboards that can be linked to the controller by cable from elsewhere in the work area.

The HP 1090 liquid chromatograph from the Waldbronn Division is a main-frame with modules that can be configured to an analytical chemist's particular application. It is a new concept in LC instrumentation. . . . From the Colorado Telecom Division comes a new handheld digital bit-error-rate test set, the HP 4925A, which makes the essential measurements to troubleshoot and verify the proper installation of most data links. **M**

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