MEASURE

For the people of Hewlett-Packard

March-April 1982

COMPUTER GRAPHICS: SIGNS OF OUR TIMES

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MEASURE

"Man is the measure of all things"
—Protagoras (c. 480-411 BC)

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Hewlett-Packard is a major designer and manufacturer of precision electronics equipment for measurement, analysis and computation. Manufacturing facilities are located in 22 U.S. cities in seven 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:
Reducing complex scientific and business data into simple graphs, charts and diagrams is the goal of computer-generated graphics. Our cover, a stylistic interpretation of some of those computer-generated images, was painstakingly prepared "the old-fashioned way"—by hand, by *Measure's* art director Don Letta.

UP FRONT

Comments on the changing HP scene—
and the people behind it.

Few industry consultants today can walk into a major corporation and caution managers to look carefully before turning to quality circles, Theory Z, CAD/CAM (computer-aided design/computer-aided manufacturing) and robotics to improve productivity. Ollie Wight can get away with it.

The sandy-haired consultant recently described his formula for unlocking productivity potential to about 150 HP employees in Palo Alto. He calls it MRP II (Material Requirements Planning)—the newest technique in the growing field of inventory control.

Ollie's message to HP was simple: Before a manufacturing company gets carried away with programs which could be nothing more than "Band-Aid management," it should focus on using computer power to solve inventory problems which hamper production. His method starts with an annual sales forecast, based on what economists expect. But, using the power of today's computer, that forecast is interlocked with ordering and manufacturing schedules so companies can react quickly to abrupt drops in sales or problems with deliveries from vendors.

Every change in a manufacturing schedule means potential changes in the supporting schedules in the factory and similar changes for vendors. Vendors often have delivery problems ("They're manufacturing companies, too," says Ollie). If a purchased part is going to arrive late, it means that one or more factory schedules must be changed to reschedule the product to a later date. The computer is a necessity to constantly update the complex, interlocking schedules and project the impact on financial results.

So computers—once used only to figure out how many parts to order—are now scheduling deliveries of materials and parts close to the time when they'll be needed for production, thus trimming inventory costs.

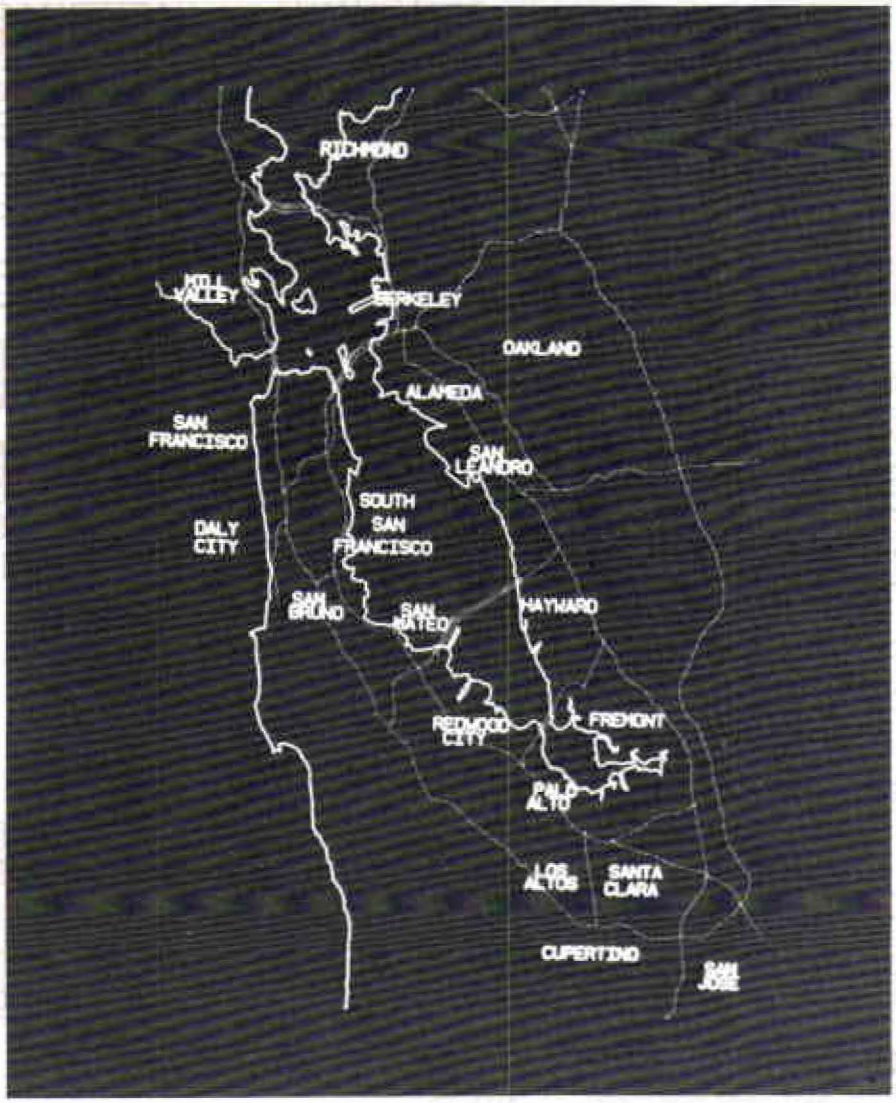
The logic behind Ollie's MRP II system is simple. The complex computer program is used to answer four basic questions: "Whatta you gonna make? What does it take to make it? Whatta you got? Whatta you gotta get?"

"I'm not saying you should ignore improving people productivity," says Ollie of such popular programs as quality circles. "But the average equipment manufacturer in the U.S. spends 43 cents out of every sales dollar on material, while only seven cents goes toward labor. That tells me more companies should pay attention to parts' and purchasing's 43 cents."

Ollie has his own followers at HP. One division manufacturing manager, quoted in Ollie's new book, says, "One of the most powerful benefits of an integrated MRP and financial system is that you can predict the impact of changes and performance on the financial aspect of business. In our first year our shipping plan technique predicted our product mix so well that production cost came out within one percent of the projection." **M**

BRAD WHITWORTH

Manufacturing resource planning expert Ollie Wight explains a key point in his latest book to HP's Tom Peters (center) and Ray Demere (right).



The high-resolution display of the HP-1360S makes this system (a 9826 desktop computer and a 1351 display) well-suited to handle architectural, mapping, engineering and design jobs.

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Today's computers are able to spew forth information faster than ever before—often too fast and in too large a volume for the human brain to read and understand it with any degree of efficiency.

Enter computer graphics—computer-generated images that simplify the process of ingesting and analyzing data. Trends, cycles and relationships in data can be easily recognized. Three-dimensional objects can be simulated on a screen before a designer's trained eye. Complex processes can be viewed in a simplified, representational form as they occur.

The field of computer graphics is large and fast-growing. Total marketplace sales in 1980 were estimated at $1.5 billion. By 1984, that figure should approach $5.5 billion, representing annual growth of nearly 40 percent.

HP is one of the leaders in the field of computer graphics—with comput-

INTRODUCTION

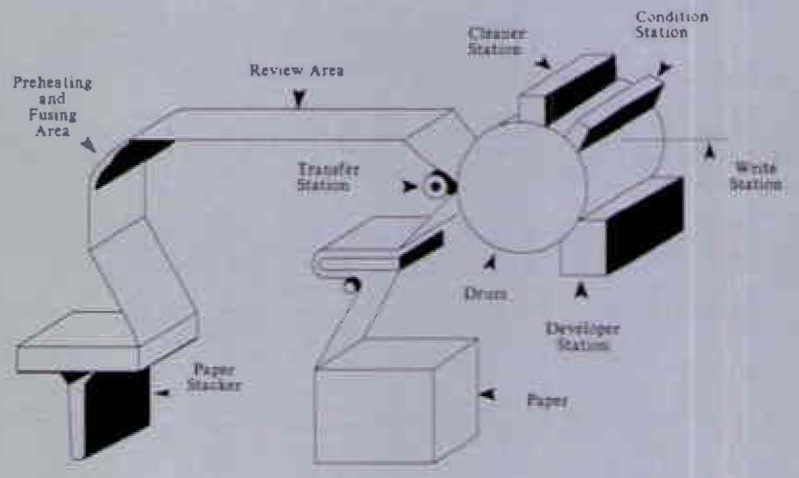
1-1. OVERVIEW

This publication outlines specifications for selecting continuous form paper appropriate for use in the HP 2680A Laser Printing System. These specifications are intended to ensure the highest quality and reliability of the 2680A and are not intended to recommend a specific brand of paper.

1-2. HP 2680A PRINTING PROCESS

The Hewlett-Packard 2680A Laser Printing System is the latest innovation in HP printer technology.

Using laser scan technology, the 2680A forms a toned image of the printed page on the surface of the photoconductive drum. This toned image is then transferred to the paper and passes through the review area. After the preheater conditions the paper, the fuser heats the toner enough to cause the toner to bond with the paper. The job is completed as the paper stacker automatically adjusts for the height of pages being printed. (For further details, refer to HP 2680A Operator's Preventative Maintenance Handbook, part number 02682-90912.)



The Drum rotation and paper path of a 2680 laser printer

Figure 1. 2680A Paper Path

1-1

The paper specification manual for HP's laser printing system was designed and printed on the machine itself. The future of computer graphics is bound to bring more merging of text and illustration.

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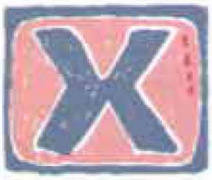


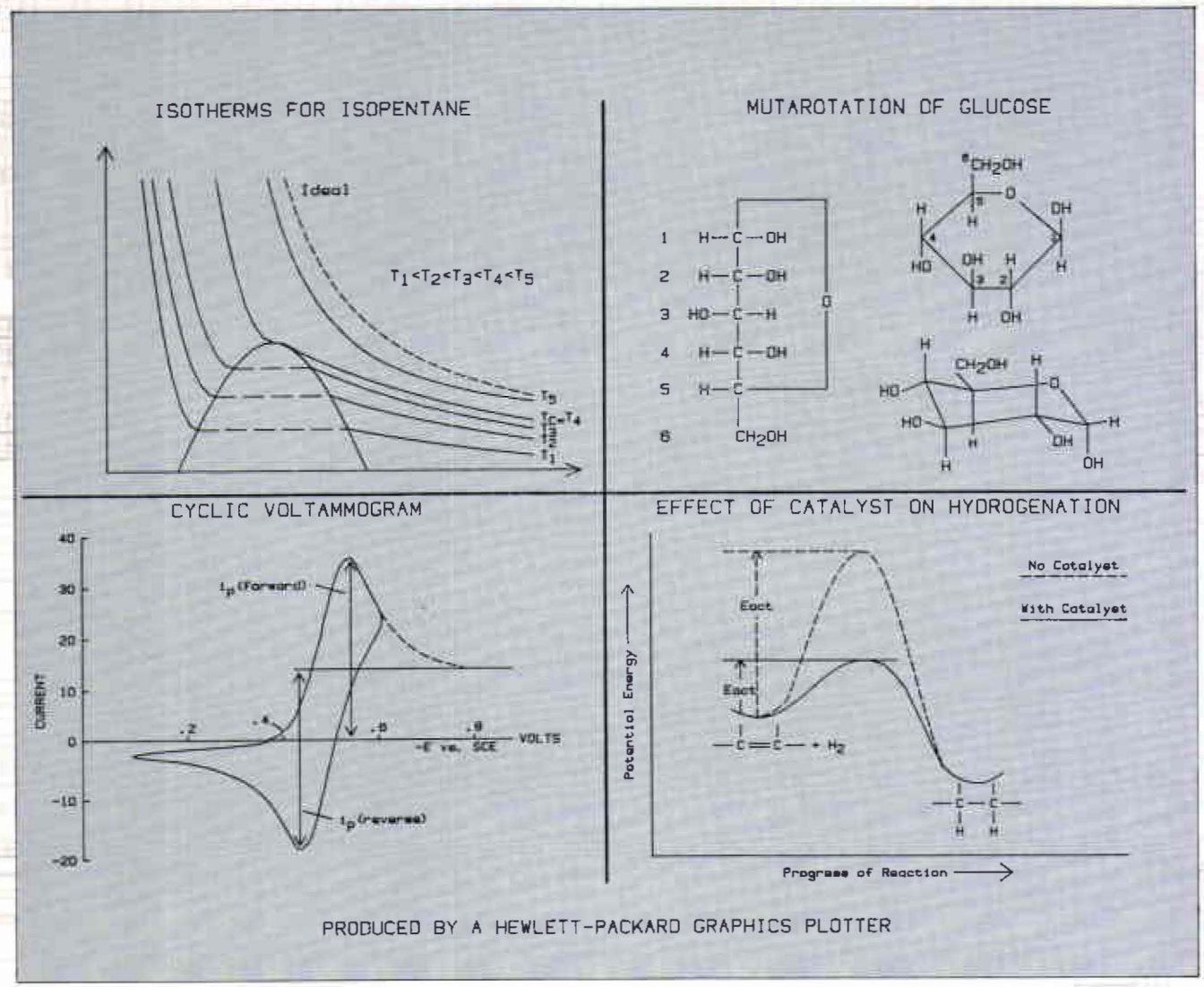
ers, displays, terminals, software, plotters, printers, tablets and digitizers available from more than a dozen divisions in the Computer, Instrument and Personal Computation groups.

"Hewlett-Packard's strength in the field comes from the availability of graphics across our entire computer line," explains Chris Kocher, product manager at the Information Networks Division. "Unlike some other companies which offer graphics on a limited number of computers, HP has graphics capabilities on everything from Corvallis' Series 80 personal computers to the most powerful 3000s."

Moreover, HP is one of the few companies in the graphics marketplace to offer a "single-vendor solution" to customers' graphics needs: all the hardware, software and supplies from a single source.

Because HP's graphics offerings cut across many division and product group lines, the Computer Groups' Marketing Council put together a special task force in 1980 to plan a unified approach to graphics marketing. A year later that task force became the Graphics Marketing Council, and it now meets six times a year to represent 10 computer and instrument entities which sell computer graphics products.

"The council's efforts are directed toward three fronts," explains chairman John Boose of the Desktop Computer Division. "We try to focus the individual marketing efforts of the involved divisions, increase the visibility of HP's graphics products, and provide the merchandising tools needed by the sales force to sell HP graphics capabilities. We also try to stay abreast of the strategic graphic issues facing HP."



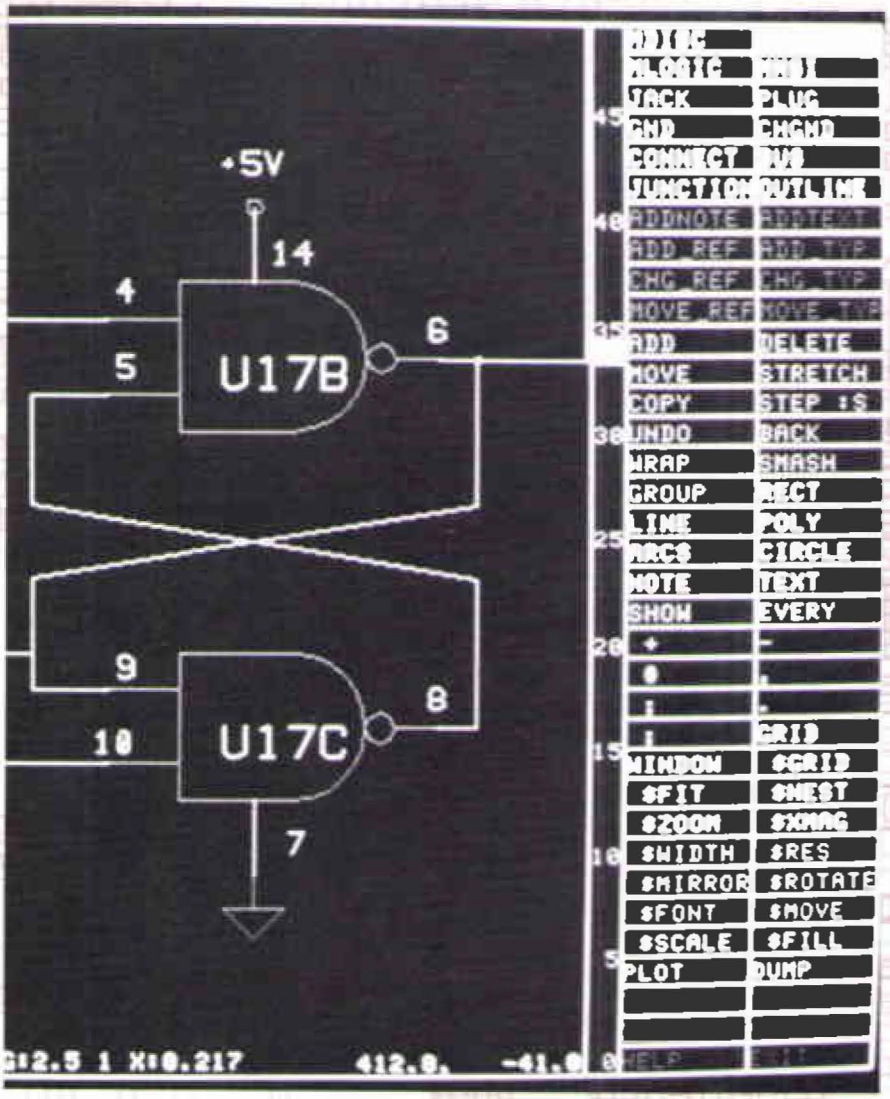
A 16-page graphics marketing plan put together by the council for field sales managers outlined the company's current graphics product line-up and described how future products would enhance HP's position in the years ahead.

HP's participation in computer graphics trade shows, such as the National Computer Graphics Association (NCGA) and the Association for Computing Machinery's Special Interest Group on Graphics (SIGGRAPH), is coordinated through the council.

Two seminars—one for technical computer graphics and the other for business computer graphics—were put in place by the council for HP's Productivity '82 roadshow. A graphics booth at the show, put together by the council, was a major attraction. Several brochures and print advertisements were council projects in 1981.

Due to the success the council has seen in the U.S., a similar operation is

Businesses find graphics valuable in meetings and presentations to convey sales and production information in a concise, interesting manner. HP's graphics terminals allow users to view results on the screen and then to produce plots on paper or overhead transparencies.



Complex designs for printed circuits can be developed in color using the engineering graphics system (EGS/45). It includes a 9845C desktop computer and a special software package.

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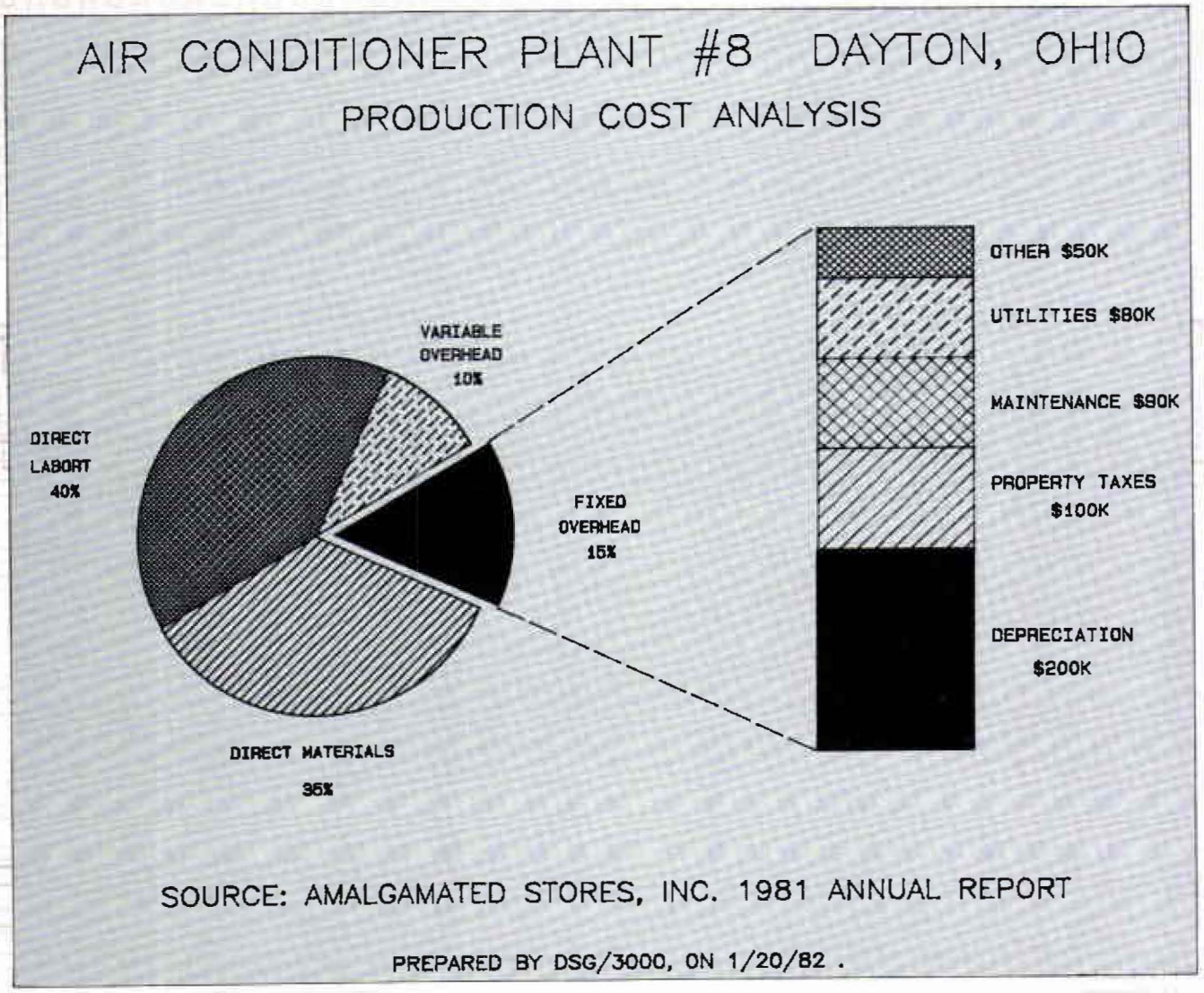
being formed in Europe and should be underway later this year.

Why is computer graphics receiving such attention today? Managers and professionals in every section of business, from finance to manufacturing to research and development, are seeking better ways to define and analyze problems and to communicate their findings to other decision makers. Computer-generated graphics represent one tool to improve management productivity.

In the years ahead, industry developments will make graphics as easy to retrieve, store and manipulate as text. The term "computer graphics" will slowly disappear (no one asks today if companies have "computer accounting") and the simpler term "graphics" will be here to stay. **M**

ENTITIES REPRESENTED ON THE GRAPHICS MARKETING COUNCIL

Engineering Systems Operation
Desktop Computer Division
Colorado Springs Division
Data Systems Division
Data Terminals Division
Information Networks Division
San Diego Division
Personal Computer Division
General Systems Division
Computer Peripherals Group



Scientific data can be presented in graphic form using the recently introduced 7470A graphics plotter and the 87 personal computer (not shown).

PHOTOS AND GRAPHICS BY HEWLETT PACKARD COMPANY

The background of this entire article was plotted on the 7580 drafting plotter which can produce plots as large as 24 by 46 inches. The plotter uses an HP-developed paper-transport mechanism that moves sheets of paper horizontally while the pen operates in a perpendicular direction.

15 JOBS THAT DIDN'T EXIST 15 YEARS AGO

Nothing new under the sun, you say?

Take a look at this sampling of 15 jobs at Hewlett-Packard that weren't around 15 years ago. It's no coincidence that a good many of them are computer related—in 1967, the year of HP's first computer, the machines were still a futuristic tool for most people.

One wonders what changes will occur in the next 15 years and what new jobs will be everyday reality then.

JOANNE ENGELHARDT

Checking on the safety of press operator Paul Zrodlo (foreground) is part of the job for Santa Clara Division industrial hygienist Jack Sidlow.

INDUSTRIAL HYGIENIST: When Jack Sidlow earned a master's degree in industrial hygiene from the University of Michigan 17 years ago, he was one of a few professionals in the field. Now he's part of a growing group of professional industrial hygienists at HP.

What does an industrial hygienist (IH) do? "A lot of walking around," grins Jack. "I'm always looking for unsafe situations and ways to prevent occupational injuries."

Besides trying to prevent the usual industrial accidents, Jack and other division IH coordinators get involved in evaluating the work environment—from air contaminants and noise to chemical spills and fumes. In a manufacturing facility like Santa Clara Division, which has shops with heavy machinery, Jack is always on the lookout for potential problems.

He devotes a lot of his time to training employees on eye protection, earthquake procedures, fire science ("what kinds of fires, what can burn and knowing what to use to put them out") and toxic chemicals. His thrust now is to complete the training of a team which will "respond to any emergency we have and either handle it or call in an outside agency." Many HP divisions already have such teams in place.

Jack feels education for employees is the key to staying on top of industrial safety. Or, as President John Young put it in a videotape on the company's safety policy: "Safety, like quality, is not inspected in at the end, but built in right along the way."

TELEVISION LIGHTING AND SET DESIGNER: Technically, there *was* a "TV studio" 15 years ago—if you call a couple of cameras and monitors a studio. At that time, the people who used videotapes for training programs or sales presentations also doubled as the cameraperson-director- producer-writer for those early productions.

Contrast this with the well-equipped, well-staffed TV studio now in Palo Alto, and smaller studios that support the Computer Groups in Cupertino and the Instrument Groups in Loveland.

Even more of a contrast are the kinds of professionals who now make the sophisticated films and tapes the company produces. Major projects have a team consisting of producer, director, writer, assistant director, technical director, audio operator, lighting director, set designer, floor manager, camera operator and camera shader.

One such specialist is George Parrish, who has created a variety of sets for HP's training and product programs over the past seven years. During that time he has built everything from a mountaintop and a space station to a department store, a misty dockside and a news-style set for teleconferences.

Lighting occupies most of George's time since all projects need good lighting and only a few require fancy sets. "Sound and light can be controlled in the studio but on location there are a lot more variables."

His aim, he adds, is "to light something so subtly that it appears to be natural."

CLEAN ROOM OPERATOR: Production jobs are certainly not new to HP; they've been the backbone of the company since it was started in 1939. But only in the last few years have some production employees—those involved in integrated circuit (IC) fabrication—had to dress up in "bunny

suits" or pass through a series of air-locked chambers to enter their work areas.

Since she came to HP four years ago, Barbara Cebrian, a Production II at Cupertino Integrated Circuits Operation (CICO), has seen IC technology continually shrink the size of the product and dictate a corresponding need for cleaner and cleaner atmospheric conditions for its production.

"When I started working at HP, 'clean' meant wearing a protective smock. Gradually a hairnet and booties were added, then lab shoes and hat and nylon gloves. We've had the complete bunny outfits about a year."

CICO produces the silicon-on-sapphire ICs used in HP 300 and HP 3000 computers and the 2240A measurement and control processor. Barbara explains that wafer fabrication, the most complex part of this process, includes a series of operations in which layers of semiconductor materials are "grown" on the wafer with the application of heat and gases under scrupulously clean conditions.

Barbara says she's particularly interested in the technical side of the operation and is taking an evening course to prepare herself for advancement.

GROUP MANAGER: In the beginning there were just Hewlett and Packard. That worked for a while, but soon other employees were hired and eventually there was a good-sized company. When that became too large, a division was spawned, and then another and then another.

By 1968, even the divisional concept was in need of regrouping, and that's when the first "group" structure was formed. It was called the Palo Alto Electronic Products Group and it brought together the Microwave, Frequency and Time, Paeco and HP Associates divisions.

Thirteen years and 10 groups later, the group structure has provided room for company growth.

Lew Platt has been both a division general manager and, for the past two years, general manager of the Anaytical Products Group.

He sees two major differences between the two jobs. "Many group managers have responsibility for a field organization which is a significant difference," he explains. "Group managers also do a lot more of the medium- and long-term business planning."

With supervision of Avondale, Waldbronn and Scientific Instruments divisions plus the Analytical field force, Lew figures he spends about a third of his time on the road.

The remainder is divided between customer contact on major account sales, doing non-group-related activities (such as heading up special task forces), running the group on a day-to-day basis and spending time doing that planning.

"You have to have 'think' time to develop strategies and do forecasting," he acknowledges.

Having 'think' time is a trade-off, he admits. "What I miss most about being at a division is having the day-to-day contact with lots of people."

But he says he also likes "getting involved in the sales end of the business. It's not an area where I had a lot of experience but I've learned a lot."

GLENN STEINER

Sharae Jaime (seated) learns how to program the computer to run incoming COMGRAM messages from COMSYS supervisor Lorri Bailey.

COMSYS OPERATOR: It was 12 years ago that COMSYS first began to replace TWX messages. Since that time the unique HP message system has been growing and proving its economic worth.

All COMSYS messages are sent via the Palo Alto-based ROUTS minicomputer system to about 100 different HP sites. Last January, more than eight billion characters of data were sent by COMSYS—roughly 360 million characters per day. Ten years ago the volume was a mere six million characters per day.

Today many locations have COMSYS operators who transmit messages to other HP sites as well as receive incoming COMGRAMS. Many people now send COMGRAMS directly from their HP terminals.

The prototype for the whole COMSYS system is the Corporate operation in Palo Alto where six data entry operators work under the supervision of Lorri Bailey. Having been a data entry operator herself for four years, Lorri has the kind of practical knowledge that makes her a helpful and resourceful supervisor.

The Corporate COMSYS workload "nearly doubled as soon as we moved into Building 20 last July," says Lorri. "I'm not really sure why, but I think more people are now aware of how cost efficient COMSYS is."

None of the data entry operators has been in the department more than a year. Lorri points out that operators often use the entry-level job to build up their skills and eventually move into other positions. Like Sharae Jaime, who started last July, most operators have typing but no data terminal experience when they come on board. "It's relatively easy to learn," says Sharae, who admits the pace is sometimes quite hectic.

Sharae likes her job and intends to learn all she can about programming and COMSYS. "I like to keep busy," she smiles.

DRAWBACK COORDINATOR: When HP first sold its products overseas, the company became involved in the business of customs—complying with various import laws and payment of duty. Fifteen years ago customs duty probably amounted to a few thousand dollars a year. Today that same business amounts to more than $100 million a year worldwide.

Even when duty is paid, it can be recovered through a procedure called "drawback." In the two years since Dan Costello joined HP's Corporate Customs Department to start the drawback program, about $4 million has been returned to company coffers. (Other programs to avoid duty save HP an additional $9 million.)

The drawback program involves getting back duty paid on imported goods that are later exported. "For instance," he explains, "we import a lot of integrated circuits (ICs) from Japan which are used at many U.S. divisions in their products. Using a thorough record-tracing system, we track which ICs are subsequently sold outside the U.S. as part of an HP product or system. We submit a drawback claim to U.S. Customs and the money we receive is transferred to the division."

The drawback manager's job requires a unique blend of legal, technical manufacturing and data processing knowledge plus a little bit of detective.

"We bought a German tester which we imported and evaluated in Colorado before sending it to Singapore," Dan recalls. "The first importation cost $1,200 in duty. We now need to import it a second time, and will again pay $1,200. However, through drawback we can recover the first duty we paid."

There are currently 18 divisions in the drawback program, and Dan expects it will continue to grow. The company now files claims on imported semiconductor devices, LCDs, electric motors and watch parts (from

15 JOBS

the no-longer-manufactured HP-01 wristwatch).

SYSTEMS ENGINEER: The role of the systems engineer (SE) changed five years ago when the Systems Engineering Organization was created within the Computer Groups. The time and expertise of the SE became products, with fixed charges to customers for various services.

SEs act as consultants, assisting customers in making their purchase decision, defining hardware and software needs, setting up working systems and then being available as advisers and problem solvers. One product is conducting training classes for customers.

In the Eastern Sales Region, the diversity within the SE role can be seen in the particular strengths of Dick Demaine (Lexington, Massachusetts) and Marie Gordon (King of Prussia, Pennsylvania), who have each been with HP five years. They are among some 155 SEs in ESR, one-fourth of whom are women.

Dick, who holds his B.S.E.E., first worked with an HP 1000 used as a central processor in an operations support system at the company where he was a software support engineer.

A technical specialist, he knows the HP 1000 intimately and can advise a customer how to get the best out of the computer.

Marie's forte is helping manufacturing customers implement total solutions based on the HP 3000. She spent eight years at other firms as a programmer analyst working directly with production people to design inventory systems and requirements planning systems.

Now, as an application consultant, she first makes a plant tour with an HP sales representative to get a feel for a potential customer's needs, proposes a suitable solution, then oversees installation. "Seeing my thoughts go into action is exhilerating," Marie says. Right now she's supporting seven major accounts with completed installations.

MAJOR ACCOUNT MANAGER: One HP account — General Electric — is so big it's made up of eight separate companies with 200 product departments and 365 manufacturing plants worldwide.

To coordinate the sales and support to large and decentralized organizations like GE, the Computer Marketing Group has developed in the last five years a major account program. The program today includes 120 large customers who buy at least a half million dollars a year from HP and present long-term growth opportunities on a year-by-year basis.

Last November major account managers were named, each devoting full time to one account. One of them, Ed Oakley, who had previously called on GE in addition to many other accounts, was assigned to GE full time.

Ed's responsibility is to manage HP's program for GE on a worldwide basis, meeting GE's current computer needs by coordinating 32 separate sales and support teams and also planning further cooperation with the account.

"A challenge is important to me," says Ed. "With this job there's a strong learning curve: learning GE and also how to work within HP."

He feels the results of the major account program are greater customer satisfaction and increased sales opportunities for HP.

MICROFICHE OPERATORS: The Computer Output Microfiche (COM) section was added to the corporate data processing center eight years ago. Since then, its five-person staff, working 'round the clock six and one-half days a week, has reduced the avalanche of computer-generated paper by 98 percent.

According to Philip Palmer and Alison Marshall, who work in the COM section during the day shift, Bay Area EDP users could spend more than $247,000 a month just for paper printouts. But by substituting the fiche photo reduction process, the monthly cost is only $25,000.

Two machines, each about the size of a large photocopier, extract information from magnetic tapes and produce the 4-by-6-inch fiche. Two special duplicating machines complete the operation, making as many as 1,500 copies per hour.

Within the next few months, Philip expects the tape will be eliminated and information will flow directly from the HP 3000 onto the fiche.

Alison and Philip have compiled some statistics about COM to persuade users to give up their paper printouts in favor of microfiche:

- The information stored on 300 pounds of paper will fit on one pound of microfiche.
- Fifty minutes worth of paper printing can be compressed to just five minutes on COM.
- One 4-by-6-inch microfiche can store the same information as 270 standard computer sheets—or 420 sheets of letter-sized paper.

AFFIRMATIVE ACTION COORDINATOR: It would have been difficult to find people who had heard of Affirmative Action (AA) 15 years ago. Today that is the byword for a companywide program aimed at providing minorities, women, veterans and disabled people equal opportunities for employment and advancement.

Judie Neetz of Information Resources Operation in Denver, Colorado, was the Affirmative Action administrator at Loveland Division for two and one-half years. She describes it as "very rewarding" and left the job only for the challenge of handling *all* personnel functions in a new operation.

"Affirmative Action is far more than 'number-crunching,' although that is certainly a necessary part of it," she reflects. "I have always felt the emphasis should be on working with people to make things happen."

A good part of her time was spent helping people understand what Affirmative Action is. "It is *not* hiring unqualified people, and it's certainly *not* meeting specific numbers. A common misconception is that Affirmative Action is only hiring. It is much, much more ... like training, advancement opportunities and self-awareness."

One of the most rewarding parts of her Affirmative Action tenure was overseeing the installation of special accommodations for disabled employees. "We even had a piece of equipment installed which enabled two disabled people to work in the printed circuit area," she recalls.

Still, Judie feels there is much to do in the years ahead. "Our first line supervisors are vital to the Affirmative Action process, not just for hiring but especially for training and promotions. Some feel AA is a personnel function, but it is really an integral part of their jobs."

FISM/RISM: Have you ever heard of a FISM or RISM? That HP acronym stands for facility or region information systems manager, and every

manufacturing location or sales region has one.

Doug Amsbary, the FISM for San Diego Division, laughingly says "sometimes we're called FISLs" (facility information system leader) as well. Not likely. For the job of a FISM or RISM encompasses all the hardware and software plans for an HP site.

"Our task is to evaluate what the hardware needs are for each department at our division," Doug explains. "We explore what alternatives we have, make a selection, purchase it and then run it." He adds that 100 percent of the hardware at SDD is HP equipment.

"The other side is the software. Again, we evaluate all alternatives: whether to use a corporate system, whether another division has developed a system that could be used here, or whether we will need to develop our own."

Doug came to HP in 1964 and at one time was the division's data processing manager. He's also been general accounting, financial systems and cost accounting manager, so he feels he knows "a lot of the concerns and frustrations that (computer) users have." He's held his current job for the past two years.

He sees a companywide trend to develop programs that can be used both by customers and HP employees.

"The job," he admits, "is much more complex now because we try to communicate with users to find out what their needs are down the road. It means a lot of planning."

One his most valuable tasks is coordinating SDD computer needs with other divisions and with Corporate. "Certainly if a system has already been developed, we'll use it. Why reinvent the wheel?" he asks.

ELECTRONIC TOOLING ENGINEER: "Most testers are more complex than the board being tested," says Dave Patton, an electronic tooling engineer, who designs and builds the automatic testers for printed circuit boards. "I designed a tester with seven circuit boards in it. Its function was to test one circuit board."

Since every tester is different, he starts each one from scratch, working closely with a mechanical engineer and the people in R&D. "First," he says, "we get a good feel for the product we're testing and how it works."

He is also responsible for documentation of the tools he designs so they can be reproduced by overseas divisions who manufacture the same product. The 41C, for example, originally manufactured in Corvallis, is now made in Singapore. Documentation for the testing equipment had to be supplied to Singapore along with product design documentation.

Dave, who joined HP one and one-half years ago, is usually working on a dozen projects at a time. "There's a lot of variety, which I like," he says. "While the people in R&D work on one project for as long as three years sometimes, only a few of our tools take a year or more."

JOANNE ENGELHARDT

Gene Shehan polishes 98 small glass cubes at one time for use in the 5501 laser transducer system.

LASER OPTICS FABRICATION: Who would ever expect to find a precision optician working in an HP manufacturing department? When you're dealing with laser optics, precision is just what is called for. HP got into the laser optics business about 10 years ago and its products are used to check the accuracy of machine tools.

Since precision is so important, the laser optics department relies heavily on people like Gene Shehan, fabrication specialist, who operates the pitch polishers that are used to polish glass pieces flat to tolerances within one-millionth of an inch.

Gene, who has worked for HP for 11 years, has been in laser optics fabrication for the last seven.

He explains that the glass pieces are held onto circular blocks by wax. It takes 24 hours of polishing—supplemented by frequent applications of foamy polishing compounds—before the pieces are "clean," meaning without scratches or pits.

After machine inspection, the glass pieces are given an optical coating with materials such as silicon dioxide, magnesium fluoride, or titanium dioxide. The parts then go into stock either for use in the HP 5501 laser transducer or any of the accessories available for the transducer system.

For the 5526A laser measurement system, Santa Clara Division glassblowers create the fine glass piece at the heart of the system. They make about 175 tubes a month of which only about 100 are accurate enough to be used in the 5526A.

All phases of these products are completed within the department—from creation to assembly, according to Jorgen Hagglof, production line manager. "Everyone here gets to see the product go from raw form to ready to be shipped," he says.

SOFTWARE DEVELOPMENT ENGINEER: "It's a creative outlet," says Marc Barman of his job as a software development engineer. "It's an opportunity to design solutions to real-world problems, to save people work and aggravation and give them more satisfaction from what they're doing."

Marc is part of a 45-person team which develops software products for the HP 3000 within the Manufacturing Software Operation (MSO) of the Business Computer Group.

"Everything out of our operation is manufacturing or applications software," he explains. "It provides the total solution for an HP 3000 customer."

He describes two products developed by MSO. One, Materials Management 3000, is a software package including materials planning, inventory control and master scheduling. The other, Production Management 3000, provides shop floor control and capacity planning.

"We're continually enhancing these products," he adds.

ORDER PROCESSING SPECIALIST: All ICON sales orders received in Palo Alto are examined by one of seven order processing specialists who ensure they are complete and comply with contractual and legal requirements of the countries and customers involved.

"If any special assistance is needed, it's my job to iron out these problems," says Patrice Scro, the order processing specialist assigned to U.S.-based companies who purchase HP products for shipment overseas.

Once an order meets all requirements, Patrice passes it on to an order coordinator for processing via computer to the appropriate factory or sales office.

"A lot of people in domestic sales offices come into contact with U.S. companies who want to purchase HP products here in the U.S. and ship them abroad. ICON can help U.S. sales offices and customers understand HP's international support capabilities and procedures," says Patrice. It's also her job to explain international policies to customers and HP field engineers.

Patrice has been with HP seven years, the last three in her current job. What she likes best about it are "working independently and trouble shooting. There's also a lot of customer interface," she adds. **M**

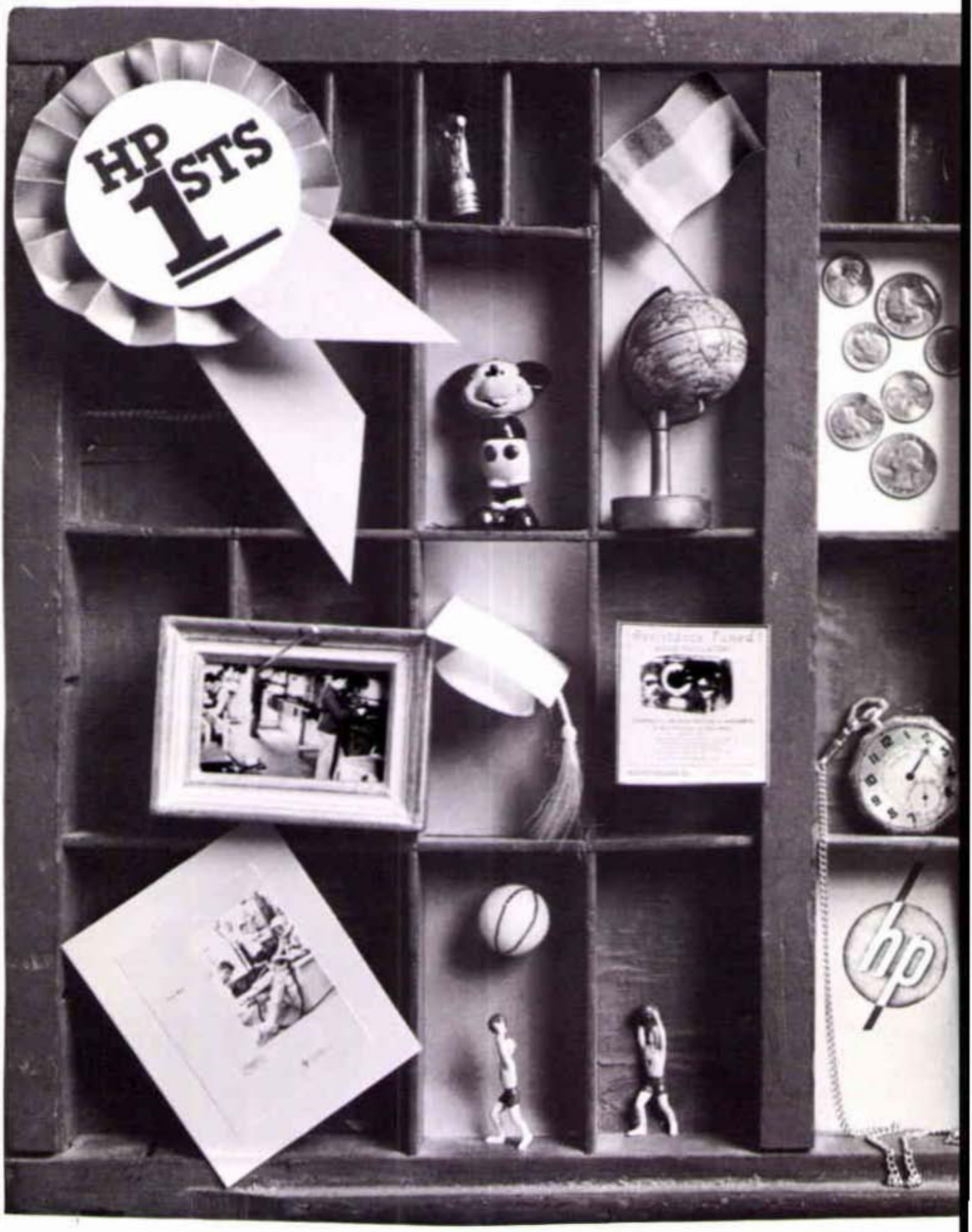
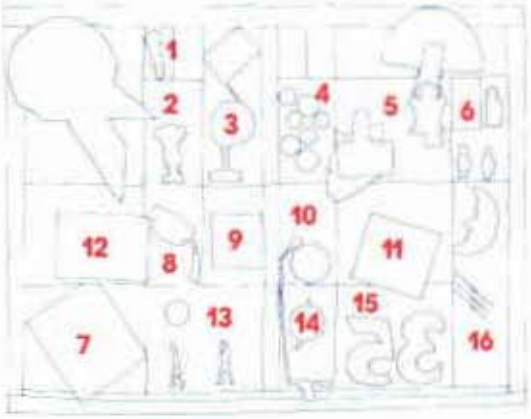


PHOTO BY GLENN STEINER, ART BY DON LETTA

A quick trip through the company's archives brings together this collection of noteworthy and interesting Hewlett-Packard "firsts."

1 First patent: to Bill Hewlett for use of light bulb to control resistance in audio oscillator.
2 First major customer: Walt Disney Studios.
3 First manufacturing location outside the U.S.: Boeblingen, West Germany.
4 First loan: $1,000 from Palo Alto National Bank (now Crocker National Bank) in 1940 for expanding the young business. HP still banks here.
5 First HP picnic: held the first year Bill Hewlett returned to the company after World War II. No more than 100 people were present. It was a simple affair with steaks, fresh corn, green salad and games for the kids—both young and old.
6 First employee medical insurance plan: signed August 17, 1942. Covered the company's 51 employees and provided $5 per day for hospital room and board, 70-day maximum, plus $100 miscellaneous charge. Company's premium for the first month's coverage was $25.
7 First issue of *Measure*: July 1963.
8 First HP scholarship: awarded in May 1952 to Ralph Bender from Sequoia High School in Redwood City, who used his $500 to attend Yale.
9 First advertisement: 200B audio oscillator.
10 First U.S. company to adopt flexible working hours: HP in July 1972 after pilot programs at Boeblingen and Waltham.
11 First television advertising: ABC-TV, fall 1981.
12 First employee: Harvey Zieber, on the right in this photo at HP's first building, the Tinker Bell shop.
13 First competitive sports team: basketball. Members included Norm Schrock, Jack Goodwin, Hank Meadows, Jerry Falla, Carl Mahurin and Ray Rooney. Sometimes Dave Packard played, too.
14 First HP logo: today's new logo is still based on the lowercase "hp" in a circle.
15 First handheld scientific calculator: HP-35 introduced in 1972. The first HP-35 is owned by a physics professor at the University of Oregon.
16 First HP products on the moon: July 1968. High-power PIN diodes, microwave detector, hot-carrier diodes and solid-state switches. **M**



A F T E R T H E D E

Moosehead Bridge, bearing a collapsed house, was one of the first sights that HP's Gerry and Joni Priestley saw near their Aptos home after the storm.

Volunteer Bob Tuttle of DSD brought his own bulldozer to Felton Grove to help clear mud from the area.

L U G E

BILL LOVEJOY

RON GEDRIS

HP people were caught in flooding and mudslides caused by torrential rain along Northern California's coastline in January.

Some 200 Hewlett-Packard people who commute from their homes on the coastal side of the Santa Cruz Mountains to jobs in crowded Santa Clara Valley call it "going over the hill."

For many, the most direct route is Highway 17, the freeway which swings up and over the 1,800-foot summit to link the city of Santa Cruz with south Santa Clara Valley.

The mountain range which buffers the coast from the pressure of Bay Area population centers also helps to provide a different climate on the coastal side. The pleasant resort towns along the ocean and their backdrop of wooded mountain ridges always receive generous rainfall along with moist ocean fog.

But something quite uncommon and terrifying happened this winter.

Two hours after midnight on Monday, January 4, two storms collided over Northern California and began pouring a steady torrent of rain on the coastal areas north and south of San Francisco. By the time the rain eased up Tuesday morning, it had become the worst storm of the century.

Saturated by up to 23 inches of rain in 24 hours, mountainsides slid down to bury homes and roads in mud, trees and brush. Water pouring down from highland slopes turned creeks into grim rivers of destruction.

The first reports of damage came from Marin and Sonoma counties north of San Francisco. The devastation in Santa Cruz County, where telephone lines were knocked out along with other services, was slower to reach outside attention.

Meanwhile, stunned local residents were trying to cope with their disrupted lives. Water and power were out in many areas for as long as five days, and Highway 17 was closed to non-essential traffic. A major bridge in downtown Santa Cruz had partially collapsed. In nearby Aptos, homes on the edge of the cliff had toppled onto beach houses below and homes along the river bank were gutted.

Some of the worst damage was centered in the heavily forested valley of the San Lorenzo River north of Santa Cruz. According to the *Santa Cruz Sentinel*, it looked like a war zone: roads blanketed with mud and debris, areas isolated and refugees trying to get home, and hundreds of people housed at evacuation centers.

Santa Cruz County alone suffered more than $100 million in damage—$56 million to private homes and property. Fifty county roads and 100 private roads serving clusters of houses were rendered impassable by floods and slides. At least a thousand people were temporarily driven from their homes. And another 19 people lost their lives.

Behind those statistics lie thousands of personal stories such as these experiences of some HP people caught up in the disaster:

"IT'S GETTING BAD."

At one in the afternoon Monday three vanpools of HP riders headed for home after members received phone calls that things were getting pretty bad over the hill. Highway 17 was already in poor shape, but all the vanpools deposited riders in their own neighborhoods. Not everyone actually reached home that day.

About the same time Intercon's Len Besson, who has lived in downtown Ben Lomond in San Lorenzo Valley for 15 years, was advised by his wife to start for home or he wouldn't make it. Youngsters had been sent home from school at 10 in the morning. Len made it— but water was coming through his truck's doors and flowing across the floorboard as he drove through the flooded town of Felton. That water later became four feet deep.

Lucille Salzman of the Santa Clara Division was stopped in Ben Lomond on her way home to Brookdale. She spent the night at St. Andrews Church, "wall-to-wall with people."

For many HP people, getting back to work was impossible for days.

LOVE CREEK

Rick Glazier of Computer Supplies will never forget his feeling of relief and then horror when he first returned home to Ben Lomond's Love Creek Heights. Unable to drive in Monday night after his vanpool dropped him off at his car, he stayed in Santa Cruz and came back Tuesday morning to hike in over mud slides covering the road.

"I could see our house was still standing," Rick says, "but the next minute I realized that all the homes on down the street were gone. It was a complete disaster—it looked like Mount St. Helens after the eruption."

RON GEDRIS

Felton Grove, pictured here after the storm, is familiar to HP people who pass through the town on the way to the company's Little Basin recreation area. (Little Basin itself was undamaged, but the access road was closed after three big sections dropped into the canyon.)

Shoveling mud from the garage of their Scotts Valley home are MSD's Rich Fialho and his stepdaughter Pam. The driveway turned into a waterfall.

Twelve homes and nine people were lost under 30 feet of mud from a slide.

Although the Glazier home and those above it on the street were intact, occupants of these 15 remaining structures were warned by the U.S. Geological Survey to leave immediately. The area has now been declared permanently uninhabitable.

The former Love Creek Heights residents have scattered to seven different counties and stay in touch, hoping for some help from Santa Cruz County to reclaim their losses.

"We were such a close-knit group of neighbors," Rick says softly. "We had our own water and road clubs and really knew each other. I'm finding it difficult to sleep during rainy nights."

HELPING OUT

"The Love Creek tragedy was like a blanket thrown over the whole community," according to Judy Horder, who lives in Ben Lomond. "People who know the area well couldn't find their bearings, it was all so changed." Both Judy and her husband Jack work for HP. Judy at Santa Clara Division and Jack at General Systems Division. Their 19-year-old son Matthew worked all week at the Ben Lomond fire station which was the hub of local volunteer rescue and clean-up effort.

Throughout the county, repair crews from utilities and the state transportation agency worked around the clock. Volunteer workers were equally dedicated.

Beth Giandana of the Instrument Groups lives in Ben Lomond on a section of Highway 9 that was closed at both ends by slides. She and her husband Rich helped all week taking food to elderly shut-ins and shoveling the ubiquitous mud. (Like countless other residents, she was improvising at home without electricity or water.)

"It was great the way everybody pulled together," says Beth. "When people told the grocer they had no money, he'd say, 'Take what you need.' People passing by in cars would jump out to help dig. That community spirit will keep a lot of people living here, including us."

Dee Heller, who also lives on Highway 9 in Ben Lomond, had just returned to the Optoelectronics Division on Monday after being on medical leave for two months. Attempting to return home that night, she drove within a mile of her place and had to get out to walk.

Making her way along the highway by flashlight, she met two men across from Brookdale Lodge. "Lady," they said firmly, "the mud is flowing so bad that it will wash you into the river."

Retreating to stay with friends, she managed to wade home on Wednesday to find that the two houses next door and two behind her were destroyed when Alba Road came down in a slide. The force of the shattering houses blew open Dee's back door and covered three rooms with mud.

When she returned to work the following Monday, Dee's OED co-workers and the coffee and cafeteria folks filled her Volkswagen each day with contributions of food and clothing. At the Brookdale Red Cross relief center, volunteers sorted the items for distribution to people in evacuation centers and for helicopter delivery to remote homes.

In Scotts Valley off Highway 17, water draining from the undeveloped 250 acres of watershed area above had brought trees and mud crashing down, sometimes with avalanche speed. Rich Fialho of the Microwave Semiconductor Division lost his 700-foot gravel drive and had five feet of mud deposited on the back patio and forced into the garage. "People helped each other by swapping supplies and sharing in the clean-up," he says.

In the same community, Ken Boetzer of Data Terminals Division joined hundreds of people to help a neighbor dismantle his home knocked off its foundations by a slide. The lumber was salvaged for rebuilding at the same location.

AWESOME

The force of the storm was overwhelming to observers. When Gerry and Joni Priestley put on windbreakers Tuesday morning and went for a walk in Aptos, they were shocked by what they saw. Almost every third house on Seacliff Drive was completely destroyed, along with a bridge and the picnic grounds. Television sets, refrigerators and bathtubs were scattered about in the wreckage. "It just blew us away," says Joni. She is with the Data Systems Division while her husband Gerry works at the Corporate offices.

Russ Martin of the Computer Marketing Group, who lives in Santa Cruz, thought the rain was as bad as monsoons he'd been through in Vietnam. He was impressed by the power of nature that could slide a 25-foot section of hillside onto Highway 17 with brush and trees still standing.

To Mark Diekhans of the Computer Systems Division, the damage seemed really awesome—worse than places he'd been through where tornadoes had struck. His own town of Lompico was particularly isolated since the main road had been flooded out. A narrow private road was quickly upgraded and pressed into service as the only passageway: people could drive out on odd hours, drive in on even hours.

Corporate's Kathy Pardun, who lives on a 150-acre farm at San Gregorio (located in San Mateo County to the north) had a different brush with nature.

Late on Monday night, two Bengal tigers kept on a neighboring ranch by an animal trainer became loose when a slide knocked over their kennels. One stayed at home but the other wandered away in confusion, alarming neighborhood livestock as it tried to find its way back. The tiger had to go through Kathy's property to reach the neighboring farm where it was cornered. "Our pigs, goats and dogs certainly signalled that the tiger was around but we never saw it," says Kathy, who was sorry that the animal was killed by law officers.

COMPUTER POWER

Neely Santa Clara systems engineer Larry Gray did his share of digging to channel runoff water around his Aptos house.

He had professional concerns about his customers as well.

The computer at Wrigley's chewing gum plant, where the payroll was due to be run, was one of four HP 3000s in the city of Santa Cruz left without electricity. Just as Larry had lined up substitute equipment outside the area, power came back on.

His long-standing arrangements for a bus trip on Wednesday to take 40 local customers to HP's "Productivity '82" roadshow in San Francisco fared less well. Only eight people from the storm-buffeted area could make it.

DELAYED NEWS

Some HP people were out of the area when the rains came and returned home apprehensively.

Ron Hawkinson of the Corporate Parts Center was snowed in at Lake Tahoe in the Sierras until Friday. He found that the formerly deep, but narrow, Zayante Creek alongside his Felton property was now both deep and wide, "as if a couple of sticks of dynamite had gone off." He lost only 25 feet of property and considers himself among the lucky.

Phil Koenig of Stanford Park Division and his family came back to their Mt. Hermon home on Thursday to find that a slide had knocked over a maple tree, destroying the carport and poking branches through the roof. But two mudslides on the road had taken out three other homes nearby.

Phil's wife Debra is the great-granddaughter of one of the founders of the Christian conference center campground where the Koenigs live. They've been able to move temporarily into a cabin that's been in her family since the 1930s while their own place is being repaired.

Less fortunate is Corporate's Tom Twork, who found that his little house on a ledge notched out of a steep hillside behind Aptos was intact—but slides on the slopes above and below had made it unsafe and inaccessible.

Tom wonders, is it worth $50,000 to repair property damage with new retaining structures? If not, how can he get out of his obligation to keep paying the bank loan taken out to buy the house two years ago—and still keep his good credit rating?

Like many homeowners in the area, Tom found that his insurance excluded slide damage. "It would have been better to have had the house go down the hill," he says ruefully.

SPECIAL SERVICE

When the San Lorenzo Valley Repeater Club started an emergency network on Monday, ham radio operators in the area were asked to supply updates on road conditions and rainfall. They also provided a link between relief agencies and their workers in the field.

One of those who responded was Information Networks Division's Ken Macy, KA6EPE of Boulder Creek.

On Saturday he used his portable two-meter radio to provide communications for the Red Cross in Felton's Gold Gulch section. The San Lorenzo River had overflowed the levy and deposited mud that was contaminated by washed-out septic tank leach fields.

Ken spent nine hours relaying messages for medical staff volunteers who were treating open wounds that could be dangerous. Urgent, and successful, appeals were sent out to keep a county dump open after hours for trucks delivering mud.

Another HP volunteer with special equipment was Bob Tuttle of the Data Systems Division, who lives an hour's ride over the hill from the stricken area. He promptly contacted civil defense disaster authorities to offer to bring over his small bulldozer.

Assigned to the badly hit area of Felton Grove, Bob helped clear streets of mud and debris on the first Saturday after the storm. He returned a number of times to dig out homes, cars and trailers mired in the mud.

On one trip DSD's newsletter editor Ron Gedris went along. He shared with *Measure* several of the dramatic photographs that he took to illustrate his own story on Bob's efforts.

Ron apologized for not taking more pictures. "After a while I just couldn't stand there like a journalist," he said. "I put down the camera and said to someone who was digging, 'Could I borrow a shovel?' " **M**

TRUDDA CARR

Tony Cortez of Data Systems Division, shown here at the Ben Lomond fire station giving out water, was one of the California National Reserve members activated to help in the disaster area.

NEW FORMULA IN THE CHEMISTRY OF HP SELLING

$$r_1 + r_2 \longrightarrow R$$

By combining full local resources (r_1) with strong local responsibility (r_2), the new "area" computer organizations have greatly enhanced responsiveness (R) to the needs of customers.

When HP people talk about the policy of keeping business units relatively small for better manageability, you can just about bet they're referring to factory organizations—the product divisions. Yet the same approach to size is taken by the sales and service forces—the region and country organizations responsible for field marketing. Because of the different sizes and needs of the six product-type sales forces, this organizational strategy is not as evident nor as uniform in the field as it is in the manufacturing divisions. Yet it flourishes very well in the field and recently showed its ability to adapt to the changing circumstances and challenges in the market place.

The case in point is a new kind of field tactical unit known as an "area" organization. Some 16 of these units have been put in place by the Computer Groups in North America, and others internationally, over the past several years. As conceived by the Computer Marketing Group, an area module brings together, under one manager, all of those people in one territory who are engaged in selling, systems engineering, customer engineering, field marketing and the sales contracting and financing of computer products. A team of around 220 sales and technical specialists plus support people is regarded as optimum size for such an organization.

Bill Richion, Computer Marketing's general manager for sales in North America, sees the development of such teams as a natural, evolutionary step in meeting the particular requirements of the computer market place. "HP computer customers generally are different from the company's traditional base. Computer users often are not technical, so they depend on us for complete support. If service is needed, they aren't going to send a machine back to the factory or keep a spare on the shelf. Service and repair have to be done on site, and be available on short notice. Customers want systems engineered to their own particular operations—systems which can change as they grow.

"So in our business it's essential that systems engineers and customer engineers be linked very closely with the sales representatives on a day-to-day basis. It also makes a lot of sense to link in the finance side of sales by including a representative who can work closely with customers in establishing and updating contracts, and provide sales-finance training to our own sales force. The same is true for local recruiting, customer training and generating sales leads, all benefit from the strong local focus provided by a field marketing manager working within the area team."

The ultimate beneficiary, says Bill, is the customer—who has available all the services of a miniature region on a local basis, and can get any or all of them with one phone call.

As far as management theory and understanding go—so far, so good. But how good is it in the field? *Measure* stopped by the Dallas and Houston sales offices in Texas to get an answer firsthand from the Computer Groups' area team in that dynamic market.

In HP's Richardson (Dallas) office, Area Computer Manager Ralph Godfrey discussed the challenges of growth—a continuing story in that empire of energy resources encompassing Texas, Oklahoma and Louisiana: sales of computer products substantially over quota in 1981 and more of the same contemplated for 1982, spurring a major program to recruit sales representatives and other people.

"In this kind of situation," said Ralph, "the advantages of the area organization are very apparent. It gives us the flexibility and authority to make decisions on the spot. It encourages communication and teamwork within the local organization. The area concept gives us some of the advantages that a manufacturing division has in being in one location. I can get together with just about anyone on the team right now and resolve almost any problem that comes up. The same is true for the Instruments team in Texas which has a somewhat similar way of operating. Bob Sandefer, who heads Instruments here, and I can quickly work out a sales strategy involving a common customer. This sort of thing happens all the time."

Similar thoughts are expressed by others in the organization. John Neu-


PENDELL PITTMAN

Working up projections of future growth needs in facilities and people for computer sales in their Southern Sales area are Ralph Godfrey, area manager (left) and Gary Kirwan, northern area sales manager out of the Dallas office.

korn, customer engineering manger for customer service in the Houston office, said the area module is very much in keeping with HP's philosophy of limiting operating units to manageable size. "Given our growth, it's been very timely. Recruiting is our number one concern, first because of the growth and, second, because of the upgrading of the service role. The competition for candidates is strong, but our freedom to act and respond, relative to others, is a big plus. The upgrading—the professionalism —of the service organization means our service and repair people can work with customers on many levels. They really are a part of the sales team, and it's not uncommon for them to eventually become sales representatives or customer engineers. We have a lot to offer."

In all of this, in Texas and elsewhere, the payoff has been in improved customer satisfaction. This is borne out by results of the 1980 and 1981 computer customer surveys conducted by McGraw-Hill's *Datapro* magazine. In 1980, HP was tied for second place with several others of some 48 computer vendors as a source of support satisfaction among 2,608 users. A year later another survey saw HP take a clear lead in providing support satisfaction, according to user responses. HP people credit this improvement largely to the beneficial effects of the area organizations over the past few years, plus some other actions such as the upgrading of the service function, the startup of the Computer Support Division and the coordinating activities of the Computer Marketing Group. **M**

CLOSE UP

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

Super Bowl XVI, the championship game of the National Football League, pitted the San Francisco 49ers against the Bengals from Cincinnati, Ohio. The rivalry even extended to fans from the two cities.

"Super Bowl fever" infected some of the employees at the Corporate Parts Center (CPC) in Mountain View, California. The January 22nd shipment of replacement parts, destined for HP's Cincinnati office, was decorated with a San Francisco 49ers team logo.

Two days later the game was history. Luckily, the shipping department at CPC had backed the winning team. San Francisco won the contest 26-21.

The stagecoach usually doesn't stop at HP's Cupertino, California, site. But to celebrate the installation of two automated teller machines in the HP cafeteria, the Wells Fargo stagecoach brought bank officials to the site, and gave rides to HP employees during the lunch hour.

The machines, activated by special cards keyed to employees' accounts at various area banks, dispense cash at the touch of a few buttons. The two electronic tellers replace HP's check-cashing service for employees, so the company no longer needs to keep as much petty cash on hand.

J.T. JEUNE WHITNEY

VIRGINIA BRUNNER

Karl-Heinz Krohnke, a final test technician at the Boeblingen Instrument Division, is a puzzle fanatic. He can solve the popular, multicolored Rubik's Cube in just over two minutes.

But his greatest love is constructing intricate wooden puzzles. Karl discovered his hobby three years ago when he stumbled across an instruction book in a local bookstore. He builds his puzzles of oak or maple after working hours in the HP repair shop.

Karl is solving a 26-piece cube that took him more than 20 hours to build, and features 69 solutions. In the foreground is his 50-piece Japanese crystal.

When ICON's Tim Twietmeyer takes a short run, it might be eight or nine miles—or even 100. The slim 23-year-old programmer analyst ran his first race three years ago, and several marathons later was looking for a new challenge. He heard about a grueling 100-mile run through temperature extremes ranging from snow to desert heat—and along wilderness trails frequented by bears and rattlesnakes. A knee injury prevented Tim from running that race, but a few weeks later he ran the same distance— 400 laps—around a high school track, just to see if he could run the distance.

Last June he finally got to run that treacherous foot race and came in 22 hours and 45 minutes later for 25th place. This year he's planning to repeat the Western States 100-Miler with the intention of improving his time.

While he enjoyed receiving a solid silver belt buckle for his efforts, Tim says it's the challenge of the race that spurs him on. "It's part mental attitude and part endurance," he acknowledges. "My folks think I'm crazy, but they're always out there rooting for me."

JOANNE ENGELHARDT

May 22 is the date for a worldwide HP QSO party. If you're one of the 600 or more amateur radio operators within the company, you know a QSO party is a chance for all HP hams to communicate with each other via Morse Code or voice transmission. The last such talkfest was held in 1979, according to Max Trescott of the New Jersey Division who is organizing the May event.

The party will run for the 24-hour period starting at 0000Z (Universal Coordinated Time) on May 22. HP hams can call each other on the following frequencies:

1.820	7.230	50.15
3.550	14.050	144.3
3.720	14.280	145.5
3.780	21.120	147.51
3.945	21.380	
7.050	28.15	
7.120	28.75	

Max suggests that HP hams identify themselves with their name and division or sales office when making a radio contact. "Keep a log of the people you reach and send it to me so I can make up a roster of all company hams," he adds.

And that's "73" (which means "best regards" in ham radio lingo).

YOUR TURN

Invites you to question or comment on matters of importance to the readers of Measure.

WHO'S NUMBER ONE?

I have been a Hewlett-Packard equipment user and sponsor through the years from day one of the HP organization. As the officer in charge of the equipment labs at the U.S. Army Signal Corps School at Fort Monmouth, New Jersey, in 1939 (as my memory serves me), I ordered two of HP's newly designed HP-200A audio oscillators (signal generators). I received units with serial Numbers 3 and 4. I have often wondered who got Numbers 1 and 2!

I am now retired and work as a consultant much of the time. Through my military career I was responsible for acquisition of millions of dollars worth of HP equipment for the military forces, and afterwards as an engineer for ITT on military projects around the globe, was again responsible for specifying HP test equipment.

I often wished that I had invested in HP stock at an early date.

HENRY ELLIOTT
Urbanna, Virginia

Does any Measure *reader know the whereabouts of Numbers 1 and 2?—Ed.*

ON TRACK WITH FUNDING?

For the past three years, HP has had teams in the regional and national finals of the Corporate Cup track competition which pits employees from many of the largest companies in the world. You may recall HP finished fourth in 1980 and second in 1981.

Frankly, I am writing to ask why HP has given so little recognition or financial support to the employee athletes who give of their time and abilities to represent the company. Hank Lawson of the Information Networks Division has spent countless hours of his own time compiling statistics, making arrangements, getting HP shirts, banners, etc. for the Corporate Cup and other races. Many HP runners traveled to Palo Alto at their own expense to participate.

HP appears to be one of the few companies which contributes very little to these expenses. Some companies fly their teams across the country to compete. Texas Instruments has both a coach and athletic facilities, which could explain why the TI team has taken first place more than once.

HP runners, on the other hand, do not even have a uniform. In fact, last year we had so few shirts with the HP insignia that people had to run their races, take off their shirts and pass them on to the next runners.

I feel HP benefits from the efforts and accomplishments of its runners of all abilities. Currently there are 475 participants in the Bay Area and Santa Rosa. Most other HP sites have excellent runners who would like to compete in the nationals, but most of them can't afford to attend.

It costs a lot for a team to participate in running events. While we get some financial support from divisions, it's not nearly enough to cover expenses. I hope the company recognizes the need to provide more financial support as well as more recognition.

DON PACKWOOD
Microwave Semiconductor Division

Hewlett-Packard's stated policy is to encourage its divisions to sponsor numerous activities related to employee recreation and competitive sports. Each division is responsible for administering reimbursement programs for costs associated with these voluntary programs, as long as these expenses are processed through the personnel department. This is intended to assure an equitable distribution of funds between the numerous activities of this nature. Our policy goes on to state that the amount budgeted for recreational and social activities varies depending on facility size, employee interest, etc., and that good judgment and common sense should guide the number, type and reasonable HP cost of these activities.

It seems to me that it would not be very good judgment for HP to financially support some expenses of one voluntary employee activity and not do the same for the remainder. To do so would put the company in the position of having to judge the value of one employee activity against another. That would be difficult to accomplish and still preserve our feelings of impartial and equitable treatment for all employees.

When the stated objective of any HP program is to represent the company, I certainly agree that HP should fully support all financial needs of that activity. However, with regard to leagues, teams and clubs, it seems to me that the objective is mainly to satisfy the specific needs of employees who wish to engage in these pursuits in their spare time for health or other reasons. Representing the company may or may not occur, but even if it does, it is the result of the activity, certainly not its cause or objective.

Although HP divisions are not usually required to report separately on the extent of support of recreational activities, they are all governed by the policy guidelines mentioned earlier. As an example within these guidelines, Bay Area Personnel Services has funded teams comprised of employees from various divisions to compete in softball, golf, basketball, sportfishing, flag football, soccer, volleyball, tennis, ping pong, and track and field events.

As to the public relations benefits to HP resulting from employee activities of this nature, I share your opinion that there are some. Whether or not these benefits help promote the value of our products is, in my opinion, questionable.

My response to your letter should in no way be perceived as a discouragement to employees to participate in any of the voluntary activities available throughout the company. The HP employee and management population are as proud of the extracurricular accomplishments of our employees as we are of their performance on the job. Our main concern in responding to your proposal is one of fairness and equity to all.

LEE SELIGSON
Group Personnel Manager
Palo Alto

AN ELA PRODUCT

I enjoyed reading the "Upfront" article in the November-December issue of *Measure* about Earl Lipscomb Associates.

As a product of that institution, I'd like to point out that there are several people in responsible positions around the company who got their start at ELA. So their track record is even better than the article indicates.

Thanks for a pleasant reminder of the good old days.

DON WICK
Product Assurance Manager
Colorado Springs

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, 3000 Hanover Street-20BR, Palo Alto, CA 94304. Try to limit your letter to 200 words. Please sign your letter and give your location. Names will be withheld on request. Where a response is indicated, the best available company source will be sought.

A MESSAGE FROM JOHN YOUNG

BETTY GERARD

HP President John Young talks with shareholders following the company's annual meeting in February — the first held in the new corporate office building in Palo Alto.

The last issue of *Measure* carried the full text of our updated corporate objectives together with some comments from me on the reasons behind the revisions. I mentioned that one change was to reaffirm our commitment to affirmative action and equal opportunity as basic principles to be applied throughout the HP world. Because this is such an important area, we have also updated our overall policy statement and I'd like to summarize the key points.

We have had a non-discrimination policy at HP throughout the company's history. The first corporate objectives in 1957 made clear our obligations with respect to our people and our social responsibilities. Formal affirmative action programs were established in the '60s together with meetings, training programs and a variety of other means to reaffirm our commitment to equal opportunity employment.

Simply stated, HP's equal employment policy says we will not discriminate against any employee or applicant for employment because of race, creed, color, religion, sex, national origin or age. Further, we will not discriminate against employees or applicants because of physical or mental handicaps, against veterans with disabilities, or against Vietnam-era veterans. In addition to equal employment, we will take affirmative action to assure the broadest range of qualified candidates is available for employment and promotion. All other personnel actions, such as compensation, benefits, education and training, tuition assistance, etc., will be administered on a non-discriminatory basis.

The overall responsibility for achieving performance in affirmative action and equal opportunity employment is assigned to the director of Corporate Personnel. New programs and evaluations of division and region performance are a part of this assignment, carried out by a special department for this purpose. However, as with all our personnel policies, we depend on every member of the HP management team to make them effective by adhering to the letter and spirit of the policy. As such, it's part of the management performance evaluation.

We have been quite successful in achieving our objectives over the years. We report our overall results to government agencies and to our shareholders in the annual report. We have a record in which we can all take pride. This is because HP people everywhere have made a sincere effort to understand the program and to be helpful whenever possible. Only through the combined efforts of all of us, both on and off the job, can we expect to see meaningful gains in overcoming the inequalities of our times.

John

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NEWS CLIPS

Recaps the newsworthy events, changes and achievements within HP.

FIRST QUARTER

Hewlett-Packard Company reported a 23 percent increase in sales and a 17 percent increase in net earnings for the first quarter of the company's 1982 fiscal year, ended January 31. For the first time in the company's history, incoming orders topped $1 billion for the quarter.

Sales for the first quarter totaled $951 million, compared with $775 million for the corresponding quarter of FY81. Net earnings amounted to $73 million, equal to 59 cents per share on approximately 123 shares of common stock outstanding (compared to net earnings of $63 million, equal to 52 cents per share on approximately 121 million shares for the same quarter in FY81 after restatement for the 2-for-1 stock split in June 1981). Incoming orders for the quarter were $1.07 billion, up 15 percent from orders of $931 million booked in the first quarter of FY81.

CHART CHANGES

On February 1 HP acquired the software-development firm of Software Management Corporation of Santa Clara, California, which designs and markets sophisticated management-information and process-control systems that run on HP computers. It has become the SMC Operation within the Technical Computer Group. The former Manufacturing Division has been integrated into the Stanford Park Division.

NOTEWORTHY

John F. Fery was elected to HP's board of directors at the annual shareholders meeting in Palo Alto, Calif., on Feb. 23. He is chairman of the board and chief executive officer of Boise Cascade Corporation. At the same time, Thomas P. Pike, emeritus director of the Fluor Corporation, retired from HP's board after 24 years of service. Chuck House has been named to the newly created position of corporate engineering director, reporting to John Doyle, VP of R&D. Gary Baldwin of HP Labs' Measurement and Communications Lab has been elected a Fellow of the Institute of Electrical and Electronics Engineers. Astronauts Jack Lousma and Gordon Fullerton used two HP-41C handheld computers during the third U.S. space shuttle flight, in March. Several programs were modified to take advantage of a new Time Module that turns the HP-41C into a precise clock. Engineers from the Systems Technology Operation in Fort Collins, Colorado, announced a new memory chip containing 660,000 transistors. It is part of a new six-chip system that forms a complete 32-bit computer system for a future product.

MANUFACTURING

HP has received permission from the government of Mexico to establish a computer manufacturing facility in Guadalajara, Mexico. A new wholly owned subsidiary, Hewlett-Packard de Mexico, S.A. de C.V., will be established to manufacture business computers and disc drives from the HP 3000 product lines, to be marketed through the existing Mexican sales company. Start-up of production is planned for later this year. HP will begin limited production of 64K RAM semiconductor parts at the Cupertino Integrated Circuit Operation, using technology acquired from Hitachi, Ltd. The components will be for internal use only.

MARKETING

HP has announced an agreement in principle to begin marketing personal computers and their peripherals through ComputerLand Corporation, the world's largest chain of personal computer stores. As part of HP PLUS (Program for Locating User Software), HP will list in its catalogs software developed independently for the HP-41, Series 80 portable personal computers and HP 125 personal office computer. New in marketing manager positions: Franz Nawratil to the Technical Computer Group, John Sien to the Microwave Semiconductor Division and Lou Tilton to the Avondale Division.

NEW PRODUCTS

Introduced on February 24: the Personal Computer Division's powerful new HP-87 and San Diego Division's HP 7470 color graphics plotter. The HP-87 has memory expandable to 620,000 bytes and is capable of running CP/M® programs in addition to Series 80 software.

Colorado Springs Division has added 400 MHz timing analysis and 120-channel software analysis to the HP 64000 logic development system. Waltham Division has introduced the HP 78707A Patient Data Management System which automates the collection and processing of data in various types of critical-care units. The Santa Clara Division's HP 5244S Microwave Source Synchronizer features two modes of operation— continuous wave and continuous phase lock sweep (believed to be an industry first). Ultra-bright LED lamps from the Optoelectronics Division have up to five times the light output of HP's previous lamps. Data Systems Division's new HP 1000 A-Series computers, the A600 microcomputer and the A700 minicomputer, can each handle more than one million instructions per second. DSD's new HPSPICE is a circuit-simulation software package for computer-based analysis and verification of electronic circuits (believed to be the first of its type available on a 16-bit computer). **M**