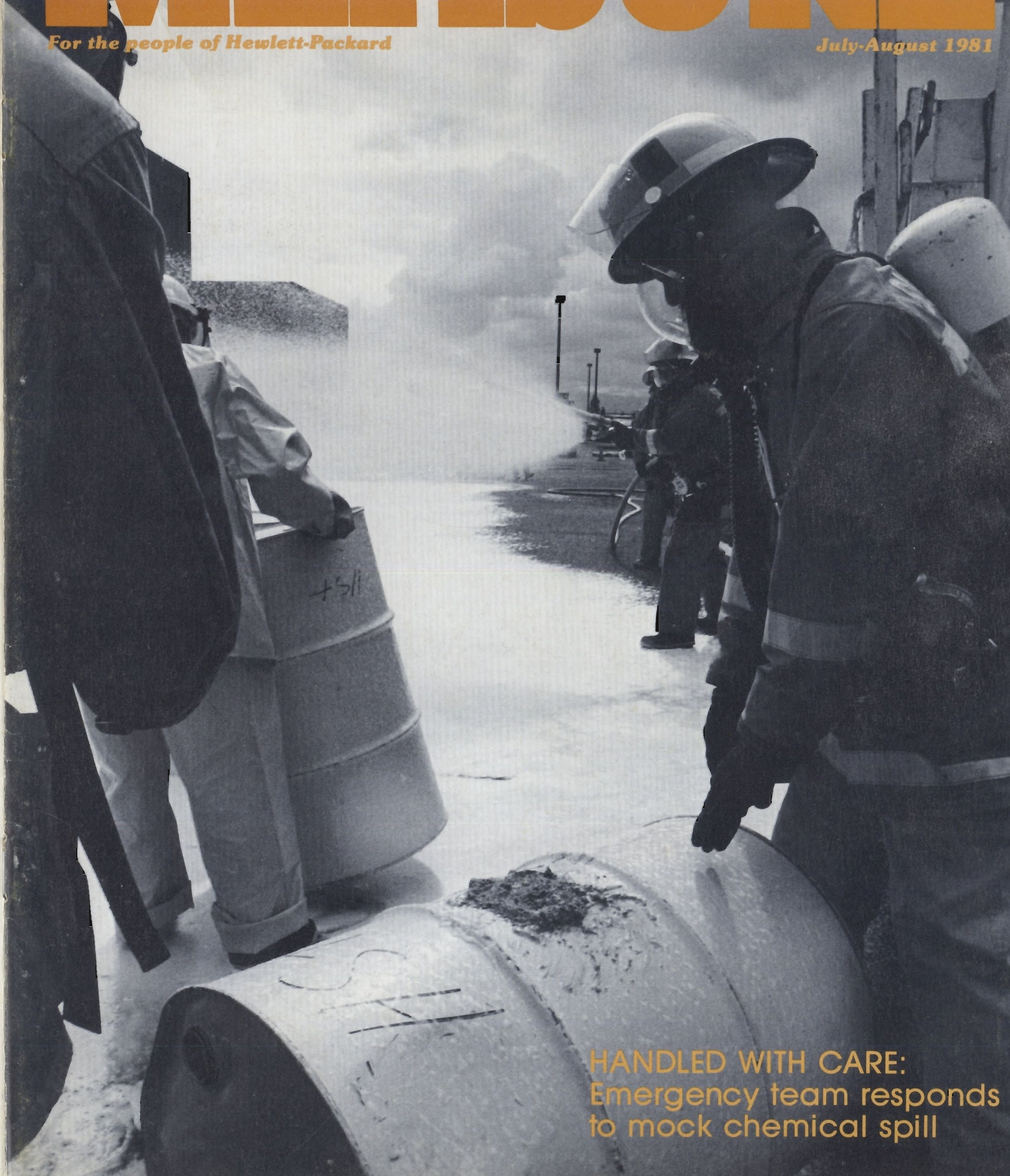


MEASURE

For the people of Hewlett-Packard

July-August 1981



HANDLED WITH CARE:
Emergency team responds
to mock chemical spill

UP FRONT

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

Let us not forget, 1981 is a very special year in terms of celebrating the origins and progress of our electrical/electronics industry:

- On August 29, 1831—150 years ago—Michael Faraday discovered the principle of electromagnetic induction, making possible the conversion of mechanical power into electricity.
- In September 1881, the first Congress of Electrical Engineers was held in Paris, complete with the first exposition of electrical technology.
- Seventy-five years ago, late in June 1906, the International Electrotechnical Commission (IEC) was formed in London to consider "the question of standardization of the Nomenclature and Ratings of Electrical Apparatus and Machinery."

Today, standardization is at the very heart of Hewlett-Packard's business. Standards that are almost worldwide in application not only govern the naming, rating of and symbolization involved in our electronics technology but extend to testing, characterization of systems, dimensions and tolerances of components and equipment, as well as electrical safety.

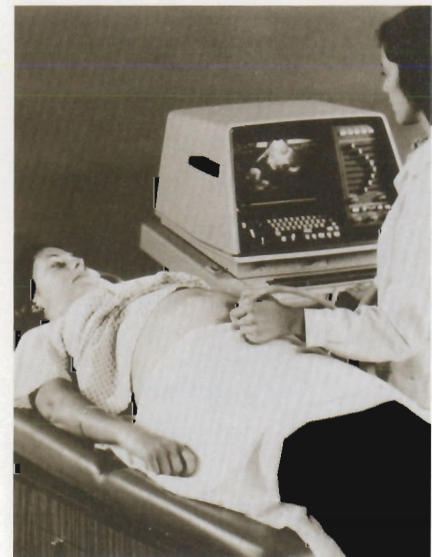
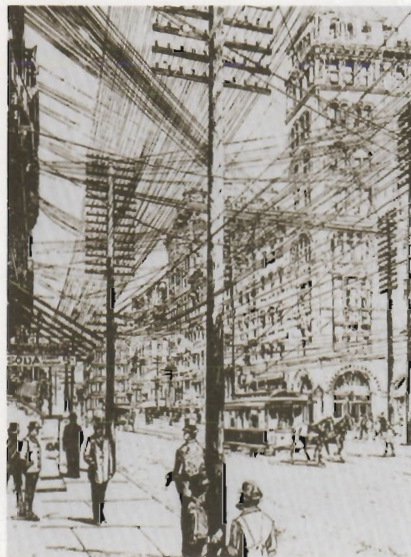
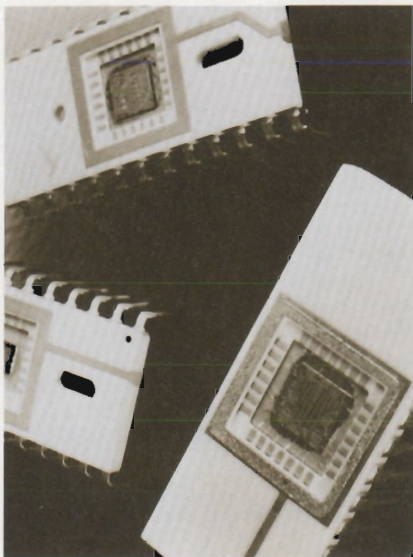
Standards not only govern how we design and build our products but also have helped to establish markets which we serve, particularly test and measurement instrumentation. HP products have also led directly to new standards, as in the case of HP atomic clocks which are now used as an international time standard. One notable product, the Hewlett-Packard Interface Bus (HP-IB), was designed specifically as a standard for the implementation of systems of instruments and computer controllers.

Not only are we well served as a company by international standards, we also participate vigor-

ously in the process of setting and maintaining standards. IEC participation is through national committees and at last count there were some 25 HP people from 18 company organizations around the world serving on 30 committees. Prominent examples include Waltham's Mort Levin as a technical expert on diagnostic electronic medical equipment, Company Quality's Aubrey Smith as a U.S. technical advisor on electronic and analytical measuring equipment, Don Loughry of the Technical Computer Group as committee secretary for programmable measuring apparatus, Al Kanode of Colorado Springs Division on two safety committees, Jean-Francois Porret of Grenoble Division on France's EDP and office equipment committee and Steve Adam of Microwave Semiconductor Division as chairman of the standards coordinating committee.

It's a highly technical world these people and their associates deal with. Without their work we would all quickly find ourselves trying to insert square plugs into oblong sockets—and getting jolts instead of volts. **M**

Standards now cover all sectors of electrical and electronic engineering, providing a basis for orderly development and application. Without them our streets might still be filled with webs of telephone wires as depicted in New York City around 1900.





Some of the chemicals and processes used at HP can be hazardous to human health and the environment. But safety programs and proper training, like this exercise by the Data Terminals emergency response team, assure that such materials are

HANDLED WITH CARE



An unlabeled 55-gallon drum crashes to the pavement as the delivery truck pulls away from the HP plant. The drum springs a leak, spreading a clear liquid across the parking lot and toward the storm sewer drain.

In minutes, the Data Terminals Division emergency response team is on the scene, working side-by-side with firemen from the City of Sunnyvale. The storm drains are quickly diked to keep the spill from entering the city storm drain system. When the chemical is identified as a flammable liquid from the shipping documents in the truck's cab, firemen spray a layer of foam over the spill to prevent a fire. The leaking drum is plugged and placed inside a larger containment drum.

The flurry of activity is merely a practice exercise—the finale to a recent five-day training session on hazardous materials. The spilled liquid is tap water.

But the exercise reinforces two important points: the potential for an accident involving hazardous materials at an HP facility is real, and the company is constantly seeking new and better ways to deal with the problem.

While the electronics industry has a reputation for being "clean" (compared to the visible grime of heavy industry), the manufacturing processes are basically chemical processes. Some of the chemicals used in those processes are hazardous to man and to the environment if improperly handled. Even the materials which are not hazardous present handling, recycling and disposal problems.

"The safety programs HP has in place for handling chemicals and toxic wastes have their roots in two of the corporate objectives: our people and citizenship," says Dean Morton, executive vice president. "We want to conduct our affairs in a way that's in the best interest of both our employees and the cities and towns where we live and work."

Dean has been serving as chairman of an American Electronics Association (AEA) task force on occupation-

al and environmental health. The task force is charged with looking at the use of hazardous materials throughout the industry.

"It seems that everyone today—media, employees, environmentalists, legislators—is keenly aware of the potential dangers associated with handling these materials," explains Dean. "Having seen what many other companies are doing in the field of environmental safety and health, I'm convinced that HP's long-standing commitment to its employees and the environment is the right approach. As current studies teach us more about the exposure limits, combination and long-range effects of many of these chemicals, that knowledge will be incorporated into our safety and health programs."

Chemicals with exotic names like xylene, toluene and 1,1,1-trichloroethane are fundamental to the technological processes of electronics firms like HP. Printed circuit and integrated circuit (PC and IC) manufac-



Environmental coordinators from several HP California plants toured the windy Casmalla waste disposal site to which some HP wastes are trucked. The site is one of only 11 EPA approved disposal areas in the state.

turing processes use these substances, and in some cases nonhazardous alternatives do not exist. In fact, almost 70 percent of the 50,000 chemicals on the market today have been classified by U.S. government agencies as toxic or otherwise hazardous to human health.

But at HP's Manufacturing Division PC shop in Palo Alto, an alternative process was developed and put into place. A switch from a solvent-based to a water-based process decreased the amount of non-hazardous hydrocarbon emissions being released by 159 tons per year. This "savings" was officially recognized in a program run by the Bay Area Air Quality Management District. The program encourages companies already complying with air quality laws to earn credits by further reducing emissions voluntarily.



A harmless powder on a technician's hands glows bright orange under an ultraviolet light to show Microwave Semiconductor Division lab employees how chemicals can spread with routine handling. Papers handed out in class are coated with the powder, which is invisible under normal light. All lab employees are required to take the chemical safety class.

Typical of the landfills used by HP's California operations is the Casmalia disposal site, located in the parched hills north of Vandenberg Air Force Base. The site accepts hazardous wastes in 55-gallon drums which are placed upright in orderly rows at the bottom of a pit. Each day a layer of soil and rock is spread over the new drums to minimize any chance of leakage. When an entire layer of drums has been buried, a new layer is begun directly above the old one. Again, drums with different materials are segregated to prevent any possible mixing if a drum should corrode. Accurate records show the exact location of each buried container: row, column and layer.

The Casmalia site is as good a disposal area as can be found: no agriculture or groundwater is in the area, the nearest town (population 250) is uphill from the landfill, and beneath the surface soils are a 1,500-foot layer of impermeable clay stone and a 3,500-foot layer of hard shale.

Finding approved landfills to accept hazardous wastes is no easy chore. They're a bit like airports, sewage treatment plants, prisons and highways: we all need them, but we don't want them next door.

As a result, hauling wastes to approved disposal sites is an increasingly expensive process. HP's facility in Colorado Springs saw the cost of sludge disposal jump from \$4 a ton to \$40 a ton overnight, according to the division's environmental coordinator, Tammy Johnnie. If for any reason that disposal site should close, the nearest place to which Colorado Springs may send wastes is in California—1,200 miles and \$5,000 a truck-load away.

Hazardous waste disposal for HP's Waltham Division costs seven times the national average, says Stu Siegel, engineering supervisor there. Since there is no approved disposal site in Massachusetts, waste sludges must be

trucked to a site in Connecticut.

It was only after environmentalists, legislators, government agencies and the media tackled the more obvious forms of pollution—dirty air, fouled lakes and rivers, nuclear wastes—that attention turned to the serious, long-term threat that improperly disposed of chemical wastes pose to people and the earth.

A focal point for the hazardous waste movement was the Love Canal neighborhood in western New York. In 1978 dozens of families were forced to vacate their homes. More than 1,000 homes and a school had been built over an abandoned chemical dump, and researchers were alarmed by reports of high incidence of cancer, birth defects, and respiratory and neurological problems among residents. (Some of these reports later were found to be unsubstantiated.)

Public awareness, education and recent U.S. legislation should prevent another Love Canal. The Resource Conservation and Recovery Act of 1976 (RCRA), the Toxic Substances Control Act and the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (popularly known as Superfund) have changed the business practices of producers, users, haulers and disposers of hazardous materials.

RCRA, for example, sets standards for handling and disposing of hazardous wastes. Firms producing hazardous waste are required to disclose what it contains and where it will go. A nationwide system of shipping manifests will track chemicals "from cradle to grave." There are also new safety standards for disposal sites.

The Toxic Substances Control Act now gives the Environmental Protection Agency (EPA) broad powers to regulate introduction of new hazardous chemicals. So far the government agency has spent two years cataloging the 50,000 chemicals already in use.

Last December's Superfund legislation created a multibillion dollar fund to be used by the EPA to clean up hazardous waste spills and old dumping areas as they occur or as they are discovered. This is particularly important at an abandoned site where the owner or responsible party cannot be found.

HP has its own recycling program for scrap PC and IC material. The companywide program got its start in 1975 and now buys scrap boards and components from all U.S. divisions and HP's facilities in Singapore and Malaysia. Nearly 300 tons of scrap are recycled each year, yielding about \$6 million.

When the process can't be altered, or the waste recycled, the next best solution is to separate the hazardous from the nonhazardous waste at the source, concentrate it and transport it to a secure landfill.

Government-approved landfills are not just grown-up versions of junkyards. Instead, they are specially designed and located sites where pits with thick clay linings prevent chemicals from leaking into the earth and contaminating water supplies.

The three pieces of legislation are the latest in a series of environmental acts that date back to the 1960s. In addition to the federal mandates, there are multiple layers of state and local laws, regulations and agencies charged with protecting health and the environment. Many have standards and compliance programs that are different from those in the federal statutes, but all are at least as stringent as those under RCRA.

Regulations and standards are constantly changing, too. As more research is done on chemicals, and as instruments are developed (like HP's GC/MS described on page 18) which can detect ever smaller traces of toxic chemicals, exposure limits have often become tougher. Practices regarded as safe and "in compliance" last year may be illegal tomorrow.

A common industry practice several years ago was to bury acid and solvent storage tanks below ground so they wouldn't be a public eyesore. Only after problems surfaced about corroded tanks and undetected leaks did the practice change. Today the procedure is to put those tanks above ground or in a sealed, underground vault where leaks can be contained. All new HP facilities are built with the new standards in mind, and other HP sites have moved or are in the process of moving tanks above ground or into concrete vaults.

Some older HP buildings may require modifications to bring them up-to-date with current waste treatment procedures.

For example, at Waltham Division, one of the oldest HP operations, a \$600,000 wastewater treatment facility was built in 1977. The rinse water from three manufacturing areas is treated to remove dissolved metals and chemical compounds before the waste leaves the building for the municipal water treatment plant. The treatment facility is so complete that the Metropolitan District Commission, which operates the municipal plant, has used HP's facility as a training site for MDC engineers to familiarize them with an automated facility.

Just as important as the company's concern for the environment and community is the care taken to protect employees who must work with and around hazardous materials.

"Our main goal is to make HP a safe and healthful place to work," says Larry Holbrook, regulations manager of Corporate Environmental Safety and Health. "You do it because it's the right thing to do, not because of regulations."

For example, a variety of training, monitoring and action programs are in place at the Microwave Semiconductor Division (MSD) in San Jose. Jerry Thorne, the division's manager of safety and environmental engineering, leads a central safety committee of 20 coordinators from all major areas of the plant.

Since many employees come to work with minimal chemical safety training in high school and college, a three-hour class is required for everyone who works in a lab area. Plans call for that class eventually to be given to all MSD employees.

A new detection system has been installed to monitor two labs using arsine and phosphine gases. The detector is linked to an HP-85 computer and can detect concentrations down to a few parts per billion. If the concentration should start to climb, the monitor sets off a first-stage light and alarm. A second-stage alarm sounds if the concentration reaches 50 percent of the exposure limit for humans.

MSD has an emergency response team/fire brigade which receives at least monthly training in skills such as handling large chemical spills. Also involved in the training are the San Jose Fire Department and the firm that has been hired to haul MSD's hazardous wastes.

A computerized chemical inventory system tracks which hazardous materials are used in which MSD departments and labs. The system is being used as a model for a similar companywide program.

Today, safety information about the chemicals used throughout the company is being collected and computerized in the -40 (dash-40) program of Corporate Materials Management. The -40 drawing is actually a chemical specification sheet that can tell you what the ingredients are; what to do if you come in contact with the substance; what protective equipment you need to handle the chemical; the threshold limit value; and other useful information. All chemicals used in production at HP are assigned a company part number and new chemicals are not purchased, except in small quantities for R&D, until a part number is assigned.

The environmental health and safety effort at HP has been steadily growing. Today there are about 125 industrial hygienists, occupational

health nurses, safety engineers and environmental engineers at HP facilities around the world.

Despite all the programs and systems in place to make HP a safe and healthy place to work, there have been accidents. "Mechanical problems are rarely the cause," says Larry Holbrook. "Because people make our systems work, and because we all make mistakes, there are bound to be accidents."

An employee wearing short protective gloves accidentally dropped some work into one of the tanks in a plating line. His automatic reflex was to reach down and catch the falling object, and in the process, he plunged his arm into a hazardous solution. He was treated for chemical burns, but did not suffer any permanent damage.

Workers at another HP division were sprayed with an acid when they inadvertently mixed two chemicals that react violently.

A faulty exhaust system at another HP site let small quantities of chlorine gas accumulate in a clean room used to process semiconductor wafers. Nine employees exposed to the gas were taken to a nearby hospital as a precautionary measure to be treated for headaches and nausea. All were released the same day and suffered no injury.

A faulty exhaust system at another HP site let small quantities of chlorine gas accumulate in a clean room used to process semiconductor wafers. Nine employees exposed to the gas were taken to a nearby hospital as a precautionary measure to be treated for headaches and nausea. All were released the same day and suffered no injury.

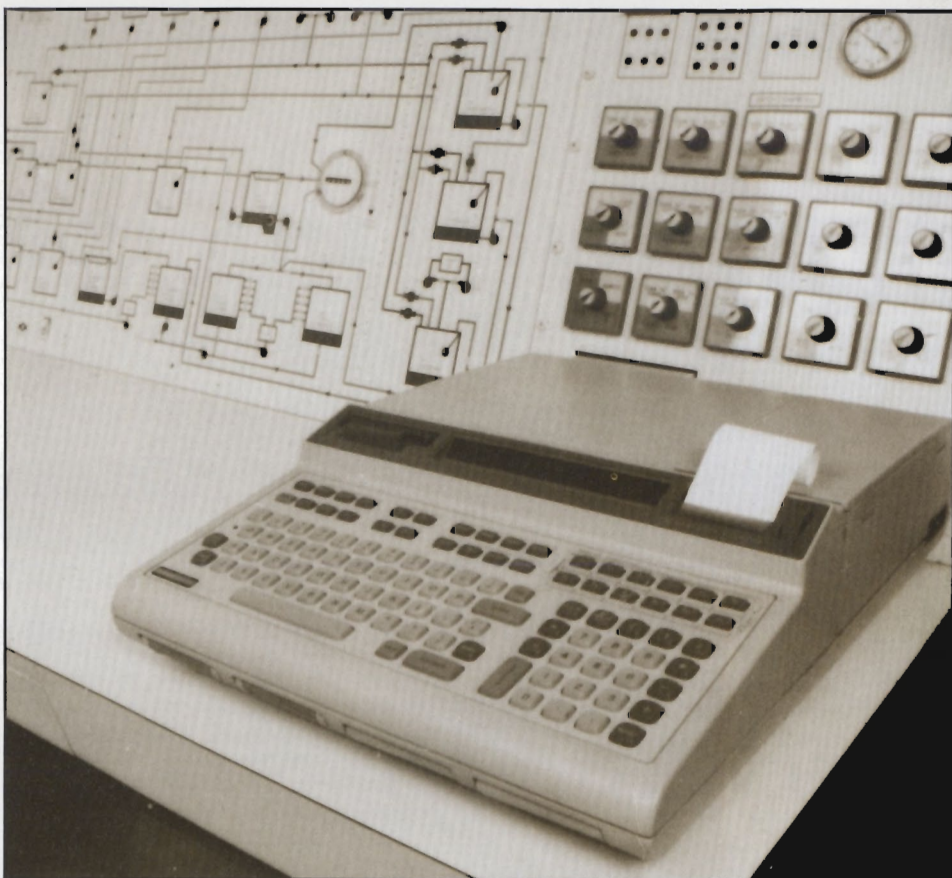
"Accidents teach you to be humble," says Dean Morton. "We try to do all the technical things we can to engineer a safe environment. And then we provide information and training about the potential hazards to our employees."

"HP's attitude has always been that the best way to assure safe practices and proper handling of materials is to let people know about the chemicals they're using, how the processes work and what potential hazards are present."

There's no denying that today's way of life depends on a variety of manufactured goods, and HP's products are part of that lifestyle. But manufacturing those goods creates wastes—hazardous and nonhazardous—as a byproduct. Since the success of the company depends so heavily on continuing today's way of life, HP will continue to accept the responsibility for working toward solutions to waste and hazardous materials handling and exposure problems. **M**

The control center of Waltham Division's \$600,000 wastewater treatment center was designed and built by HP. The site's treatment and pollution control system were honored in 1979 for making outstanding contributions to environmental improvement in the Boston area.

John Sabel, a production engineer at the Microwave Semiconductor Division in San Jose, demonstrates the new detection system that can "sniff out" minute quantities of arsine and phosphine in two of the division's labs. The two gases are used for doping semiconductor wafers for ion implantation.



HEART TRANSPLANT: CORPORATE COMPU



HP computer people are more than pleased with the new space, style and orderliness of the new computer center operated by Bay Area EDP—perhaps because they had a lot to say about its design. From left, Ray Hudnall and Alex Papadakis, Amdahl 470 operations managers, confer amidst disc and tape-drive units.

Framed by a reel of computer tape, Judy Wray initiates a ROUTS transmission to a COMSYS computer at a remote HP site. ROUTS (which replaced COMSYS Central earlier this year) provides reserve capacity to handle the huge increase in companywide data transmissions—averaging about 50 percent annually in recent years.

TER PEOPLE COMPLETE A CRITICAL MOVE



IF ever there was any question about Hewlett-Packard's internal reliance on its own electronic technology it was answered during the past two months.

Faced with the task of physically moving and consolidating all of Corporate's computer operations in the new corporate offices building in Palo Alto, great pains were taken to minimize even minor disruptions. At stake were such considerations and potential consequences as follows:

- Shutting down the HEART order-processing and invoicing system operated by two Amdahl 470 computers would mean delays in billings of from \$15- to \$20-million per day. Losses in interest alone would be many thousands of dollars daily.
- The 45,000-person U.S. payroll is equally dependent on availability of the mainframe computers.
- Communications to 120 sites worldwide on a vast variety of matters would be stymied or

Everything that anybody could conceivably want to know about Hewlett-Packard's current business operations is most likely recorded on the computer tapes stored in the large tape library. Checking the inventory on some of the 47,000 tapes is Kathi Johnson, library supervisor.



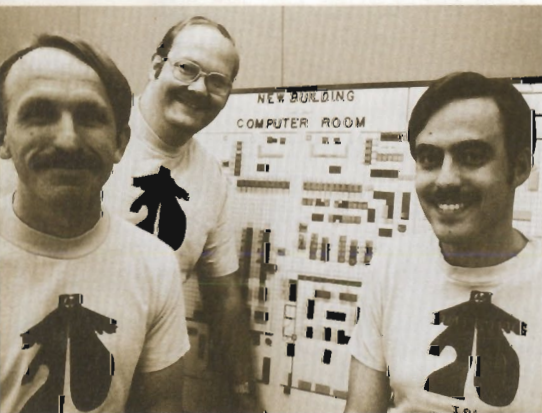
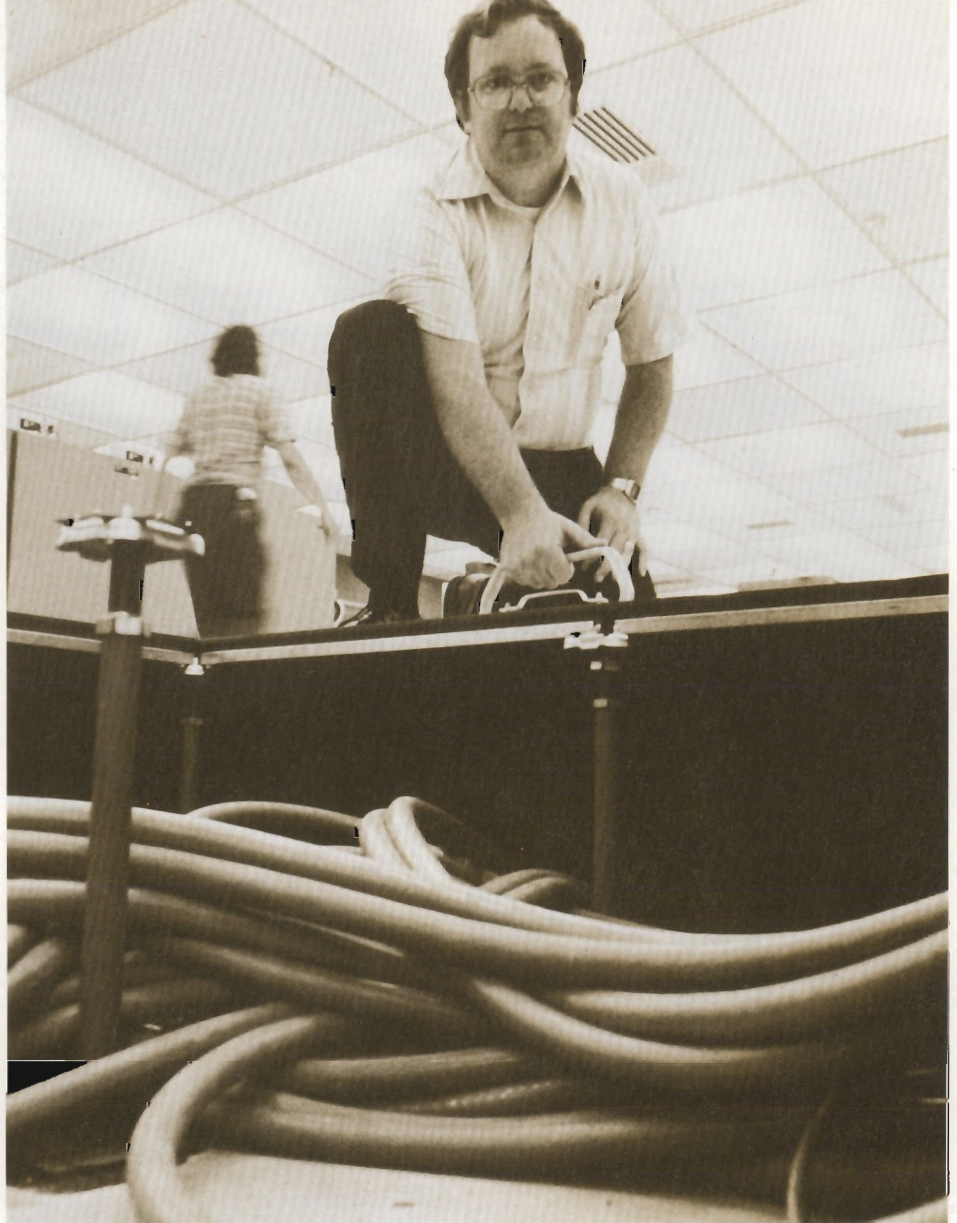
stopped by any shutdown of the ROUTS/COMSYS network.

- Hundreds of corporate projects tied to the HP 3000/mini-computer area would be delayed.

Faced with more than 1,000 key tasks required to complete the move, the corporate computer staff (Bay Area EDP) along with many vendor people resorted to computer power in scheduling events and to people power in getting them done. Over one long weekend in June the 200-plus people took apart the various major EDP installations at their old locations and put them together again in the new.

In the process they came up 24 hours ahead of their target schedule—and gained a superbly planned new facility that will keep things ticking at HP better than ever. **M**


By laying all the computer cables under the floor before the move date, the moving team was able to virtually double the speed of transferring the equipment. Here Bob Lanning inspects some of the 2,000 cables—over 50 miles in all—that connect the hundreds of units.



Keeping corporate computer operations running while moving was the responsibility of this trio, shown with their new floor plan: Doug DeVries, who coordinated the move; Ray Schwartz, overall project manager; and Phil Wilson, BAEDP manager. In addition to the one-weekend ROUTS/Amdahl-470 move, 30 HP mini-computers are being relocated over a two-month period.



Kevin O'Hare and Marlene Welz operate one of the futuristic features of the new computer center—the data communications monitoring panel. The panel, which incorporates a number of HP instruments, streamlines the process of de-bugging data-transmission problems.



At first the whole thing seems rather improbable. For one thing, Charlie Elman is 34 years old; for another, he just started swimming last January. Yet seven months later he flew to England to compete in the International Wheelchair Games (in Stoke-Mandeville)—in swimming events which usually are won by rosy-cheeked youths of 15 (and anyone older than 19 is considered “over the hill”).

Until this recent notoriety, Charlie Elman had been content with his life as a Computer Systems Division hardware engineer. In fact, this Latin expression is displayed over his desk in Cupertino: “In media est felicitas,” which means, roughly, it’s good to be in the middle.

That certainly doesn’t describe Charlie. Since he entered his first swim competition in Sacramento, he’s been way out ahead of the pack in nearly every event. He got three gold medals that day, then went on to take seven gold (first place) medals in Long Beach at the California finals.

After such a spectacular start, Charlie went to Seattle in June to compete in the National Wheelchair Games. There he took five golds and set three national records in the process. He was also selected as one of the 24 members of the U.S. team to go to England for the international games in late July.

There Charlie competed in the backstroke event, which he considers his best stroke. He also swam in four other events: breaststroke, freestyle, individual medley and relay.

Challenges are nothing new to Charlie. Just at the age when most boys were getting into sports (13), he contracted a very rare neuromuscular disease called

Charcot-Marie-Tooth, named after the three French doctors who first discovered the disorder.

“They say it’s hereditary, though I’m not aware of anyone else in my family who ever had it,” says Charlie.

The disease progressed slowly, gradually eating away at his leg and arm muscles.

But that didn’t hinder Charlie from attaining his educational goals: first a B.S. from the University of Florida, then an M.S. in electrical engineering from Stanford.

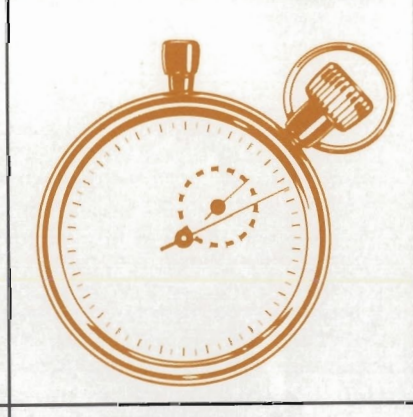
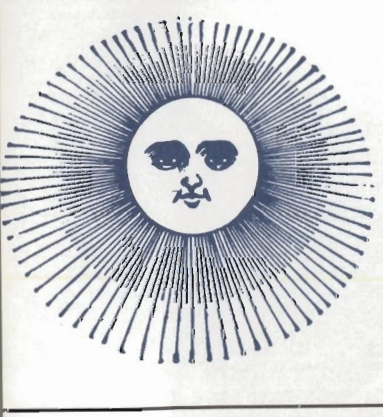
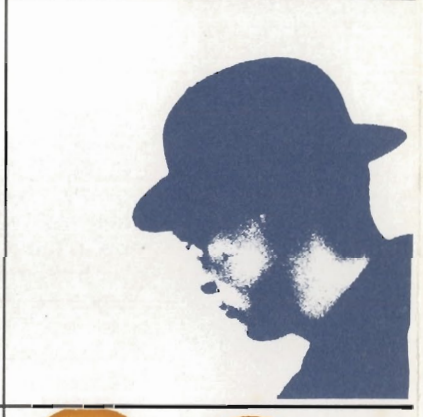
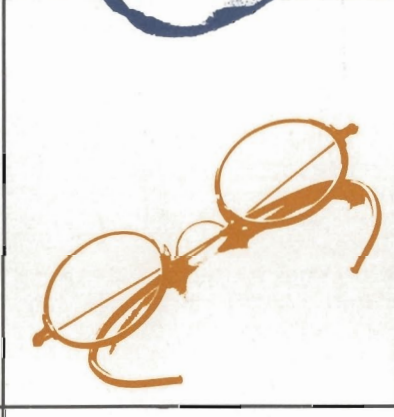
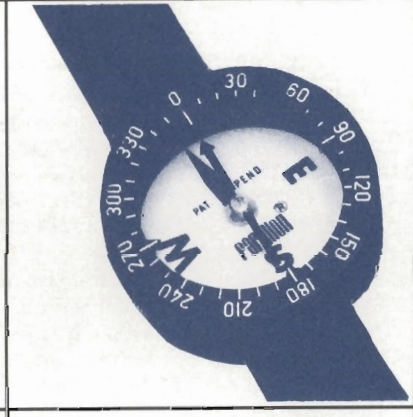
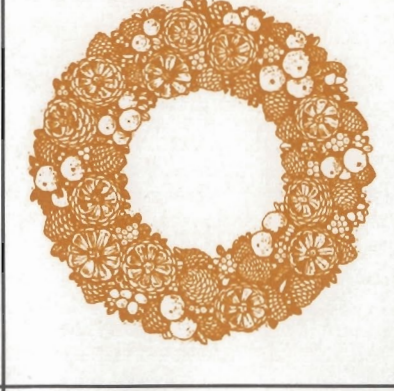
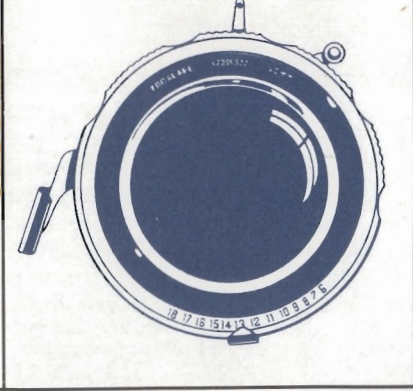
He joined HP eight years ago at Santa Clara Division, and has contributed to several engineering projects over the years. Besides working on microcode at CSD, he also co-taught an HP class on computer fundamentals.

That is, he did teach a class until this swimming phenomenon developed. “It’s really curious,” marvels Charlie. “I hadn’t swum in 15 years—since I was a teenager. One day I decided to try out a new facility in San Jose that has a therapeutic swim program. I just went to exercise a little, move my muscles around. But one of the volunteer therapists urged me to enter the regional games in Sacramento, so I did.”

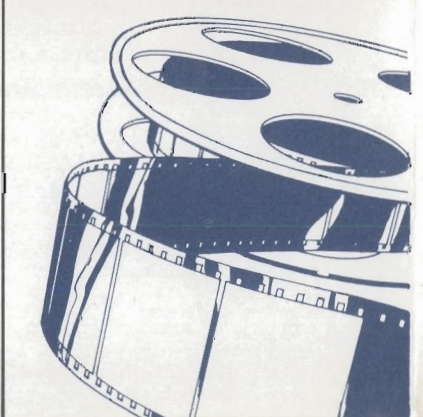
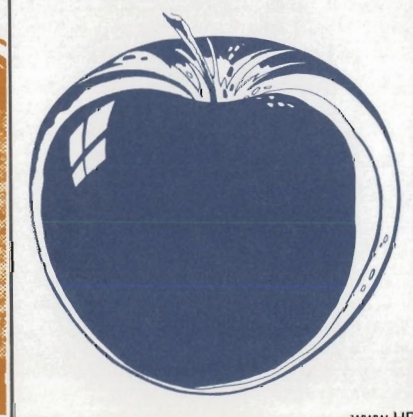
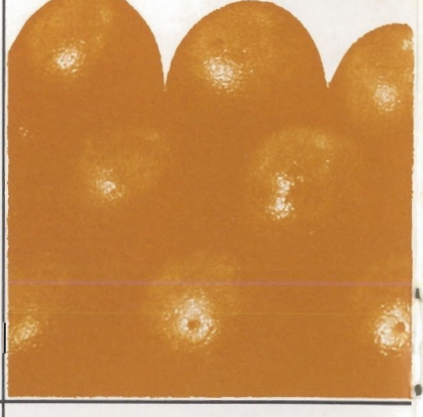
The rest, as they say, is history. After the international games, which are the last event of the year, Charlie says “I’ll be able to get back to work.” But he’s already been asked to be a part of the U.S. team competing in the Pan-Am Games in Halifax, Nova Scotia, in 1982. So win or lose, it looks as if Charlie is in the water to stay.

It could well be his mental attitude that keeps Charlie going. “You have to play with the cards that are dealt you,” he is fond of saying. So whether he’s in the pool or in an engineering lab, Charlie digs his arms in deeper and goes for it. **M**

TAKING LIFE ONE LAP AT A TIME



You probably think all the things on this page are round. Well, you're right—to a point. What looks round to the naked eye may have some strange aberrations if scientifically calculated. Of course, most people don't care whether their doughnut—or a penny or the sun—is absolutely round or not. But some HP components need to approach perfect sphericity to work best. So the question is: When is round round enough?



R O U N D N E S S

Roundness is such a part of everyday life that it's usually taken for granted.

"I'll see you around," we say, or "She's making the rounds," and "He's a well-rounded person."

Too, there's a mathematical reminder to round off to the nearest decimal, you dance in a round, eat ground round, shoot off a round of ammunition, go to a theatre-in-the-round, head for the last round-up, bring someone around to your point of view, work year-round, round the corner—well, you get the idea.

At HP roundness has a different shape, to turn a phrase. It is precision roundness, or taking roundness to its most exact form. Roundness, in fact, can be so round that it can be less than one millionth of an inch from perfection.

All this concern over exactness may seem unnecessary until you talk to the likes of Glenn Herremann, Earl Lindberg and Graham Siddall, who have been studying the laws of roundness for the past quarter century. It was in 1960 while with General Motors that Earl wrote a paper on "roundness and its ramifications" that is still scientifically accurate.

"Twenty years ago people got into all kinds of trouble because they assumed that if something looked round, it was," explains Earl, who now works in HP's Physical Electronics Lab in Palo Alto. For his contributions to the field of precision mechanics and measurement, Earl recently was named an "eminent engineer" by the Stanford University chapter of the American Society of Mechanical Engineers (ASME).

The problem, Earl says, was that engineers who worked with round objects assumed that because they had a constant diameter, they were, therefore, round. (See example on this page.)

"When you're working on a part like a bearing for an automotive crankshaft, even a slight variation can mean the part will rub and wear out prematurely," he adds.

Earl seldom has an opportunity

to use his unique knowledge in his present job, nor does Graham, another HP Labs engineer who once worked for an English company that made a precision machine used to measure roundness.

Graham came to the U.S. to work on Stanford University's highly acclaimed gyro relativity experiment. That experiment involved testing Einstein's theory of relativity in space by placing very precise gyroscopes in earth orbit. It required tolerances to better than one millionth of an inch.

But Graham left Stanford to come to work for HP in an area that has little relation to roundness. So why hire a roundness expert? Graham laughs, "I've sometimes wondered that myself because HP has only a few products that even require precision round parts."

What the company does have—a bearing here, a yttrium iron garnet (YIG) sphere there—usually ends up in the Corporate Dimensional Metrology Lab, managed by Glenn Herremann.

Holding up a round object, Glenn emphasizes, "Something like this can cause many, many problems in a machine shop or assembly areas." Although the part looks perfectly round, Glenn demonstrates that it won't go into a hole that has a larger diameter.

"You can't just make the hole bigger," he adds. "You first have to measure the part to determine what the problem is—then you correct the problem."

The company now has about six roundness measuring machines located in divisions where round components are necessary parts of HP instruments.

The E-beam project, for instance, has a highly precise square X-Y stage with many round components that was devised by Earl Lindberg.

To measure this stage, as well as other parts of the very complex system, HP Labs needed a roundness measuring instrument. Other divisions which have the instruments are Corvallis, Loveland, Avondale and Boise.

There's nothing very "state-of-the-art" about HP's roundness efforts, points out Graham. But he acknowledges that he and Earl "could probably design one of the best roundness measuring devices ever made" if HP ever chose to get into that line of business. (To squelch any rumors, Graham hastens to add that he's not aware the company has ever considered doing so.)

Instead, Earl and Graham are involved in an ASME committee which meets periodically to set up standards on how to test the axes of rotation of spindles used in machine tools and measuring machines.

"This is important," Earl points out, "because the rotational accuracy of spindles directly affects the accuracy with which round parts can be made or measured."

While HP may not be in the roundness business, the Dimensional Metrology Lab has created a unique service which is now sought after by other companies.

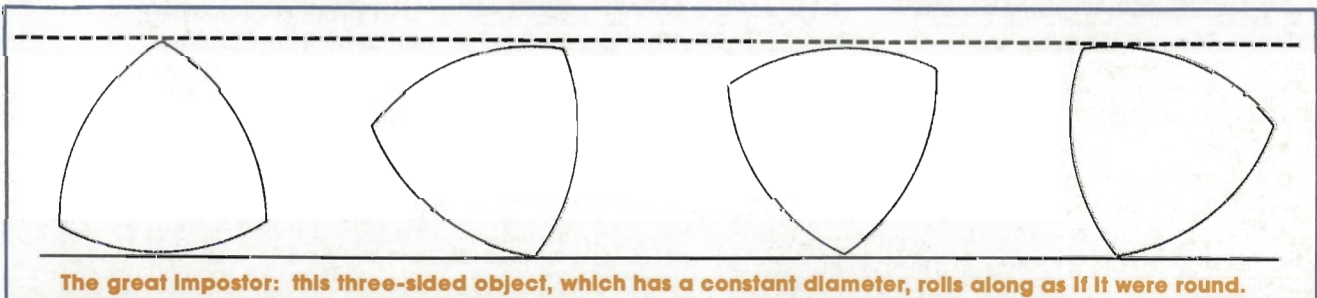
Using an HP 9825 desktop computer, Frank Berry of the Metrology Lab wrote a software program to display graphically (on an HP 7225 plotter) the "circular geometry" of any part. The program can be retrofitted to any roundness measuring machine, according to Glenn.

"This type and level of measuring and calibration service is generally not commercially available, so in the spirit of good will we felt we could make a contribution to the scientific community by offering our services to non-HP customers," he explains.


To date, a number of Palo Alto-area companies have "hired" the Metrology Lab to do some precision measurements, including roundness.

This article has now roundly described just about everything "round" about HP in a rather roundabout way.

So the next time someone says to you, "See ya around," think about it. Roundness, like beauty, is in the eye of the beholder. **M**



The great impostor: this three-sided object, which has a constant diameter, rolls along as if it were round.



A NUMBER ONE APPROACH TO SELLING

As technical counselors to their customers, Instrument field engineers maintain a highly professional profile. A new Founders Club recognizes outstanding FEs.

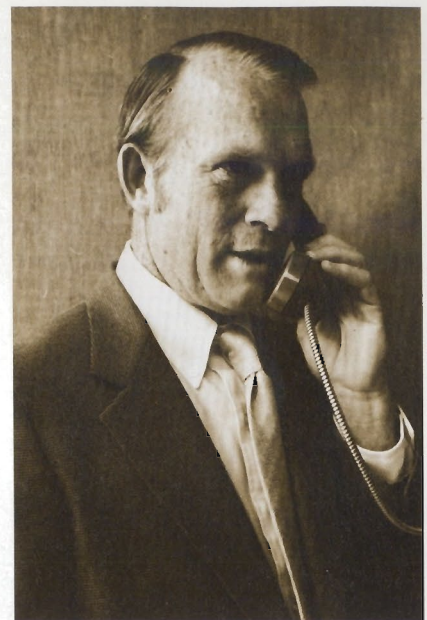
In 1939 Hewlett-Packard had one instrument, an audio oscillator invented by Bill Hewlett, which was sold by engineers to other engineers to solve practical problems. The direct descendant of that original company business is the Instrument (01) product line that has grown far more complex and includes 3,000 products. But it is still sold in the same way: head-to-head discussion about problem-solving with customers who usually are engineers.

It's a type of selling that calls for special technical competence as well as the other qualities that

mark a top field engineer: a professional business relationship with customers, an understanding of counselor selling techniques, and the ability to get along with others on the HP team.

To set the standards of excellence for technical selling—and to recognize those who have achieved these standards—the Instrument Group has recently instituted the Founders Club.

To find out how these standards are carried out, **Measure** caught up with four FEs who are charter members of the Founders Club as they went about their business.



GEORGE DRURY

PLANNING AND ORGANIZATION:

"I'd rather be selling than sitting in the office."

"HP doesn't sell and run," says George Drury of Southern Sales Region's San Antonio, Texas, office. "Part of making a sale is supporting the equipment afterward. It's an added value that HP has to offer."

He thinks selling was made easier for him because he has a service background himself. He went into bench repair at HP's Houston office in 1966 upon graduation from the University of Houston, handling repairs on the company's entire product line. It was useful preparation for moving to sales in 1968.

During the past seven years George has developed HP's Instrument business in the San Antonio-Austin area to a point where it now requires three engineers to handle it.

Thinking back, he believes that not having his immediate supervisor based in San Antonio forced him to schedule his own time most efficiently to cover his territory. His first move was to buy a home in the small town of New Braunfels midway between San Antonio and Austin, and work out a regular schedule to concentrate his calls and product demonstrations in each metropolitan area.

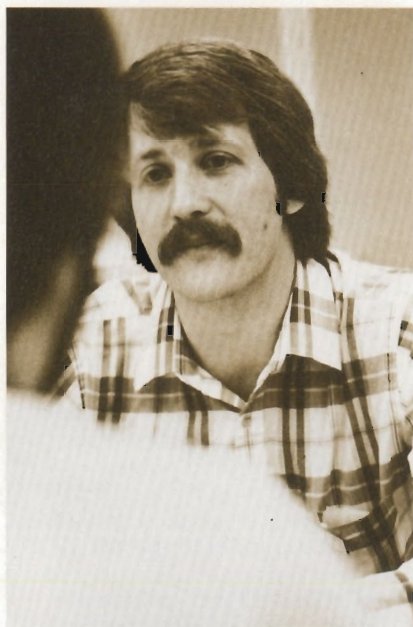
"To get customer names, I made heavy use of the seminars available from HP factories or from the staff in the large area sales office," George recalls. "From one seminar I would end up with the names of 30 or 40 people where originally I

had only two prospects. Then I'd follow up to determine if they were users, buyers or information collectors.

"One of the biggest differences I've seen is that six years ago I was selling scopes and voltmeters to design engineers. With the introduction of HP-IB that links instruments and controllers, I'm still calling on engineers but now it's more likely to be the engineering manager or even an officer of a smaller company."

Since he still typically drives two hours each day, George continues to make his workday hours count. "I'd rather be selling than sitting in the office," he says. "I carry a lot of quarters with me and phone in five or six times a day." He adds that his secretary Ann Goodman knows all the buyers "and provides price and delivery information better than I can."

Like other engineers who have chosen to go into sales—where monetary rewards aren't tied to climbing a managerial ladder—George is sold on selling. There's no hesitation in his voice when he says, "Selling is the best job that HP has to offer anybody."



DON SWANSON

COUNSELOR SELLING:
"It's important to understand the other person's problems."

When Don Swanson from Neely Sales Region's Bellevue, Wash., office attended an Instrument senior sales seminar at the Santa Clara Division in July, he scheduled some

time in marketing sales support.

It was a happy homecoming: In 1972 Don began his HP career in that group, which provides technical backup for the division's dynamic signal analysis and laser product line (known as Fourier analyzer at the time).

"It's relatively common for field engineers to start as factory contacts," Don explains. "It's a neat job in which to get the flavor of how the factory runs and how the field works. You answer those questions that are too specialized for the field staff engineers who work with all the Instrument products, and interface between them and the factory lab."

"The job allows you to look in all directions to see what spot in HP makes the most sense for you."

After three years, Don's own choice was to shift to field sales where he would have direct contact with more people while still having plenty of exposure to technical matters. Sometimes the sales assignment could be particularly exciting, such as the time he sold a Fourier analyzer to NASA for measuring in-flight vibration of the space shuttle riding piggyback on a 747 jet—and had a chance to take part in observing the flight.

Don has his own definition of the term "technical counseling" which the Instrument Group uses to describe its sales approach. "Essentially, we make clear the difference between ourselves and the hard-hitting used-car salesman whose bottom line is to close the sale. We want to make certain there's a good technical fit between our products and the customer's needs, because HP wants repeat business."

"You counsel the customer on an application and come up with a good solution rather than saying, 'Here's the catalog and buy our thing.' We make a basic commitment that we can back them with that instrumentation—if they buy HP instruments, they buy the help HP people can give them."

He feels strongly about the importance of a good relationship between factory and field people.

"You're selling their wares," Don says. "It's important to understand the other person's problems. Sometimes a customer needs a unit in four weeks and the factory can't deliver in less than eight weeks. You're stuck in the middle. Some field people will climb all over the factory. An adversarial 'them-and-us' attitude doesn't accomplish anything—we both work for the same company."



LAWSON SINGER

CUSTOMER SATISFACTION:


"I want to establish a good, solid, long-term relationship with a customer."

"I still think of myself as an engineer first and a special kind of salesman because I work for HP," says Lawson Singer of Eastern Sales Region's Woodbury, N.Y., office.

Before joining HP in 1969 he had been a design development engineer in the radar side of Sperry's aerospace activity. Now Sperry, which designs navigation systems for U.S. missile programs like Polaris, Poseidon and Trident, is one of Lawson's accounts and a good customer for HP instruments.

Working with a major account on such long-term projects requires a special kind of patience, Lawson believes. For instance, Sperry received a government contract to design support test equipment for a new patrol frigate the Navy is building. Although he started working with Sperry engineers six years ago on specific HP equipment to meet their needs, it was four years before Lawson received his first order. He also feels responsible for seeing that the instrument type picked out for a particular defense program continues to be available throughout the life of the program.

As someone with a lot of technical know-how who is a direct link with engineer users, the Instrument FE serves as important eyes and ears for division marketing people.



A NUMBER ONE APPROACH TO SELLING

As part of his nomination of Lawson for the Founders Club, district manager Ed Sacco said, "The telephone is a growth from his ear late into the evening hours as he negotiates complex customer requirements with the various divisions or relates important marketing information to them."

"I want to establish a good, solid, long-term relationship with a customer," Lawson says. "I want them to get to trust me, and know that I won't sell them unnecessary products or knock the competition in order to get our equipment in."



BILL VANCE

SELLING TO OEMs:
"They're dependent upon us."

Six years ago Bill Vance of the Midwest Sales Region's Chicago office was the only FE in a territory that covered half of Illinois and all of Wisconsin.

These days Bill, who started selling HP products 20 years ago for the rep organization that preceded

HP's own sales force, finds the geographic spread of his territory and the number of customers have both decreased markedly.

Today he calls on far fewer accounts—down from 150 to 30—and concentrates on the Chicago, Milwaukee and Madison/Janesville metropolitan areas in the states he formerly blanketed.

The reason is the emergence of original equipment manufacturers (OEM, in sales parlance) who incorporate HP instruments such as oscilloscopes and recorders into their own products.

Bill still overnights two days a week out in the territory and after hours he pores over a lot of sales literature and microfiche on availability of products to provide his OEM accounts with a high level of support. He calls on an OEM each week and visits his smaller accounts in rotation.

After two decades with HP he is adept at working with the company's internal order processing, credit and collection, and contract activities "to make certain something happens for my customer in a reasonable time.

"Delivery of our HP goods when expected is critical to the OEM—they're dependent upon us in order to get their own products out the door on schedule," Bill says.

"Some HP divisions are very OEM-oriented. They realize that my projection of a customer's needs for a year in advance may require adjustment as an OEM's orders fluctuate. The OEM-oriented division builds flexibility into its master schedule."

As part of carefully massaging his OEM accounts, he checks with each of them weekly to make sure their HP products are working to their satisfaction and no rash of problems has developed. If that should happen, Bill gets back to the division in a hurry so an immediate check can be made for a bad batch of components or problems in quality assurance.

As a long-time and highly professional FE, Bill has a firm handle on his territory. "I know what's there and what isn't there," he says. "There's no such thing as finding an account today that doesn't use our equipment."

And when some brand-new prospects turn up in the future, Bill will be right there. As one of his admiring nominations for membership in the Founders Club stated, "Bill's the best cold-call FE in the Midwest." **M**



FOUNDERS CLUB

The Instrument Group Founders Club is designed to recognize outstanding Instrument field engineers who have set an example of excellence in serving both Hewlett-Packard and its customers.

Their recognition as Founders Club members establishes standards of performance designed to improve the quality of the entire Instrument Group sales force.

Induction into the club is limited to less than 10 percent of the quota-carrying field engineers in the U.S. and Canada. (FEs who become district managers retain their membership.)

Members must meet these criteria:

- Minimum of three years meeting FE performance standards in customer satisfaction, planning and organization, sales skills, and maintaining good intracompany relations, among others.
- Must be seen by management and peers as a continuing role model for professional Instrument FE.
- Endorsed for membership by all levels of management and approved by Instrument Group vice president.

The symbol at the top of the column selected for the Founders Club is a half sine wave and a horizontal line representing a portion of an analog signal as might be seen on an oscilloscope. The two halves represent HP's co-founders and also form the F for the club name.

CHIPS FOR SALE?

In your March-April cover story about integrated circuits you state "If HP were to sell the chips produced in its IC facilities on the open market, they would bring in annual sales of more than \$140 million."

That's quite an amount. So why don't we?

DICK LEEKSMA
Central Mailing Department
Amstelveen, Holland

A primary reason for having captive IC capacity is that it gives HP designers early access to advanced technology. This means the company can provide higher performance, lower cost or added features for HP instruments and computers when compared to the competition. The extra sales of the products containing unique HP ICs are often much greater than what might be obtained from selling those same ICs in the open market. For this reason we do not sell our special LSI and VLSI components in the open market.

However, we are constantly evaluating the marketing opportunities and certainly are not rigid in our policies. Much of today's very successful Components Group business can be traced back to microwave diodes and transistors originally developed for HP instruments and our light-emitting diodes for calculators.

DOUG CHANCE
General Manager
Technical Computer Group
Cupertino

FROZEN MOVEMENTS

I am interested to know why during HP's hiring freezes, we also freeze all internal movement of people between divisions?

I am all in favor of the hiring freeze policy HP adopts during lean times and think we should continue the same policy of not adding to our payroll during these tough times. However, it seems to me that requisitions for inter-divisional and intradivisional movement should still be allowed.

A policy of no increase in the total number of HP employees while still allowing movement within the company would not increase costs to HP. It would help keep employees who are frustrated with their present jobs, and prevent the mass movement that takes place when a hiring freeze is removed.

ERIC E. HILL
Data Terminals Division
Sunnyvale

HP has seldom, if ever, had a complete hiring freeze. What we have done is establish periods of "controlled hiring," which means that a higher level of approval is needed to ensure that new hires and employee transfers are all in the company's best interest.

HP's primary motive for any hiring control is to increase productivity during a time when the economy is weakening. Since pay and benefits for employees account for 44 cents of every sales dollar, you're correct that it's crucial to limit the number of new employees.

However, while it may appear advantageous to allow intra- and inter-divisional changes, such movement inevitably results in the same need: hiring from the outside. In the meantime these internal shifts can create additional expenses and cut the company's productivity.

There are obvious expenses associated with an interdivisional relocation: for instance, a 1,500-mile move of family and belongings costs about \$30,000 today.

But perhaps more important than those measurable expenses is the loss in productivity that is connected with anyone new on the job. Regardless of whether the job is filled externally, from an outlying division, or from within the same division, it takes time for a new person to learn about the job responsibilities, to go through the required formal and on-the-job training, etc. During a period of initial learning there's an associated loss in productivity.

To put it another way: during periods of economic uncertainty, is it really beneficial to the company to take productive employees out of their current positions and place them in new positions where they will immediately be less productive? We don't feel it is, and that's why hiring controls at HP put limits on intra-company movements as well as external hiring.

LEE SELIGSON
Group Personnel Manager
Palo Alto

YOUR TURN

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

TEAMING UP FOR QUALITY

In your January-February issue you mentioned "quality teams." Is this the same as a "quality circle"?

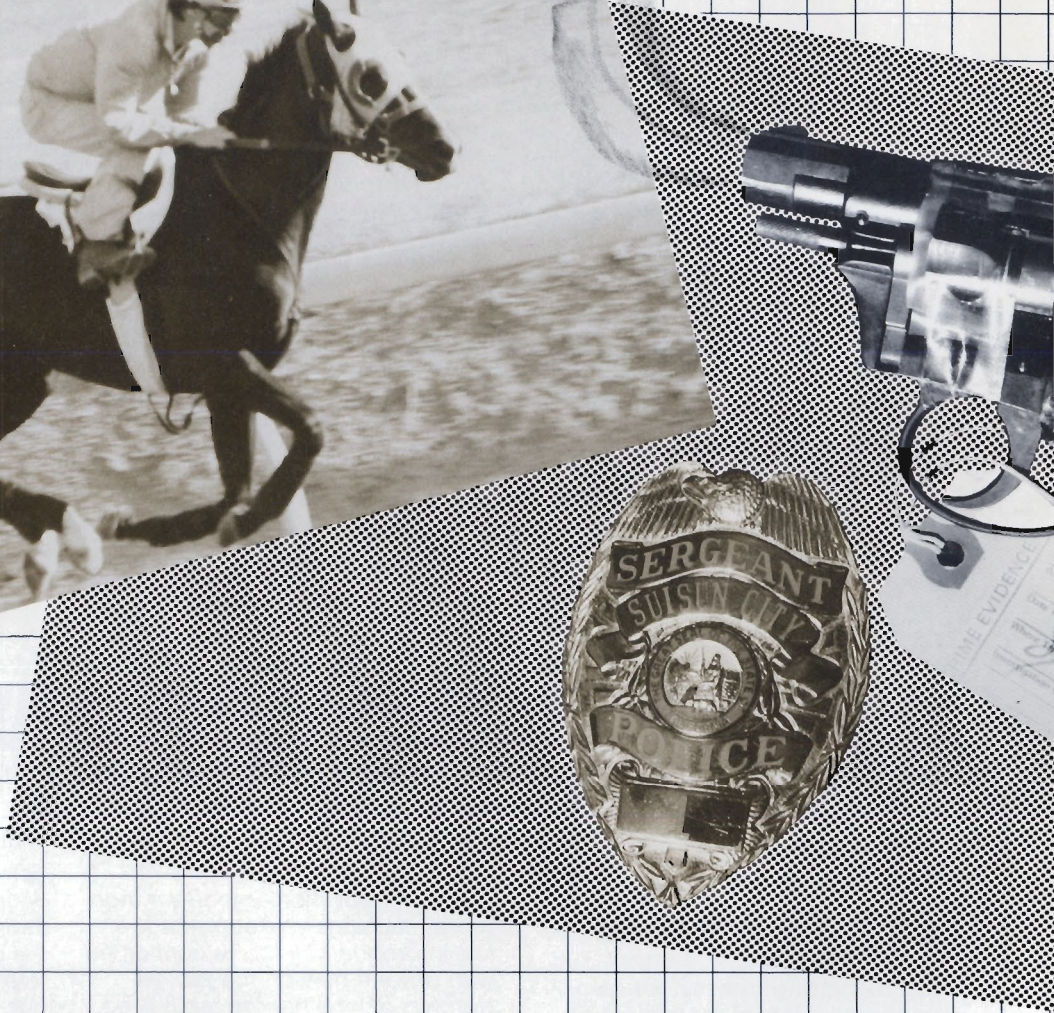
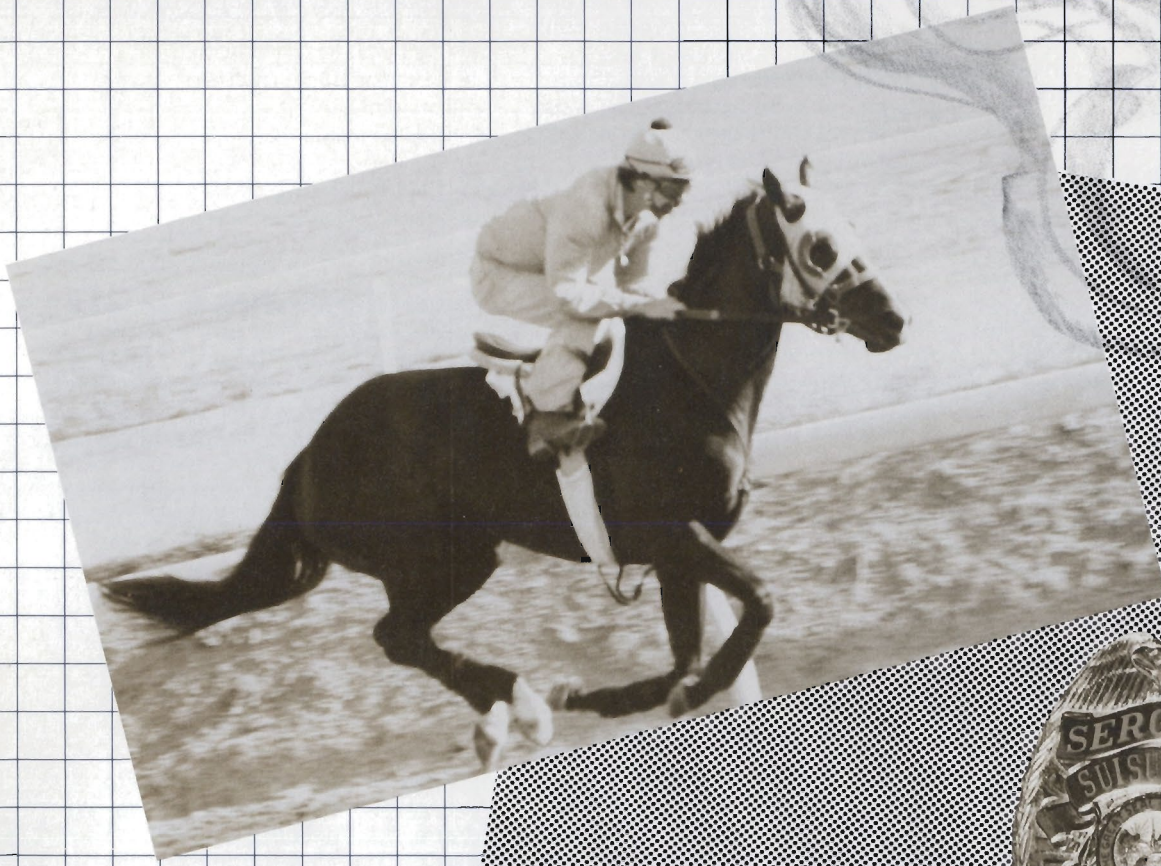
I am currently of the opinion that the quality circles concept can enhance the HP Way by making it more dynamic. It could provide an active Open Line to supervisors and management. How about an article on quality circles and HP reactions to them?

PETER BEANEY
Product Assurance Controller
Winnersh

You're right in recognizing that HP's quality teams are closely related to the quality circles developed in Japanese industry. Both involve small groups of employees from the same work area meeting weekly with their supervisor to discuss work-related problems and to develop proposed solutions for the consideration of management.

HP's Corporate Training and Development, which has developed course material to help in the formation of quality teams throughout the company, says that HP uses a different term to indicate that our quality teams are also concerned with "quality of work life" (an umbrella term for a variety of new ways to look at the work environment) and the familiar HP Way. Some divisions do use the term "quality circles" for their activity.

An article on quality teams throughout HP is scheduled for the September-October issue of Measure.



HP's GC/Mass Spectrometer system employs ionization process to obtain perfect "fingerprint" identification of almost-invisible samples of material evidence.

Amazing Analytical Power Disclosed

Chemical Fingerprints De

The Sherlock Holmes test... 1981

Criminals Cringe In Contemplation

Has Sherlock Hol



"Dr. Watson, Mr. Sherlock Holmes," said Stanford, introducing us.

"How are you?" he said cordially, gripping my hand with a strength for which I should hardly have given him credit. "You've been in Afghanistan, I perceive."

"How on earth did you know that?" I asked in astonishment.

"Never mind," said he, chuckling to himself. "The question now is about hemoglobin. No doubt you see the significance of this discovery of mine? Don't you see that it gives us an infallible test? Had this test been invented, there are hundreds of men now walking the earth who would long ago have paid the penalty of their crimes."

Sherlock Holmes in 1881 was speaking of a test for the presence of blood, a test he claimed was infallible in a blood-water mixture of no more than one part per million. Had he and author Conan Doyle been doing their thing today they could have claimed a sensitivity in testing orders of magnitude beyond their hundred-year-old technique. In 1981 they would routinely be working with sample evidence at a billionth of a gram, and even confirming the presence of a material at one trillionth of a gram. And more than likely they would be working with a Hewlett-Packard GC/MS system, specifically, one of the systems combining gas chromatography and mass spectrometry. With it, chemist Holmes and his medical friend Watson would quickly be able to "fingerprint" not only blood but any of more than 100,000 chemical compounds, including some 35,000 that can be identified by routine computer searching of HP's spectral reference library.

The detection power of HP's GC/MS system explains its success and popularity over a highly diverse range of applications. Many of these uses are as exotic and adventure-filled as any conducted out of 211B Baker St., London:

● **Health services:** Can identify a specific drug in overdose cases in only 20 minutes. Previously this was largely guesswork for doctors.

● **Environmental monitoring:** Automates the tasks of detecting or analyzing pollutants and toxic wastes.

● **Agriculture/food industry:** Rapid identification of organic chemicals is an important quality-control tool.

● **Athletics:** HP's systems have been a fixture at all recent Olympic Games, screening winners for illegal doping.

● **Horse racing:** Tracks are now installing HP's GC/MS systems to detect race fixing.

● **Crime detection:** Forensic scientists are using "chemical fingerprinting" the way Sherlock Holmes followed hand prints.

A new and exciting frontier for GC/MS is mental health research. The goal here is to investigate the chemical changes—neural transfer—experienced by people in disturbed mental states. The super sensitivity of GC/MS to minute samples permits researchers to study the chemical functions of the brain.

Hewlett-Packard's GC/MS systems are manufactured and marketed by Scientific Instruments Division in Palo Alto, and center on the MS technology developed by SID, based on original research by HP Labs. Other components—all HP—include gas chromatographs from Avondale Division (which serve to separate samples), HP 1000 computers from Data Systems Division, HP 9825 desktop computers from Fort Collins, disc drives from Boise, and printer/plotters from San Diego. Various combinations of these systems range in price from about \$55,000 to \$150,000. SID also markets other highly sensitive analytical systems: liquid chromatographs (from Waldbronn Division) are used in combination with MS when GCs would otherwise break down the composition of a sample; UV/visible spectrophotometers measure the absorption of light passing through a sample to quantify or confirm its composition.

As Dr. Watson might have put it, all are doing jolly well in their market places.

PS.: For answers to the Afghanistan question see *A Study in Scarlet* by Conan Doyle. **M**

d in Minutes

returned?

CLOSE UP

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



Competing against teams from 110 other companies in this year's Corporate Cup Relays National Championships, HP finished second overall (behind Texas Instruments). HP's captain was Hank Lawson, competing here in the men's 3000-meter race, who organized a team drawn from 12 company locations. The meet was staged in Palo Alto July 18 and 19.

When a number of Instrument Group people gathered in Oslo for review of North European Region operations they felt they had stepped back into the past—one to their liking. Greeting them at the Norwegian headquarters were many sales staffers such as secretary Kirsten Rode attired in costumes right out of the history books. Of course, it was history they were celebrating—Norway's Independence Day on May 17. The reviewers found other cause to celebrate: Norway's economy was rebounding, thanks to North Sea oil and gas, resulting in a new-found spirit of independence and enterprise in that nation.



Pierre Pachoud, mayor of Meyrin, Switzerland, places a bottle of local wine in the cornerstone of HP's new European headquarters building while HP's Willy Stucki, Jackie Vuille and Franco Mariotti look on. Employees from the HPSA office in Geneva were invited to attend the ceremony on the 10.6-acre site near Geneva's Cointrin Intercontinental Airport.

When HP division people talk about "product transfers" they normally don't have things such as skateboards and skateboarding in mind. But that's what happened when South Queensferry's Ken Ormond spent a month at Santa Clara Division in 1977 arranging the transfer of the 5328 Counter. In the course of that visit he became hooked on skateboarding. Returning to Scotland, he and his wife began building and selling boards as a hobby, soon creating a market that has yet to quit. In time he created a magazine for the Scottish association that had formed about skateboarding, and last year obtained agreement with the Scottish Sports Council and a development corporation near Edinburgh to build a skateboard park. Ken even won a top award from the British Association of Industrial Editors for his photo of action at the park.

P.S. The counter is doing quite well, too.



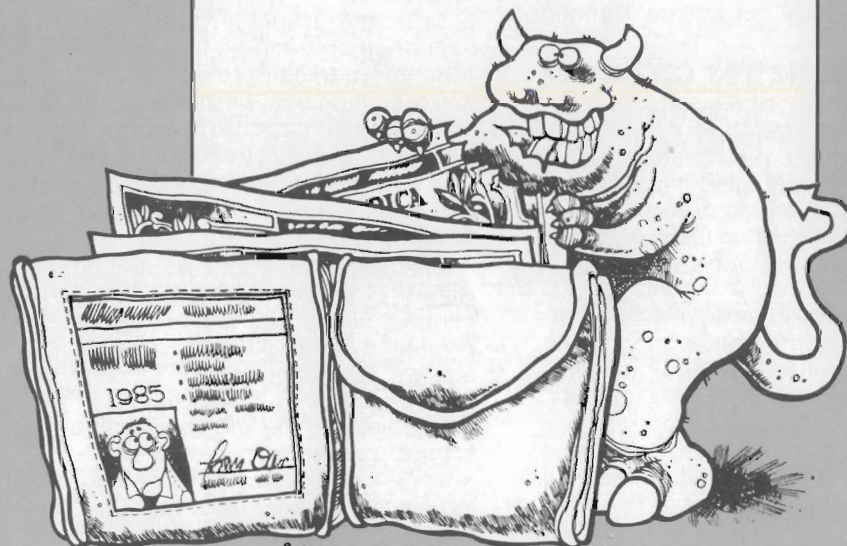
Humbug

Webster's Dictionary states that the word "humbug"—meaning nonsense—is of unknown origin. Now a team of product developers at Waltham Division has put a claim on the name, even though their new "Humbug" makes a lot of sense. Technically it's an AC interference filter that takes the "hum" out of electronic systems used in hospital operating rooms and catherization labs, thereby reducing the possibility of electrically caused "bugs" creeping into medical diagnoses. Designer Dick Regan says a patent is being sought for Humbug.

Don't feed the Glut!" is the challenge on posters at HP's Corvallis Division. "Use alternative transportation."

The big, orange Glut, who gobbles commuting dollars, is the symbol for the division's campaign to get employees to drop the one-car, one-rider habit. Anyone who arrives at work via car pool, bicycle, motorcycle, mass transit or on foot is handed a ticket, qualifying that person for a weekly prize drawing. Prizes range from dinner at a local restaurant to T-shirts, gasoline and gift certificates from a bike shop. A monthly grand prize sends winners off for a weekend on the coast.

The program has been a success: almost one-third of the division's 1,850 employees are now using alternate forms of transportation. The results: reduced energy consumption, less traffic congestion on one of Corvallis' busiest streets—and a hungry Glut.



NEWS CLIPS

Recaps the newsworthy events, changes and achievements within HP.

EUROPEAN MOVES

Official corner-laying ceremonies for HP's new European headquarters at Meyrin-Satigny on the outskirts of Geneva, Switzerland, were held June 18 and 19 (see page 20, this issue). The three-story building is scheduled for completion the end of 1982, replacing the present headquarters in Meyrin. . . . HP's plans to establish a new manufacturing facility for the Peripherals Group in Bristol, England, were announced at a July 20 news conference in that city. Subject to planning approval and other considerations, construction of the first building is planned for completion by mid-1983.

NEW TITLES

In other news related to Europe, HP's Board of Directors on July 16 elected two new company vice presidents with European ties and promoted three vice presidents to the newly created role of senior vice president.

Franco Mariotti, who has served as managing director of HP's manufacturing and marketing activities in Europe since 1975, was promoted to vice president - Europe. HP's other new vice president, general manager Dick Alberding of the Medical Products Group, was the former managing director - Europe from 1970 to 1977.

Named senior vice presidents were VP - International Bill Doolittle, VP - Marketing Al Oliverio, and VP and Treasurer Ed van Bronkhorst.

COMPONENTS CHANGES

New general manager of the Components Group is John Blokker, succeeding Dave Weindorf who has been appointed manufacturing support manager in VP Ray Deméré's Manufacturing Services organization. Blokker was formerly general manager of the Santa Clara Division. . . . In a change of Components management roles in Southeast Asia, Dan Nelson from the Optoelectronics Division was named general manager of the Components Operation in Penang, Malaysia, with additional responsibility for the Singapore Com-

ponents Operation headed by Tan Bian Ee. Spending the next two years in the U.S. in career development assignments will be Teng Ong Keok, who has been managing Southeast Asia operations for Components, and Koh Loke Seng, plant manager in Penang.

IN OTHER GROUPS

Management changes at the group and division level:

Jack Lieberman was named general manager of the Santa Clara Division in June, replacing John Blokker (see above). Lieberman will also continue to manage the division's operations in the counter, logic and precision frequency source product lines.

Bob Watson has been named to a new assignment in the Computer Groups organization as computer engineering manager. He will provide overall direction and coordination for R&D programs supporting HP computers, along with strategy management. Succeeding Watson as general manager of the Data Terminals Division is Cyril Yansouni, who has been general manager of the Grenoble Division.

In a realignment within the Business Computer Group, a new Information Networks Division under general manager Andre Schwager has been formed from the former Data Communications Operation (which Schwager headed) and the Information Systems Division. Matt Schmutz, who had been general manager of the latter division, has requested reassignment when he returns from a medical leave of absence.

Milt Liebhaber, formerly Business Computer Group marketing manager, has been named general manager of a newly formed Applications Systems organization to coordinate the group's development of software solutions for manufacturing companies.

In new marketing roles: Ed Hayes to Business Computer Group marketing manager, and John Celii to marketing manager of the new Information Networks Division.

NEW PRODUCTS

A teleconference from Palo Alto on August 11 to provide information on three new products was presented to HP field engineers, select key customers and the local press gathered at 37 locations throughout the U.S. Featured on the program were two new entries from General Systems Division into the office computer field: the HP

125 which manipulates words, numbers and graphics for a price tag below \$7,500 U.S., and an enhanced version of the HP 250 small office computer with higher capability, a new look and lower cost. Also on view was Disc Memory Division's 16-megabyte HP 7908 disc tape drive for HP computers that includes automatic file back-up on a built-in magnetic tape cartridge. . . . An HP 2382A office display terminal from Data Terminals Division takes up less than a cubic foot of desk space and weighs only 22 pounds. Priced at \$1,700 U.S., it is HP's first terminal designed specifically for the office automation market. . . . Colorado Springs Division has introduced a 16-bit emulator which expands the capability of the 64000 Logic Development System so it can be used in designing software for the new 16-bit microprocessors. It comes in three models (for microprocessors from Motorola, Zilog and Intel).

TELEVISION ADVERTISING

HP's first venture in national network television advertising is scheduled for September 5, during the national telecast of an NCAA football match, University of Alabama vs. Louisiana State U., on ABC. The 30-second commercials, each featuring HP products of broad market appeal, are scheduled for 18 showings through December. In addition to NCAA football, the commercials will air during Monday Night Football and Nightline news, both on ABC.



An HP arrhythmia monitoring system in a Los Angeles hospital is photographed for one of the TV commercials which the company will air this fall on three ABC network sports and news shows to build recognition and preference for the HP brand.



Volunteers in Santa Clara County's 1981 United Way campaign are HP President John Young, who is a vice chairman, and Oakland Raider quarterback Jim Plunkett, a director of the Peninsula Center for the Blind in Palo Alto.

Hewlett-Packard has been featured prominently in recent months in a variety of management philosophy books and articles aimed at contrasting Japanese and American management styles. Our company, and a few others, are often cited as being Japanese-like because of certain characteristics of decision making and people relationships. Writers such as Bill Ouchi, in the best-selling *Theory Z* (the entire HP corporate objectives are Appendix One), and Richard Pascale and Anthony Athos, in *The Art of Japanese Management*, point to participative decision making, teamwork, reward sharing and job stability as characteristics of this "new" management method.

Some elements of these comparisons are arguable. Nevertheless it's flattering to be cited for management excellence in such widely read forums. Certainly our management philosophy depends strongly on these factors and has done so since 1939 whereas the Japanese company practices are essentially post World War II. My point in raising this comparison at all has to do with one comparison that has received little public attention, yet is no less important than others.

That characteristic has to do with individual concerns: each person's responsibility to reach out for personal and professional development and the company's obligation to provide the training and opportunities to facilitate personal

growth. Through this process we, like many Japanese and leading American companies, develop a knowledgeable and well-rounded work force that broadly adds to employee well-being and to our competitive posture.

HP offers no "career paths" for people to follow; no master plan that says where and when to make a change. Nor do we view promotion as a routine advancement. What the company does offer is opportunity. This can take many forms, but they all have in common the need for individual motivation and initiative to seek out the training and interest areas and combine them into personal development. It's as if the tenets of management-by-objectives extend to one's own career.

The most fundamental kinds of training take place on the job. There, informal interchanges with supervisors and among people of different levels of experience and skill create continuing opportunity to learn, grow and contribute. It is important in these relationships that supervisors actively coach and counsel people and help them identify opportunities appropriate to the abilities and experience they bring to the job. At the same time, it is equally the responsibility of individual employees to make their supervisors aware of personal goals, and to request the training and education that may qualify them.

Training and educational opportunities abound. For newcomers,

A MESSAGE FROM JOHN YOUNG

training begins almost immediately with the "New Employee Orientation," followed somewhat later by "Working at HP" These are basic programs, designed to give everyone a broad and general view of the company and its philosophy. Beyond these basics are several series of building-block programs structured to equip people for improved effectiveness both in present jobs and in taking on new responsibilities. The range of these programs is wide—all the way from "Administrative Support Workshop" and "Quality Team Management" to senior management seminars in the use of financial tools for decision making. There are important new skill-training courses about to be introduced for engineering project supervision and for manufacturing managers.

Opportunities for personal growth stem directly from our company's success. The corporate objectives take note of this by saying that "growth is important in order to attract and hold high-caliber people. These individuals will align their future with a company that offers them considerable opportunity for personal progress. Opportunities are greater and more challenging in a growing company."

Growth is never steady or certain. During periods of high growth, with many new people entering the HP work force, it often is not possible to train everyone at the same fast pace. As we've seen from time to time, the result can be an increasing proportion of new people who have not been exposed properly to the company's work philosophy and other aspects of employment at HP. Slower hiring periods — as at present in a number of locations—are themselves opportunities to "catch up" and improve our individual and corporate abilities to take advantage of growth that lies ahead.

John

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Moved lately? Change of address should be reported to your personnel department.

MEASURE

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

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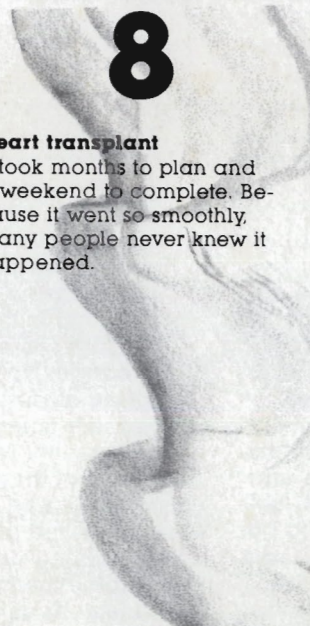
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Handled with care
Measure examines some of the HP programs which provide a safe and healthy workplace and protect the environment.



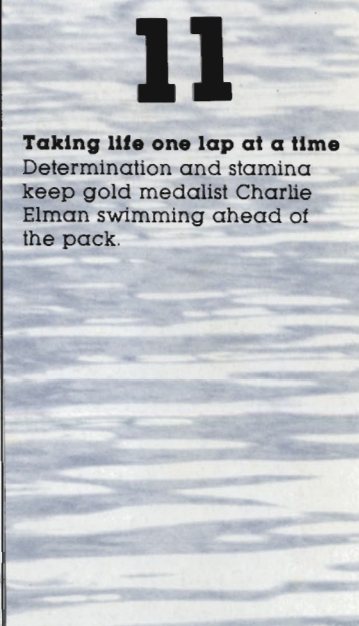
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Heart transplant
It took months to plan and a weekend to complete. Because it went so smoothly, many people never knew it happened.



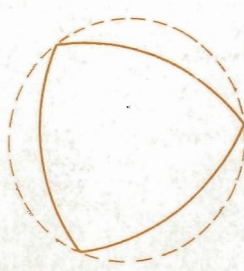
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Taking life one lap at a time
Determination and stamina keep gold medalist Charlie Elman swimming ahead of the pack.



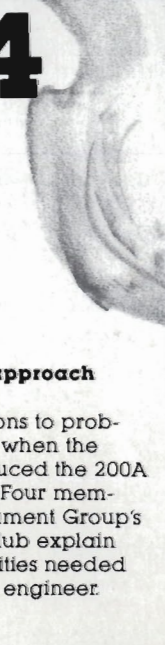
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Roundness
There are times when a round peg won't fit in a round hole. That's why precision roundness is critical in some HP machine shops and assembly areas.



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A number one approach to selling
Selling HP solutions to problems got its start when the company introduced the 200A audio oscillator. Four members of the Instrument Group's new Founders Club explain the special qualities needed to be a top field engineer.



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The Sherlock Holmes Test—1981
Conan Doyle's fictional detective could easily unearth minute traces of blood, drugs or suspicious chemicals with one of HP's GC/MS systems.

