MEASURE

Blending tradition
with high tech:
Spain's Tabacalera
and HP

THE INSIDE STORIES

MEASURE
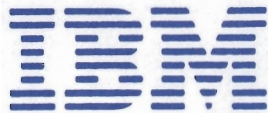
**On the cover: Jose Ramon
Alvarez, Tabacalera's
EDP manager, and Jorge
Edelmann, HP district man-
ager for major accounts,
are discovering ways to
automate the country's
oldest company with HP
solutions. Cover photo
by Fernando Lopez.**

HP in Spain

A new HP factory in Barcelona and a push to sell HP solutions to bigger companies have turned HP-Española into the fastest-growing sales organization in Europe.

BILBAO

BARCELONA

MADRID

VALENCIA

SEVILLA

● SALES OFFICE ■ MANUFACTURING

When Spain's oldest company decided to automate part of its cigarette-manufacturing process, it turned to one of the country's "newest" high-tech players: HP-Española. Although HP's been part of the Spanish electronics industry since 1971, new doors have opened for the company in the last few years. A new HP manufacturing operation on the outskirts of Barcelona is largely responsible— it now sends a clear signal to customers, competitors and others that HP plans to be a major player in the country's high-tech race.

One of the firms that has recognized HP's arrival is Tabacalera, the state-owned tobacco manufacturing and distribution company. Spain's oldest company has a rich tradition, dating to the 15th century when the Philippines were a Spanish colony. It's also a conservatively managed firm — long a stronghold for "safe" computing choices like IBM.

Some of Tabacalera's factories are considered national monuments and can't be torn down. One of the oldest— the plant where the nation's fourth-largest company makes Winstons and Fortunas—now uses HP 1000 computers to control cigarette-making machines. The HP 1000s are networked to HP 3000s that integrate all the information for warehousing, payroll and vendor accounts. From this test site, the HP solution is being

HP sales rep Jorge Sales sold a network of 26 computers to ACESA, the firm that operates the 100-mile toll road between Barcelona and the French border. The HP 1000 computers track tolls that drivers pay—either in cash or by credit card.

installed in 16 other Tabacalera factories around the country, according to sales rep Jorge Edelmann.

"The number-one reason for HP's significant sales growth in Spain has been the announcement and opening of the new factory," says Juan Soto, country general manager. The sales company, established in 1971, enjoyed steady but relatively modest growth until recent years—then sales in Spain grew 19 percent in 1985, 32 percent in 1986 and should show 40 percent growth for 1987 when the books close. That's Olympic-caliber performance when compared to overall company growth.

"Our factory in Spain says something positive to Spaniards," says Ignacio Fonts, materials procurement manager at the plotter facility. "It tells them that we won't be going away in two years. We're here to stay."

Today there are 70 employees on the site. They assemble plotters for the European, Middle Eastern and African markets. The leased building they work in was a champagne cellar and warehouse before HP moved in. The first remodeling chore was to punch windows into the concrete walls to bring

some sunshine into the 43,000-square-foot building. The first shipments of HP 7475 plotters left the factory in August 1985.

Just down the road, in a village called Sant Cugat del Vallés, is the property where HP will erect its own building in the future. This area just west of Barcelona has already earned the nickname "Silicon Valles" for the nearby Sony and Sharp factories and Barcelona Polytechnical University.

"One of the reasons for BPO's early success is the fact that, unlike other HP start-ups, it has two parents," says Juan. "Its mother and the home of the product line is the San Diego Division. And its father is Böblingen, where it acquired much of its management and manufacturing expertise. Just as with the rest of life, two sets of genes make for a much better animal."

To begin to sever parental ties and stand on its own two feet, the operation is developing local suppliers. It started with simpler items at first, such as cardboard cartons and foam packing materials. Today it's working on more complex materials such as fabricated sheet metal.

Country general manager Juan Soto feels HP's new Barcelona factory is the main reason for his organization's sales growth.

Many key parts for the plotters still come from the San Diego Division, and will for some time to come. Some less critical items come from Southern California, too—BPO's employee name badges, for example. They feature San Diego's fun-in-the-sun logo with surf, sky and a sailboat that's just as appropriate for this Mediterranean port city.

Just north of Barcelona is a popular European vacation playland—the Costa Brava. It's a coastline of some 90 miles (150 kilometers) of hidden bays, tile-roofed villages and sun-drenched beaches. Between the Costa Brava and Barcelona is one of the most interesting HP computer applications in Spain.

On weekends, three million drivers take to the A-17, the multi-lane autoroute that links Barcelona to the Costa Brava and then farther north to the French border. Along the way, HP 1000 computers track the tolls that drivers pay.

The privately operated tollway has 26 HP computers sharing data around the clock, all linked to an HP A900 central computer in Granollers. Drivers pay tolls with cash or credit cards—the HP computers check the cards instantly against a blacklist of stolen cards. The computers also perform cash management functions to make sure that all the collected cash matches up with the number of vehicles that use the tollway.

HP sales rep Jordi Sales is responsible for the major deal with ACESA (Autopistas Concesionaria Española, S.A.), the outfit that runs the A-17 and three other tollways. "I'm the only sales person in the company whose name is 'sales,' " smiles Jordi. "The system represents true real-time processing. One of our application engineers was caught in a weekend traffic jam on his way to Valencia. He went through a toll booth at four minutes past midnight on the day his credit card expired and the HP computer refused to accept the card." Jordi is now working with ACESA to automate the A-2 from Tarragona to Zaragoza.

The tollway applications are typical of many HP solutions in the increasingly sophisticated Spanish computer market. In the past, HP had been successful selling HP 250s and HP 260s: small, compact, versatile computers for small

People meet after dinner during the summer in outdoor bistros called *chiringuitos* along tree-lined boulevards like Madrid's Paseo de la Castellana.

business owners. These systems often were sold to OEMs (original equipment manufacturers) who were close to their customers and had developed software solutions, but were looking for the right computer.

"The HP 250 and 260 were good fits in Spain," says Luis Carlos Collazos, former personnel manager and, for the past two years, value-added channel manager. "That's why there's been a big focus on third-party marketing in HP. In the last three years, our sales have doubled from that segment and we have an excellent network of OEMs in the country."

One such is Central de Procesos Informaticos (CPI) in Valladolid. The firm started life as a data processing service bureau 11 years ago. But about 1979 it started offering payroll, accounting and other business applications on HP 250/260s. Then CPI branched out into software packages for such diverse businesses as food distributors, construction firms, financial organizations, bakeries and textile manufacturers. CPI's installed base includes more than 100 HP 260 customers around the country and a

growing number of HP 3000, HP 1000 and HP 9000 customers.

In many ways, CPI is typical of HP-Española's entire computer marketplace. Customers are moving upscale, into distributed processing solutions and networks and away from traditional mainframe or stand-alone small business computer solutions. HP's reputation in the OEM/third-party market has helped as these customers seek more sophisticated solutions.

For example, Carburos Metalicos, a Spanish petrochemical concern, picked HP over DEC, IBM, NCR and Data General when it wanted to replace an old DEC system of computers. The HP solution, sold by Jose Fabregas, involves 20 HP 3000 computers at Carburos plants throughout the country. Once a day these HP computers consolidate data on inventory and billings and send it to Carburos' headquarters in Barcelona.

Renfe, the government-owned railway, depends on a network of HP 3000s to track maintenance work on its trains at six big facilities and 30 smaller ones. "HP's becoming the second computer supplier in this traditional IBM strong-

hold," says sales rep Jesus Garcia Catala.

Country manager Juan Soto applauds such sales breakthroughs and the Barcelona factory start-up. "HP is now seen as a key player in the country's efforts to develop its electronic and data processing industries," says Juan. Although Spain has the fifth-largest gross national product in Europe and its current balance of payments is in good shape, it's been running a $2 billion annual trade deficit in high-tech.

HP's new factory in Barcelona is the kind of signal the government likes to see. It puts HP in the same "good-guy" category as NCR (which has a board repair center in Spain), Unisys (which opened one of its four artificial-intelligence development centers in the country), DEC (with new procurement activities), IBM (which manufactures tapes in Valencia), Nixdorf (with its plant in Toledo for small business systems), Olivetti (with PCs in Barcelona) or the plans of AT&T and Siemens. Other competitors like Fujitsu were encouraged to start operations in Spain as part of the government's plan to develop the electronics industry.

But unlike some of the recent arrivals in the country, HP's been a part of the Spanish high-tech community for 16 years. HP-Española S.A. now has headquarters in Madrid with sales and service offices in that city and four others. All told there are about 420 employees in the sales organization. The factory operation outside of Barcelona brings the total HP Spanish work force to about 500.

It's a highly educated work force, points out Antonio Pavon, training and recruiting manager in Madrid. "One of the keys to our success has been to find motivated, well-educated people. More than half of our people have master's degrees. Another 20 percent have bachelor's degrees."

But these well-educated, well-trained people become attractive targets for other companies who are trying to build expertise. Eduardo Rodriguez, support manager says, "Other companies have been trying to steal away some of our technical people. Recently two people received offers, but decided to stay with HP. I feel our people have a

Plotters made in HP's new peripherals operation in Barcelona are shipped by air to Böblingen, West Germany, for distribution in the European, Middle Eastern and African markets.

deep love for HP products and they get satisfaction from working with the technical content of the job."

This loyalty shows when you look at the country organization's seniority charts. Almost 60 percent of the work force has been with the company for more than five years. And half of the 42 people who started HP-Española in 1971 are still on the payroll.

HP has established solid ties to universities to make sure some of the best new talent comes to HP. "There's a high demand but a small supply of electronics engineers," says Antonio. "That's why we've established a granting program that provides scholarships through a foundation." In 1987, the company provided opportunities for 44 students in a range from telecommunications to computer science.

In addition, there's a big effort under way to provide in-house training for all HP employees: sales people, managers and generalists. Last year, 353 employees attended classes such as Selling at HP, Satisfying our Customers and Managing at HP.

The training organization even extends its services to its strong net-

work of dealers and OEMs. "We've offered classes—a modified version of Selling at HP, for example—to share effective sales techniques," says Antonio. "Not only do we improve their ability to satisfy their customers, we also give them a better appreciation of HP at the same time."

There's growing appreciation for the company throughout the country. In a recent survey of customers who receive the HP catalog, more than 60 percent said they felt HP was a Spanish company. "Other Spanish electronics manufacturers had always looked at us as a foreign company," says Juan Soto. "But now we're colleagues. We're part of the club."—*Brad Whitworth*

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

Keeping time

The accuracy of the clock at the Telecommunications Authority of Singapore (September-October Extra*Measure*) doesn't do justice to the AT&T system that uses three HP cesium-beam atomic clocks. The clock is actually accurate to one second in 353,056 years, not 7,924 years as you stated. AT&T enhanced the stability of the HP clock by using statistical software co-developed with Bell Labs. It's too bad this system is too big and too expensive to strap on your wrist.

PETER ROGINA
Piscataway, New Jersey

More TV teachers

In your September-October issue you mentioned two instructors from the Vancouver Division who have taught video classes for the Washington Higher Education Telecommunication System. Just to set the record straight, in addition to Chris Rasmussen and me, five other HP people helped teach nine classes. The other five are: Brad Freeman, Mark Mahan, Bob Stavig, David Gast and Randy Krauter.

JIM STEWART
Vancouver, Washington

One terminal, hold the mayo

Your recent item about Panacom Automation Division's tough new HP Industrial Touch display terminal mentioned that it's so well sealed "you could blast a fire hose on it without damaging it."

I was one of the engineers involved with the testing and I thought your readers might like to know some details. Industrial Touch spent more than 8,000 hours in strife testing. One of the tests required us to blast the terminal with 50 gallons of water per minute for five minutes. We also steam cleaned it. No problems.

We covered the keyboard with mustard, ketchup, white glue, window cleaner, motor oil, brake fluid, power steering fluid, salad dressing, strawberry jam, toilet-bowl cleaner, petroleum jelly, typewriter correction fluid, dish detergent and isopropyl alcohol. When we washed the goo off, the keypad was as good as new. The terminal also came through 250 hours of vibration and 200 hours in a salt-fog chamber.

It really is one tough hombre.

GREG AMANN
Waterloo, Ontario, Canada

Dropping the ball

I agree with Joe Montesinos' letter in the last issue that HP's participation in professional tennis gave HP a wonderful opportunity to reach potential customers. Unfortunately HP has decided to withdraw its corporate support from professional tennis. It was decided that the investment was not playing a good return of serve. That's regrettable. It was good to hear "the Hewlett-Packard tennis computer ranks Martina Navratilova number one" during broadcasts and at tournaments.

HP may have had the advantage, but it is game, set and match to another organization that wants to make the most of tennis.

TERESA O'NEILL
Palo Alto, California

A question of ethics

The September-October feature story, "It's How You Play the Game," was certainly refreshing reading. When I joined HP in 1984, I remember my sense of elation that such a thing as the HP way was in existence and working well; quite a feat for such a large company.

Personal ethics are something I put a high value on for myself and for others, and I'm glad to know that HP was founded on and continues to grow with such strong business ethics.

Thanks for the refresher!

DEBBIE REICHLE
Long Beach

Kevin O'Connor, in his September-October article on business ethics, gave the impression that only FSO employees and others involved with sales to the federal government are affected by the DII standards. In an earlier memo, Dean Morton stated, "Since virtually every HP product can be purchased by the Defense Department directly, or through prime contractors, everyone at HP is affected."

Mentioned also are personal misconducts of evangelist Jimmy Bakker and Sen. Gary Hart. This type of unethical conduct is not addressed by the DII standards directly, but is implied.

Envision HP management encouraging employees to report violations of all suspected unethical conduct, person or business related. A sobering thought.

What happens to trust then? Not to mention rights of privacy.

RICK PETERS
Santa Rosa

Glowing praise for Canadian center

BRAD WHITWORTH

Dave Salonin reassembles a radioactive detector from a gas chromatograph in his new repair center. Low radiation levels inside the steel cylinder detect chemical compounds.

Analytical customer engineer Dave Salonin apologizes about the size of his repair shop near the loading dock in HP's Montreal sales office. "It's even smaller than Bill and Dave's garage in Palo Alto." But he also brags about his first year in business. "We'll repair more than 80 detectors for Canadian customers this year—half again more than our expected volume. We've slashed turnaround time by 30 days to an average of just three days."

Two factors make Dave's story all the more remarkable. First, he put together this profit center in just weeks on a shoestring budget. Second, he overcame all the hassles associated with one of today's most misunderstood topics: nuclear radiation.

Many HP gas chromatographs use low levels of radiation inside a stainless-steel chamber to identify types and amounts of compounds in a sample gas. These detectors, about the size of pudgy spark plugs, are sealed at the factory in Avondale, Pennsylvania.

Detectors lose their sensitivity and produce inaccurate results with time, particularly if they're not kept clean. So customers from around the world have had to send bad detectors to the licensed lab in Avondale where they're disassembled, cleaned and tested.

But for Canadian customers, those radioactive detectors had to travel across the US border with a ton of official paperwork—a process that sometimes took up to 35 days.

Dave Salonin got his boss, Rejean Morisette, Analytical service manager, to support the notion of opening a
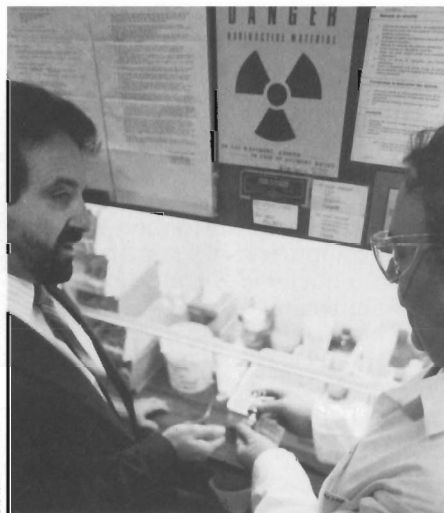
BRAD WHITWORTH

Analytical service manager Rejean Morisette and Dave discuss detectors.

detector repair center for all of Canada. Dave, a 16-year HP veteran, worked through channels to get a license from Canada's Atomic Energy Control Board. He found a vendor to dispose of radioactive wastes. He nabbed an about-to-be-discarded fume hood from HP in Toronto. He modified an older HP gas chromatograph to test repaired detectors from five different HP models. Then he set up shop in a storage closet.

Just to set the record straight, radiation levels inside HP detectors are low—they can't leave the factory if the radiation exceeds 15 millicuries. That means they emit more radiation than a home smoke detector and less than a dental X-ray machine.

Still, the year-old center sports a haunting yellow-and-violet radiation sign on its locked door. Dave regularly checks radiation levels in the room to prepare the government reports. He keeps the area spotless for another reason—he shares quarters with a paint booth, a drill press and employee sports equipment.

"We held employee meetings to explain the center and the radioactivity. We told everyone that the Nickel-63 in the detector emits mostly beta particles that are easily stopped by a sheet of aluminum or the plastic window of our fume hood."

Dave doesn't see his operation as a threat to the Avondale factory. "They repair more detectors in one month than we'll do in a whole year," says the Montreal native. "The fact is, I couldn't have set up shop without the help of people like Bill Howell, Bill Hill and John Wiesniewski."

Canadian customers are glad Dave's open for business. A government agricultural lab in British Columbia told CE Wayne Best that it appreciated HP's "lightning-fast response." Dow Chemical told Arnie Nicholson, region sales manager, that the service kept HP way ahead of the competition.

"I hope my success inspires other HP people to tackle seemingly impossible projects," says Dave. If any involve starting a new repair center, there's a Canadian CE who's got the experience and a healthy dose of enthusiasm to help get it started.—*Brad Whitworth*

Starfleet mission: Identify our star competitors

They're out there now by the dozens, it seems, circling, swarming and contending with us for every sales opportunity. We've got to watch these competitors like a hawk! Given the size and complexity of our Enterprise—close to 10,000 products offered worldwide via six major-market segments—there's a huge stretch of disputed space to cover.

So buckle up! We'll take a wide-ranging trek over the six market galaxies and beam down for a closer look at several examples of the competitive lifeforms inhabiting each. The basis for comparison will be as of the end of 1986 or early 1987. Our sampling will include not just the well-known giants of each species, but also a few of the newer critters in our competitive universe. And we will survey our own mission as we go.

BUSINESS SYSTEMS

HP 3000 business computer

Two decades ago, data products accounted for just about one percent of HP sales. By 1986 that figure had climbed to more than 50 percent. A large slice of that growth has been in the business arena with products and systems that enhance decision making and communication within and among departments and organizations of every size.

A key move in this market in the early '70s was the introduction of the HP 3000 minicomputer. With it, HP pioneered distributed data processing at a time when central processing (mainly IBM) was the gospel.

Today, along with vastly updated versions of the HP 3000, HP offers complete and highly integrated office solutions involving PCs, terminals, networks, printers, peripherals, training and service.

Two of the top competitors in this market—IBM and Wang—are outlined at right. We've chosen to place DEC, also strong here, in the Engineering Systems category. In fact, all compete across the board to varying degrees in the business, engineering and manufacturing sectors, but will be shown only once.

IBM

International Business Machines
- Founded: 1914
- Headquarters: Armonk, New York

"Big Blue" is so BIG, it seems to be everywhere. IBM describes its business operations as "primarily in the field of information-handling systems, equipment and services."
- 403,000 employees

1986 was said to be a "difficult" year.
- $51.2 billion revenue
- $4.8 billion earnings (down from $6.5 billion in '85)
- 800,000 shareholders
- R&D: $5 billion plus
- ROE: 14.4%

Remember the "punch card" systems once used in data processing? That's where it more or less started. Now:
- Electronic data processing products and systems
- Program products
- Telecommunication systems
- Office systems
- Typewriters, copiers and other products/services

WANG

Wang Laboratories, Inc.
- Founded: 1951
- Headquarters: Lowell, Massachusetts

As Wang describes it, the company's business is the design, manufacture and marketing of computer systems plus related products, for the worldwide operations-automation market.
- 31,000 people worldwide
- Manufacturing operations in six countries plus US
- Sales/support: 360 US cities, 100+ countries

- $2.6 billion revenue
- $50.9 million earnings (versus $15.5 million in '85 and $210.2 million in '84)
- 44,500 stockholders
- R&D: $181.7 million
- ROE: 3.5%

Most of Wang's business derives from data processing and communications products and services:
- Integrated information architecture
- VS family of computers
- Large-scale integrated communications switching systems

Apple

Apple Computer, Inc.
- Founded 1977
- Headquarters: Cupertino, California

Apple designs, manufactures and markets personal computer systems primarily for the business, education and home markets. In recent years it has pushed into businesses via networking and desktop publishing.
- 5,600 employees
- Manufacturing in US, Ireland and Singapore
- Sales/service mainly via dealer organizations

- $1.9 billion sales
- $154 million earnings
- R&D: $127.8 million

- Personal computers, software systems
- Laser-based printers
- Modems and networks

There are two major forces driving this market: the increasing complexity of engineering design—particularly electronic components—and the sharp rise in market competitiveness. Together, they challenge designers to create more sophisticated products in significantly less time.

HP had served this market in many ways for many years when, in 1984, the company identified it as a major business segment and goal. That decision led to a highly integrated effort in design automation.

This has resulted in the ability to provide customers with very effective technical and economical solutions to a wide range of design/engineering problems. Key elements include the HP 9000 line of workstations, Vectra PCs, HP Design Center software for mechanical, electrical and software engineering plus many other supporting programs and products.

There are many players and levels of play in this league, including the aforementioned IBM.

ENGINEERING SYSTEMS

HP 9000 PC design system

sun microsystems

Sun Microsystems
- **Founded 1982**
- **Headquarters: Mountain View, California**

Produces and markets a line of high-performance workstation systems for science, engineering, manufacturing and universities. Sales in North America, Europe, Japan.
- **Employed 2,400 people in '86, 4,182 in '87**
- **Sales/support in 61 US cities, 24 international**

- **$210 million revenue in '86, $537.5 million in '87**
- **$11.9 million earnings in '86, $36.3 million in '87**

- **32-bit workstations and servers**
- **Open systems network**
- **New 10-MIPS workstation (as of mid-'87)**

apollo

Apollo Computers, Inc.
- **Founded: 1980**
- **Headquarters: Chelmsford, Massachusetts**

Specializes in high-performance workstation systems for engineering, design and manufacturing (CAE/CAD/CAM) markets, plus other technical workgroup applications.
- **3,577 people**
- **Sales/support in 34 US cities, 19 international**

- **$391.6 million revenue**
- **$9.3 million earnings**
- **R&D: $44.6 million**

- **Personal workstations**
- **Graphics systems**
- **UNIX-based network**

digital

Digital Equipment Corporation
- **Founded: 1957**
- **Headquarters: Maynard, Massachusetts**

Digital's primary business is as a supplier of networked computer systems. These systems have made the company a strong contender in the business, engineering and manufacturing segments of the market.
- **About 100,000 employees worldwide**

- **$9.4 billion revenue (from $7.6 billion in '86)**
- **$1.137 billion income (from $617 million in '86)**
- **133.3 million shares**
- **R&D: $1 billion**

DEC has been an important force in the minicomputer area, helping to pioneer the concept of decentralized and networked operations that foster communication, time-sharing and worksharing. Major product lines include:
- **VAX hardware**
- **VMS software**

MANUFACTURING SYSTEMS

HP 1000 computer

W ho could ignore the opportunity to cut 25 or more percent of production costs while also improving product quality? Plus:

■ Streamline the handling of materials and inventory?
■ Cut the R&D-to-distribution cycle by half?
■ Unite the organization via information systems?

Those are the kinds of goals posed by the concept of CIM (Computer Integrated Manufacturing). Mostly, it's happening in bits and pieces—a system here, a test over there. Actually, that's consistent with HP's philosophy of "Think big, start small." Learn as you go.

HP has fundamental strength in this arena, based on experience as a manufacturer and supplier to manufacturers of all kinds. Anchoring our program today is the HP 1000 computer line, often referred to as an "automation engine." It's tied to a whole flotilla of HP test, measurement and computational products and systems.

Again, competitors in addition those shown on this page include most of the others appearing in the first two categories.

Prime	**TERADYNE**	**Data General**
Prime Computer ■ Founded 1971 ■ Headquarters: Natick, Massachusetts	**Teradyne** ■ Founded 1960 ■ Headquarters: Boston, Massachusetts	**Data General Corporation** ■ Founded 1968 ■ Headquarters: Westboro, Massachusetts
Prime focuses directly on the markets for data processing systems in the engineering, scientific and commercial sectors. Its main offering is a family of compatible, 32-bit supermini computers.	Teradyne designs, produces and markets equipment for the semiconductor industry as well as various electronic components. ■ 6 manufacturing divisions in US ■ 28 US sales/support offices, 16 international	Designs, builds and sells general-purpose computer systems. Competes worldwide in the business, engineering and manufacturing markets. ■ 15,500 people worldwide (10,800 in US) ■ Own sales/service force plus third-party sales ■ 14 US manufacturing divisions, 9 international
■ $860 million revenue ■ $46.9 million earnings ■ 13,200 shareholders ■ 48 million shares	■ Approx. $300 million revenue ■ R&D: $39 million	■ $1.26 billion revenue (from 1.24 billion in '85) ■ $5.7 million earnings (from $24 million in '85 and $83 million in '84) ■ 264 million shares ■ R&D: $143 million ■ ROE: .9%
■ Supermini computers (the 1985 "50 Series") ■ Terminals and workstations ■ Database management and networking	■ Automated test equipment ■ Items for PC boards and telecom products	■ Eclipse and Nova lines of mini and micro computers ■ Dasher line of workstations ■ Distributed systems architecture

When it comes to competing in this marketplace, HP is the measure—at least for many of the shelves. The whole high-tech world of research, design and manufacturing comes through the door looking for ever-more sophisticated and efficient tools for testing and measuring their developments.

We're no longer just talking about instruments and analog devices—those historic foundations of the company and the industry. Test and measurement today embraces both computers and instrumentation as well as digital technologies. And, increasingly, these are linked directly via information systems to other organizational functions vitally interested in product and process test results.

Competition here is diverse and lively. HP's strength is in the breadth and depth of our offerings, perhaps best viewed in the thick HP catalog of test and measurement products.

TEST AND MEASUREMENT

HP 5185A/T
waveform recorder

Tektronix

Tektronix, Inc.
- Founded 1946
- Headquarters: Beaverton, Oregon

The oscilloscope, used for measuring and displaying time and magnitude of electrical phenomena, accounts for one-third of Tek's business. The lineup includes instruments, design/display and communication products.
- 19,200 people worldwide
- 6 US manufacturing divisions, 4 international
- Sales/support: 44 US cities and 23 other countries

- $1.35 billion revenue
- $39.3 million earnings (down 56% from '85)
- 5,755 shareowners
- ROE: 4.7%

- Range of analog/digital oscilloscopes; multimeters, analyzers, signal generators and others
- Design/display lines include CAE systems, copy makers, graphic terminals, workstations, inkjet printers and plotters, etc.
- Communication line: Serves TV industry with varied instrument and optical products

ADVANTEST

Advantest Corporation
- Founded 1954 (formerly Takeda Riken Co.)
- Headquarters: Tokyo, Japan

Advantest focuses on the design, manufacture and sale of electronic measuring and automatic test equipment. IC test systems comprise 77 percent of sales, electronic measuring 21 percent.
- 1,260 employees
- Sales in Japan, North America, Europe and 30 other countries

- $90 million sales (est.)

- Basically in the device-testing field
- LSI test, analog test, spectrum analyzers, signal sources, logic analyzers, counters and meters
- Optical: power meters, wavelength meters, spectrum analyzers, light sources

Anritsu

Anritsu Electric Company
- Founded: 1950
- Headquarters: Tokyo, Japan

Anritsu manufactures and markets a wide range of measuring instruments for optical fibers and communications systems. Its product lineup bears a close resemblance to HP's instrument offerings. Anritsu is a member of the Sumitomo group and became an international player in the early 1980s.
- 3,000 employees (est.)

- $568 million revenue
- $35 million earnings
- 4,000 shareholders
- R&D: $34 million

- Wide range of measuring instruments, with emphasis on fiber optics
- Integrated circuit testers
- Communications (phone) systems

ANALYTICAL INSTRUMENTS

HP 5890A gas chromatograph

Chromatography is about the separation, identification and measurement of the chemical components of substances. In recent years its use has spread from the traditional base of chemical and petrochemical industries to such areas as biotechnology, pharmaceuticals, food processing, pollution control and drug screening.

What made this possible has been the application of electronics technology, starting about 25 years ago. Today, analytical processes are highly automated and—particularly in the case of HP instruments—often linked by computers.

HP has had a major role in creating this growing market, thanks to its broad technological and support capabilities. The HP product lineup includes both gas and liquid chromatography instruments and systems as centerpieces.

The technological requirements tend, in fact, to limit the number of players venturing into this market. But the game played still is hardball.

PERKIN-ELMER

Perkin-Elmer Corporation
- Founded 1937
- Headquarters: Norwalk, Connecticut

This high-tech international company focuses on a broad range of markets: analytical instruments, semiconductor equipment, military optical systems, surface technology (aircraft), Sidewinder missiles, and special-purpose computers.
- 14,580 people worldwide

- $1.29 billion sales
- $72.5 million earnings
- 14,354 shareholders
- R&D: $123 million
- ROE: 11%

Claims top position in the analytical market, with $363 million sales there in 1986.
- Chromatographs
- Spectrophotometers
- Lab information and automation products, systems and services

SHIMADZU

Shimadzu Corporation
- Founded circa 1875, incorporated 1917
- Headquarters: Kyoto, Japan

Member of the Mitsubishi group but operates independently. Big in scientific and process instruments including analytical products; also offers a line of medical and aircraft industry products.
- 4,000 + employees worldwide
- Manufacturing in Japan, US and Europe

- Near $1 billion sales (down 5% from '86)
- $38 million earnings (down 23% from '86)

- Analytical line includes chromatographic, optical analysis and particle-size analysis products plus systems for data processing and weighing
- Medical products: CAT scanners, clinical chemistry analyzers

varian

Varian Associates, Inc.
- Founded 1948
- Headquarters: Palo Alto, California

Varian is a diversified producer of high-tech systems and components sold worldwide. Operating groups include electron devices, instruments, semiconductor equipment, and medical and industrial products.
- 11,600 employees
- Six US manufacturing sites, five international
- 100 sales/service offices

- $891 million sales (from $935 million in '85)
- $14.9 million loss (from $26 million earned in '85)
- R&D: $100 million

- Electron devices were 47% of '86 sales
- Instruments (15% sales) are mainly analytical, and include gas chromatographs, atomic absorbtion spectrophotometers, NMR spectrometers

A tour of a large, modern hospital reveals that medical technology is almost as diverse as the ailments that bring people there. Yet, pure technology—in the sense, say, of a "miracle" machine or cure—is only part of the picture.

Medical technology today must not only contribute to improved health care but do so by reducing or containing costs. These forces converge powerfully in the five market sectors in which HP has directed its efforts:
■ Monitoring of critically ill patients
■ Obstetrical care
■ Cardiography
■ Ultrasound imaging
■ Medical information systems

MEDICAL PRODUCTS

Ultrasound imaging system

HP's Medical Products team offers a wide range of medical products and systems that are cost- as well as care-efficient.

A recent example: The HP ambulatory electrocardiogram system monitors hearts on an out-patient basis, thereby reducing costly time in hospital.
—*Story by Gordon Brown, research by Kathleen Coady*

SIEMENS

Siemens AG
■ **Founded 1847**
■ **Headquarters: Munich, West Germany**

Siemens is an industrial giant spanning a wide range of worldwide markets for communications, electrical and "capital" equipment. Its electrical group is a major supplier of medical products—X-ray and advanced imaging systems, plus patient monitoring and ECG equipment.
■ **357,000 people worldwide**

■ **$24 billion revenue**
■ **R&D: $824 million**
■ **ROE: 11%**

■ **Computerized tomography (CAT) and magnetic resonance (MR) scanners**
■ **Patient monitoring systems**
■ **Pacemakers**
■ **Electrocardiogram systems**

acuson

Acuson
■ **Founded 1982**
■ **Headquarters: Mountain View, California**

Medical diagnostic imaging systems are the core of Acuson's business. Its ultrasound systems are employed in hospitals for diagnosing fetal, cardiac-function and blood-flow problems, as well as abdominal disorders. First shipments began in 1983.
■ **Approx. 400 employees**
■ **Direct sales/service in N. America, Europe and Australia**

■ **$64 million sales (from $31.3 million in '85)**
■ **$11.2 million earnings includes credits (from $3.76 million in '85)**

■ **Acuson 128 ultrasound systems**

W

Westmark International, Inc.
■ **Founded 1986**
■ **Headquarters: Seattle, Washington**

After four years with the Squibb (pharmaceuticals) organization, Westmark was spun off late in 1986. Its ATL (Advanced Technology Laboratories) division markets medical diagnostic imaging equipment, while its Space-Labs, Inc. is in critical-care monitoring and information-management systems.
■ **2,614 employees**

■ **$243 million revenue**
■ **$12.3 million loss ($2.9 million profit for first quarter '87)**

In a number of respects, Westmark is HP's most "head-on" competitor in medical products:
■ **Diagnostic ultrasound equipment**
■ **Hospital-based monitoring systems**
■ **Ambulatory ECG monitors**
■ **Portable patient monitors**

LETTER FROM JOHN YOUNG

HP's president describes the organization's goals for the upcoming fiscal year.

L ast year, I presented the list of my top 10 strategic issues at our Management Meeting in January. Many HP people told me that the list was helpful, but that by January, it was too late to incorporate the issues into their plans. That's why you're seeing them now. This list of 10 reflects not only my concerns but also those of HP's Executive Committee. We spent a good amount of time discussing these during the summer, and I hope we've made it easier for you to determine your priorities for FY 1988 by sharing ours with you now.

Evolve worldwide business strategies that reflect an imaginative understanding of users' needs and a realistic assessment of the competitive and growth environments. This year you're going to be seeing a heightened emphasis on business planning. As examples, the intermediate range plans for 1988 asked for much more thoughtful and explicit discussions of user needs, competitive realities and the dynamics of the marketplace. In a few cases, we may identify new growth areas or the need to exit some businesses. Training on business planning methods will be strengthened. General and functional managers agree this is the biggest need area for skill development. The net result, we hope, will be a better focus—the ability to match our finite resources with the most attractive alternatives and to pursue those to a successful conclusion.

Create the best processes across functions to translate new ideas into successful products. Make these efforts pay off in half the time it currently takes. We used to think of this issue as just involving R&D productivity. The phrasing of it this year—"the best processes across functions"— reflects our view that the real process of new-product development intimately involves manufacturing, marketing and other functions as well. New products must be easy to manufacture and fit our processes. They require documentation and training manuals. And, of course, the biggest enemy of R&D effectiveness is developing the wrong product or changing the features dur-
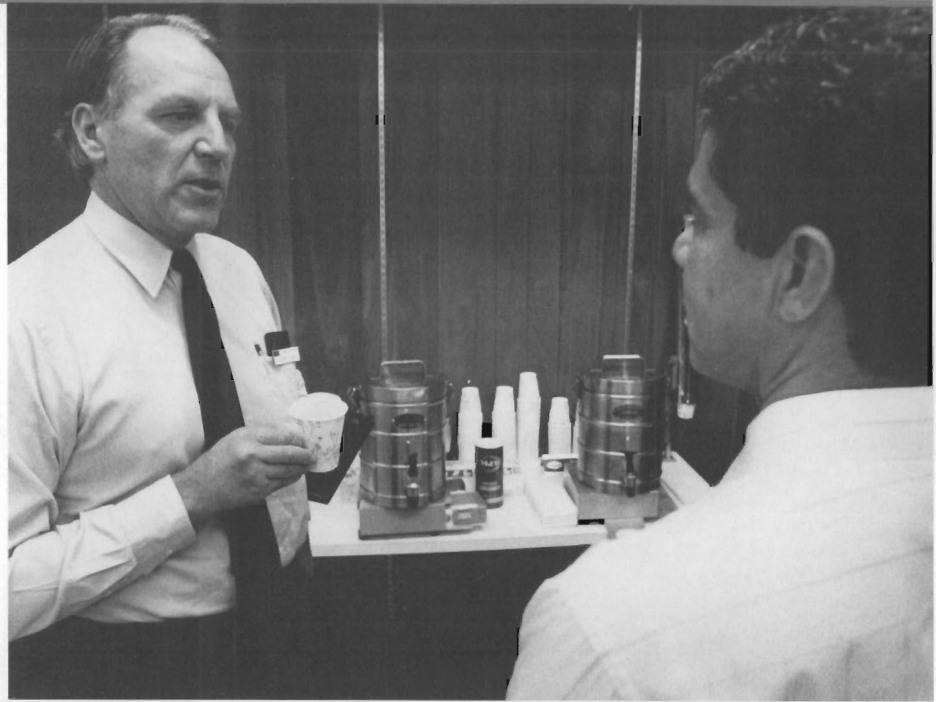
HP President John Young discusses his 10 strategic issues with Mike Cuevas, product marketing manager at the Stanford Park Division.

ing development. All the ingredients must blend properly, and we need to identify the best ways of involving all the functional teams to bring a complete solution to market, as well as metrics to determine the success of our efforts.

Gain customer acceptance of HP as a broad-line computer supplier. With the introduction of our new HP Precision Architecture products, our new UNIX-based operating system, a new personal computer line and terminal family, and our industry-standard networking, we now have a competitive opportunity that we haven't had in recent years. We think our product strength should put us "on the short list" as one of the top three computer partners that corporations should consider. The trend in the computer industry is toward distributed computing, and this is an area in which we pioneered and have much insight. Our biggest challenge is to communicate what we've achieved and to position our marketing and selling structures to address this opportunity. We'll be spending a lot of time on this in the months and years ahead.

Reassert HP's worldwide leadership in the changing instrumentation market. Our traditional instrument marketplace has been weak in the past couple of years, particularly in the US.

We can't sit back and wait for things to swing our way; customer needs and opportunities are changing. Instead, we need to actively identify areas of potential growth and redirect our efforts. As I said in the last issue of *Measure*, there's no shortage of possibilities, but we need a fresh look at how to address them. I know we can broaden our lead as the world's leading instrument company, but we won't do so by resting on our laurels.

Recognizing the differences among various businesses and markets, achieve an appropriate profit contribution from every business. This is a continuation of an issue I raised last year, and it expresses two ideas worth keeping in mind. First, we can't expect all our businesses to achieve the same levels of profitability, as each operates in a different competitive environment. However, within that competitive context, we need to earn appropriate profits in every business. Our corporate interests are best served by having the high quality of earnings that comes from all parts of our organization contributing their share. As our corporate objectives state, profitability is the best single measure of our contribution to our customers.

Make customer satisfaction a competitive advantage. The fundamental reason for being in business is to create

satisfied customers. Doing a good job is a very important competitive differentiation for our company. We continue to rank number one in Datapro's survey of overall satisfaction with computer vendors and enjoy a similar reputation in our measurement markets. Our current emphasis is on a major TQC process to gain more systematic understanding of how we're doing. We intend to use information available from a variety of sources, integrate it and come up with a more "real-time" assessment of how we're doing. A great deal of our success is based on personal attitudes in which HP people everywhere take direct responsibility for ensuring customer satisfaction.

Make continuous process improvements using TQC methods as an integral part of every HP activity.

Total quality control is one of the most important companywide skills we have acquired since we started working on quality in 1980. Our beginning efforts were mainly in manufacturing, but now we are seeing them expand to administrative parts of the company. TQC gives us a way of improving our operations and increasing productivity at a faster rate than our competitors. For example, meeting the goal stated in issue number two above is a good example of a complex process across functions that can benefit from this approach.

Nurture the commitment, satisfaction and growth of our people.

Last year, this issue was listed tenth, and I got all kinds of complaints that maybe it was last because I considered it to be least important. Actually, if I listed my issues in order of priority, this one would probably be first. We can't assume that the magic legacy of "the HP way" will automatically keep us unified and committed in the years to come.

Instead, we have to work harder at it than ever because we have new issues to face. Some divisions are shrinking, and some are less autonomous as they become parts of more integrated systems organizations. With consolidations, people have had to retrain, change jobs or move. Some managers

10 strategic issues

1. Evolve worldwide business strategies that reflect an imaginative understanding of users' needs and a realistic assessment of the competitive and growth environments.
2. Create the best processes across functions to translate new ideas into successful products. Make these efforts pay off in half the time it currently takes.
3. Gain customer acceptance of HP as a broad-line computer supplier.
4. Reassert HP's worldwide leadership in the changing instrumentation market.
5. Recognizing the differences among various businesses and markets, achieve an appropriate profit contribution from every business.
6. Make customer satisfaction a competitive advantage.
7. Make continuous process improvements using TQC methods as an integral part of every HP activity.
8. Nurture the commitment, satisfaction and growth of our people.
9. Make sure HP develops the required technical skills and management capabilities to compete effectively in the 1990s.
10. Simplify and streamline our organizations and management approaches wherever possible.

have found themselves without functions to manage, and others may worry about career opportunities in a more slowly growing organization. We need to assess the impact of these changes and make sure we have the programs and policies in place to help people respond. We're also concerned that the growing complexity of our organization makes it harder to identify and reward individual contributors. As Bill Hewlett puts it, there's a "human side" of management, and we need to focus our attention in this direction.

Make sure HP develops the required technical skills and management capabilities to compete effectively in the 1990s.

Changes in technology and markets mean that we've had to learn new skills, and we've been work-

ing hard to acquire them. Our software training, marketing programs and quality efforts come immediately to mind as examples, but I'm sure we'll need to identify more skill areas in the future. Likewise, we need to learn some new management techniques—such as the ability to do business planning and to coordinate projects that span organizational and geographic boundaries. Some of these management capabilities are things that can be formally taught. Others—such as teamwork—can be encouraged and reinforced.

Simplify and streamline our organizations and management approaches wherever possible.
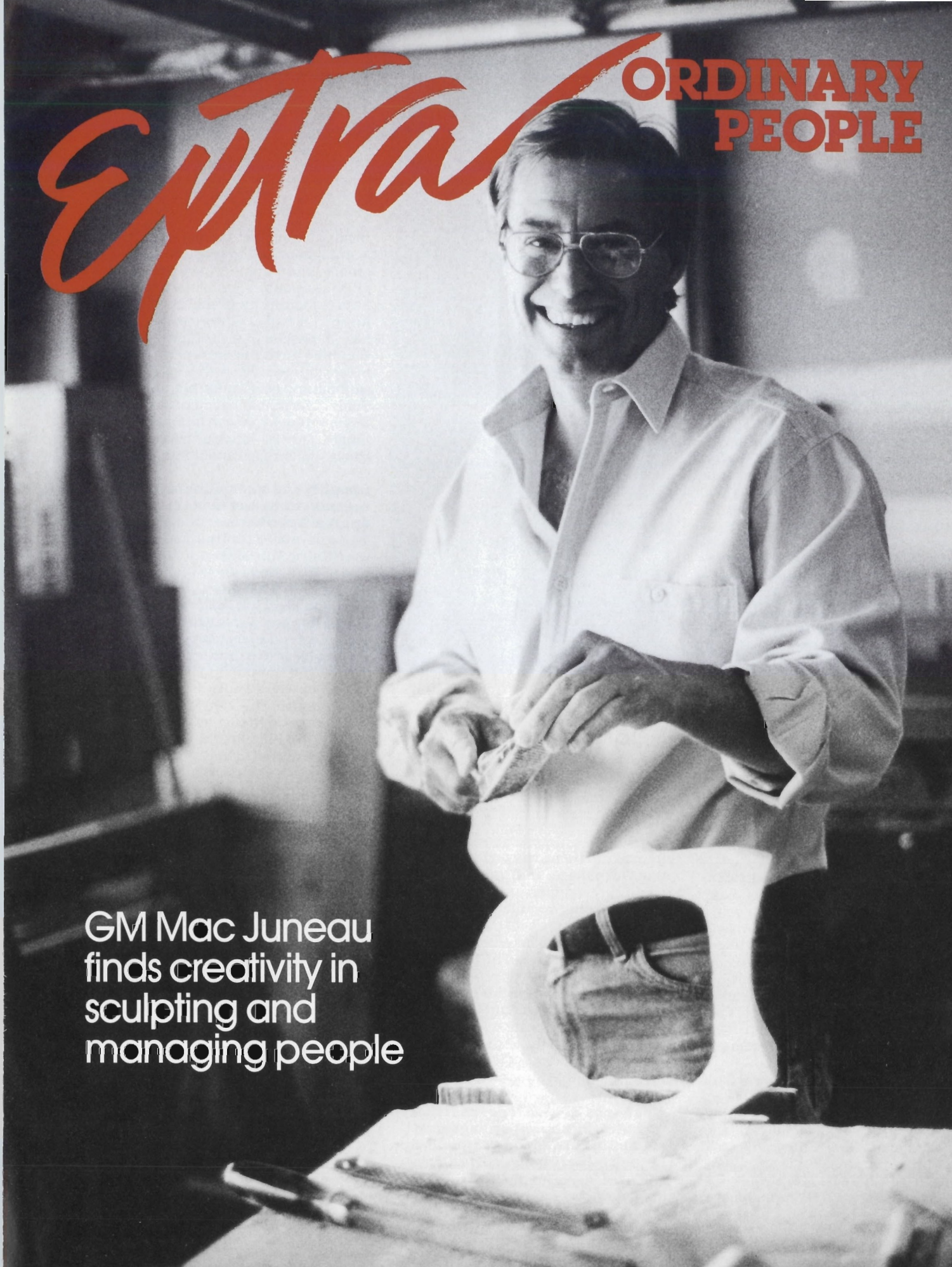
There have been continuing changes in the HP structure since our reorganization of 1984, and I know that they must appear somewhat unsettling to some of you. Actually, what you're seeing is a streamlining of our organization in two ways. One is the consolidation of functions such as IC's, printed-circuit boards and computer manufacturing where scale economies are so important. Another direction is to simplify our systems activities by giving the responsible HP manager the span of control required to implement a strategy. At the same time, however, we want to maintain the sense of personal identification that comes from working within relatively small work groups—to keep the best of the "old" HP while avoiding the kind of fragmentation that makes life too complicated.

Fiscal year 1988 is going to be very exciting for our company. We begin the year with the best product portfolio in my memory. If we can work on the issues above, while at the same time taking the offensive on marketing our new products, I think we'll see the start of a major new period of growth at HP.

Extra/ORDINARY PEOPLE

GM Mac Juneau finds creativity in sculpting and managing people

It's easy to see when Mac Juneau dons dusty jeans and an old shirt and lovingly smooths, refines and flattens a piece of alabaster he's working on in his crowded garage in Loveland, Colorado. Mac stops to squint at the work. He runs his hand along the smooth surface to feel the heart of the soft stone in front of him. Ah, you think, the creative process at work.

But it's a bit harder to visualize that creativity when you see Mac, in business clothes, conferring with his staff in the recently formed Colorado Integrated Circuits Division (CICD) in Fort Collins. Or when he's chatting with employees or even sitting at his desk working out a division strategy...doing the things general managers do. Where is all the creativity?

Yet Mac, the general manager, feels his work as leader of CICD is every bit as creative as his sculpting. In fact, says Mac, for a leader to be successful, he or she must also be creative and foster a creative environment for employees on every level.

"Managing," says Mac, "is very much like sculpting. It's a refining process. When you create a sculpture, you start with a blank piece of stone. A head emerges. Then eyes. Nose. And a mouth. Pretty soon the stone takes on a life and personality all its own. It's the same with management ideas. You come up with a rough solution to a problem. Then you refine it and refine it again and pretty soon you have a strategy that takes on its own life and meaning."

Mac believes every employee, not just general managers, can come up with creative approaches to problems. In fact, he thinks it's crucial for every mind in the organization to feel free to be creative. "The old American style of top-down management won't do anymore," says Mac. "For one, it's too inefficient. The group at the top is just too small to address all the pressing problems in the work place. And it's a terrible waste of brainpower at the bottom to have it work that way."

Mac joined HP in Loveland some 20 years ago after earning a Ph.D. in electrical engineering from the University of Minnesota. He pictured himself being a labbie forever. Then he became

Evidence of Mac's handiwork is sprinkled throughout his Fort Collins office.

Overmanaged and underled

What's needed in today's business world, according to Mac Juneau, are more leaders and fewer managers.

Managers take care of the day-to-day problems, pore over figures and have a short-term viewpoint.

But, he adds, leaders take the longer view and create a vision that everyone buys into.

"I can't always be the leader I'd like to be," says Mac with a sigh. "But these are the values I shoot for every day." A good leader, he says:
■ always asks "Why are we doing this? What else could we be doing?" Mac wants to "keep improving on what we're doing."
■ knows what the group's future looks like. "You should have a vision of what business goals will be accomplished, how we'll treat each other and how the environment will look when the vision is played out."
■ presents a clear set of values for the group and himself. "It's no good criticizing employees for going home early and then go home early yourself. You have to believe in the values you create, then live them."
■ lets people make important decisions about their jobs without worry. Mac believes part of the magic of HP is that employees often figure out ways to eliminate their own jobs. "At HP, this won't result in their being unemployed, so they're safe when they look for more efficient ways to do things."
■ does something Mac calls "encouraging the heart." He says the last time most people have heard applause was when they graduated from high school or college. "We need encouragement for our hearts and souls, and recognition to help us keep going." Mac's meetings usually end with a round of applause for those who deserve recognition.

quality assurance manager of the Loveland Instrument Division. "That," says Mac with an ear-to-ear grin, "put the kiss of death to my lab-ism. It changed my whole perspective." Suddenly the technical side didn't seem quite as exciting as it had to Mac.

"Those little chips we make and people are both pretty miraculous. But the little chips behave the same way every time. Not so with people. Someone you know can change from minute to minute. It's hard to be on the cutting edge of managing people."

Mac says it's no accident that he discovered the art of sculpting about the same time he became a manager. Both opened creative vistas for him.

He took up sculpting after some studio art classes. He did bronze casting and worked in wood, plaster, steel and alabaster—his favorite medium. Now he doesn't feel quite right unless he has some work in process in the garage.

For inspiration, Mac picks up all kinds of objects, from shells on beaches

to bones in butcher shops. He bakes the bones and keeps them in a box that frightens the daylights out of strangers and guests. When he starts a new piece, he pulls out an intriguing shell or bone, makes a sketch and starts refining the pliant alabaster until he's happy with the finished product.

"Sculpting has become an important part of my life," says Mac. "It takes me over completely and keeps me in the here and now. I become very focused, very intense and forget everything else. I lose track of time. I start at seven and suddenly it's 10 and then midnight. It's an incredible way to unwind."

Mac somehow manages to bring that energy to his work at CICD. He also has a way of unleashing the creativity around him. He uses a "what-if" approach that lets people cast off the rigid blinders that prevent them from coming up with novel solutions.

Mac's favorite "what if" is to ask "What if a genie could magically change everything to exactly the way you'd

Working in his garage, Mac refines a piece of alabaster. Management ideas evolve in the same way, Mac says, beginning with a rough solution, then refining it until it's smooth.

want it to be? What would things look like? What would they be like?"

"When I do that," says Mac, "people seem to blossom. At first they may come up with some bizarre ideas. But it's like the sculpting. There may be some very attractive ideas in the bunch. We refine those. Hone them. Smooth them out and then work out the specifics."

Mac also is involved in bringing sculpture and other arts to the community. He's on the board of directors of the Power Plant Visual Arts Center, a project that hopes to convert an abandoned power plant in Fort Collins into a multimedia visual arts center. "We see it as having a community art gallery, studio space for artists, a concert center and classes," he says. "Just a wonderful art center for the community."

It's hard to talk to any of his co-workers without the word "creative" cropping up. "Mac is extremely creative in his approach to thinking, working and living," says Ken Adams, organiza-

tional development specialist at CICD who is helping the division focus on management quality and teamwork. "Mac invites people to think in a non-standard way. He believes that if you think creatively, you can come up with a win-win solution to problems."

Rick Reinoehl, CICD's controller, agrees. Mac, he says, has the ability to take him out of the green-eye-shade, bean-counting mentality that surrounds a lot of the accounting function. "Mac continually challenges us to be creative," says Rick. "It's never the same old way with Mac. He just won't accept that."

Mac's secretary, Sally Bowden, sees a direct correlation between the art that he's created (and with which he's filled his office) and his management style. "He applies all that creativity you see around his desk," says Sally, "to his management style. And he lets you be as creative as you can. He's open to all kinds of new ideas . . . he listens

to off-the-wall ideas and transforms them into good management ideas."

Those who work with Mac believe he brings out the best in people around him because he doesn't let his title get in the way of working relationships. "If you think of a typical g.m. as someone who is hard to reach, then you couldn't call Mac a typical general manager," says Ken Adams. "He gets deeply involved and expects the people around him to do the same. As a result, he's easy to talk to and share ideas with."

Mac himself doesn't feel that being a general manager changes or sanctifies a person at all. "When I wake up in the morning," says Mac, "I don't look in the mirror and say, 'Damn, Juneau, you're a general manager!' I don't have this internal image of being a general manager. The title doesn't change me or make me special. I think of myself as being approachable."

Mac wears an ear-to-ear grin that's hard not to answer with another just like it. Even if you have a splitting headache. Or your mother-in-law has just come for a month-long visit. Or nothing went right that day.

The grin disappears when Mac hovers over his latest alabaster creation in a world of his own. This is the quiet, introspective part of his personality. "There are two sides to my nature," says Mac. "I enjoy talking to people and being with them for eight or nine hours a day. But it's also a real luxury to get off on my own, to enter the world of sculpting or reading or thinking or just being quiet. That replenishes me for being creative on the job the next day."

Mac Juneau believes creativity is the ability to step back and see the whole forest instead of a few trees in front of you. "That's true for creating sculpture or for creative management," he says. "Those two really add a lot of joy to my life. I feel lucky to be able to do them both." —*Shirley Gilbert*

EXTRA/SURE

RON VAN DE KLUNDERT

HP super-sleuth

An HP Vectra personal computer is on the trail of criminals in Rockaway Township, New Jersey. By compiling statistics on types of crimes and people who have been arrested, the Rockaway Police Department pinpoints trends and identifies possible suspects.

Walking on water and other aquatic sports

Because their own long-distance canoeing races have been such fun in the past, HP Netherlands folks led by Ben Sepers decided to stage an entire weekend of water sports—and invite HP teams from across Europe to compete.

The result was a splashing success: the first international Watersportweekend held September 5 and 6 in Giethoorn, a city which has only water roads. Competing were HP teams from Italy, Germany, France and Great Britain along with home-based teams from HP Netherlands and the Northern Region.

Racing events included sailing, windsurfing, and both Canadian and Eskimo canoeing, along with races in the local specialty of puntering—propelling a flat Dutch boat with a stick or a sail. Contestants in the big-watershoe contest came in for the most dunking as they tried to walk on water in inflated plastic shoes.

All hands agreed the watery competition was a great success. The French team took overall honors, which means the next Watersportweekend will be held in the South of France.

JERRY ZEIGER BUCCOLA

Stephanie Vanderberg tries her hand at pre-forming leads.

Vocational training pays off

The eight disabled members of LSID's new on-site subcontracting team are doing more than just lowering labor costs and increasing work-force flexibility. They're also getting vocational training in a "real-world" environment, and excelling at jobs that other employees typically shun.

At LSID, the enclave works in the printed circuit (PC) assembly area producing preformed PC board components. Similar programs are under way in Spokane, Washington, and Böblingen, West Germany.

Lon Sitton

Remarkable insights

Lon Sitton, a production worker at the Disc Memory Division in Boise, Idaho, often sees things that others miss.

He once pointed out an inconspicuous product defect, saving HP an untold amount of rework and expense—a commendable feat for anyone, but particularly for Lon, who has been blind since birth.

His sensitive fingers tell him when something doesn't "look" right.

"Life is full of opportunities," says Lon, who plans to pursue a career in computer programming using voice technology.

Menu du jour

When the menu at Manhattan's famous Four Seasons restaurant says "especially prepared tonight," it means more than just the fresh-broiled swordfish and ripe plum sherbet. The menu itself is cooked up daily, complete with the chef's choice from his repertoire of constantly changing special dishes.

Personal computer publishing technology and an HP LaserJet printer allow the restaurant to update the menu daily and print it in-house.

TECHNICAL SYSTEMS

In a realignment of the Technical Systems Sector, two new groups have been formed, replacing the former Engineering Systems Group and Manufacturing Systems Group. The new Technical Computer Group under General Manager **Bill Kay** comprises all the sector's SPU platform activities. The Engineering and Manufacturing Systems Group under VP **Bill Parzybok** is responsible for the sector's applications and third-party software and systems products.

Also new in the sector is a Software Development Environment organization under **Chuck House** as GM.

OTHER NEW GROUPS

The Systems Technology Sector has formed a new Computer Manufacturing and Planning Group under GM **Brian Moore**. It includes a new Computer Manufacturing Division under GM **Dick Love**, giving entity status to on-going consolidation activities. The division now includes the Colorado Computer Manufacturing Operation (formerly the manufacturing function of the Fort Collins Systems Division) and the Puerto Rico Operation along with the Cupertino and Böblingen computer manufacturing operations.

The Business Systems sector has redesignated its three former business units as groups to recognize their evolving structure. They are now the Personal Computer Group (GM **Bob Puette**), Information Systems Group (GM **Bob Frankenberg**) and Commercial Systems Group (GM **Doug Spreng**).

CHART CHANGES

The Information Technology Group (ITG) has formed a Systems Technology Division under GM **Carl Snyder**. It comprises the High-Performance Systems Operation, Entry Systems Operation, and System Support Engineering.

New entities: In the Commercial Systems Group, Commercial Systems Böblingen under GM **Robert Hoog** replaces the former Böblingen General Systems Division. . .in the Peripherals Group, the Boise Printer Operation under **Rick Belluzzo** as operations manager. . . in the Microwave and Communications Group, the Microwave Test Accessories Operation under **Jim Olson** as operations manager.
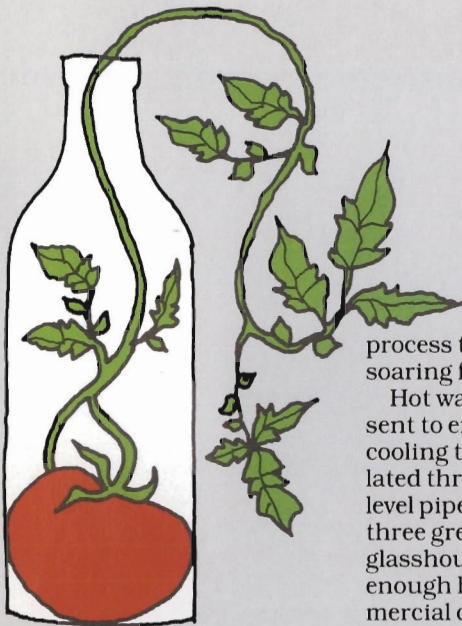
NEW HATS

Georges **Merckx** to country GM in Sweden. . . **Robert Aydabirian** to head French sales organization.

Pat Guerra to operations manager, Personal Computer Distribution Operation. . . **Larry Brown** to operations manager, Barcelona Peripherals Operation.

Jef Graham to GM of the Office Productivity Division.

A recipe for 'stewed' tomatoes

Take two parts Scottish thrift and ingenuity, one part advanced HP technology and blend well. The result—Glengarioch Distillery's fine malt whisky and ...tomatoes?
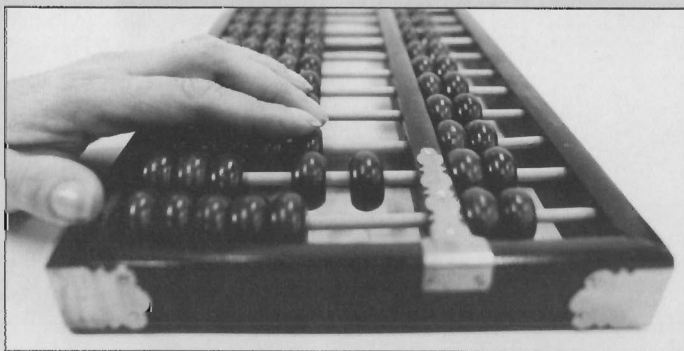
Yes, tomatoes. That's what the people at Glengarioch Distillery in Aldmeldrum, Aberdeenshire, got when they started a process to cut rapidly soaring fuel costs.

Hot water that used to be sent to energy inefficient cooling towers is now circulated through a ground-level pipe system below three greenhouses (called glasshouses). It provides enough heat to grow commercial crops of tomatoes in this cold northern corner of Scotland and is then channeled back into the distilling process.

An HP data acquisition unit linked to more than 50 sensors monitors conditions inside and outside the glasshouses and can respond, at the push of a button, to rapidly changing weather conditions.

In addition to reducing fuel bills, the tomato crops mature much faster than the whisky and help pay the distillery overhead.

Decisions, decisions... made easy

When he left HP after 17 years, Bill Ray, a former engineering manager at the Roseville Networks Division, was shocked to find that not everyone does things the "HP way."

Instead of managment by objective, he found managers who gave orders and employees who followed them—often blindly.

Bill decided to share what he had learned at HP. He designed a software package called Decision Pad (Apian Software, Menlo Park, California) that uses elegant bar graphs to assess any list of alternatives by a set of weighted criteria.

The program lets managers communicate decisions clearly and shows how a change would affect the final result.

You can count on this museum

To let people experience "first-hand" the counting devices used throughout history, The Computer Museum in Boston, Massachusetts, has put together a traveling calculator exhibit, funded by the Hewlett-Packard Foundation.
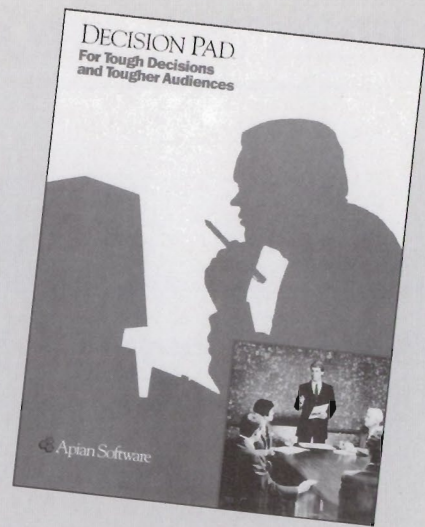
On One Hand...Pocket Calculators Then and Now lets visitors use abacuses, tally sticks, their fingers and other early "calculators" to answer questions like: "How much for bread?" "How many sheep?" and "How far to the moon?"

Alan Silverstein's plaque honors Challenger astronauts (from left) El Onizuka, Mike Smith, Christa McAuliffe, Dick Scobee, Greg Jarvis, Ron McNair and Judy Resnik, who died in the 1986 tragedy.

A lofty memorial

Fourteen thousand, eighty-four feet into the Colorado sky, a memorial plaque bolted in rock pays tribute to the seven astronauts who died aboard the Challenger space shuttle on January 28, 1986.

It was placed there by Alan Silverstein, a software engineer from the Fort Collins Systems Division. Alan fulfilled a personal challenge when he climbed to the summit of the recently named Challenger Point in Colorado's Sangre de Cristo range, and with the help of four companions affixed the 6½ pound bronze plaque. It reads in part, "Seven who died accepting the risk, expanding mankind's horizons."

For Alan, the effort combined his interest in mountain climbing, engineering and space exploration.

PARTING SHOT

Is there a fjord in your future?

HP Norway set sail with a sporting new venture recently when it began sponsoring a highly successful one-ton racing sailboat.

The trim craft is constructed of the same tough material used in bulletproof vests, but weighs only 350 kilograms. A 10-person crew ensures that the 40-foot beauty plies the Norwegian waters with speed and grace.

In its first outing—a grueling 24-hour regatta—the vessel competed against approximately 1,200 sailboats in a tricky race course which snaked through a narrow Norwegian fjord. After eight hours, the "Hewlett-Packard" trailed "Bergans" by one hour.

Then the race tightened. The HP craft pulled even with its competitor 30 minutes before the finish line. As each boat approached an island, HP steered west and Bergans right. With crowds cheering it on, HP coasted to the finish with a 10-minute victory.

Now that's smooth sailing.

PAUL BATT-RAWDEN

MOVED LATELY? CHANGE OF ADDRESS SHOULD BE REPORTED TO YOUR PERSONNEL DEPARTMENT.
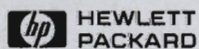
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