

Measure

For the men and women of Hewlett-Packard/SEPTEMBER 1978

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The big race for floor space...

**The company's 1978 construction blueprint
calls for at least 1,000,000 square feet of new facilities
costing more than \$100,000,000...**

□ Reaching a landmark—as the company did in July when its worldwide employment went over 40,000 people—is not something that just happens, casually. HP's Corporate Construction department, for one, must work closely with more than 30 HP divisions in anticipating their space needs two to three years out while also completing much-needed projects planned two and three years ago. Currently, it adds up to a \$100-million-plus annual effort in new sites and buildings.

There's no question that the consequences of not building more plants and offices, or even of slowing the construction program down very much, would be bad for the company's health. With people being added to the worldwide organization at a rate roughly equal to a full-sized division every month, all of us would soon be doubling up in space while having to accept round-the-clock shifts to get the job done. Although that may be profitable for a short while, ultimately such conditions would become an ordeal and a threat to all that is meant by the "HP way."

Nevertheless, just keeping ahead of the space needs of the HP organization is also something of an ordeal for the construction people—like running on an ever-accelerating treadmill.

Their task is simply to deliver more than one-million square feet (92,900 square meters) of new floor space each year—in the right places, at the right times and at the best prices. That wouldn't be the challenge it is if the construction program could be concentrated in a few major locations. Trouble is, such concentrations would go against the grain of the "small company" atmosphere that HP long ago decided it wanted for its divisional organizations.

The result is that the HP builders must deal with many different locations—currently at more than two dozen active sites in widely varying stages of development as plants and offices. In addition, their department has major responsibilities in the site-selection process. That activity alone resulted in two recent news releases in the space of about four weeks announcing that HP had taken options on properties for future plant sites near Roseville, California, and Spokane, Washington. In addition, sales office sites were selected in Madrid and Zurich, while negotiations were underway in a number of other locations.

The builders must also deal with a growing weight and complexity of codes and concerns affecting construction—environmental impact studies, archeological findings, energy conservation standards, and community acceptance.

The HP construction team has devel-

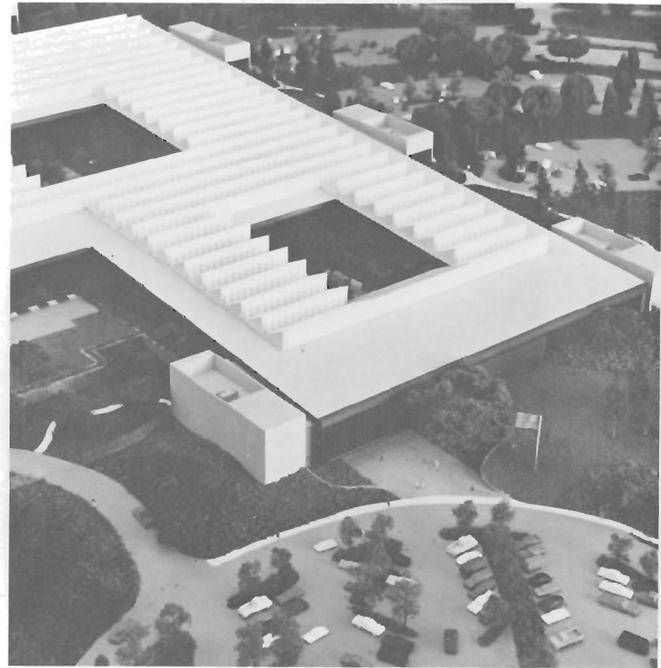
oped some interesting new approaches as a means of coping with the various and sundry challenges that confront it. The following describes some of these approaches, and portrays some of the people and organization involved:

To accomplish the worldwide tasks of construction, HP sets up project teams, each generally made up of a project engineer from Corporate Construction, a liaison person for the division or region involved, as well as an on-site "owner's representative." Working through various committees, the liaison people determine their divisional needs which they interpret for the project engineers who in turn work directly with the various architectural and engineering firms involved in the design. Corporate Construction presently has 20 project engineers assigned to building projects. Headquartered in Palo Alto, they often spend considerable time on the road coordinating projects around the world. Seen here are Jim Walker and Ramsey Hogel, HP's reps on the Cupertino project. Their job basically is to keep an eye on the project, seeing that HP gets due attention from contractors, and to report in detail on progress of the project. As many as 150 construction people from more than a dozen firms may be swarming over a site on a busy day.

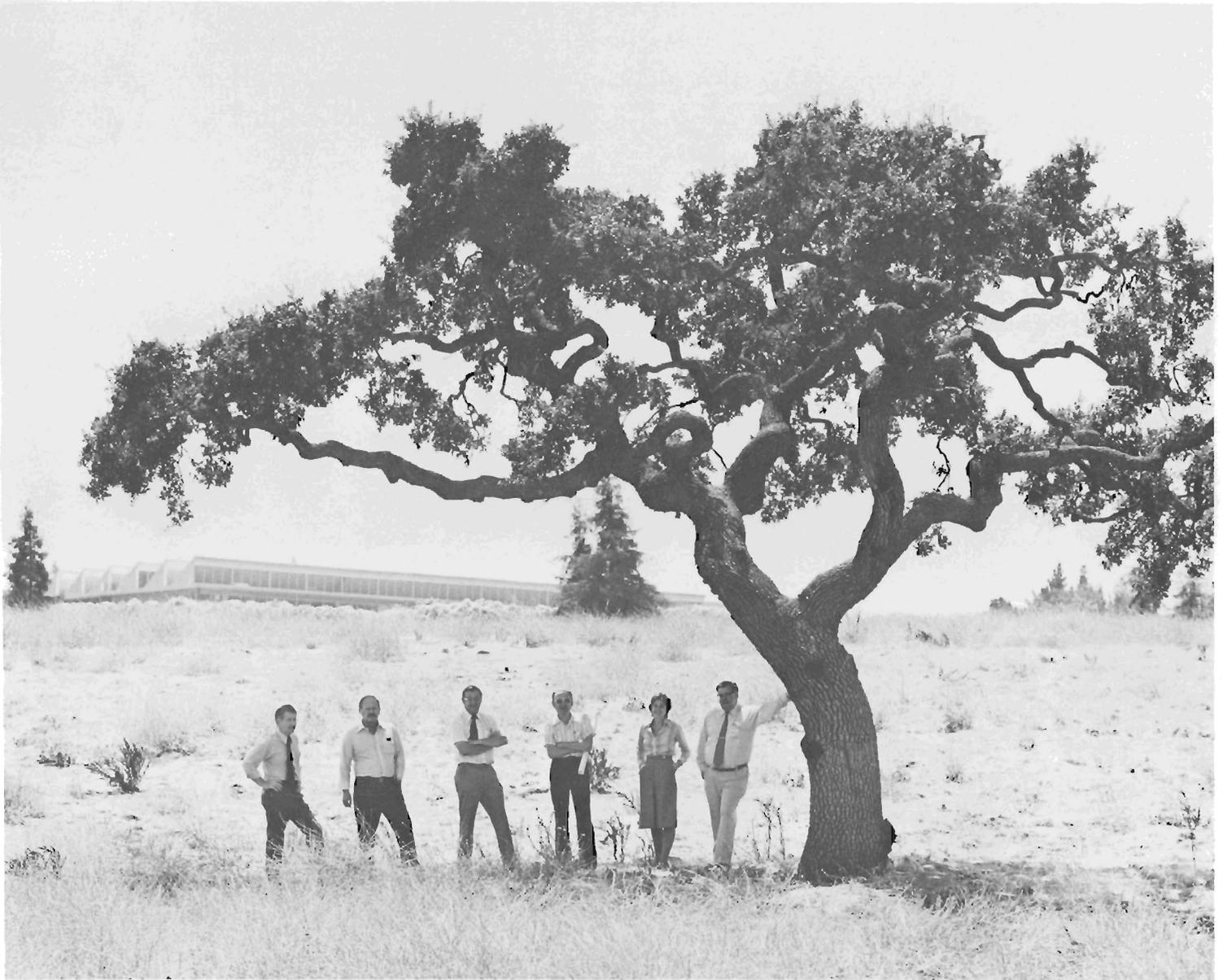


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big race for floor space



Artist's rendering of a proposed new standardized HP sales office is seen here. First use of such a design is scheduled for the new Denver, Colorado, office with others to follow soon after. The minimum size would be 24,000 square feet of floor space, readily expandable in increments of 8,000 square feet up to a maximum of 80,000 square feet. Smaller offices are generally leased. In addition to the single-story design, consideration is being given to a multi-story version which would be used in places where land costs and scarcity are high, as in many overseas markets. According to Mike Talbert, manager of facilities for Corporate Marketing, the standardized building will lower overall building costs and make it possible to reduce the land-acquisition and construction cycle of new sales offices from an average of three years to close to one year. Among the forces compelling this approach is the fast growth anticipated in the staff that will be required by computer systems, as well as the need to provide greater space for customer training and product demos in the major centers.



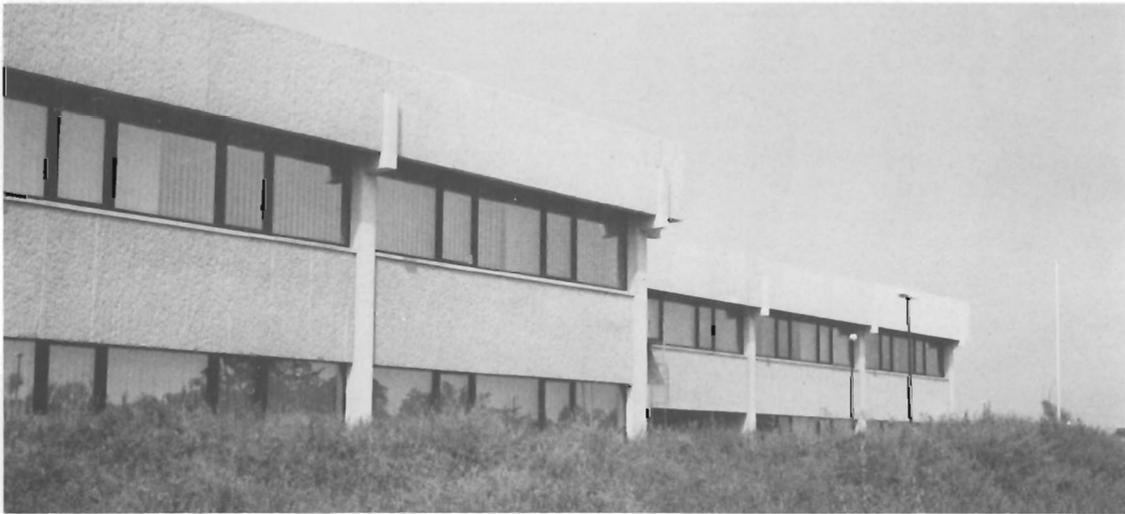
While architectural and engineering plans are still being drawn for the new HP headquarters building in Palo Alto, members of the Corporate Construction team involved in the project gather near the future main entrance on the site, marked by an oak tree.

Gathered in its shadow, from left, are Corporate Construction manager Eric Wood, with Stan Ernst, George Wurtz, Gordon Brandt, Ann Bamesberger, and Phil Tuttle.

Actual construction on the 30-acre site is expected to start next spring, with completion scheduled for late 1980. The project has presented the team and its architectural associates with some interesting challenges. Among these is the slope of the terrain, downhill from the existing headquarters complex. The solution has been to design the 455,000 square-foot building as a series of three steps, while the sawtooth roof will parallel the slope of the hill. The building will help bring together corporate departments now scattered throughout six HP buildings plus other leased buildings.

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big race for floor space



New two-story office south of Milan is now the headquarters for HP Italiana. Consulting plans for the project are, from left: Cesare Tenca and Piero Cantini of the architectural design firm of Serete Italia, with HP's Klaus Kramer, a project engineer from Corporate Construction, and Giorgio Marchesoni, HPI's general services manager. According to Klaus, the workmanship throughout is excellent. Other sales offices were completed recently in Munich and Oslo, while the Orsay headquarters for HP France was extensively remodeled.





HP's concept of a standardized factory-building design is now in full-scale application at some five sites, and will continue to be the "factory of the future" at new locations. The building shown here is the new San Jose home for Microwave Semiconductor Division. The Boise and Corvallis sites were first to use the prototype design, followed by Cupertino and Ft. Collins. Actually, there are two basic types of standardized buildings, one for "wet" processing such as IC and semiconductor manufacturing requiring extensive piping and waste-treatment facilities, the other a "dry" design involving administrative, engineering and assembly operations. Both share the same shell of lightweight steel framing with end walls precast in concrete. Of course, the appearance of each building is individualized through the use of different exterior treatments. Initial units generally are about 150,000 to 180,000 square feet of floor space.



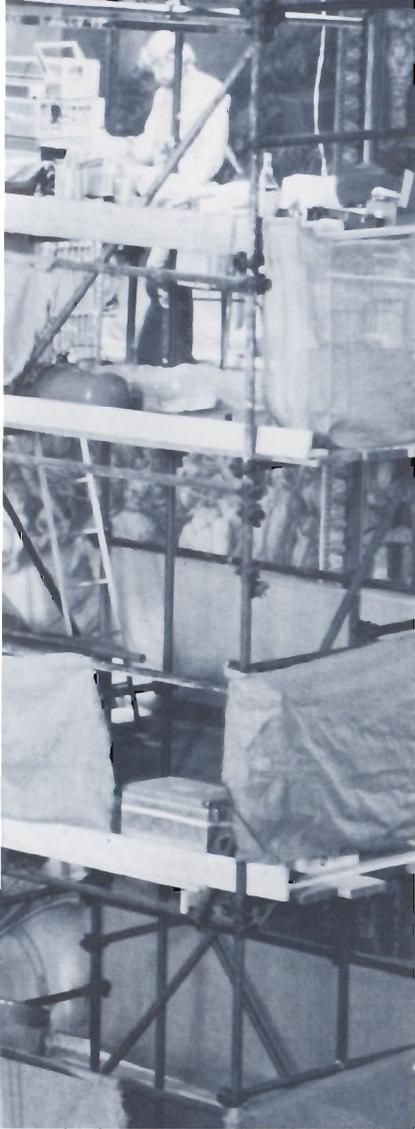
Eric Wood, Corporate Construction manager, and Glenn Affleck, Environmental Control coordinator, review 1979 spending targets in the areas of conservation and reclamation, pollution control, and water treatment. These have become major items in a capital budget for construction which will exceed \$100 million in 1978. Board in background is used to record progress of major building projects around the world. □



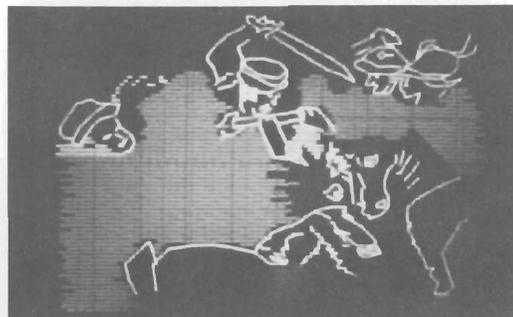
The unfinished search for Leonardo's unfinished work.

□ In August, 1976, Merlene Moore, a secretary to the sales staff in HP's San Diego sales office, answered a phone call from a Dr. John Asmus, an associate research physicist at the Institute of Pure and Applied Physical Sciences of the University of California in San Diego.

The call was a request for the loan of an item of equipment, an HP 1331A CRT display. Its specific use would be to display data from an ultrasonic scanning system. Technically, that's routine. The ultimate purpose was much more fascinating: To aid in the search for a large "lost" wall painting by Leonardo da Vinci, "The Battle of Anghiari," thought to have been hidden behind layers of plaster and brick in the Salone de Cinquecento (Hall of 500) in Florence, Italy, following a period of political upheaval. According to Carlo Pedretti, professor of art history at the University of California at Los Angeles,



In Florence's Hall of 500, painting by Giorgio Vasari is believed to be part of structure hiding earlier work by Leonardo da Vinci. At right and below are stages set up to help scientific team probe the wall ultrasonically, using HP instrument to display data.



Here's how the ultrasonic probe system records a section of the Vasari painting on HP 1331A CRT display.



discovery of the da Vinci work would be the artistic find of the century.

Dr. Asmus himself saw the project as another example of the way in which technology can support the arts. Since 1972 he had experimented with holograms—three-dimensional “photographs” derived from the fringe effect of lasers—of the deteriorating art of Venice, Italy, recording its images before air pollutants reduce these works to faceless, featureless forms. In the course of this work, Asmus discovered that laser light could clean stone by vaporizing the pollutants. In time, he extended this technique to more delicate works of art such as paintings. Inevitably, the question came up: what about the lost Leonardo? Could he and his colleagues non-destructively test for its existence behind a brick and plaster overlay? Then, could they develop a means of revealing it to the

world as it was at the time of its concealment?

In answer to the first of those questions, Asmus designed the ultrasonic scanning system he took with him to Florence in 1976. His request to HP for a “loaner” resulted in the donation of an HP 1331A employed in the system. With it the team of scientists and artists were able to “probe” the Anghiari wall, observing and recording the structure of the overlay built by the artist Giorgio Vasari in 1565.

A report titled “Interpretation of ultrasonic data from the Hall of Five Hundred,” prepared in May 1977, describes those findings in some detail. While not conclusive in locating “The Battle of Anghiari,” they are far from being negative. Actually, the Asmus team had hoped to return for more exploration which they feel is necessary before under-

taking the second and even more demanding task. But the political and economic turmoil of Italy ruled that out for the time being. Now, Asmus believes, it's quite possible that the project will never be completed—for the same reasons as the delay.

But he is far from discouraged at the larger task of relating technology to art. As a result of their work, Asmus and scientists of similar bent are now in greater demand than ever for projects of restoration and discovery. One recent one by Asmus involves determining the pattern of the original art in California's state capitol at Sacramento, another the search for a possible source of the Atlantis myth on the Mediterranean island of Thera. It would seem that the worlds of technology and the arts have suddenly and enthusiastically rediscovered each other. □

New directions in retirement at HP..

When you retire from work is a matter of where you are—geographically, emotionally, financially. U.S. employees now have some new options in preparing for retirement...

□ From all the activity at HP these days related to retirement, it would be easy to think that a large number of employees are about to reach the end of their working careers.

Actually, according to John Doyle, vice-president of personnel, Hewlett-Packard is still a young company with relatively few retirees. True, more people are retiring each year, but they are still a small percentage of the total number of employees due to the company's continued growth.

"What will really change the make-up of the company some day is when we cease to grow in employment at the annual rate of 10-15 percent," Doyle says. "Our average employee age is still in the mid-thirties and only going up one year every four to five years. When we are a fully mature slow-growth company, the average will go up faster."

Talk about "retirement" these days and you have hold of a relative term with differences in timing and interpretation throughout the Hewlett-Packard world.

In the United States, people are no longer locked into a work career that cuts off exactly at age 65. The time frame has been widened: you can receive reduced Social Security if you retire as early as age 62 or you can continue working until 70 under new Federal legislation passed this spring. Nor does terminating at HP neces-



sarily mean an end to working, as any retiree who's bought a trailer park or other small business as a second career will testify. In recent years Hewlett-Packard has maintained statistics on when people leave the company, as required by the Employee Retirement Income Security Act of 1974 (ERISA). Based on this relatively small sample, it appears that 40 percent of those who terminate between the ages of 55 and 65 stay until 65—with another 33 percent leaving at ages 60, 61, 62, 63 or 64.

The concept of 65 as the age for collecting benefits was first established by Germany's Chancellor Otto Bismarck in 1889 when he introduced the world's first comprehensive program of social insurance. Admittedly, at that time 65 was a somewhat unlikely age to reach since life expectancy at birth in Germany (as in the U.S. at the time) ranged between 40 and 45 years.

As the idea spread, other governments picked up the age of 65 as standard for retirement. A number of variations exist today, with retirement age set anywhere from 55 to 67 in those countries where HP has employees. Women retire five years earlier than men in Austria, Belgium, Greece, and the U.K., and three years earlier in Switzerland. Brazil pegs retirement benefits to a period of 30 years of work rather than a particular cutoff age.

Changing social and economic factors in a country can affect the retirement age. At the same time the U.S. was making it possible for people to work until 70, a number of Western European countries were passing laws to lower the retirement age in order to create openings for jobless young people. And in Japan, where retirement age was originally set at 55, the government is pushing for a change to 60 to reflect a dramatic increase in life expectancy during recent years.

The role of Hewlett-Packard in providing retirement benefits for long-term employees is also different in each coun-

try. As a rule, any HP retirement plan is coordinated with the social security benefits of a particular country. In Sweden, government provisions for retirement are so substantial that HP participates through paying high taxes levied to support the system. Singapore has also established a strong government system which provides an individual fund for each worker that can be borrowed against to buy a home or equity shares in the local bus company.

Lee Seligson, International personnel administrator, helps determine benefits for HP employees in 30 countries outside the United States.

"First you develop a defined benefit objective and tailor it to the traditional practices, laws and cultural expectations of the local environment," says Lee.

"Just as in the U.S., we feel an obligation to those people who have worked most of their lives for HP. What does a person need to live on in relation to what they have been earning? What does the government of that country do for them upon retirement? What should HP do additionally in view of the high cost of providing retirement benefits?"

In the same spirit, HP has just restructured retirement plans for 29,000 U.S. employees by adding a guarantee that takes the risk factor out of the deferred profit sharing plan which is responsive to fluctuations of the stock market. Combined with Social Security, the new HP coverage insures that 30-year employees will retire at 65 with a spendable income that replaces a reasonable portion of their former working income. HP's actuarial consultants call it a sensibly designed plan using a modern approach.

The HP plan is unusual compared with plans of other companies in allowing early retirees to make a lump sum withdrawal before reaching 65, although the preferred solution for many people is an annuity which provides a guaranteed income for life.

At the same time, HP is placing greater emphasis on pre-retirement counseling for the increasing numbers of U.S. employees who are 50 or older. The success of group

Age profile of HP employees in U.S.

Age	No. of employees
55	248
56	203
57	214
58	173
59	165
60	112
61	112
62	79
63	53
64	40
65	18
66	2
68	1

sessions which have been held at Palo Alto headquarters since 1970 has led to making similar information more widely available. LeJeune Whitney of Corporate Training and Management Development has developed resource materials for a seminar series covering health and fitness, Social Security and Medicare, estate planning, and legal and financial planning. Seminars will be held in divisions and larger sales offices for eligible employees and their spouses, with the same topics featured in a series of video tapes available for individual viewing in smaller sales offices.

As the numbers of HP retirees continue
(continued)

retirement at HP

to grow each year, new ways will be found to help them keep in touch with the company. McMinnville Division in Oregon, which has a number of long-service employees from the acquisition of the former Field Emission Corporation, includes retirees in annual company social activities and retirement parties. A record-breaking number of HP retirees attended this year's combined Waltham/Andover Hoedown picnic. At South Queensferry Division in Scotland, where it is not unusual for employees to work until 70, an annual party is hosted for all the community's old-age pensioners. It includes some vigorous highland dancing.

Colorado Springs Division reached out to let its retired employees know about HP's new policy ending mandatory retirement at 65. As a result, the first HP retiree to return to work after retirement at 65 is now back at her production job at 68. That's another of the new directions in retirement available to some HP employees these days.



To bring pre-retirement information to employees at HP locations too small for group counseling sessions, the company has prepared a new video tape series for individual use. Here Horace Mockett, region order processing manager in Neely Sales Region's North Hollywood headquarters, follows a screened presentation on financial planning in the study guide which comes with the tape. A second binder contains additional resource material on the topic. Two sets of the video series will be rotated among the region's sales and service offices.

The retirement outlook for some of today's 29,000 U.S. employees:

If you're now 30 years old, retirement from work seems a long way away—and you share that boat with a lot of other HP employees.

Right now there are more 30-year-old HP employees in the U.S.—932 to be exact—than people of any other age. (Thirty isn't the “mean” or average age, though. If you add the ages of all HP employees together and divide by the number of people, the mean age is 37.)

Coming along behind you is the nation's population bulge: the record-breaking number of babies born after World War II and peaking in the year 1957. More than half of all the people in the United States today (53 percent) were born after World War II and are under the age of 33.

Actuaries who put together figures for private and government retirement plans are looking very thoughtfully at the sheer numbers you represent. The first wave of your group will reach their sixties just 28 years from now in 2006, and you'll be 60 yourself two years after that. By then the work force will be affected by the present trend toward a lower birth rate. There will be fewer young people to pay into Social Security and fewer available people for jobs. You may well find yourself continuing to work longer than you now expect—if, indeed, you've thought ahead to retirement at all.

If you're 40, you still have half a work career to go before you retire. But it's not too early to do some serious financial planning now.

Like most company retirement plans, HP's combination of the deferred profit-sharing plan backed by a supplementary pension guarantee is designed to combine with Social Security to provide you with a livable income after a full career with HP.

Financial planner Fred Kline, who appears in several of the new HP Pre-Retirement tapes used for self-study, says that the best age to start thinking about plans for retirement is the day you begin working. Maybe you're already doing so unconsciously by participating in the HP stock purchase plan, buying a house, saving money. As you get more discretionary income to invest, you look for a way to have your assets in the right amount in the right places so money will be available to you when you need it. You don't yet

feel the urgency of time, Fred says; you can take a few risks now that you couldn't afford later on in your 60s when you wouldn't have time to recoup losses.

You may still be too young for the pre-retirement seminars, but you can and should borrow some of the video-tape material from personnel.

If you're 50, you have watched the aging of your parents' generation and started to give some thought to the timing of your own retirement.

If you're a man, you may be leaning toward retirement when you're 62, 63 or 64 rather than waiting for age 65. (Nationwide, 62 seems to be the most popular age for men in industry jobs to retire.)

Ever since Social Security rules were changed in 1961 to permit men to retire at 62 on reduced benefits, men have been leaving the work force early in increasing numbers. Between 1961 and 1976 the number of men in the 55-to-64 age range who were still working dropped 15 percent.

If you're a woman, the chances are good that you'll continue to work later than a man your own age. The many women who have returned to work in recent years after raising a family may need more time to build up deferred profit sharing and Social Security credits. As a woman, you also have a longer life expectancy than a man your age. (Women who do wish to retire at 62 on reduced benefits have had that privilege since 1956.)

If you are 60, you're now actively deciding when—or if—to retire in the next five years.

By now, you undoubtedly have your answers ready for the crucial questions:

Retire before eligible for any Social Security coverage? Retire between 62 and 64? Retire at 65? Work until 70?

Whenever you retire, such fringe benefits as life insurance and long-term disability (LTD) come to an end. If you qualify according to a formula which considers your age and length of service, you and your spouse can receive HP medical coverage upon your retirement. This benefit was pioneered by the company in 1975 to supplement Medicare, and is extended to qualifying early retirees.

Or if you decide to stay on the job beyond 65, you continue to receive your regular pay but lose forever the Social Security benefits you would have been collecting during the period you work. (However, Social Security could be increased later when you start to collect.) You'll continue in the deferred profit-sharing plan and receive most HP benefits except for LTD, life insurance and the supplemental pension plan.

You've also taken into consideration how long people in your family generally live when trying to decide between a lump sum retirement fund payout or an annuity with monthly payments to you and to any beneficiary you wish to name.

Retirement is just around the corner. A new life with a wide range of choices for your use of time is about to begin. □

HP News

Third-Quarter Results Reported

PALO ALTO—Hewlett-Packard has reported a 26 percent increase in sales and a 9 percent increase in earnings for the third quarter of the company's fiscal year ended July 31.

Sales for the third quarter totaled \$428.1 million, compared with \$341 million for the third quarter of fiscal 1977. Net earnings amounted to \$33.2 million, equal to \$1.14 per share on 28.9 million shares of common stock outstanding. This compares with earnings of \$30.5 million, equal to \$1.07 per share on 28.4 million shares during last year's third quarter.

Incoming orders amounted to \$492.4 million, a gain of 35 percent over orders of \$365.2 million booked in the third quarter of fiscal 1977.

President John Young said, "Earnings in the third quarter were adversely affected by shipment levels well below plan of a new line of handheld calculators, due to delays in the delivery of critical integrated circuits. Supply has improved, and we anticipate increased shipment levels in the fourth quarter.

"In addition, earnings were influenced by continuing start-up costs for two new integrated circuit production facilities to support new computer and calculator products.

"Shipments in other product areas, although approximately as planned, were again outpaced by our continuing strong level of incoming orders. Production is being increased to meet the higher order rate, which should have a beneficial effect on the company's performance in the current quarter."

Preliminary figures show that, for the third quarter, HP's electronic test and measuring instru-

ments and components accounted for approximately 43 percent of sales. Computer and calculator products accounted for 41 percent, medical electronic products 10 percent, and analytical instrumentation 6 percent.

Sales for the nine months amounted to \$1.2 billion, a 24 percent increase over sales of \$980.9 million for the corresponding period last year. Net earnings rose 14 percent to \$101.4 million, equal to \$3.51 per share. This compares with earnings of \$88.7 million, equal to \$3.13 per share

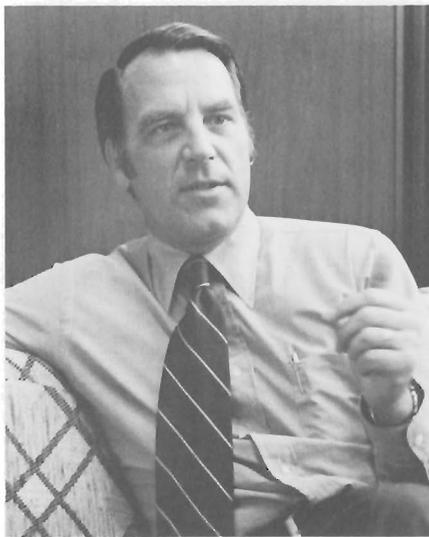
during the first nine months of 1977.

According to Young, "Orders in the third quarter were well ahead of our projections, with international markets showing particular strength. Orders from U.S. customers amounted to \$262.5 million, up 33 percent from last year's third quarter. International orders rose 37 percent to \$229.9 million."

For the nine months, domestic orders amounted to \$707.2 million, up 25 percent from \$563.8 million. International orders increased 34 percent to \$667.0 million.



Expectant mothers who would otherwise be confined during early labor while the heart rate of their unborn babies is monitored now have new freedom. The HP 8020S Fetal Telemetry System shown here allows such mothers to move about the maternity ward after labor has begun, carrying only a pocket-sized transmitter connected to electrodes from the fetus and abdomen. From the radioed ECG signal, the HP monitor calculates and records the fetal heart rate. Fetal monitoring is increasingly important in assessing the well-being of unborn infants, but many women have raised objections to the confinement required by conventional systems. The new HP system is the first of its kind commercially available.



From the president's desk

We have just completed the third quarter of our fiscal year, and I'd like to comment on the figures we have reported.

The strong trend in incoming orders has continued. For the quarter, we booked \$492 million, an increase of 35 percent over last year, and well ahead of our targets. Order growth rates for domestic and international are about equal. The slowing of the U.S. economy often mentioned in the press is certainly not evident in our results.

In reviewing our first-half performance several months ago, I noted that our backlog at that point had increased by almost \$100 million just since the beginning of the fiscal year. That pattern continued in the third quarter and, in fact, accelerated as we added an additional \$62 million. Unfortunately, we have been unable to convert our substantial order growth into shipments.

We were a little short of our original shipping targets in the third quarter for two reasons: 1) failing to clear our international pipelines, and 2) shipping problems with new handheld calculators.

Nearly half of our shipments are to customers outside the United States. Most of these shipments originate in U.S. divisions, and therefore pass through various shipping points where country sales organizations must process papers and invoices before delivery to the ultimate customers. These pipeline transactions slowed during the quarter, so we did not get credit for these customer shipments. The European and ICON management teams are working on this problem.

The Corvallis Division had a very difficult quarter, and shipments were well below target. The outside vendor of the processor integrated circuit for our new series of handheld calculators has experienced difficulties in getting this chip into volume production. We are making an all-out joint effort to solve this problem, and we are beginning to see some progress.

Cost of products sold in the third quarter increased above levels we have recently experienced. This is due in part to substantial start-up costs in getting major integrated circuit facilities fully into production at Cupertino and Corvallis. Additionally, we have booked some inventory variances. It's better to recognize these now, rather than having them become a year-end surprise. We are reviewing the specific situations.

Our expenses grew at a somewhat faster rate than shipments. In the marketing area, many expenses such as order processing and commissions were up as a result of our strong order rate. However, some divisions have not done as good a job as we would have liked in matching expense growth to shipments.

Calculating our company's tax rate is a formidable task indeed. We have more than 30 subsidiaries, each with local governmental tax regulations. Additionally, the currency changes against the dollar as in the case of the German Deutsche Mark produced translation income for HP, which is not taxable on a local basis. After nine months of the year, we have lowered our tax accrual about one percentage point so that helps our profit picture.

The net result of all of these factors is that our profit growth of 9 percent over a year ago is less than the sales growth of 26 percent. We must continue to give number one priority to getting our shipment levels up during the remainder of the year. As I indicated earlier, our backlog is higher than we'd like, and is affecting customer deliveries. Also, increased shipments will better match expense levels, and get our profit figure more in line.

On a different but related subject, the Executive Committee has given final approval for next year's order quotas. It appears that HP should have another strong year of order growth. Quota approval is the beginning of the targeting process for fiscal 1979, and I'm sure many of you will be involved in this process during the next two months.

As we put these targets together, we will be placing a great deal of emphasis on consistent shipment growth quarter-by-quarter, and particularly in getting a good start in next year's first quarter. We also will be watching expenses closely, to make sure that they track shipments, and that for the year their total grows more slowly than shipments.

With the "above trend-line" growth we've enjoyed in the last two years, it's important that we get profits up so that we will have the cash to invest in the plants, equipment and supporting facilities we'll need in the future.



The HP VPer...



"Van pooling" just has to be one of the smartest ideas to come out of industry since flexible work hours. By providing group rides to and from work at cost, it's seen as an important answer to problems of traffic congestion, energy conservation, air pollution, parking, and the high cost of individual commuting. It's also comfortable, convenient, friendly—and probably safer.

HP first tested van pooling in 1976, using three vehicles to connect employees in various South Bay communities to Palo Alto work sites at least 20 miles away. Results were completely successful, so now there are some 21 vans on the road, each carrying 10 paying passengers plus the driver. Because the program is self financing, HP is willing to add almost any number of vans as long as there are enough people in a given area willing to support the pool. At last reports, the idea was spreading to San Diego and Santa Rosa, while other divisions also were exploring its possibilities.

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