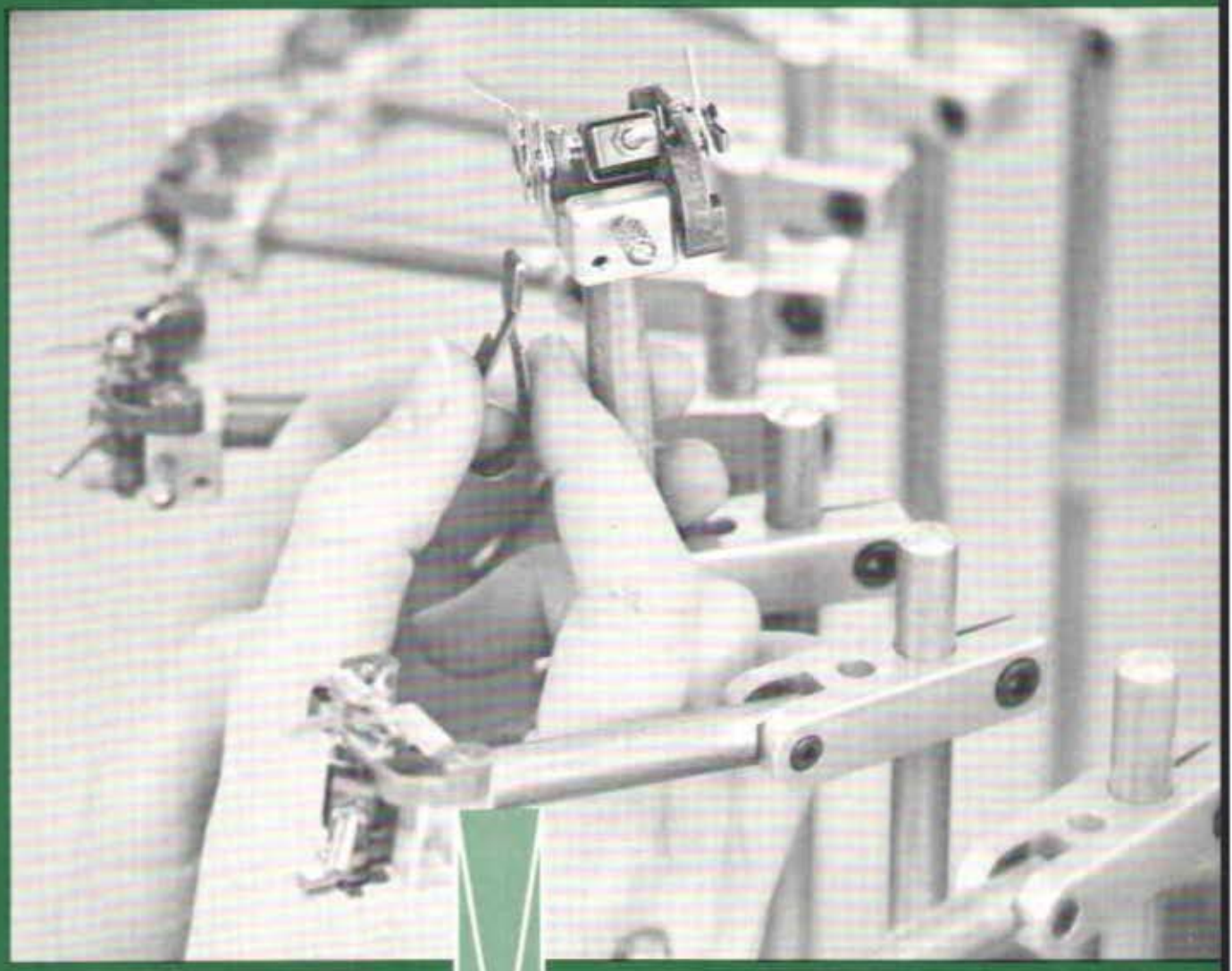
March 1964



Measure

In this issue

from our president's desk

ONE OF THE MEASURES of a successful company is its ability to plan for the future. This applies not only to the planning of products, plants, financing, and other basic factors affecting the course of business, but also to long-range personnel planning. We must always look ahead to see that we have an adequate number of qualified people to staff our growing operations, and that these people are well paid and enjoy broad employee benefits, including a sound and comprehensive retirement program.

During the early years of our company, we had little need for a formal retirement policy. As we grew into a much larger organization, however, we found it desirable to have a corporate-wide retirement plan. This assures that all of our 6,000 people in the United States will be treated alike, and should they move from one part of the company to another, will enjoy the same retirement benefits.

We have also reached the point where it is desirable to adopt a fixed retirement age, so that each individual will know when he is to retire and can plan ahead for it. This also enables us to know well in advance when specific individuals will retire, so we can help in planning their retirement and also make adequate provision for their replacement.

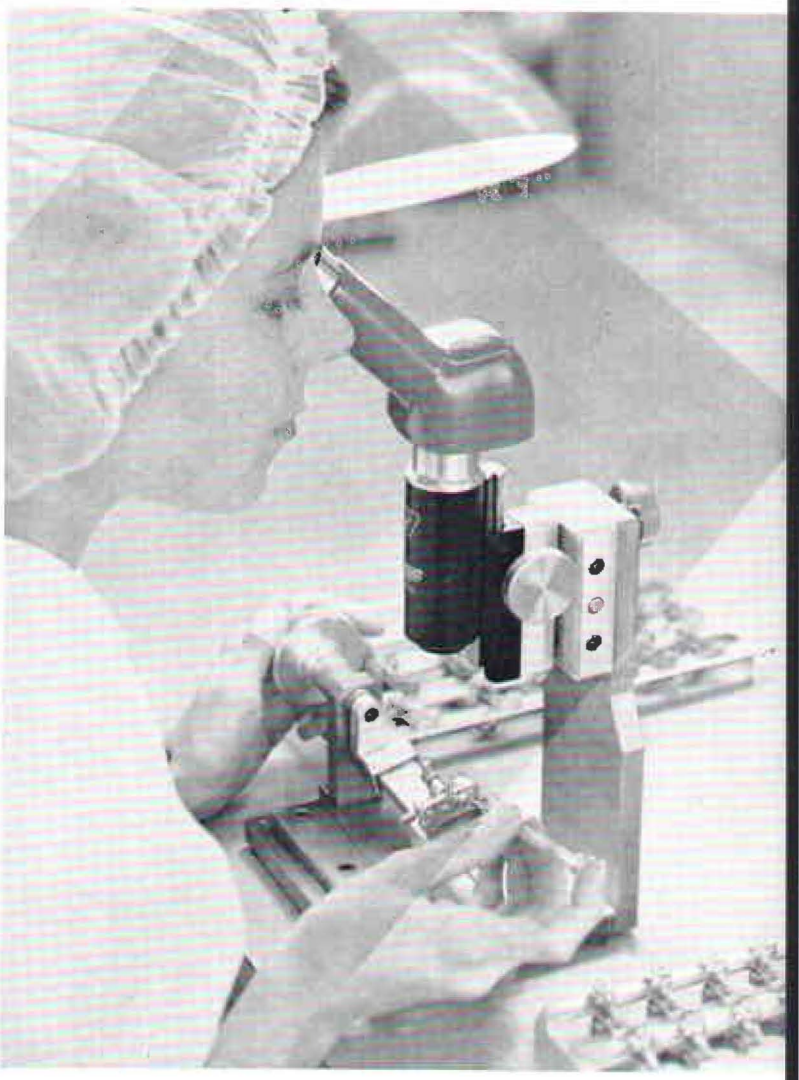
At a recent meeting our Board of Directors set a mandatory retirement age of 65, with the option to retire earlier if so desired. Prior to this action, the Board made a thorough review of retirement practices throughout industry and found that 65 is normal retirement age in 90 percent of the companies surveyed. This is due in part to the fact that Federal Social Security becomes applicable at 65 to everyone who is eligible, or at age 62 on a reduced basis.

At present there are relatively few people within the corporation who are near or above retirement age. These people have already been advised individually of our policy, and are being assisted by our personnel staff in planning their retirement. As time goes on, we intend to contact people five years before their retirement and follow up with them during that five-year period to help them make a smooth adjustment to retired life. There is no question that retirement does involve a major adjustment, and for this reason the company has a very sincere interest in this counseling program and intends to spend considerable time and effort on it. However, any company program can be of only limited help. Successful retirement is largely a personal matter requiring a great deal of individual thought and planning.

One of the principal concerns to individuals retiring is the question of medical and hospital insurance coverage. Although there are policies available to people in this age bracket to which present policies can be converted, these are rather expensive. To help alleviate this problem, we are temporarily adopting a policy covering up to $2,500 of medical and hospital expenses of the employee and his spouse for an eight-year period. To be eligible for this, one must retire after age 60 and have been with us at least ten years.

There are other detailed aspects of the retirement program which your supervisor will be happy to discuss with you, or which can be explained by our Palo Alto or your divisional personnel department. The important thing is that all of our people be aware of the age 65 requirement, and of our intention to do everything possible to assure a well-planned, successful retirement for everyone in the company.

David Packard



Betty Burr, meter assembler, adjusts the axial position of a moving coil.

The platinum twist for HP meters

THERE'S MORE TO THE TWIST than meets the eye at Hewlett-Packard.

The twist in point is that performed by a tiny platinum band in the heart of HP's recently introduced taut band meter.

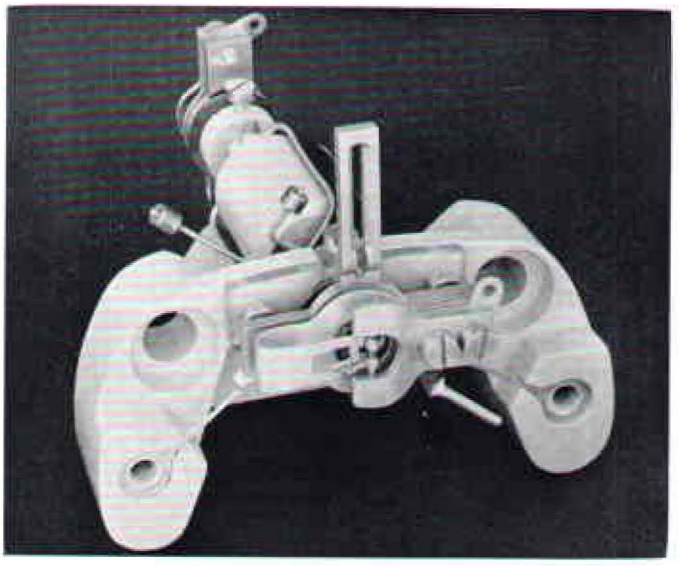
Creating better components, better designs, and better methods of quality assurance is a continuing and underlying philosophy at HP—and the HP twist is an offshoot of this effort, relating specifically to the meters used in many HP instruments.

The taut band meter story really starts several years ago when the company pioneered an automatic system to calibrate and photographically print a meter face to match the characteristics of each individual meter. The need was obvious. Having a standard scale for all meters means that each individual meter can be expected to have a small error in "reading." This is because each meter, no matter how precisely built, reacts differently to an electrical current. By recognizing the existence of variation, and printing individually calibrated scales for each meter face, extreme accuracies of better than one-half of one percent are consistently achieved.

After all of this work, the problem would seem to be dismissed. But following the HP philosophy, the quest for improvement continued and the HP twist—better known as

(continued)

MEASURE'S COVER shows the skilled hands of Lois Osborne of Loveland preparing to solder a platinum band to an anchor spring which serves to keep the band taut.



Instead of pivots and jewels, the moving coil in a taut band meter is suspended on a platinum alloy band—eliminating friction and insuring excellent repeatability.

The platinum twist *(continued)*

the taut band suspension—emerged.

The taut band principle has long been known. A galvanometer, for example, is essentially a taut band system with moving coils suspended vertically by a wire or band which supplies the restoring torque.

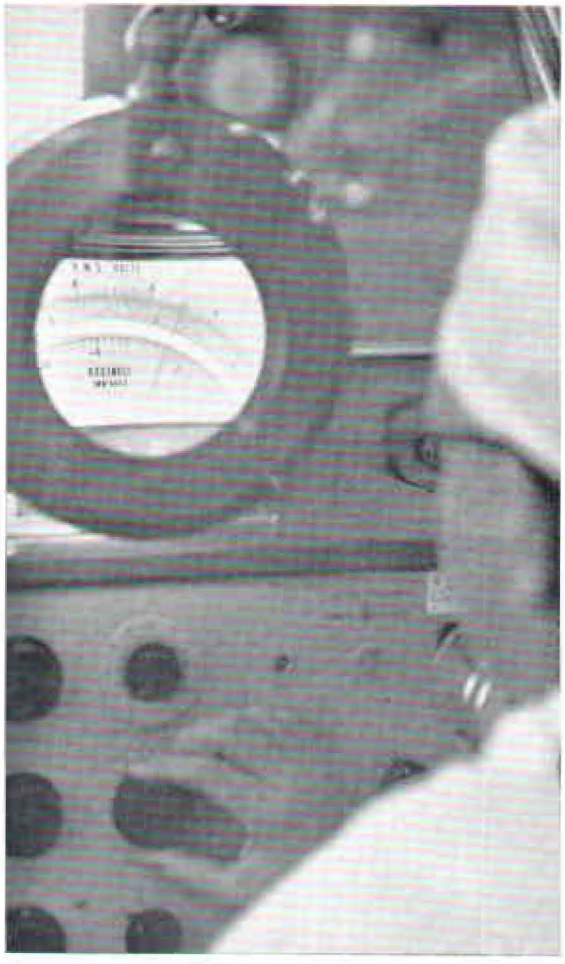
But, it wasn't until recent efforts of a German manufacturer —Siemans and Halske—that a taut band of short length and horizontal suspension (the needed elements) became a practical reality. A licensing agreement with that company was obtained, and for over a year now the Loveland Division has been producing all the critical parts needed for taut band meters. This work is under the direction of John Lark, manager of the meter manufacturing department.

On a conventional meter, the pointer is attached to a coil which in turn is suspended by a pivot and jewel mechanism, similar to the balance wheel of a watch. Rough usage can cause the jewel to wear and even crack. Worse than that, however, the friction of the pivot-jewel mechanism affects repeatability of readings. That is, the pointer doesn't always return to the same starting point when the current is reduced.

The taut band suspension has no pivots. When the meter coil turns with applied current, it "twists" the platinum band. As the current is decreased the band returns to its original flat position, thus returning the coil and pointer toward zero on the scale. The platinum band is kept taut by anchor springs attached to the band ends opposite the coil.

As the old saying goes, it takes two to tango—or twist—which is only to say that the combination of photographically calibrated scales with taut band suspension is providing HP meters with extreme accuracy plus heavy-duty ruggedness. The result: more precise, reliable measurements for Hewlett-Packard customers.

Lower left: In a dust-free work space, Barbara Needles mounts a scale which has been individually calibrated to the meter's movements. Lower right: A magnifying glass is used by Meter Technician Harold White during final electrical inspection of a unit.



HOW WE GET TO WORK

DO YOU REMEMBER clearly your trip to work this morning? Was it a distinct pleasure, a test of strength, an exhilarating experience to put you in a cheerful mood for the day? Or was it just another instance where you transported yourself bodily from home to office and couldn't care less about the early-morning details?

Friend, if you belong to the latter category you are among the vast majority of the world's working population. The reason for your ho-hum attitude may be that you don't drive a hearse to work . . . or ride a horse . . . or sail a boat . . . or get the stuffin's squeezed out of you on a Tokyo train.

Measure's editorial staff has been researching this matter in recent months and some preliminary findings can now be revealed. First of all, the automobile is by far the most common means for 6,000 HP employees to get to work. Next comes busses, then trains, then walking, and then bicycles. Hearses and horses come in last.

Admittedly these findings are anything but startling. However, in the course of the magazine's survey, some rather interesting methods of locomotion were discovered. One man will not let snow, sleet, wind, or hail keep him from his appointed rounds. As proof, a completely unretouched, untampered photo on page 7 shows him snowshoeing along after a recent blizzard.

Even driving an auto can be a challenging and unusual experience in some corners of HP's world. Motoring employees in Brussels and Amsterdam say that weaving through the swarms of bicyclists common to Benelux countries makes you bright eyed and alert as you start your working day.

But perhaps the most physically exerting trip of all is depicted by the four pictures on the right where Misses Yoko Ishizaka and Michiko Takekuma of Yokogawa-Hewlett-Packard are seen commuting to the plant near Tokyo on a perfectly normal day. In the top photo, the two girls are seen at 7:50 a.m. about to board a fast-flying Japanese National Railway train bound for Tokyo from suburban Kokubunji Station. Several hundred other commuters have the same thought in mind and they all want to board that particular train at the same time, although the railway company provides 45 trains an hour.

In the next picture, a "pusher" can be seen stuffing the last man on the car. Pushers are hired by the railroad to make certain that everyone gets on without mishap and that every bit of available space is filled. At each station (third picture down), a few people get off and many get on. No one can explain where the additional space comes from, but there always seems to be room for one more, and there are plenty of pushers around.

Finally (bottom picture), twelve minutes later at Mitaka Station which is 20 miles west of Tokyo, Michiko Takekuma emerges fresh and pretty, ready to begin her day at the office. Yoko Ishizaka has disappeared into the scurrying crowd but she, too, is none the worse for the trip.

Experiences of other HP commuters may be seen on the next two pages.

How we get to work *(continued)*

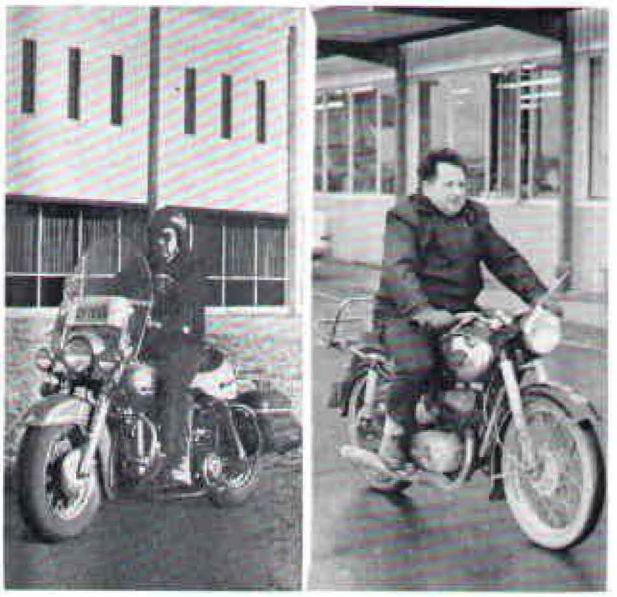
On his walk to the Bedford, England, plant, Application Engineer Leon Hughes stops to feed the swans, creating a sophisticated scene that looks like an ad straight from "Esquire."

Los Angeles' famous and frenetic freeway system holds no mysteries for Chuck Bradley, manager of Neely's material control department. He and his Sunbeam convertible know all the correct levels and ramps to take to the North Hollywood office. They never end up in Cucamonga by mistake.

As everyone knows, the entire population of Colorado rides horses to work, and these Four Horsemen of Loveland are no exception. At least for the sake of a picture they mounted up, left to right: Joe Barr, Marco Negrete, Don Cullen, and Stan Selby. (The horses had to be returned promptly to a local farmer so he could finish plowing before sundown.)

Commuting can be fun!? These HP people say so, if you just mix imagi

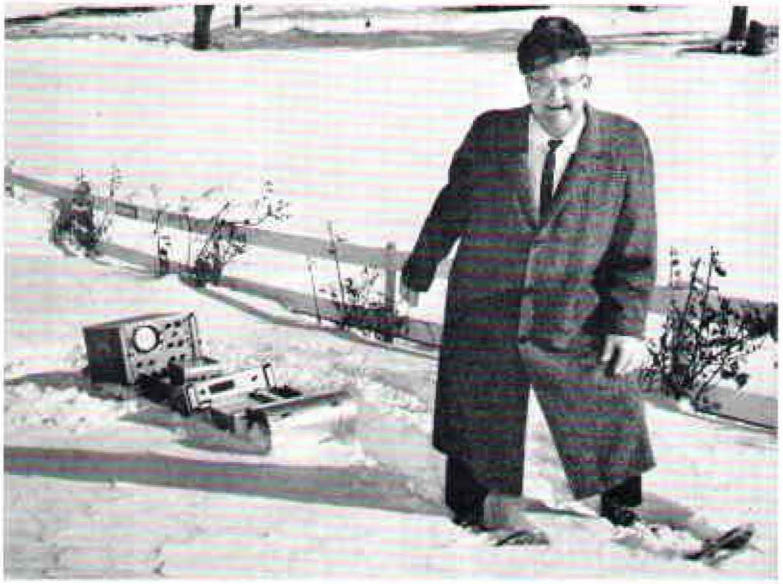
For his 45-mile daily commute from Greenville, N.H., to the Sanborn plant at Waltham, Mass., Gene Roe drives his well-preserved 1930 Reo hearse.



At every major location the world over, HP has at least one motorcycle enthusiast. Left: Harold Beach arrives at Boonton's Rockaway, N.J., plant fully helmeted and jacketed, riding a powerful cycle. Right: Gottfried Eichhorn drives from his home in Boeblingen, Germany, to the plant a mile away.

Herb Kroft of Horman Associates is typical of many HP field engineers. He commutes from Baltimore by plane to wherever customers need him.

Tiny Yewell (head of Yewell Associates at Burlington, Mass.) believes in setting an example in determination. In spite of the season's heaviest snowfall, he gets through with the aid of snowshoes and a sled.



tion with determination . . .

around  the circuit

By Bernard M. Oliver, *Vice President, Research and Development*

Occasionally, "Around the Circuit" is devoted to contributions from guest columnists. This month, Barney Oliver takes a penetrating look at today's electronic industry and points out how HP can and must meet the challenges posed by an increasingly competitive market.

WORLD WAR II catapulted electronics into prominence and into many new markets. Overnight, engineers who had spent their careers designing radios or telephone repeaters were inventing radars and computers. After VJ Day almost everyone expected a serious electronic recession, but it soon became apparent that this was not going to happen. First, the pent-up demand for radios and for TV kept the wheels spinning. Then the new developments of the war itself—radar, sonar, computers, microwave links, and the like—began to emerge as products for civilian use.

Military market trends

Before these new markets even matured, the Korean conflict arose and with it the resumption of military electronics activity. Next came the nuclear and space programs with their tremendous instrumentation needs. For the past two decades one vista after another has opened up for the electronics market. Everyone, it seems, has needed something electronic. And, like a girl with too many suitors, we've become spoiled—indifferent to the needs of the less endowed.

The Government's recent economy moves have affected the electronic industry more than the mere percentage reduction in expenditure would indicate. This is because a large fraction of the total military expenditure is fixed, whereas purchases of electronic equipment are not. Such purchases can be reduced or deferred. In some product areas, such as microwave tubes, the impact has been rather severe; other areas are thus far unaffected but are apprehensive.

Since HP serves the entire electronic industry and because we still have an expanding product line, the effect on us has been to slow up our growth commensurate with the average industry slowdown. Our sales have continued to rise, but not as rapidly as in past years.

New competitive aspects

While it is gratifying that we have continued to grow in spite of the military cutbacks, the present situation leaves little room for complacency. For one thing, it is just a mild foretaste of what *could* happen, and prudence demands that we be prepared for worse things than may actually occur. For another, the generally soft market situation has encouraged others to look with envy at our most successful products—just as we ourselves are exploring other possible product lines. As a result, we are beginning to see hungry and capable competition develop in many areas where before we had little or none. This means that at the very time we want to increase our business by cultivating new markets, we face a greater threat to our existing product position.

Technological deployment

To weather this troubled period successfully we must deploy our forces wisely. We cannot modernize all our products overnight, but we must not lose our lead in our high volume products—the relatively few bellwether instruments which account for the bulk of our business.

In addition, we must pay increased attention to the market potential and profitability of new products considered for development. We can no longer afford the luxury of charming, sophisticated loss leaders. We should by all means seek out new applications for our technology, areas such as analytical instrumentation, medical research tools, etc. But before we commit much money and manpower to a project or to a new product line, we must very candidly assess our own qualifications to make a contribution and to gain a significant share of the market. What can we offer that the competition cannot? Only if we answer this question to our own satisfaction should we diversify.

A need to adapt

The current situation is cause not for alarm but for sober planning and new resolution. McNamara's hand has opened the hothouse door. An icy draft is being felt and some plants are going to wither and die. Others will adapt to the changing climate, and will flower in seasons to come. The first step in adaptation is to realize that the climate *has* changed, that old patterns no longer have survival value.

I am very confident of HP's viability, and I look forward with keen anticipation to the new areas of activity the next few years will unfold. Without diminishing our position in any important area, we can furnish our technological and scientific society with many ingenious and exciting products which will bring us new recognition and growth.

First AN/USM-140B oscilloscopes were ready for shipment on schedule by the end of January. Bill Smalley (left) checks off one of the instruments as Chuck Quanz prepares to seal the package.

HP meets 'impossible' deadline on $2-million order

TAKE A COHESIVE GROUP of talented engineers and manufacturing people, combine with liberal amounts of enthusiasm and drive, add several gallons of midnight oil, and you have all the makings of an outstanding production accomplishment. Indeed, some may even term it a production "miracle."

Such a miracle occurred on Friday, January 31, when eight AN/USM-140B oscilloscopes were shipped from Hewlett-Packard's Palo Alto plant to the Naval Communications Training Center at Pensacola, Florida. These eight units represented the initial delivery of the largest single instrument order ever obtained by HP's crack sales team.

In addition to its record size ($2,118,474), the order from the U.S. Navy's Bureau of Ships was unique for several other reasons: (1) it involved the production of 1,456 "militarized" versions of the familiar 170A scope; (2) it required extensive re-engineering of the standard 170A to meet special Navy requirements; (3) it called for the most advanced production planning techniques to meet a seemingly impossible delivery schedule; and (4) it proved that the tired old word "teamwork" still represents an essential ingredient in any outstanding engineering-manufacturing performance.

That the performance *did* involve teamwork of the highest order is borne out by Cort Van Rensselaer's description of the project. Here is how the Oscilloscope Division's general manager sums it up:

"I doubt if there was any project in HP history that involved more extensive or effective interdepartment cooperation. We were faced with the task of completing within a few months a re-engineering job which normally requires a year or more, and then meeting a back-breaking production schedule. This called for a superlative team effort by more than a dozen diverse groups in the central HP staff, as well as in the divisions."

Coordinating the entire project was Frank Wheeler, oscilloscope plant manager. Walt Noble, the division's in-plant engineer, headed up the re-engineering program. Both men, according to Van Rensselaer, worked day and night to see that everything fell into place and that no one missed a deadline. He reports that 60-hour weeks were not uncommon among the AN/USM-140B task force.

Any way you look at it, and particularly from the Navy's standpoint, the scope project was a big job and an important chapter in HP's long history of superior performance.

First quarter sales and earnings show gain over 1963

SALES OF $28,243,000 and net earnings of $1,796,000 were reported by HP for the first quarter of the company's 1964 fiscal year. Figures for the three-month period ended January 31 were announced by President Dave Packard at the annual stockholders meeting on February 25.

Sales were up 8 percent and earnings up 20 percent over the first quarter of 1963. After provision for payment of preferred dividends, earnings allocated to common stock totaled $1,695,000. This was equivalent to 15 cents a share on 11,241,276 shares outstanding, compared with 13 cents on 11,136,446 shares for the corresponding period in 1963.

Packard said figures for the five field sales firms acquired by HP in April, 1963, have been included in the company's financial statements for 1963 as well as 1964 on a "pooling of interests" basis. As a result, the restated first quarter earnings for 1963 are less than those previously reported.

Incoming orders for the first quarter of 1964 totaled $28,194,000, a gain of 5 percent over the corresponding period of 1963.

"Our domestic business has been somewhat soft," Packard reported, "largely because the government's announced plan to reduce defense spending has seriously affected some of our defense-oriented customers. On the other hand, our international business continues to show substantial strength. Orders from customers outside the U.S. were up 18 percent over the first quarter of 1963."

HP establishes Eastern service center

THE NEW Eastern Regional Service Center is rapidly taking shape and is scheduled to begin operation in August. Located at the Boonton Radio Division plant at Rockaway, N.J., the facility will provide complete corporate parts support and an extensive instrument repair service for field sales offices and customers in the entire Eastern half of the nation. It will be a companion center to the Western Regional Service Center located in Palo Alto.

Parts warehousing and repair areas will occupy about 10,000 square feet, and another 1,500 square feet of space will be allotted for office use in the building. Employment is expected to reach 87.

Ray Deméré, Customer Services Division manager in Palo Alto, says that "the Eastern Service Center results from the company's growing sales which in turn create a greater demand for parts and repair services. The Boonton plant is located in the heart of one of our largest market areas and only a few air hours from any point east of the Rockies." Deméré praised the people at Boonton for outstanding cooperation in the big job of setting up the center.

Al Thoburn, formerly manager of the materials handling group in the Western Service Center, has been named manager of the Eastern Service Center. His service manager is Bob Wolfe, who moves over from the RMC Sales Division in New York City. Dick Love has been appointed parts manager; he was formerly supervisor of the order processing group at the Western Service Center.

Seminar at Rockaway

Boonton's Chuck Quinn leads one of eight experiment sessions attended by new HP field engineers.

NINETEEN field engineers from ten domestic field offices, plus a European representative from HPSA, attended Boonton Radio's annual product indoctrination seminar February 13 and 14, at the Rockaway plant.

This seminar, held for new HP field engineers, featured general lectures and experiment sessions, and included presentations by various representatives from Harrison Laboratories.

John Van Duyne and Harry Lang of Boonton and Art Darbie of Harrison Labs were lecturers. Instructors for the experiment sessions included these three, plus Bob Higgins of Harrison, and Chuck Quinn and Ray Tatman of BRC.

Scope plant on schedule

Two recent fires at construction site of new Colorado Springs plant are not expected to delay completion this summer.

IN SPITE OF two fires toward the end of January, the mid-summer completion date for the Oscilloscope Division's new plant at Colorado Springs is expected to be met.

On January 25, high winds blew down a temporary wall, striking a butane heater. This set fire to a large amount of roofing material, but resulted in very little structural damage. Just six days later, a spark from a welder's torch touched off another fire which destroyed a cooling tower.

The $2,000,000 Colorado Springs plant will eventually employ approximately 650 people, and will provide 135,000 square feet of working space. It is located on a 30-acre site in Pikes Peak Industrial Park northwest of Colorado Springs.

people on the move

HP PALO ALTO

Larry Amsden, engineer, F&T Division—to product training dept., Marketing Division.

Don Barkley, product training dept., Marketing Division — to Eastern travelab.

Tom Breitbart, sales engineer, Sanborn Medical Department— to technical support engineer, Hewlett-Packard Inter-Americas.

Bob Brunner, marketing manager, Oscilloscope Division—to Office of Corporate Engineering.

Tom Christiansen, international services manager, International Operations—to manager, Hewlett-Packard Inter-Americas.

Steve Duer, sales literature supervisor, Advertising & Sales Promotion, Marketing Division—to publications coordinator, Customer Service group.

Hi Hayashi, production engineer, Dymec—to Y-HP manufacturing liaison, manufacturing services group, International Operations.

Tony Malo, supervisor, manufacturing engineering specifications, F&T Division — to technical support engineer, overseas sales group, International Operations.

Ed Phillips, engineer, Microwave lab—to advanced R&D.

Bob Stephenson, corporate order processing—to business manager, Hewlett-Packard Inter-Americas.

Jerry Worth, diode production manager, HP Associates—to International Operations, training for assignment to Y-HP.

DYMEC

Ted Saunders, engineer, Bell Labs, Holmdel, N.J.—to engineer, digital circuits design.

HP ASSOCIATES

Alan McGee, process engineer, tube production, Varian Associates—to manufacturing process engineer, HP Associates.

Richard Neville, project leader, high frequency transistor design, Thompson-Ramo-Wooldridge Semiconductor — to device development engineer, R&D, HP Associates.

Raymond Sansone, product specifications, Amelco, Sunnyvale—to manufacturing test and procedures engineering, HP Associates.

COLORADO SPRINGS

L. A. Fulgham, employee services specialist, Personnel Dept., HP Palo Alto —to personnel manager, Oscilloscope Division.

HP VmbH

Bob Eckhardt, service manager, Frankfurt—to regional sales manager, Hamburg office.

SANBORN

Charles D. McNamee, manager, Product Design and Engineering Services—to manager, Materials and Scheduling.

BIVINS & CALDWELL

John H. Salyer, design engineer, E. I. DuPont de Nemours & Co., Richmond, Virginia—to staff engineer, Bivins & Caldwell, Inc., Richmond office.

HORMAN ASSOCIATES

Tom Yeager, engineer, Sperry Gyroscope, Great Neck, New York—to field engineer, Horman Associates, Rockville office.

NEELY

Bruce Snyder, staff engineer — to field engineer, North Hollywood office.

Measure

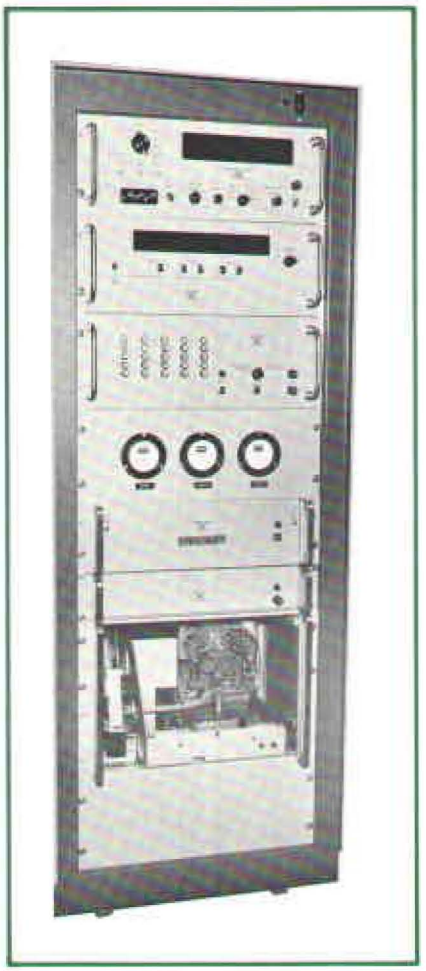
Published monthly for the employees of Hewlett-Packard and its affiliated companies

Vol. 2 March 1964 No. 3

Editorial Director DAVID KIRBY
Editor WILLIAM BIGLER
Associate Editor MERLE MASS

HEWLETT-PACKARD COMPANY
1501 Page Mill Road Palo Alto, Calif.

"I often say that when you can measure what you are speaking about, and express it in numbers, you know something about it; but when you cannot measure it, when you cannot express it in numbers, your knowledge is of a meager and unsatisfactory kind . . ." LORD KELVIN (1824-1907)



LEARNING ABOUT LIGHT WITH DYMEC SYSTEMS

SIGNIFICANT RESEARCH into the nature of daylight and its effect on plant growth is being conducted by Washington, D.C.'s venerable Smithsonian Institution, using Dymec 2010B data acquisition systems (above right). Such biological responses as flowering, seed germination, stem elongation, and leaf expansion are known to be controlled by photochemical reactions in plants initiated by portions of the visible light spectrum. Hoover pyrheliometers positioned on the roof of one of the Smithsonian buildings (left on left) measure sun and sky radiation, thus creating currents which are fed into the Dymec 2010B to be recorded on punched tape. The data is then reduced to tabular form.