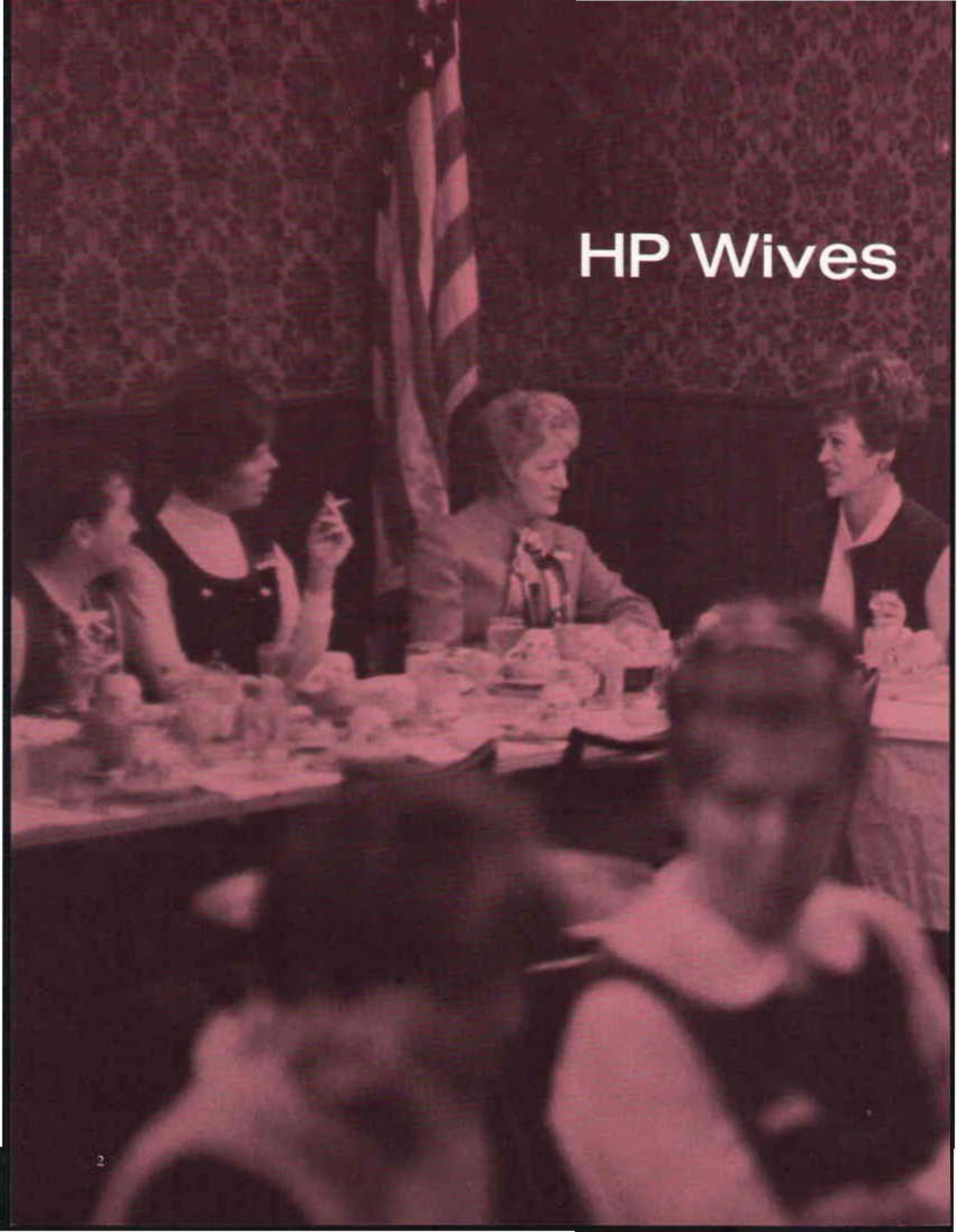




Measure

For the man and woman of Hewlett-Packard/MAY 1970

HP Wives



**From out of the kitchen,
from out of the plants and offices,
they're on the march...**

□ Not all women's organizations these days are engaged in plots against the male Establishment. Not all of them want to be totally "liberated" from their accepted roles in business and society. In fact — while they may well wish to see some important changes made in the general status of womenkind — the majority of such groups and their members find real pleasure and purpose in undertaking very feminine tasks. They particularly thrive on welcoming newcomers to their communities, in helping stage a community service fund-raising fashion show, or just getting to know each other better and making new friendships.

Which is a rather good picture of "HP Wives."



going places...



meeting people...

At left, HP Wives at Colorado Springs hold monthly luncheon meeting where new people are greeted and new projects discussed.

Cover: This scene looks idyllic—wooded suburb, friendly dog running free, the easy relationship between woman and boy. Unfortunately, the boy is not fully capable of appreciating the beauties of the moment. Emotionally disturbed since childhood, he needs help and attention in amounts no family or institutional budgets can afford. The woman is therefore a volunteer. She came here through the services of the Volunteer Bureau of Northern Santa Clara County, an agency supported by the Bay Area chapter of HP Wives whose story is told on the following pages.



planning a project...

(continued)

You've never heard of HP Wives? Well, then it's time the wraps came off of this organization. There's certainly nothing secret or exclusive about it. Contrary to the way the name sounds, membership is not restricted to wives of HP men; any woman who works for the company may belong. But—for the moment, at least—she will have to reside in the Colorado Springs, San Francisco Peninsula, or San Diego areas, those being the only locations where such organizations presently exist on a formal basis.

The first of these was organized in Colorado Springs by the wives of men transferred there to the former Scope Division. In turn, the people who went to the San Diego Division from the Springs a couple of years ago took the idea with them. Also just over two years ago, some wives of personnel of the former F&T Division (now Santa Clara) established the F&T Ladies Group. Last year the group changed itself into Hewlett-Packard Wives and opened membership to all associated women in the San Francisco Peninsula area.

At the Springs, the original idea was simply to provide a bit of socializing for the displaced California wives. Before long, however, they were taking in all wives including women who worked at the plant. The idea still was to have a good time but with the special mission of making new HP people feel at home.

Now, the Peninsula organization has expanded its charter by becoming an auxiliary of the local Volunteers Bureau. President Jean Hilton describes this as "a clearing house for persons seeking volunteer jobs, and for non-profit community agencies needing volunteer help." The HP women will aid the Bureau by raising funds, assist it organizationally, and in all probability will become individually involved as unpaid volunteers in Bureau-assisted programs. This may

include tutoring, typing, sharing a hobby, providing transportation, or any of dozens of services needed by schools, hospitals, clinics, libraries, day-care centers, playgrounds, and many other programs for young and older people in the Northern Santa Clara County area. Actually, several HP Wives were already on the Bureau's board of directors, and others were members so it promises to be a close affiliation. The first major event, a fund-raising fashion show benefiting the Bureau, was scheduled to be held early in May.

With so many new faces coming to the various HP locations, the Wives find there is still plenty of scope for helping their own HP newcomers adjust to a new community and for just plain sociability.

Esther de Backer, the 1970 Wives' president at Colorado Springs, recalls some pleasant successes in bringing people together—and particularly seeing some of the young wives come out of their shells by becoming involved with people, places and projects: "We had this girl from Hamburg, Germany, who felt she had nothing to contribute. She was very shy, didn't drive a car and so had real problems finding her way around this very American community. Well, it turns out she was a superb baker—unbelievable cakes! Because of these, she became famous in our group. Now she's right at home with us. I think we'll even succeed in teaching her to drive."

In San Diego, Elva Grien presides over a program that each month tries to introduce the members to some historic site or cultural event. Since most HP people there are new to the area, this approach has been a success.

It appears that the Colorado Springs group has also achieved a notable breakthrough: there's no haggling over the lunch bill. The secret, says Mrs. de Backer, is to get all the ladies to pay in advance. Now there's a revolution! □



welcoming a stranger...



promoting a cause...



keeping the books...

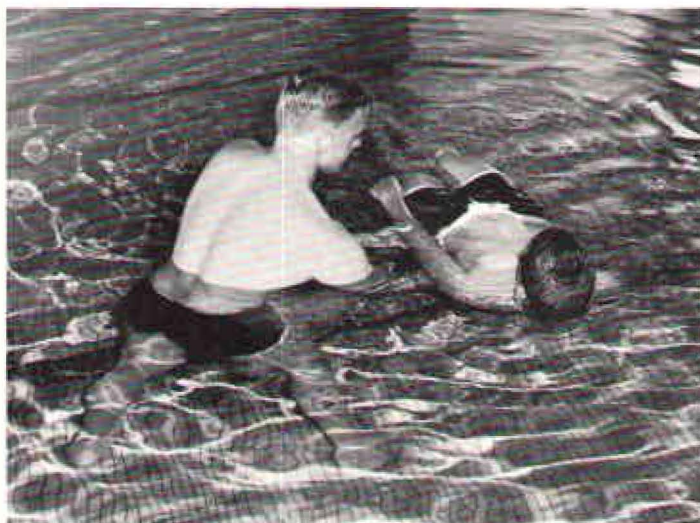
HP Wives

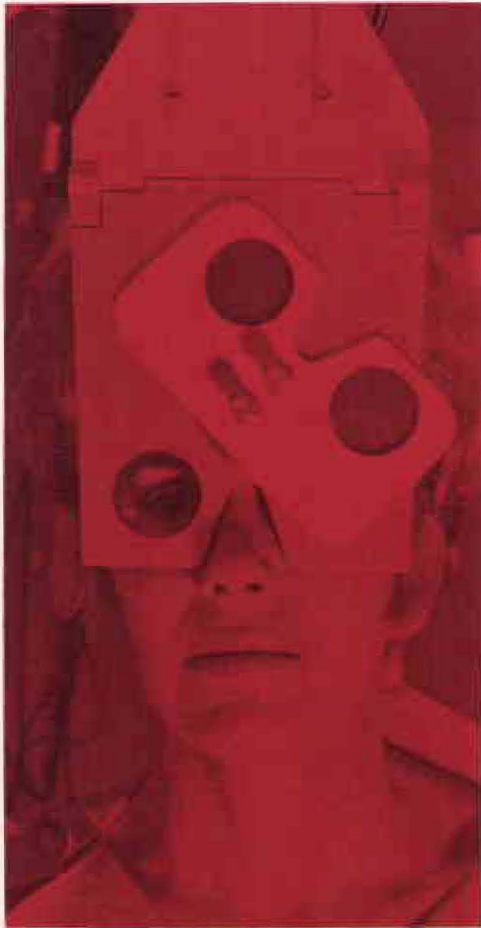


Started just a few years ago as a sort of "welcome wagon" for wives of new employees and transfers, HP Wives has taken on new and broad roles. Recently, for example, the Bay Area group voted to support the Volunteer Bureau of Northern Santa Clara County. This brings the HP women into association with an agency that provides a vital, across-the-board kind of community service. Initially, these HP wives will undertake fund-raising programs such as their recent fashion show. Eventually, however, it is expected that members will take on direct volunteer roles such as those illustrated here. Such voluntary activities are not reserved to housewives. Young people find it an excellent means of gaining qualified experience in a chosen field — tutoring, administration, lab assistance, recreational and occupational therapy, plus many others.



on the march





Behind the scenes in the AML Laboratory, physician and operator review highly automated procedures for multiphasic testing.

This central core area revolves around a ceiling track while patients outside remain in one place. Multitest equipment, including an HP electrocardiograph system, moves from station to station, completing a cycle of physical exams in under two hours. Up to 80 patients a day can receive complete physical exams at less cost than normal.

Medicine's mod, mod multi-test

□ The time is all too near, probably by the end of this decade say some medical observers, when an average American undergoing average medical treatment in an average hospital will pay an average of \$200 a day. That trend along with others such as the growing shortage of professional medical people, is inspiring quite a bit of experimental thinking about alternatives.

One medical authority, for example, recently proposed a medical-motel center where non-critical and convalescent patients might undertake many of their own housekeeping chores, thereby reducing the costs of their care; the medical staffs would be left to concentrate on medicine.

Another version of this kind of thinking is now in actual operation in Palo Alto, California, in the form of the Automated Multitest Medical Laboratory. AML Laboratory, as it's called, is described as a new and unique system of automated electronic and computerized multiphasic medical testing—the physical exam. The individual can pass through all of AML's tests in just about two hours at a cost of some

\$40—well below the norm for both time and cost. Actually, the system revolves centrally in “Lazy Susan” fashion, bringing the various tests to the visitors who remain in one place. The reasons for the savings are evident in the highly automated procedures. Your temperature, for example, is recorded digitally by a machine, your medical history is recorded by a computer which interrogates you on a yes-or-no basis, and a new three-channel Hewlett-Packard ECG system is employed in recording a twelve-point electrocardiogram. Machines are also used extensively in other examinations, sometimes assisted by technicians. At no time is a physician required to tap your knee or peer down your throat. In the end though, he will receive more data for evaluation than he could normally expect under traditional test procedures.

The cost, convenience, time saving and thoroughness of this new approach are obvious. But beyond that, it's medicine none of us mind taking or paying for once in a while—preventive medicine. □



merry-go-round



Electrocardiogram is taken in the module into which the patient is assigned. Here a technician applies electrodes leading to an HP 3-channel ECG system located inside the core control area. The Palo Alto facility is first of nationwide chain of such multitest modules planned by AML International of Phoenix, Arizona.

HPA HAS A BETTE

In fact, HP Associates has come up with a barrelful of new ideas in recent years which have brought about some noteworthy changes.

□ Now—it's making little things that glow in the dark. And, if those little things—solid-state light bulbs and light-emitting diode arrays—meet with as much success as HPA enthusiasts expect them to, they'll be doing a great deal to brighten up the future for the Palo Alto-based division.

Not that its future would look dim without the new opto-electronic and solid-state display devices. On the contrary, the division's already-established lines of semiconductor diodes, photoconductors and the like still make up the bulk of HPA's sales. But those little things that glow are new to HPA production lines. They're exciting . . . and they're significant in pointing out the new ideas and directions of the division which was established in 1961 basically as an "in-house" supplier of solid-state devices.

HPA General Manager Dave Weindorf's eyes light up when he talks about the new plastic encapsulated light bulb—it's almost as if he were the one wired to the battery. "We're really excited about the possibilities for the 4403, and our enthusiasm was really bolstered by the reception it got at IEEE last March. All we heard were favorable comments on its low cost and brightness."

What do you do with a solid-state light bulb? Right now, HPA sees four major applications areas for the 4403. It can be used to diagnose the operating effectiveness of circuits, for on-off push button switches and has many potential uses in computers. Commercially, the light bulbs can be used as light-level indicators in cameras. "Potential customers undoubtedly will come up with many more

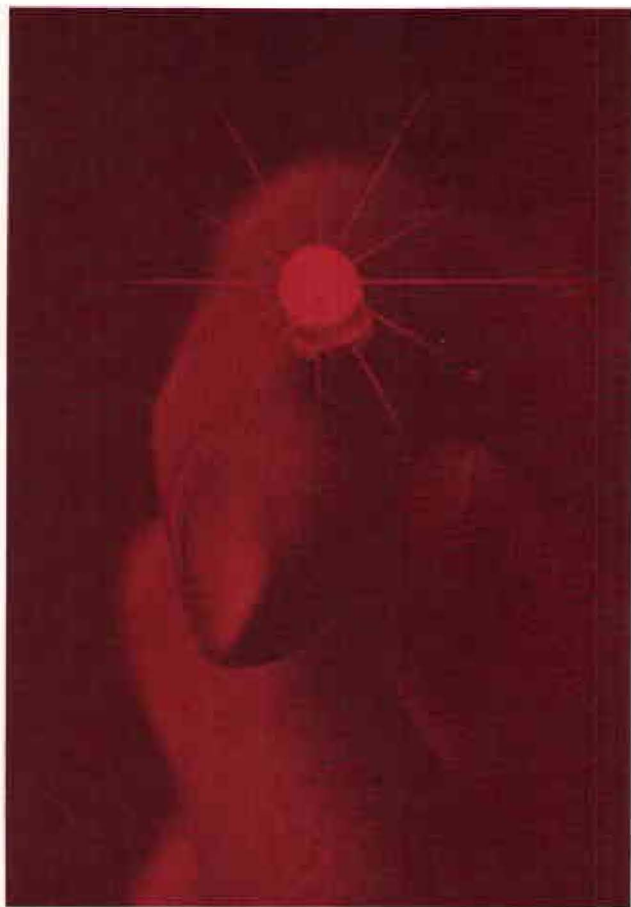
applications ideas than we can visualize ourselves at this point," Weindorf says.

There's been another important addition to HPA's "growing glowing" product line. Using its newly-developed GaAsP (gallium-arsenide-phosphide) light-emitting diodes, HPA has come up with a display indicator that can present letters and symbols as well as numbers. "As far as I know," says Weindorf, "there's no one else in the world who has a hermetically sealed solid-state alphanumeric display indicator—and we're in a stock position on these."

HPA obviously has done some growing during recent years. Annual sales nearly have tripled since 1964. Eighty new persons have joined the HPA team since that year and working space has been increased from 38,500 to 90,000 square feet. New ideas have led to some shifts in emphasis, too. In its early years, the division was selling 80 percent of its products within the company, the remaining 20 percent to outside customers. Today, just the opposite is true, though HP still is by far HPA's single largest customer. And, more and more, HPA is gearing up for high-volume, low-cost production to satisfy and encourage an increasing number of outside orders—another new emphasis.

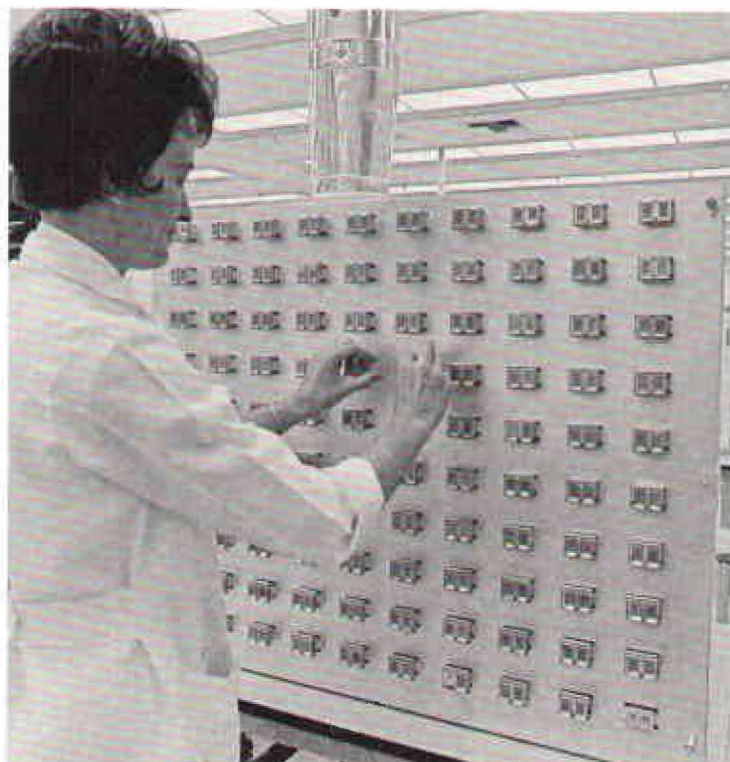
"If there's one thing HPA has to depend upon and exploit, it's technology. That's where our competitive edge is. We move into high volume on a base of technology, and the high volume sales provide more dollars for development of newer and better products."

. . . which brings us right back to "those little things that glow in the dark." □



Solid-state light bulbs smaller than a thumbnail and light-emitting diode arrays for alphanumeric display indicators are the new and exciting ideas around HP Associates these days. Just now going into production, the HP4403 solid state light bulb consists of a light-emitting diode (LED) chip assembled in a unique, HPA-designed plastic semiconductor package. It was designed to compete directly with older, filament-type incandescent bulbs which have shorter life spans and lower reliability, and will be used where indication, rather than illumination, is desired. It was well-received at IEEE, as was HPA's new alphanumeric display on which the story headline above was based. The alphanumeric uses a 5x7 array of HPA-produced LEDs for each character and represents a technological breakthrough from existing numeric-only displays.

Before it's ready for final testing and shipping, each display must be set onto an aging board, which exercises all the diodes in the array for 100 hours as the final step in processing. More than 2,000 displays per month are set onto the boards, as is done here by Donna Maxwell, line leader for solid-state display assembly. Each display must maintain an acceptable level of brightness at the end of the 100-hour period or it is rejected. Many of the finished products will go to other HP divisions, which use nearly 250 different types of HPA light-emitting and semiconductor diodes, photoconductors and other solid-state devices in 400 company instruments.

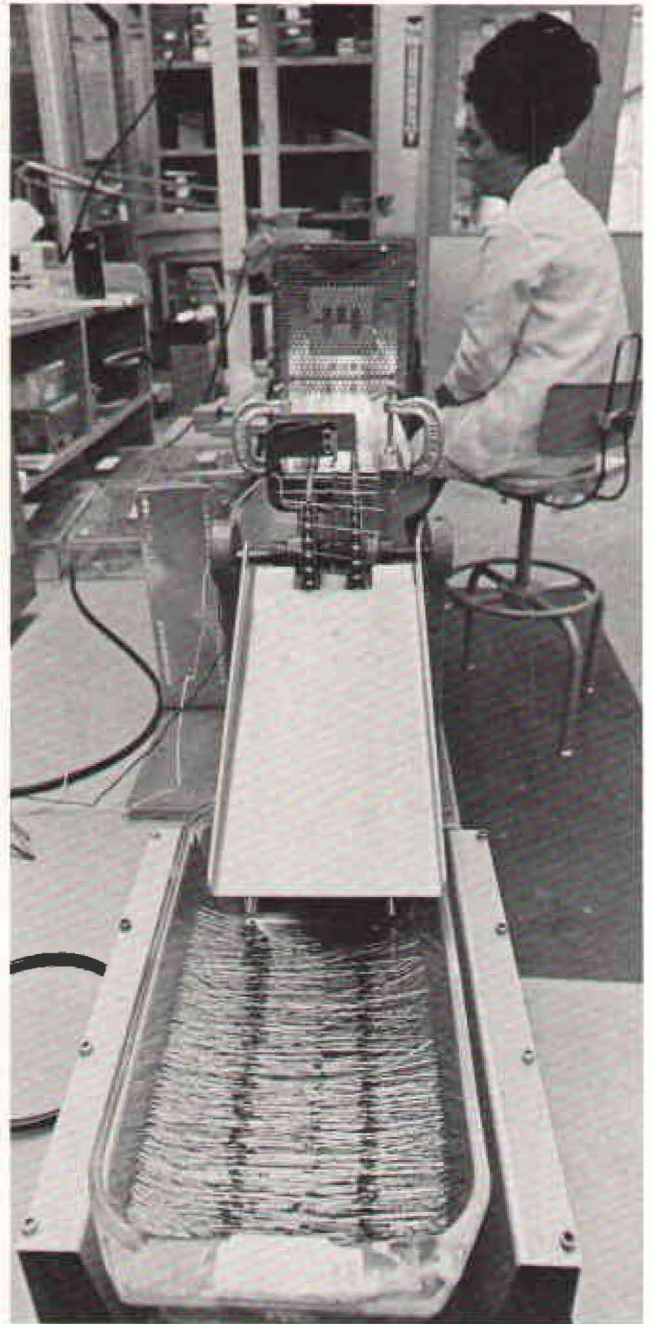


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a better idea



About 3,000 light-emitting diodes and 200 integrated circuits a day are soldered onto semiconductor packages as diode production continues to increase at HPA. Rosemary Comtois (foreground) and Kathy Hamilton do their soldering—better known as “die attaching”—to a number of different models before the individual diodes are bonded to the package with wire and go into the testing and aging processes.



There's been a shift to high-volume, low-cost production at HPA. Whereas the division was shipping about 50,000 diodes a month (total of all types) in 1964, today's figure is in the hundreds of thousands. Dorothy Duncan (above) operates a new production processing machine which applies the HP identification to more than 2,000 hot carrier diodes an hour. The marking machine typifies the shift to high volume outputs, turning out fully-identified diodes at a rate four times greater than equipment previously used. At left is an epitaxial reactor, another high-volume oriented piece of gear, which automatically programs the “growing” of silicon wafers from which the diodes are made. Myrion Gavette, HPA engineering technician (left) and Dick Klinke, process development engineer, set up a program on the reactor. In 10 hours, it does the work accomplished during two shifts on earlier equipment.



“How can we best serve the customer?”

**Bob Boniface, HP's new vice president for marketing,
reflects on the changing company-customer interface—
and discusses some new directions . . .**

□ “There is no doubt we need to move along and initiate some important changes. There is still a way to go in realizing that we are now in a number of different businesses. In the past, we have not fully realized the need for self-sufficiency in the various disciplines we have developed.

“Over the next few months, you will be able to see some of the new changes materialize.

“Before describing these it is interesting to reflect on where we are now and how we got there. It was only a few years ago that the domestic HP marketing network was made up of a very diverse collection of ‘rep’ organizations. The first of many changes was to bring these into HP and then draw them together into the four basic regions which we now have. After that was accomplished, there was concern that maybe we needed to challenge the way we were marketing our products—that perhaps our approach was too traditional, especially as we entered new markets. So the sales regions were encouraged to try different approaches—experimenting in various ways to see what might work best.

“We gained some valuable experience, except it was realized that we couldn't continue this experimental approach indefinitely as all of the regions would be going off in different directions. It was decided then to settle on the group marketing approach, and stratify our traditional electronic instrument line, which gave the sales regions a uniform program.

“All of us are now agreed that this didn't solve our primary problem—that it resulted in more of a solution to

(continued)

"...the most important change is the decision to market our electronic products through the medium of three separate disciplines"

our own internal needs rather than the needs of our customers. Our electronics customers found it difficult to relate to more than one instrument salesman. They prefer one man who really understands their instrumentation needs and who has the capability to offer them complete service.

"This has been the main area of discussion. We've been asking ourselves 'How can we best serve the customer?' and then working back from that point. Out of this we have proposed the following basic sales plan:

"First, HP is still going to be regionalized; geography is here to stay regardless of the number of sales disciplines. But the thing we are not going to do is make everyone conform to the electronic region as such.

"What we plan is a sales organization in which there will be regional sales managers for the various disciplines. They will have field sales responsibility for products in their particular discipline and will report to the group marketing manager of the appropriate factory organization on the execution of their respective sales plan. They will also be part of the region management team. The four region managers will continue to be the key men in the corporate marketing program, coordinating the sales programs with broad responsibilities in the administrative areas, including personnel, buildings, facilities and short and long range planning.

"Probably the most important change is the decision to market our electronic products through the medium of three separate disciplines: instruments, systems, and components. These are each now identifiable markets and represent a logical pattern of coverage by our electronics field sales force. Medical, analytical and data products are, of course, already clearly identified as disciplines.

"There have been plenty of questions about these proposed changes. A good many of those asked: Where the traditional electronic instruments are concerned, how can we expect one salesman to represent so many different products? Wasn't this why we first started the whole business of specialization?

"No, there are a number of major differences today. Our field engineers can span the knowledge of the traditional HP instrument line. It was when we kept adding on different products and other responsibilities that it became unworkable. Now we are proposing three separate sales entities that not only relate to customer purchasing patterns, but the appropriate HP salesman is also readily identifiable to the customer. There will still be a great deal of cooperation and coordination between these sales entities, and this is one of the major strengths of the HP marketing organization.

"We will have a marketing organization structured to optimize sales in all of our present business areas, with the capability of future expansion. The right salesman will be serving the appropriate customer and this is where it has to fit—at the customer level."



**products through
disciplines: instruments, systems, and components..."**

In 1942, an enterprising Los Angeles City College student named Bob Boniface started his business career as an office boy for an entrepreneur named Norm Neely who represented manufacturers of electronic products and sound systems. World War II interrupted this association, and it all might have ended there except that when he came home from army service, Boniface needed more college credits for graduation, and he also needed to support himself. So Captain Boniface again became the office boy at Neely Enterprises. Fortunately, or perhaps inevitably, the business did so well that by 1948 it needed a business manager. Neely, the master salesman, admired his cool, precise and persuasive young associate who by now had advanced to major responsibilities, and asked him to take on the new job.

The firm, of course, became a member of the HP organization in 1963 after some 24 years of representing it in the western states. Boniface, by now a seasoned veteran of the Neely organization, including their famed road shows and many a Neely-sponsored Wescon rally, took on the role of general manager. To those who know him, his pleasant personal style and poised professionalism are evident in the makeup of the Western (Neely) Sales Region.

Today, Bob Boniface is onto a new challenge as vice president of marketing for the corporation, succeeding Noel Eldred who joined President Bill Hewlett's office last year as executive vice president.

In the few months since turning over the regional reins to Phil Scalzo, Boniface has engaged in an intensive round of meetings with people of all four domestic sales regions and HP manufacturing people as well. His goal, to which he has given number-one priority, is to speed up the process of change going on in the company's marketing structure, reflecting the major changes in the size, shape and contents of HP's product lines. □

Bob Boniface, left, and his Neely successor Phil Scalzo get together at IEEE.



The first general meeting of the Arthur C. Clarke Science Fiction, Chowder and Marching Society of Hewlett-Packard convened in Palo Alto headquarters on April 15, with Clarke himself on hand to meet his fans and friends. Clarke is seen here at right. One of the greats of science fiction writing, Clarke got together with his HP fans because—as readers of the April issue of MEASURE know—they had made a science fiction dream of his come true. During World War II, while working on Britain's radar technology, Clarke had a "technological day dream" about a tiny computer precisely like the HP 9100 in shape, size and function. Last year, he saw the 9100 advertised and recognized his dream. Later, a magazine quoted him as saying his Christmas wish would be for just such a 9100 machine. Hearing about this, HP people took up a collection among his fans and gave him one. Since then, the machine which he dubbed HAL Junior has been in constant use by scientists, engineers and students in Clarke's home in Ceylon. Here, during a lecture tour of the U.S., Clarke stopped by HP to say thanks and to share a cup of tea.

News in brief

Washington, D.C.—Marco Negrete, general manager of HP's Loveland Division, has been appointed a consultant to the Office of Science & Technology of the Executive Office of the President.

New York, N.Y.—An advertising campaign by the Cupertino Division

has won first place for Systems Advertising at the recent IEEE convention here. According to a panel of 10 judges, HP's award was "based on the campaign's unique benefit-oriented approach, measurable results, and creativity in terms of graphics, copy and format."

People on the move

Loveland—Fred Hanson, to manager of R&D Lab, Section II, from production engineers' supervisor.

San Diego—Gary Daum, to development engineer, from industrial designer, Corporate industrial design; Marshall Hiner, to QA manager, from manager, Eastern Regional Repair Center; Don Noel, to training manager, from product training staff, Corporate marketing; Hal Phillips, to manager, special handling, from service technician, Neely (Albuquerque); Duane Schar, to systems programmer, from same position, P.A. programming.

Avondale—John Poole, to manufacturing engineering manager, from project leader, R&D.

Intercontinental—Fred Prip, to HP Argentina, from applications engineer, Intercontinental (Palo Alto).

Neely—Larry Amsden, to district manager, Palo Alto, from field engineer, Palo Alto; John Carson, to order processing manager, Palo Alto, from administrative trainee; George Combs, to Southern area manager, from district manager, Palo Alto; Roger Davidson, to staff engineering technical coordinator, North Hollywood, from service technician, North Hollywood; Joe Gattuso, to district manager, North Hollywood, from field engineer, Fullerton; Gary George, to medical sales representative, Denver, from same position, Fullerton; Mike Halaburka, to educa-

tional calculator and data products specialist, Southern California, from calculator specialist, North Hollywood; George Johnson, to regional credit manager, from office manager, Palo Alto; Horace Mockett, to Palo Alto office manager and regional order processing manager, Neely North, from order processing manager, Palo Alto; Olen Morain, to data center manager, Fullerton, from field engineer, Bellevue office; Bill Richion, to district manager, Fullerton, from field engineer, North Hollywood; Dave Troupe, to data products field engineer, Arizona, from same position, North Hollywood; Bill Zemisch, to calculator specialist, North Hollywood, from same position, Fullerton.

From the president's desk



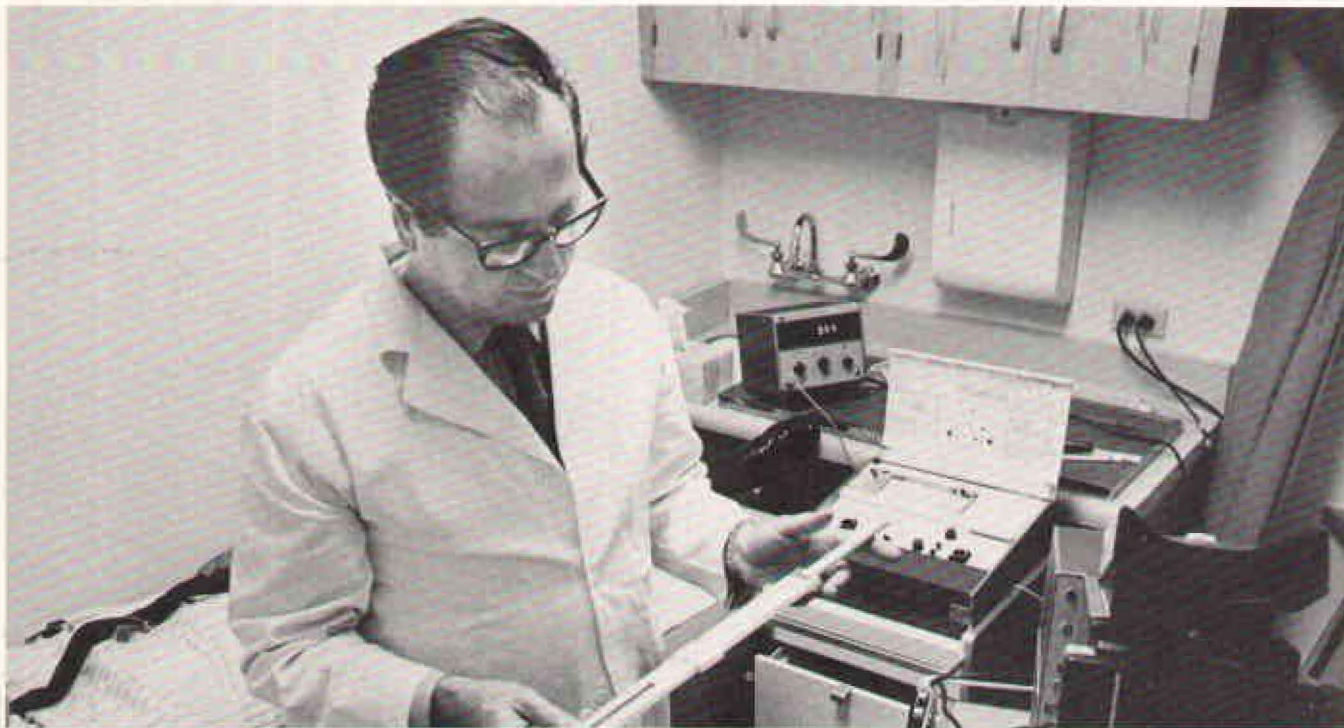
Earlier this year I alluded to the problems of forecasting the economic environment and the effect it can have on HP sales. This is an important management activity, as all of our plans for new plants, levels of employment, purchase of long lead time items, are in one way or another dependent on such forecasts. We prepare a formal plan twice a year and it goes under the name of "targeting."

Five months through our current fiscal year, we are now deeply involved in targeting for the second half of the year. We are faced with a greatly slowed, even declining, domestic economy that is only partially offset by strong international sales. This poses some serious problems for a company like ours which has been growing at approximately 19% per year and is now faced with a period of less rapid expansion.

The problem lies, curiously enough, precisely in the fact that each manager has really been doing his job. He has made forward-looking plans, and has programs underway that in the normal course of events would be justified by additional sales. But faced with the realization that these sales may not materialize, he would thus be overspending. So now the suit must be cut to fit the cloth. He simply will not be able to do all he has planned. Projects must be cancelled—purchase of new equipment delayed—needs for new programs reevaluated. In simple terms, with fewer dollars available a new set of priorities must be established. It is not easy to postpone or cancel a pet project, to delay the introduction of some long looked-forward-to program, or to suspend plans for putting additional people on the payroll. The fact remains, however, that rapid growth and good times can hide many inefficiencies and a certain carelessness in our actions.

How long will this period of minimum growth last? I must say that I do not know. But, for whatever the period, we must simply tighten our belts and do the best possible job of planning. By doing so, when the economy does start to move forward we will be able to get off to a real running start.

Bill Hewlett



Pacing the Pacemaker

Not too many people would think of an HP oscilloscope and HP electronic counter as tools for medical diagnosis of heart patients. How would you plug them in? But such usage makes sense when you learn that Dr. Maurice Hyman, a noted thoracic and cardiovascular surgeon in Los Angeles, employs them in checking the condition of implanted pacemakers. Dr. Hyman first makes a general estimate of the performance of a pacemaker and a patient's ventricular response with the aid of an HP 1500A Electrocardiograph. The scope is then attached directly to the pacemaker's external leads. The pacemaker, whose basic function is to stimulate rhythmic beating of hearts that would otherwise become dangerously erratic, is then accelerated by a radio frequency impulse, and the output photographed by a 197A scope camera. The photograph provides the needed evidence for analysis of rise and fall time of the pulse. Finally, a 5216A Electronic Counter measures the exact time interval between pacemaker pulses. Data in hand, Dr. Hyman is able to prescribe new batteries or new pacemakers—and cut the unexpected failure of vital pacemakers to a near zero.

Measure

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