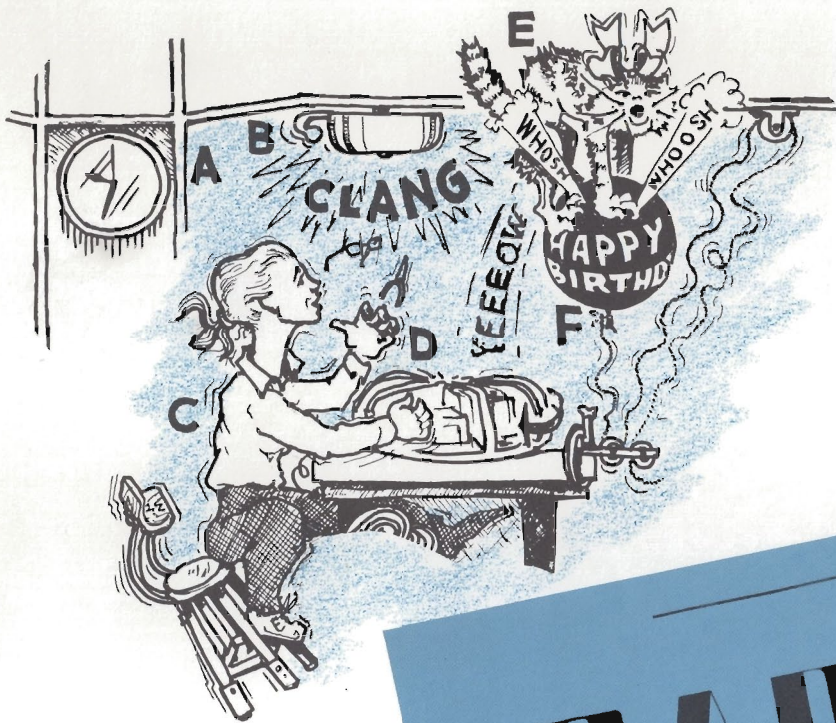


# Measure

For the men and women of Hewlett-Packard/MAY 1971



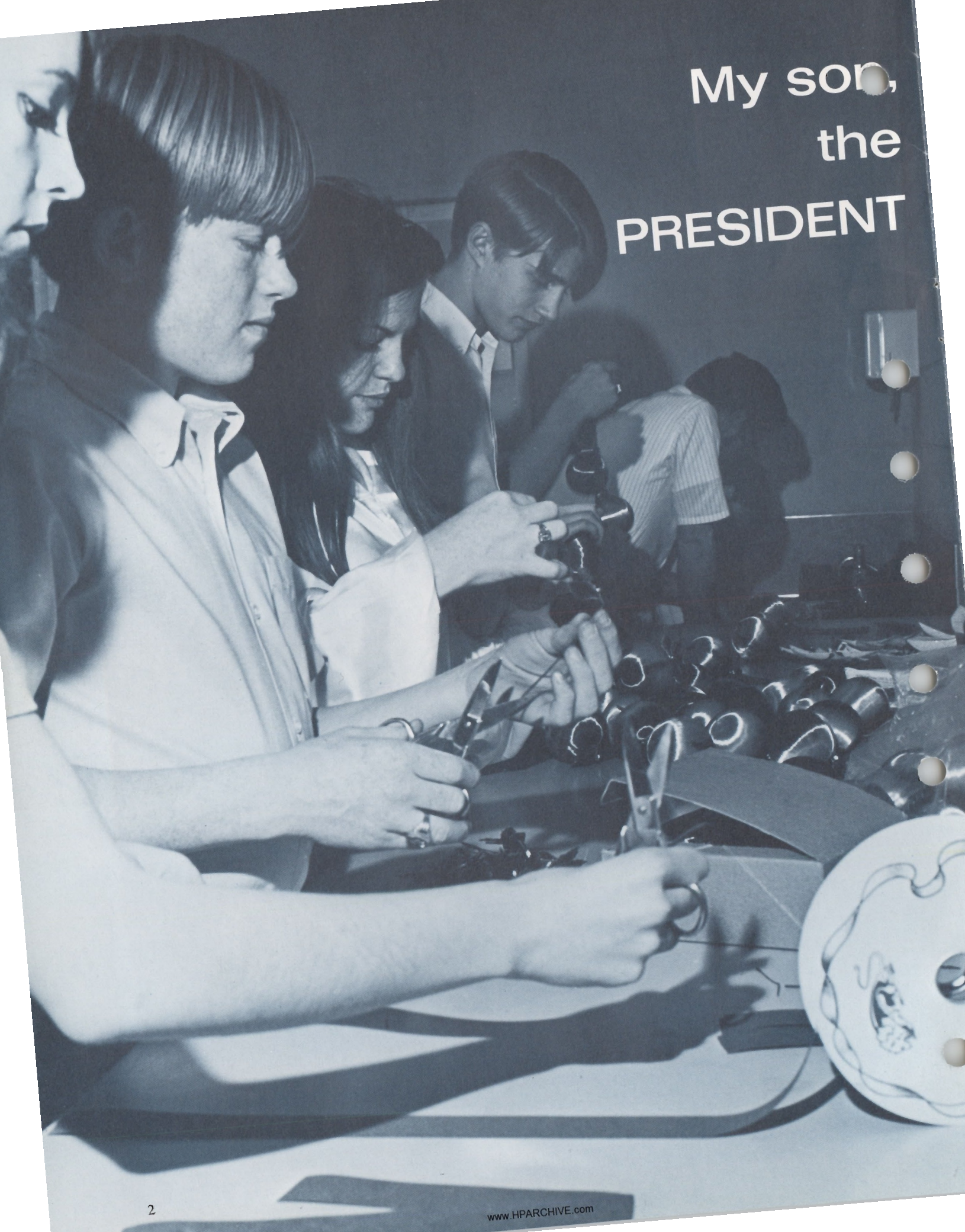
**BAD  
IS COMING**

**What's the idea?**

Pages 8-11



My son,  
the  
PRESIDENT





Is that really the company President sitting over there? — in faded Levis!

Can that be the Vice President for Manufacturing wearing — WOW! — a miniskirt?

And would you believe the Treasurer has teeth braces?

While the Corporate Secretary is chewing bubble gum?

Can all this, in fact, be taken seriously as a business enterprise?

Last year, 165,000 people in the U.S. took it all quite seriously—to the point where they spent millions of hours trying to make a go of it.

The focus of this activity, as you may have discerned, is an organization named Junior Achievement. It's a reasonably well-known outfit, having been around since 1919 and having served as a basic training center for millions of youngsters seeking initiation into the mysteries of business management.

But there's a fresh vitality—some would call it "relevance"—in JA these days. It comes primarily from a new venture—which HP helped to pioneer—aptly known as the Summer Program.

The Hewlett-Packard pioneering was done in Colorado at the Loveland Division, beginning two years ago when it set up two of the country's first JA companies designed to operate in the summer months. Their goal went beyond that of offering experience. It took up the much more immediate and challenging task of providing real paying summer jobs for 50 teenagers, drawing heavily on those who might have extra difficulties because of heritage.

The Loveland experience of 1969, in the form of JACK Company (Junior Achievement Components Kids) and JADE Company (Junior Achievement Devices for Electronics), set a pattern followed a year later by Colorado Springs Division and this year in Palo Alto and Santa Clara.

What these summer companies do, or propose to do, is take on subcontract work from an industrial sponsor such as Hewlett-Packard—where the work does not require laborious training or special techniques. The 20 to 25 members of a company spend 20 hours a week on the job, 15 of them in actual work and the remainder in educational and organizational activities.

In many respects, the summer companies operate along lines very similar to the regular JA organizations. They incorporate, hold directors' meetings, elect officers, issue stock, establish bank credit, set salaries and commissions, write checks, keep records, report to shareholders, pay off shareholders, and finally liquidate the company. But it's far from being make believe.

- They work with real dollars: According to Jack Claggett, Loveland marketing services manager and local JA program manager, the first summer companies borrowed up to \$1,200 each to finance their operations; kids earned up to \$350 each including bonus.

- They work with real work: Ray Deméré, Electronic Products Group operations manager and a member of JA's National Executive Committee, said the Junior Achievers at Loveland were measured against industry averages for productivity—and came out ahead (and were paid accordingly).

- They work with real human problems: HP people serving as JA advisers report some very interesting encounters. Graduates of one company said that JA was the only chance they had ever had to meet and mix with hometown people of other ethnic and economic backgrounds. Another reported the case of a girl who came to the company tough and skeptical. After trying her best for weeks to wreck the company, she found the JAs continued to tolerate her. In the end, her hostility turned completely around.

- They work with real business decisions: Companies have failed to pay off their stockholders, and have embarked on product lines beyond their abilities to make or sell.

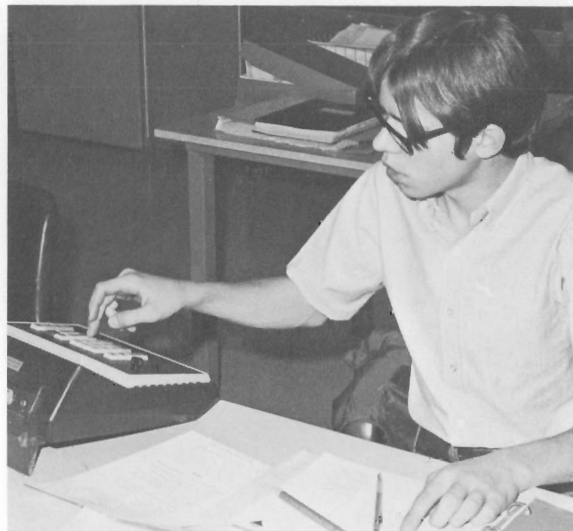
But, as Loveland JA adviser Bill Marr put it: "After you've turned the company over to the achievers—say, after four or five weeks—probably the hardest thing is to keep far enough out of it to let them make their own decisions. When they are in a deep trouble area, let them decide for themselves what they want to do. Let them carry it out, right or wrong—especially if it's wrong."



(continued)

# JUNIOR ACHIEVEMENT

Hewlett-Packard is encouraging the trend in Junior Achievement to more realistic economic incentives, mainly through support of programs in Colorado and California that provide summer employment, and special companies oriented to a particular industry. As a result of sponsoring their own radio program, including selling commercial time and writing advertising copy, several Loveland youngsters were attracted to the broadcast industry. Others, originally attracted by supposed glamor, found it not what they had imagined. JA summer companies give teenagers exposure to real employment and business situations. Typically, they spend three hours per day on work subcontracted from industries such as Hewlett-Packard. Fourth hour each day is devoted to company affairs and to meetings with business and community leaders. In addition to the U.S., Junior Achievement companies are organized in Canada, Finland, Mexico, The Netherlands, England, Venezuela, France and Malaya.







Having been "invented" in Massachusetts in 1919, Junior Achievement is taken seriously in those parts—including Waltham and the Medical Electronics Division.

Some very successful companies and products have emerged. The planter buckets shown here sold very well, while an hors d'oeuvre tray in the shape of a lobster, designed by HP adviser Herb Greene, won top honors at the local trade fair in 1967.

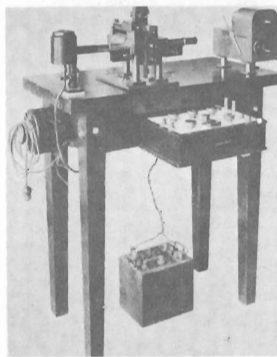


Selling his company's Light-A-Board to a young lady who assumed the role of a rallye enthusiast won Palo Alto's Pete Winokur the title of Salesman of the Year for Santa Clara County JA. Pete was a member of Execukor, a company sponsored by HP. The win entitled him to further regional and national competitions for cash scholarships. Execukor meanwhile is in the midst of final accounting and liquidation. Chris Clare of HP Labs, who designed the complex Light-A-Board, said the role of adviser was no easy task for him and associates Joan Rodman of Microwave and Bob Christians of CSC. But even though Execukor just barely broke even, it was a very rewarding experience for all concerned. Over the years, many HP organizations and people have had a hand in supporting JA programs.



## As others see us:

*Knowing how other people think of us as a company, how we fit in their universe, can be useful, healthy, and just plain interesting. To that end, MEASURE proposes to present such outside views from time to time. This month, a nurse who recently retired reminisces about her former role as supervisor in the electrocardiology department at the prestigious Watson Clinic in Lakeland, Florida. Here, over the years, she worked in close contact with Sanborn and Hewlett-Packard cardiographs and some of the sales and service people. With these people, the nurse, Mrs. Vera Ballard, always showed herself to be a highly perceptive professional observer as well as a sympathetic person:*



“When I went into nursing as an 18-year-old in Henry Ford’s hospital in Detroit, it wasn’t something you did for money—there wasn’t any to speak of. But it was a fine training hospital. Mr. Ford’s idea was preventive medicine—medicine for the ‘common man.’

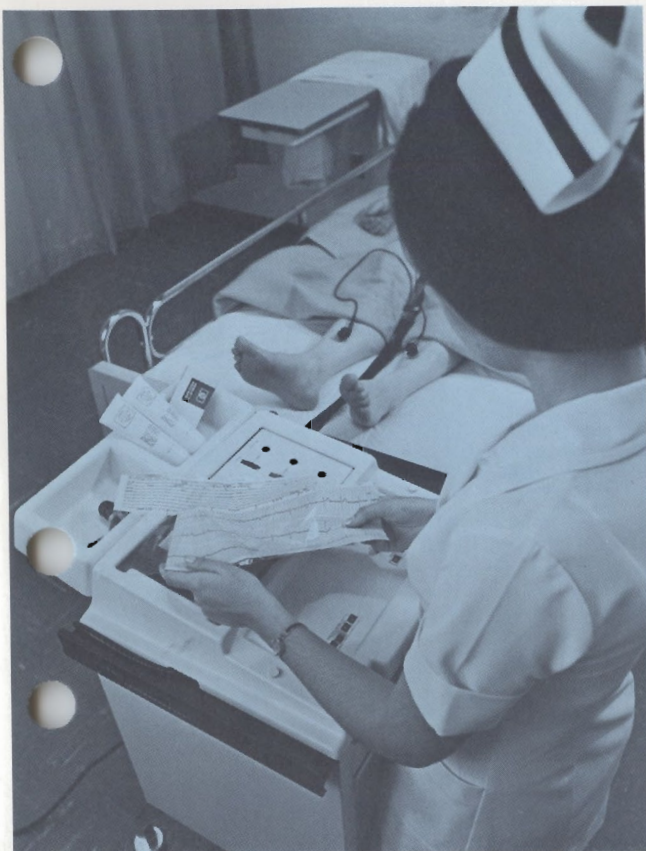
“In those days—the late 1920’s—nurses didn’t operate ECGs. The machine itself, which was invented by Willem Einthoven of Holland, weighed close to 300 pounds and was kept in a room of its own.

“Our job was to attach an electrode on the patient’s arm, cover it with wool gauze soaked in salt water and wrap it in a rubber sheet. Then we wheeled him out into the hall and plugged the lead into a wire connected to the ECG station. Meanwhile, the patient was completely mummified and probably scared.

“I’m afraid that prospects of an early diagnosis were not too good in those times. Usually the patients we tested

# The matter of the heart





came to us after experiencing a heart attack. There was little work done in the way of prior detection. The conditions under which ECG tests were made were frightening to many people. They were scared of the machine; the whole procedure seemed to remind them of electrocution. Their fears and tremors definitely would affect the test, and as a result many cases were surely misdiagnosed.

"But if you did have coronary trouble, the treatment was to keep you laying there for months and months. By then every muscle in your body got weak—your heart along with them. Today, of course, we know that if you get people up and about as soon as possible their muscles stay in much better shape.

"That's ironic, because you see my husband suffered a coronary problem. They diagnosed it as asthma, and this probably saved his life because otherwise they would have confined him to bed. As it was, we packed up and headed for Florida. It was here we learned the real problem, and he lived for another 19 years.

"As I recall, it was about the year we came to Florida—1945—that the first direct-writing ECG machines came on the market. Before that, it was necessary to develop film of the ECG. Direct-writing was a great speedup. I know Sanborn had produced some photo units, but my first experience in Sanborn equipment was with the Model 51. It was a very good machine. This came about when the Watson Clinic asked me to become permanent in 1954. They promised to

purchase a Model 51. Compared with all previous machines this unit really talked. The trace it put out of heart activity was beautiful—as good as any today. However, being a vacuum-tube unit, it did require some stabilization.

"The new solid-state machines—the Hewlett-Packard 1500's—do an excellent job at the Clinic. Last year five girls and I did more than 12,000 ECGs. Our peak was 70 a day.

"Now some people have said to me: 'How can you be content with just running a machine when you have so much experience and knowledge of medicine?' Well, electrocardiography is so much more vital than people realize. It's not just a machine you're handling. You're handling human beings.

"What I emphasize is that everything should be done to calm the patient, to isolate him or her from influences that affect the ECG. Then I tell the patient: 'We're going to make a cardiogram, which is a tracing of the action of your heart, which gives the doctor information he can't get by listening with a stethoscope.'

"We don't let the patient see the instrumentation because that sets up tension. And if the patient is a woman, then a woman should attach the electrodes because it's just natural for a woman to react to a man, and that shows in the heart activity.

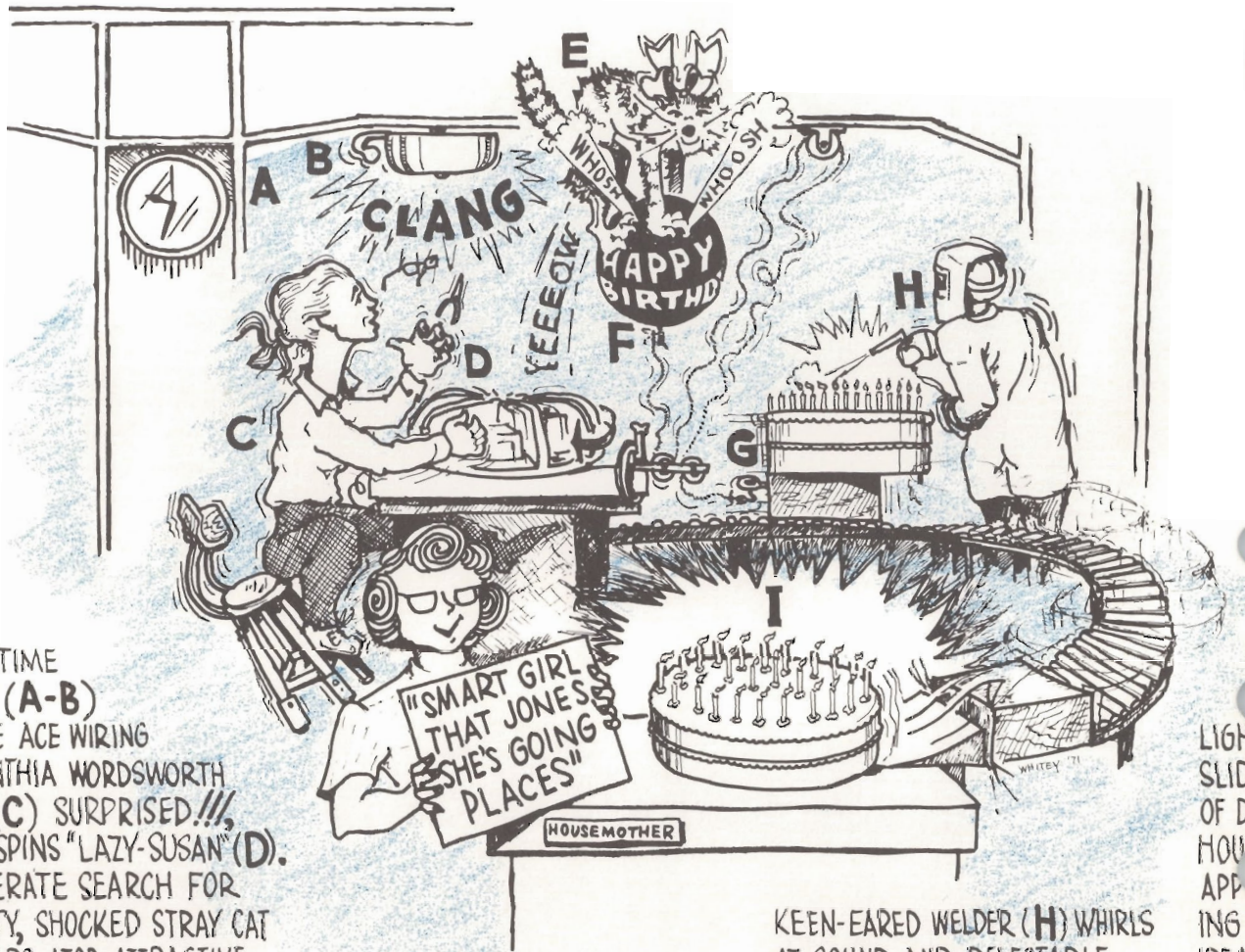
"While I don't try to diagnose ECGs, I am trained to recognize the abnormal symptoms so that I can alert the doctor, particularly in emergencies. In all cases the clarity of the trace is very important because it readily shows whether the heart is normal or whether there is a condition such as coronary insufficiency, or an enlargement. These abnormal symptoms are all warnings.

"I don't want to spoil you by saying that Hewlett-Packard service is good—but it is. And I think the HP course on ECG that I took adds a lot to the training of technicians. But I also think it could put more stress on the ECG environment—avoiding conditions in the clinic or the home that give you trouble in your ECG recordings.

"I think your work in the area of computerizing ECGs is very promising. It would certainly speed things up and assist the physician.

"And with more and more public concern for health, there definitely is a need for speeding up the ECG process while maintaining quality."





COFFEE-TIME  
CHIMES (A-B)  
STARTLE ACE WIRING  
GIRL CYNTHIA WORDSWORTH  
JONES (C) SURPRISED!!!  
CINDY SPINS "LAZY-SUSAN" (D).  
IN DESPERATE SEARCH FOR  
SECURITY, SHOCKED STRAY CAT  
(E) LEAPS ATOP ATTRACTIVE  
BIRTHDAY BALLOON (F), SHARP

CLAWS QUICKLY PUNCTURE GAS-  
FILLED BALLOON, THEREBY RELEASING  
TETHERED HOUSEMOTHER'S BIRTH-  
DAY CAKE (G). KEEN-NOSED,

KEEN-EARED WELDER (H) WHIRLS  
AT SOUND AND DELECTABLE  
SMELL AS CAKE ROLLS BY,  
IGNITING BIRTHDAY CANDLES.

LIGHTED CA  
SLIDES ON-T  
OF DELIGHTE  
HOUSEMOTHE  
APPEARDS A  
ING GIRL'S  
IDEA.

Ideas are your business



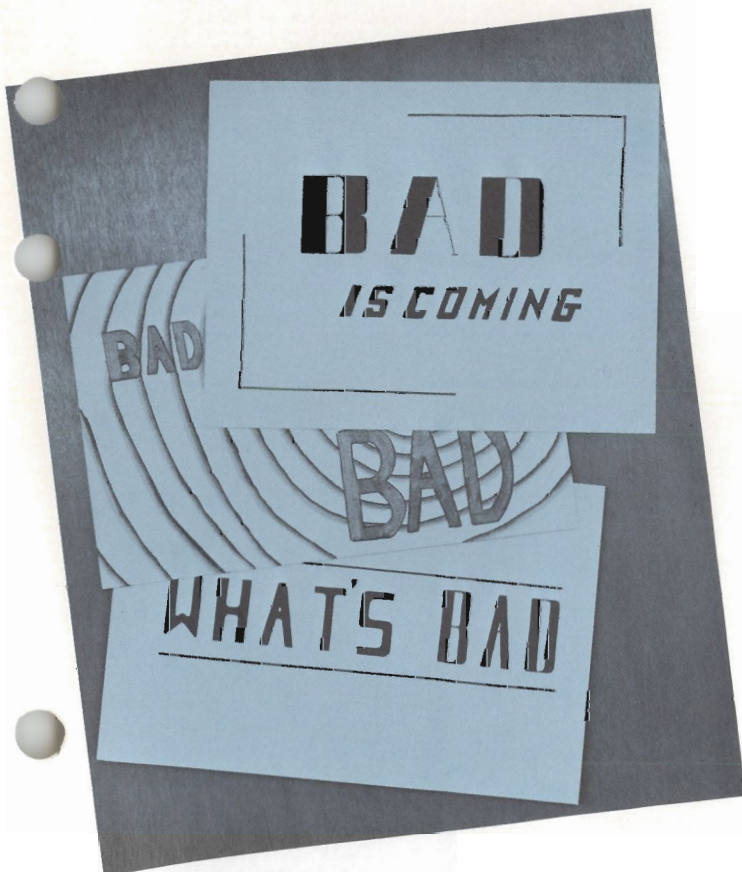
For Hewlett-Packard people, the word “invention” holds a significantly special flavor. With it they create a continuing flow of new and improved technological products—their bread and butter, and eggs Benedict, too.

But inventiveness is by no means confined to engineering and scientific efforts. The machine shop, the production line, the shipping area—well, almost any department you care to name—can also cite examples of ingenuity in action.

The fact is that under the HP philosophy of doing things, ideas are everybody’s business. Rewards (other than where patents are involved) are made generally through on-the-job recognition—via paychecks and promotions, as well as profit sharing.

Quite a few programs have been designed to put your ideas into action, as you will find in the following examples:

KE(I)  
O DESK  
D HP  
R WHO  
CE WIR-  
NGENIOUS



**Santa Clara**—They’re expecting good things from BAD, according to Gerry Inman, production supervisor here and originator of a Methods Improvement Program that began like an Alfred Hitchcock movie script. In February, posters throughout the plant proclaimed mysteriously that “BAD is coming.” After a week of “driving people nuts,” Gerry cleared the air with new posters explaining the “Buck A Day” savings campaign. “We wanted to emphasize the importance of everyone’s continuing to think about his job, to remind people that there is no one more qualified to recommend a money-saving job improvement than the person who’s actually doing that job.” A Methods Improvement Committee of first-level supervisors was established and the “Methods Improvement News” was launched. By early April, 14 new ideas had been accepted at annual savings estimated at about \$4500. The program includes a variety of recognition efforts—from publicity to “light bulb” awards, to a small monthly contest. But success, Inman says, will depend mainly on teamwork between individual contributors, supervisors and managers.

*(continued)*

## Ideas are your business



**San Diego** – Even when the more significant improvements are a result of professional engineering thinking, there is almost always a need for the ideas and involvement of line people. “Today,” said Ed Morgan, manufacturing manager, “because of our move and the addition of new products, we find ourselves concentrating more on major projects where we can see significant improvements. An example is automatic printed-circuit loading. The equipment we installed (operated in photo by Ojars Lejins) has allowed us to reduce loading time on many of our components from 20 seconds each to 5 seconds, and with a new sequencer we expect to reduce it to one second.

“But you don’t do that sort of thing without working it out with the people concerned.”



## People who complain they’re not

**Colorado Springs** – Ideas are everybody’s business at the Garden of the Gods plant, but an inventive ex-Air Force colonel named Hap Steiner is on hand to bring them to reality. Hap, coordinator of methods improvement, is seen here with Mary Holmes and the shrink-tube cutting machine he developed at her request. Mary was certain the three hours needed to finish a run with hand scissors could be reduced. She suggested a device using razors. But Hap, who knows his way around a dozen skills, saw an opportunity to go even further. The result is the automatic cutting machine that now performs the work in 10 minutes, and has other uses.

According to Hap, approximately 150 ideas have been submitted to him since the start of the year. He figures that about 85 percent of these have been successfully put into action. Many of them are as simple as the need for a holding fixture. But recently, Ron Cochran, a Frequency Lab mechanical engineer, asked for help in speeding up the testing of coaxial cables that were giving trouble. Hap put together what they now call the “Maytag” test, a device that flexes 10 cables at a time like a washing machine to determine failure rate. The test has resulted in almost a fourfold improvement in flexure life.





## ***paid to think probably won't be...***

**Waltham** — Ideas by themselves won't get very far—unless someone is willing to listen. John Dockstader, production training coordinator for the Medical Electronics Division, feels that his primary role is building a climate receptive to ideas.

"The supervisor is probably the most important link. Ideas come to him from all directions. They can be in the form of a suggestion, a complaint, a request for help, or a recognized need. Our approach is to encourage listening and to involve the people concerned, because ideas about work methods very often involve work habits. You don't change those overnight.

"For example, we recently installed a series of changes in the printed circuit area. It was a very cooperative effort. For one of the girls it meant a major change in her method of pre-loading the boards. But she worked it out. And while productivity was doubled and even trebled, she feels the new procedure is much easier.

"It's a matter of working smarter, not harder. But you really have to get in and find out what is productive and what is not-productive. Our videotape studies of work procedures have been a tremendous help in this regard."

**Avondale** — For a small division, such as Avondale, the most direct route for implementing an idea which will reduce costs or improve products still is through the supervisor, according to production manager Joe Campbell. "Our normal procedure is for the person with the idea to develop it himself. The supervisor gives direction. The chief advantage is that the person with the most interest—the individual with the idea—is the one who coordinates it." Machinist Bill Trescott, for example, was inspired when he noticed a new welding machine in the plant. Bill had been looking for better methods of brazing, an operation done tediously with a hand torch. Although the induction welder had been purchased for other tasks, Bill figured he could design some fixtures for use with it that would cut his time considerably. He got the go-ahead from his supervisor, developed his fixtures, and—true to his word—reduced his welding time tenfold while increasing reliability and yield.

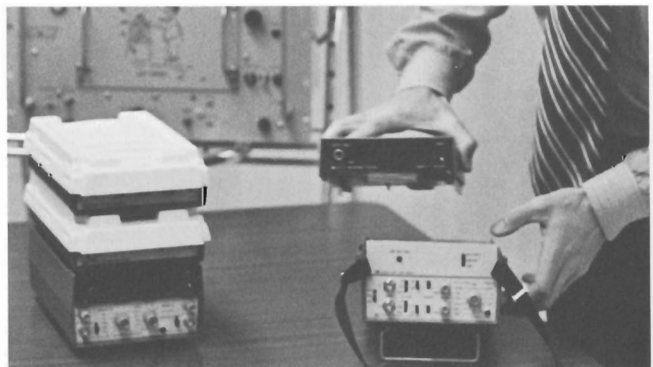




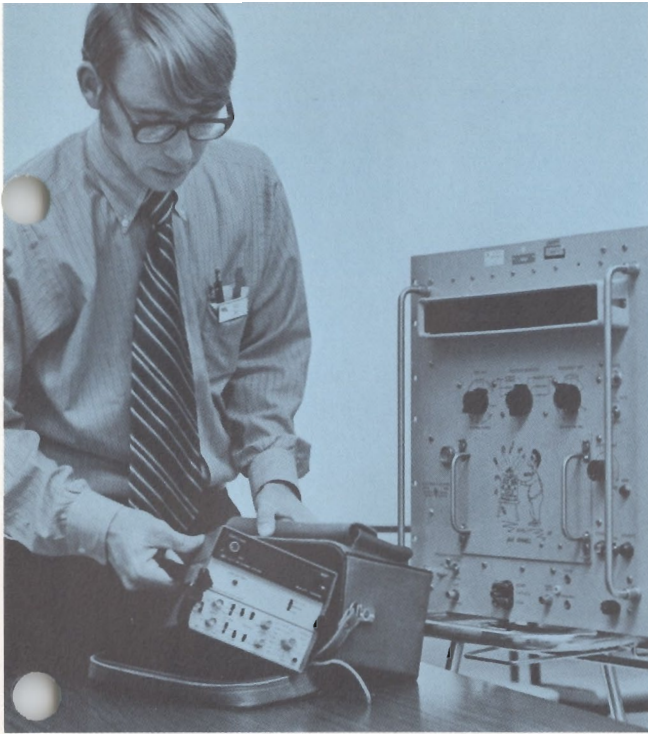
## Here come “the portables”



*Portability is far from being a new idea in electronic instrumentation. However, two new HP models that came down the pike recently appear to be important trend setters. Both instruments—the 5300 series counter system from Santa Clara division and the 1700 series scope from Colorado Springs—can be operated from a battery pack. Yet each is a versatile high-performance instrument that opens up new markets for the company.*







Inside what seems to be a camera bag is a unique new 5300 electronic counter system that promises to put HP in an entirely new range of low-cost, high-performance applications.

The 10 MHz mainframe costs less than \$400, thanks to radically new HP technology involving MOS/LSI (metal-oxide-semiconductor/large-scale integrated) circuits, developed at Santa Clara, and light-emitting diodes in the display, from HPA. The optional, rechargeable battery pack snaps in easily between the upper and lower halves of the mainframe. Four functions are presently available in snap-on modules: 10 MHz frequency counter; 50 MHz universal counter/timer; 500 MHz frequency counter; and 10 MHz timer/counter. Troubleshooting is very simple, first because of the few components involved and secondly because of the special plug-in test device that quickly runs through up to 18 tests.

Customers who have never before used a counter are excellent 5300 prospects. Now a bench engineer can consider adding one as standard equipment along with his scope, power supply and voltmeter. The TV and stereo service industry will find it attractive. Technical people in the "emerging nations" can now fit one in their lab budget.

To achieve these markets, HP undertook another "first": simultaneous start of production and marketing by the divisions at Santa Clara, Scotland, Japan and Germany.

Shown here is Santa Clara's Rick May, the mechanical engineer on Ian Band's team responsible for the design of the 5300. Behind Rick can be seen an HP 524—the original HP counter—a giant by comparison. Most of the compactness and economy of the 5300 mainframe results from the fact that 90 percent of the electronics are contained in five custom IC's and the solid-state LEDs. The two MOS/LSI circuits each contain more than 900 transistors on a single chip. Power consumption is very small, thus allowing battery operation. Heat generation is minimal. As your young neighbors might phrase it, that's cool.



With computers and data systems popping up in all sorts of new and unlikely places, the need for high-frequency service instruments that were versatile, rugged and self-contained became clear. Hence, the 1700 series portable oscilloscopes recently introduced by Colorado Springs Division. The photo shows Neely Region's Bill Shelloe demonstrating the new scope for Ampex's Attila Endrenyi. While not really an "economy" series, the 1700s do offer lab-level performance (up to 75 MHz response) plus portability at very reasonable prices—\$1,850 for the 35 MHz delayed-sweep model, \$1,680 for the non-delayed model. Their light weight, battery operation and low power consumption (eliminating the need for fans or vent holes) means they can be carried to and used in almost any environment. Product manager Chuck Donaldson and the engineering project team figure their handiwork will have application beyond the computer-service field. Additional prospects include servicing of medical and calculator products plus other field uses. The word they employ: versatile.





## Arigato YHP

If you fail to place this sylvan scene, that's because it has been in existence only a short time. Yet it reflects an ageless serenity. The setting is an area just off the patio of the HP corporate executive offices in the Stanford plant. Centerpiece is the magnificent sculptured stone lantern presented as a goodwill gesture by the people of Yokogawa-Hewlett-Packard to the HP people in Palo Alto. The setting was very carefully researched by HP designers to achieve the symbolic harmony for which Japanese gardens are so famed. To the right of the lantern is a small maple tree signifying feminine principles of grace and delicacy. The principle of male or positive strength is conveyed by the large embedded stone to the left. The three elements—tree, lantern and stone—together symbolize heaven, earth and man. The lantern itself, based on a 1,000-year-old design of a type used to guide fishermen home from the sea, offers multiple symbols: Its five granite parts represent fire, earth, water, sun and sky; the lamp section reveals symbols for the earth, moon and sun.

## People on the move

**Corporate** — Bill Stokes, to materials handling supervisor, CSC, from receiving and packaging supervisor, CSC.

**Delcon** — John Wetzel, to product manager, Marketing, from manufacturing supervisor, Operations/Prefab, Cupertino.

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### *Electronics Products Group*

**Manufacturing** — Ed Ilgen, to personnel staff, from personnel manager, Midwest Sales.

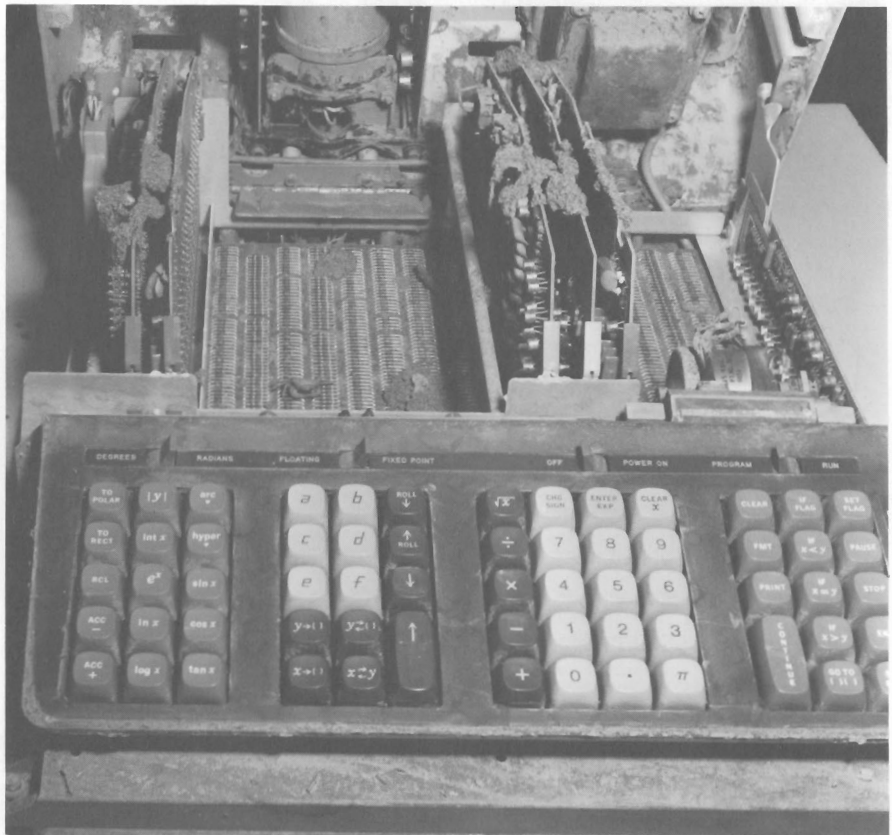
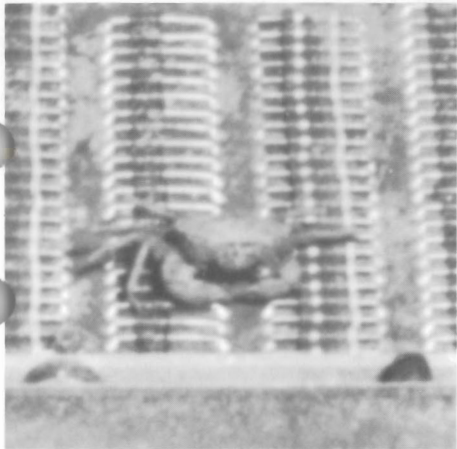
**New Jersey** — Bob Taylor, to product manager, Rockaway, from development engineer, Berkeley Heights; Geoff Walker, to advertising and sales promotion manager, from technical writer.

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### *Sales Regions*

**Southern** — Marion Hayes, to medical field engineer, Houston, from same position, Atlanta.





## From the president's desk

We talk a great deal to people outside the company about the quality of our products, and within the company we continually stress the necessity to maintain quality. As a result, all of this tends to get routine to the point that we lose perspective on the subject. Every now and then, however, something comes along that in a simple and dramatic way emphasizes that quality is not just bunk but something very real.

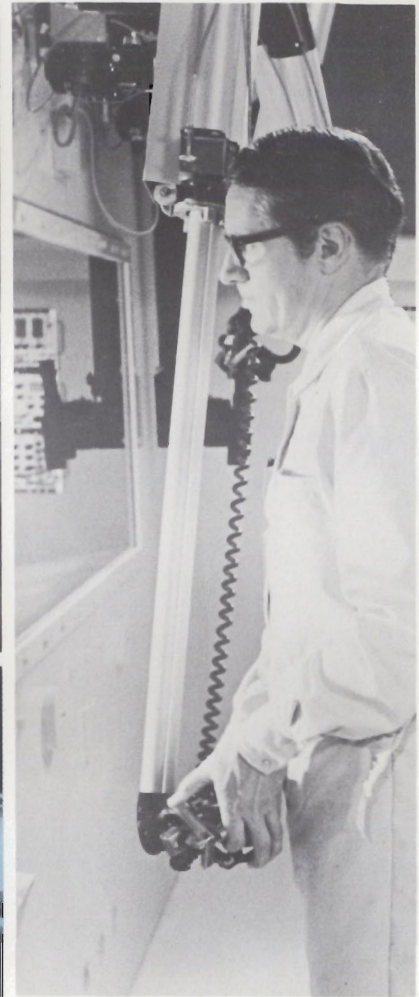
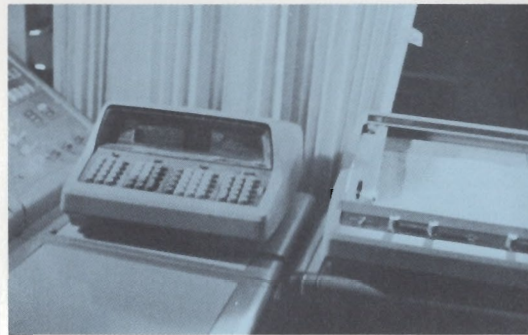
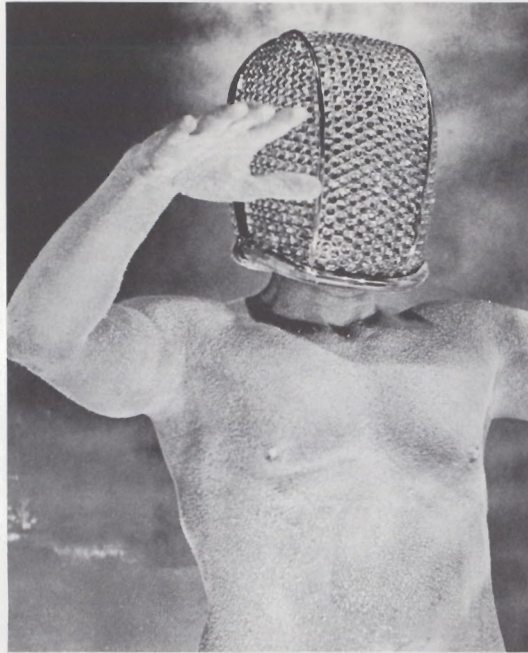
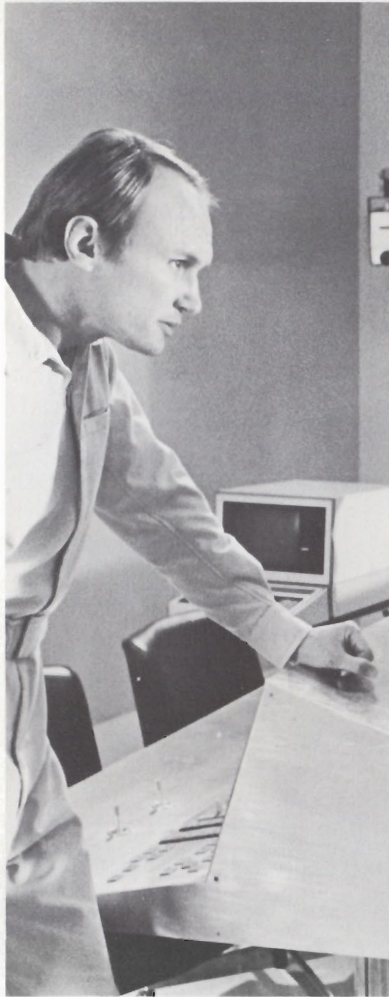
In January of this year, a 9100 calculator was stolen from the high school in Petaluma, California. Perhaps in an effort to dispose of incriminating evidence, the calculator was thrown into the brackish waters of Petaluma slough. In due course it was recovered by the local police, and through a salvage company was returned to our service center for repair. It was covered with sand and muck, and believe it or not on the inside was found a small crab (practicing up on his digital logic, no doubt).

The instrument was washed out, the crab sent on for further education, and the calculator returned to Loveland to determine the actual extent of the damage. When it arrived in Loveland, only one transistor had to be replaced to have the calculator in perfect working condition.

I don't recommend long-term water immersion as a standard test for HP equipment (getting the bugs out is one thing; getting the crabs out is something else). But, this experience with the 9100 is good testimony that the care we put into the design of our equipment and the skill we use in assembly really do pay off.



*Bill Hewlett*



If you know who that masked fellow is, you must have seen the movie "The Andromeda Strain." There he undergoes the ultimate in "clean room" decontamination by having his outer layers of skin burned away. Only then is he able to enter the final laboratory sanctum where a deadly extraterrestrial organism that threatens the existence of mankind is under intense study. Meanwhile, an HP desktop calculator and plotter shown in the film are employed in locating the crash of the space probe that accidentally brought the "Andromeda strain" infection to a small town in New Mexico. The equipment loan was arranged when a neighborly person in the Robert Wise production walked across the street from Universal Studios in North Hollywood to HP's Neely Sales headquarters.

## Measure

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