Measure

For the men and women of Hewlett-Packard/MARCH 1974

The heart menders

One of the first procedures performed by the Emergency Department staff was to begin monitoring Mr. Heartwell's heart by attaching electrodes from an HP 7830A ECG heartrate monitor to his body. Should his heart give signals it may falter again, an alarm system in the monitor will signal a medical team so they may take preventive action. Should an actual failure occur, an all-out emergency call summons a resuscitation team to rush in with a "crash cart." This team's training includes use of the HP defibrillator, seen at the bottom of the cart, which is a device using an electric current to terminate an erratic heartbeat so that a regular rhythm can return. Such quick response is credited with saving many lives that formerly would have been lost in the early stages of heart attacks.

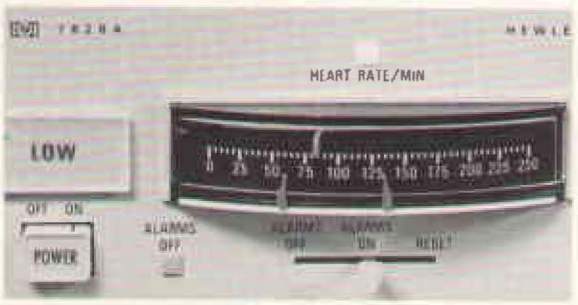
☐ The haze begins to lift. Low voices are heard. Vague shapes move about. Amid the general whiteness of the emergency room, the eyes focus on a dancing bright light, a phosphorescent pattern pulsing rhythmically on the face of a green glass screen.

Mr. Heartwell, the new hospital patient, for that is where and what he is, has just seen his first heart monitoring instrument, a Hewlett-Packard bedside unit. Mr. Heartwell doesn't recall too well how he came here—chest pains, faintness, sirens wailing—but he now realizes that he has survived something serious. In time, he will become familiar with the shifting shapes of the signal on the screen, and fascinated and encouraged by the evidence it offers that he is still alive in spite of a faulty heart. He will be moved to other departments as his case progresses, and become literally attached to other, more elaborate HP monitoring systems. And through it all he will be impressed by the degree to which the medical staff consult and depend on the output of those instruments.

Mr. Heartwell is lucky. Ten years ago his chances of encountering such instrumented attention in a general community hospital would have been quite slim. Now, growing numbers of medical facilities around the world, including more than half the 7,000 general hospitals in the U.S., have installed coronary care units (CCU's), or intensive care units (ICU's) which treat general medical cases of a critical nature in addition to heart cases, with trained personnel and round-the-clock monitoring.

The overall effects of such care have been dramatic: a mortality rate for hospitalized heart attack victims of 37 percent nationally in the U.S. prior to the 1960's has dropped to 19 percent.

Mr. Heartwell enjoyed further good fortune. The hospital to which the ambulance rushed him, Glendale Adventist Medical Center near Los Angeles, California, is representative of the top rank in general community medical facilities. Let's follow him as he proceeds through the various stages of treatment and recovery, noting particularly the important role of HP monitoring equipment:



A Glendale Adventist nurse in the 67-bed Critical Care Unit tunes a closed-circuit TV monitor that constantly observes Mr. Heartwell in his bed. He was moved from Emergency just as soon as space was available. The monitoring equipment here includes not only the electrocardiograph (ECG), but also various modules for heart rate and blood pressure, and other vital signs such as temperature and respiration. Data from the patient-room monitors is observed at the central console area which serves as a headquarters for three medical teams that can respond to alarms in seconds.

When his cardiologist feels he is safely beyond the immediate crisis, Mr. Heartwell is moved to what Glendale Adventist calls the Definitive Observation Unit. During the several weeks he will spend here he will be under continuous ECG and heart-rate monitoring via a small wireless transmitter unit he will carry at all times. This will permit him to walk about within the unit, including some quiet socializing in the outdoor patio. At a weekly meeting of the hospital's cardiac advisory conference, it is decided that Mr. Heartwell's condition could benefit from heart surgery. Meanwhile he will be allowed to return home, regain some strength, and undertake further tests.

Putting Mr. Heartwell and other open-heart patients and their families at ease before and after surgery is a full-time task for Janice Adams, R.N. Known as a cardiovascular clinician, she acts as a contact and consultant between patient and physician: "When the patients learn the real meaning of what is going to happen, and what the various items of equipment do, they lose their apprehension—which is very important to their well being.

"During the actual surgery, the surgeons are very dependent on the information received from the HP monitors. They give much finer data than we could get any other way. Open-heart surgery would be very risky, if not impossible, without such data."

(continued)

The heart menders

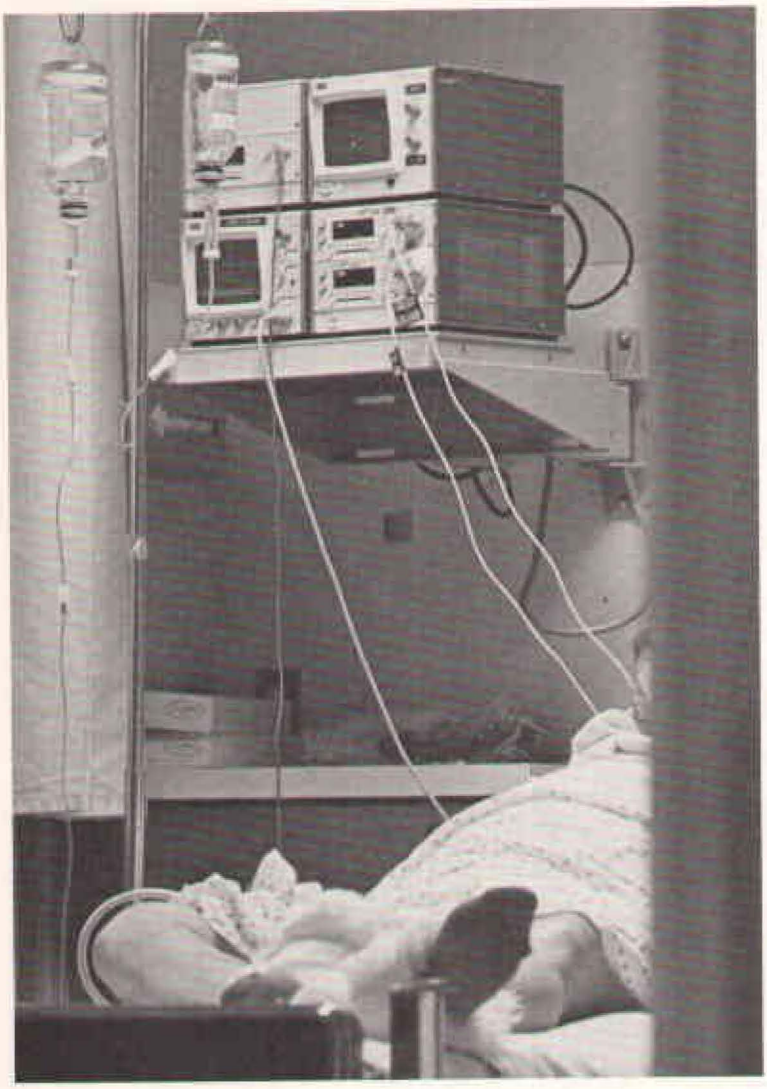
Open-heart surgery such as Mr. Heartwell is undergoing here (see cover photo also) was a rare and highly experimental event until just a few years ago. The development of new surgical techniques and highly skilled surgical teams, aided by instrumentation such as monitoring equipment and the heart-lung machine (seen at left of the operating team) have made it routine in hospitals such as Glendale Adventist.

A new profession is growing in the medical field as a result of the more intensive use of high-technology equipment such as monitors and heart-lung machines. One representative, John Frazier, Director of Cardio-Respiratory Support at Glendale Adventist Medical Center, described this role:

"We've just now organized a Division of Clinical Engineering to provide support for in-house repair, servicing and maintenance of patient-connected equipment, and to become a reservoir of technical expertise. These formerly were functions of the maintenance department. But lately they've become very important in their own right. In addition, we expect to develop CE as a cost center, with ownership of the hospital monitoring equipment. By isolating such costs we feel it would result in lower charges to patients.

"My own background is in medical instrumentation technology at Ohio State Medical School. In addition to monitoring, I'm involved in any process where blood is removed from the body and replaced, such as the heart-lung machine. Our staff ultimately will include up to three electronic repair technicians plus a couple of technicians involved in clinical applications of equipment—connection, calibration, and first-line trouble shooting.

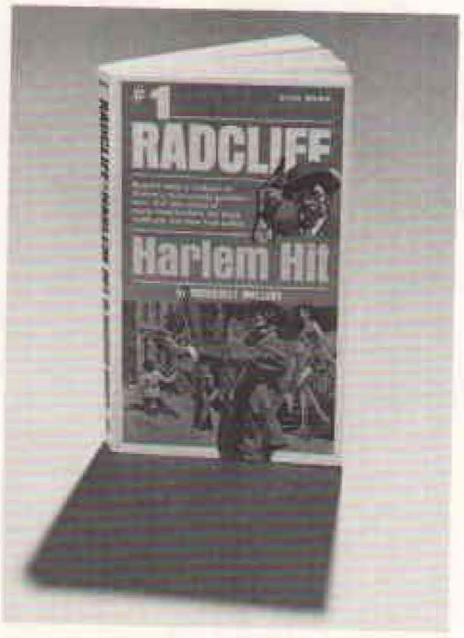
"We're fortunate to have HP's North Hollywood repair center so close to us. That's one of the reasons we specify HP. We believe HP offers very high quality in the construction of equipment, and that even when the initial price may be higher, in the long run the costs to us will be lower because of fewer problems."



From surgery Mr. Heartwell is brought to the Surgical Intensive Care Unit. Monitoring never ceases. Here it employs a system of HP modules most appropriate to monitoring the vital signs of open-heart patients; parameters include ECG, temperature, heart-rate, and arterial pressure. Nurses maintain constant vigil of the patient plus visual surveillance of instruments.

On the road to recovery, Mr. Heartwell is returned to the Definitive Observation Unit. In a few days he probably will be able to join some of his fellow patients, such as 72-year-old Mr. David Price, another Glendale resident shown relaxing in the sun while the small transmitter at his waist broadcasts heart data to the monitoring station. The combination of modern surgical skills and techniques has indeed given Mr. Heartwell and his mended heart associates a new lease on life. □

Get Mallory!



☐ Ask the proprietor of the bookstore across the road from HP's Data Systems plant in Cupertino if he has a copy of a book titled *Harlem Hit*, by Roosevelt Mallory.

"You know it!" says the owner. "Right up here on special display. Mallory makes sure I keep it there."

What he might have said was that Joe Radcliff—"the hit master" and primal character of *Harlem Hit*—has done the insisting: Mallory was simply relaying orders.

Radcliff is Mallory's fictional alter ego carried to some rather extravagant lengths. Joe Radcliff is a killer, a Vietnam-trained hit man who hires himself out to bad guys who want other bad guys removed from the scene. Working both ends against the middle, Joe finances a silky life style that Roosevelt obviously admires, as many of his readers apparently do.

On the other hand, Mallory is a very nice guy, and he hasn't done too badly, at that. Today, he's a TV director in the Data Systems training department, and previously served the division as a computer instructor.

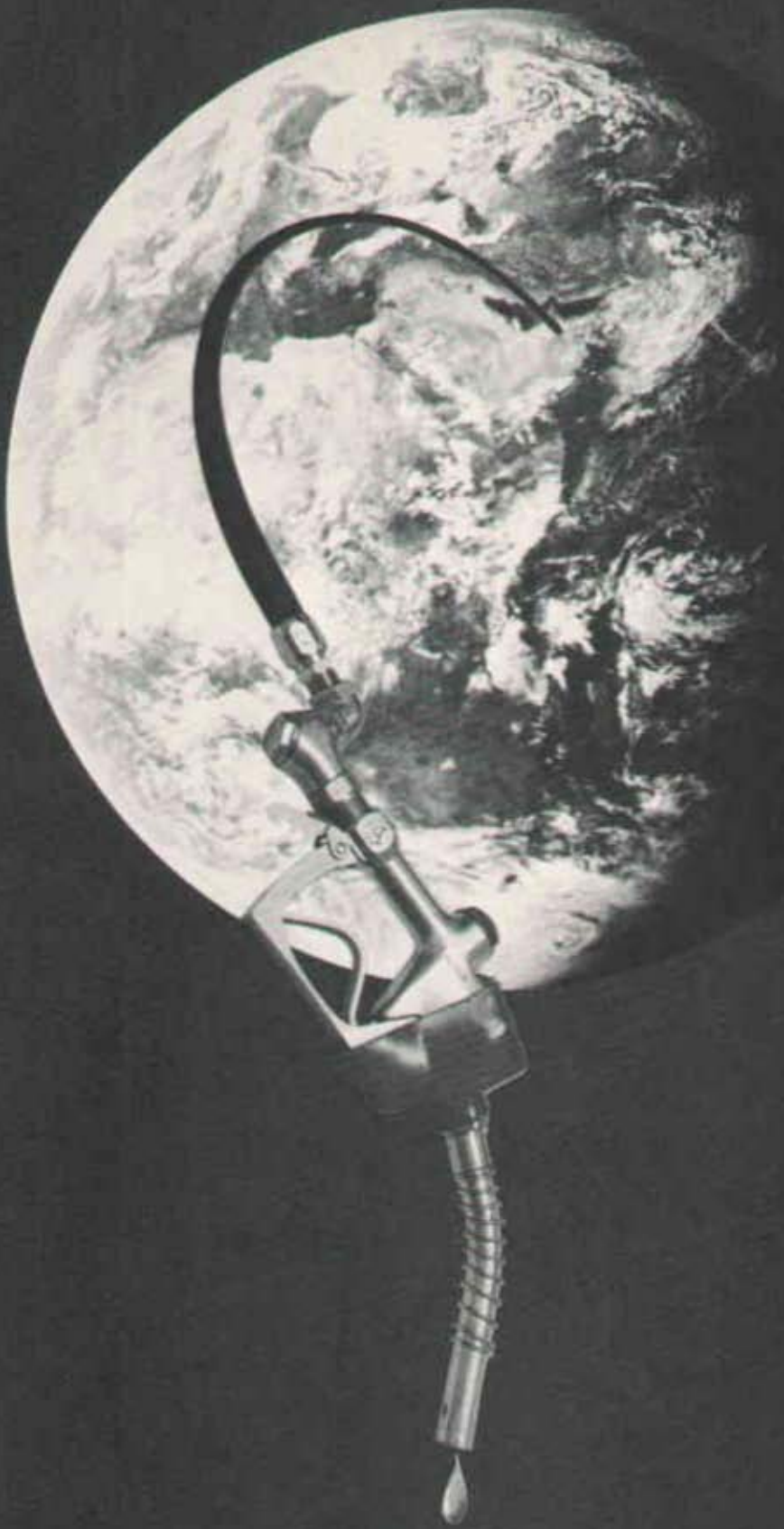
He came to this career in a way familiar to many other black people: the hard way. It began on an Alabama share-cropping farm, followed by years in a Birmingham ghetto. There, the everyday violence encouraged Mallory, a top student and athlete, to drop out of high school and enlist in the army. This in turn led to some college work and the Coast Guard where he became an electronics technician, then instructor in electronics. After discharge he trained as a computer instructor, arriving at HP in 1966 where he became the company's first professional computer instructor.

Joe Radcliff got his start after Mallory had seen one of the early hit-man movies featuring a black hero. "It didn't hang together," he says. "There were all these tough things going on—but no continuity. Bad writing! I knew I could write a believable script, so on evenings and weekends I dashed off the first draft of *Harlem Hit*. I also took a course in how to sell a script, which led me to my publisher. He liked the story, but asked me to rewrite the ending so that Radcliff survived. That way we could develop a Radcliff series."

Of course, Radcliff is really working for Mallory. Some 50,000 copies of *Harlem Hit* have been sold, a second book titled *San Francisco Vendetta* is due out, and a third is still in the typewriter. The earnings and advances from these have enabled Mallory to expand his life style somewhat along the lines of the hit master—at least in such material manifestations as custom clothes and favored wines. However, his real-life haunts are unlikely settings for a man who writes about violence: with his family; on a salmon fishing boat off the Golden Gate; a trout stream in the Sierra; some golf or skiing if his old football injuries permit.

The hit master, who makes his hideaway in the green depths of the Santa Cruz mountains, would probably dig that—given the chance. ☐


VTR 1
VTR 2
SONY



HP tightens its fuel belt...

☐ The gasoline now sloshing around in the tank of your car may possibly have flourished as a large clump of sea grass in the shallow oceans of the Paleozoic era, some 500,000,000 years ago. The coal-based electric energy being released in the form of the light by which you read this report could have started as a giant fern in the growth-choked swamps of the Carboniferous period—about 300,000,000 years ago. Even as late as the Cenozoic era, representing the last 60,000,000 years of Earth history, the distillation of organic debris into the various forms of fossil fuel that we use today was a continuing process.

Yet, also today, it appears that we will exhaust much of the readily available supplies of these resources, especially petroleum and natural gas, in the course of the next 50 years. That's a rate of consumption roughly equal to one year for every 500,000 years of accumulation.

In spite of that, and thanks to a devastating combination of rising population, rising per capita consumption, rising expectations of non-industrial nations, and relatively static development of fuel and energy sources, our worldwide hydrocarbon demands have finally passed the curve of no return. Not even with Aladdin and his magic Arabian lamp could we wish ourselves back into the recent blissful era of unlimited energy—unless we can tap the atom more effectively, or the sun, or the wind, the tides and other natural forces still at work in the world. Meantime, we are already in what many observers believe will be a prolonged period of uncertainty—with spasmodic shortages of petroleum-based materials, fuel rationing whether voluntary or involuntary, "rolling sequential" brownouts, long lines at the gas station, and higher prices for fuels of all kinds.

Commenting on this situation as it affects Hewlett-Packard, Bruce Wholey, vice president-Manufacturing, noted that the first tangible evidence of trouble was seen four years ago in the famous failure of the power grid along the eastern seaboard of the U.S. HP became directly affected first in the cold, cold winter of 1972–73 when the local supplier of natural gas had to put the Loveland plant on short rations—a problem that is even more critical now.

"By 1973 the problem was general throughout the U.S.," Wholey said. "In the Eastern states, the threat of power shortages was caused by a basic shortage of generating capacity. The West had adequate generating capacity, but not enough fuel to meet maximum demand for electricity. We also experienced some gasoline shortages, and for the first time the public began talking about the 'energy crisis.'

"Let's face it," said Wholey. "In the past, the low cost and ready availability of fuel was an encouragement to all consumers to use it rather than consider other alternatives. Building designers and plant engineers, for example, didn't have to design for expensive insulation; fuel for heating and cooling solved the problem. At HP, the maximum comfort levels in heating, air conditioning and lighting were considered the norm. Generally, in work areas the thermostat was set to turn on heat if the temperature fell below 72°F or to cooling if it got above 74°F.

"The effects of that approach," Bruce continued, "can be seen in the pattern of energy consumption that prevailed in the California plants: 30 percent for lighting, 50 percent for heating, ventilation and air conditioning, and the remaining 20 percent for actual production purposes. At the same time, the figures suggest that we can well afford to reduce our consumption in the areas of comfort without jeopardizing production and jobs.

"Actually, there is no way of telling just exactly how much of a shortage we have now, or how long it will last. But it's my belief that we will have to exercise extra care in our usage of energy at least through the remainder of the 70's. By then we may have developed some useful alternatives to petroleum."

All too-familiar scenes epitomize the fuel shortages that are putting severe crimps in the life styles of consumer-oriented economies around the world. In HP's case, as much as 80 percent of its fuel previously was used to maintain optimum levels of comfort. Significant savings are being made by lowering the consumption of heating, cooling and lighting in plants and offices, and by other conservation measures.

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Just how well is the energy conservation program faring around the company? The following are some of the highlights reported by a representative sampling of organizations:

• Eric Woods, projects manager, Corporate Construction: "All of our new building designs are being reviewed with the aim of more efficient use of energy. The new Waltham addition, for example, will have double-glazed windows to create a thermal-exchange barrier. Elsewhere, we are looking at the question of glass which is the next biggest source of heat loss after ventilation. The question is: How much glass is right? Our lighting circuitry needs to be more flexible so that small areas can be lit as necessary. Recycling of pure water is another area of interest."

• Jack Reynolds, facility engineering manager, Stanford complex: "Today, we don't heat until temperature falls below 68, or cool until it is above 78. Lights are switched off when not in use, and in areas with good daylight we reduce the level of lighting. To do these things we have had to install time clock controls and other control modifications. In the past month we reduced gas and electric usage by 20 percent below the previous year, whereas normally we expect an increase of about 11 percent. So our effective saving was approximately 30 percent."

• Clarence Colley, Corporate Construction: "We're now set up to compile data from all divisions on their energy consumption. One thing I see coming out of this is that we will all look much more closely at the way we have handled certain problems. For example, instead of simply venting heated air, why not try to extract some of that heat through heat exchangers? We can also think in terms of mixed air systems, using more outside air.

"The divisions are finding that energy can be dissipated in many subtle ways. Compressed-air lines, for example, seem to have lots of small leaks, which means that the compressor will automatically switch on to compensate for the loss."

• Gordon Brandt, plant engineer, Data Systems Division: "I'd say that 99.9 percent of the people have been very good sports about the conservation program. They realize that we are all in this thing together—and that a sweater will get you nicely through a cool day."

• Jack Parks, plant engineer, San Diego Division: "Our main problem here most of the year is getting rid of heat. Air conditioning accounts for one-half of the energy we consume, so this is where we have approached the problem of conservation. Since November, we've reduced fuel consumption 30 percent. Fortunately, reducing heat and lighting works hand in hand—we simply removed one-third of the light bulbs.

"But summer will be the real test of what we can do to keep reasonably cool yet continue to conserve fuel. We'll try a number of things, including more mixing of outside air."

• Bob Kane, manufacturing manager, Avondale Division: "We're really out in the country here, so car pools could become more important, particularly if gas is ever rationed or chronic shortages develop. As it is, our count shows that car pooling has raised the passenger-vehicle ratio at the plant parking lot from 1.2 to 1.4.

"The people seem to be very understanding of the situation. There wasn't one real complaint when we asked them to turn off any space heaters or when we reduced the lighting level."

• Walt Henry, plant engineer, Waltham plant: "Thank goodness it's been such a mild winter so far. If this had been like the previous winter we might not have had such a successful program of conservation. We've turned the thermostats down and taken out many light bulbs, for an overall reduction of about 10 percent per square foot in our use of electricity.

"Local bus service is being ex-

Watt you can do...

People around the company have apparently accepted the reduced heating and lighting levels necessary for fuel conservation. But there are still plenty of opportunities for the individual to help the program. Considerable savings can be made by turning off the many electric devices used on the job—typewriters, heaters, pumps, blowers, fans, machine tools and other equipment items that are not in use.

Make it a habit.

Night on Page Mill hill: Close examination shows that only three or four areas are lighted during swingshift at the Stanford Park headquarters plant. In Corporate Accounting Systems, between 8 and 9 p.m., George Moore at left and Duane Schar work under local lighting, with other areas darkened to conserve power. Photo reveals that on Friday, January 8 at 7:42 a.m. the temperature inside Corporate headquarters was a cool 64°F., which may explain the vitamin C bottle at right.

Jackets and jerseys are now in vogue around HP facilities, thanks to the energy conservation programs. In the photo above are, from left, Corporate Marketing's Kay Allen, Ann Cummings and Judy Allen. To the right are Harold Petersen, Gene Opine and Donnita Arnold of Stanford Administrative Services. The question is: What will summer bring—or bring off?

Four early-bird HP people share a ride and some comradeship to relieve a mid-winter morning's gloom. They report their 12-mile car-pool commute to and from the Stanford complex—plus fewer weekend trips—has reduced their fuel usage more than two-thirds each, not to mention less wear and tear of their individual cars.

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HP tightens its fuel belt...

panded on a trial basis from Waltham Center to the industrial park, thanks to some good response to the first trial. People have had to wait in lines here for up to two hours for gas, so more and more of them may begin to take an interest in the bus or in car pools."

- Bill McMahon, Singapore plant (representing Corporate Construction in Southeast Asia): "Singapore is affected by higher cost of fuel oil, manufactured gas, gasoline and electricity, due to rising prices of oil. Singapore gas stations have been ordered to close on Sundays. We have reduced our plant electrical consumption by shutting off package air conditioning units and fans during non-work hours. General lighting is also shut off after second-shift janitors complete an area."

- Fritz Schyller, plant engineer, HP-GmbH, Boeblingen: "Gas will not be rationed in Germany, but speeds of 60 MPH on highways and 50 MPH on other roads are being enforced through May. The ban on Sunday driving was lifted before Christmas. Here at GmbH we have been using only two-thirds of normal lighting, heating has been decreased, and air conditioning has been modified to recycle a large percentage of heated air. In addition, we completely closed the factory over Christmas, and have encouraged use of public transportation for business and of car pools to and from work."

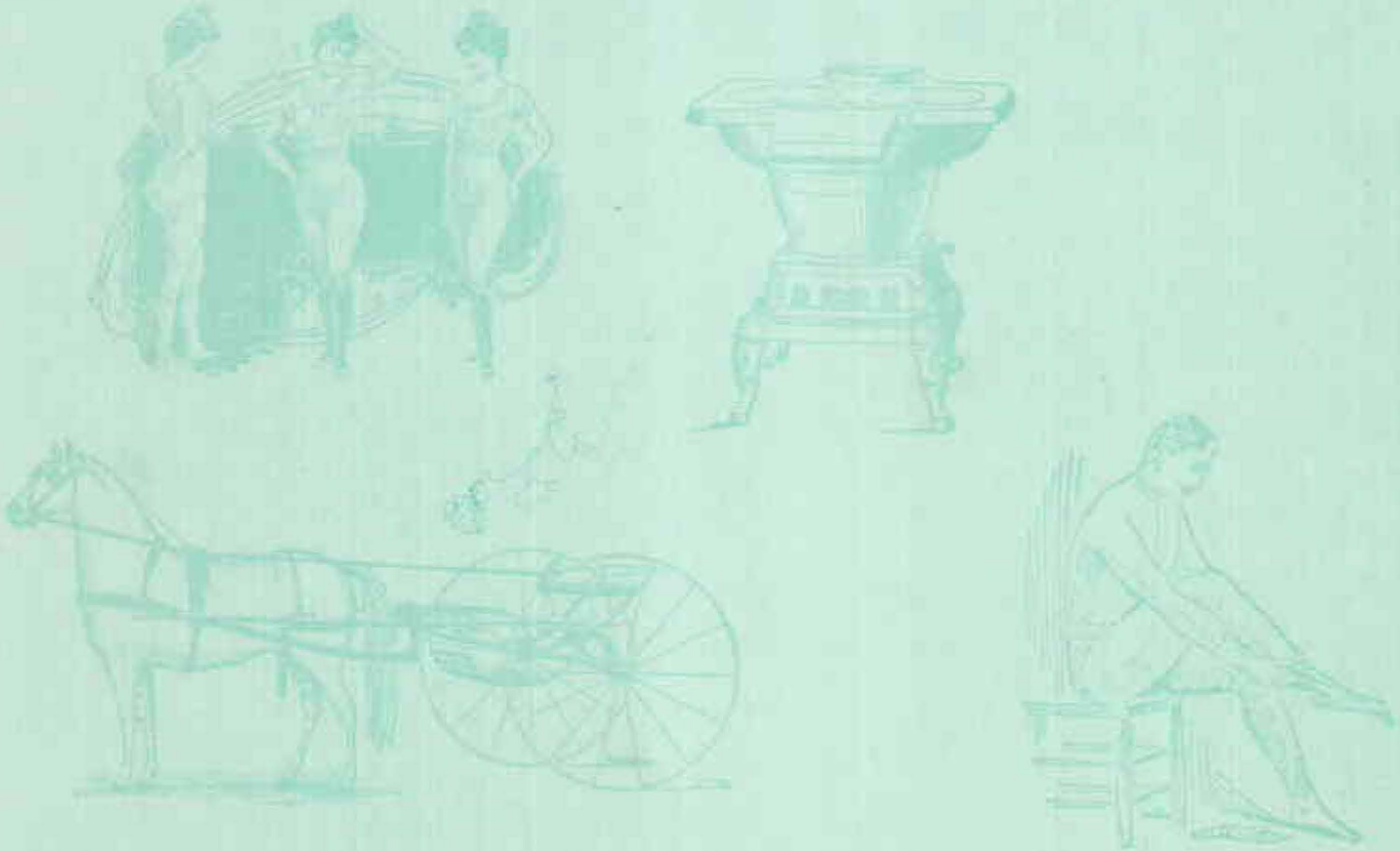
Instant nostalgia: Remember those advertising themes ("Don't be a dishwasher—buy one") that encouraged you to save your energy by using more gas or electricity? Today, of course, the power companies are looking the other way by seeking to enlist your cooperation in fuel conservation. Although there is government talk of ambitious programs aimed at developing new methods and sources of energy, a tremendous range of problems remains to be solved before the world can ever again bask in the luxury of "unlimited" heat, light and motive power.

What's next?

Energy shortages are nothing new in the history of mankind. In fact, according to *Natural History* magazine (Oct. 1973), energy crises have often served as necessary preludes to newer, more advanced forms of energy usage, stimulating their invention and development. Take the case of primitive hunters who had cleaned out their native range: those that didn't starve or move on must have learned how to preserve food, to plant seeds, and to tame animals.

The Roman Empire for many centuries enjoyed the benefits of almost unlimited manpower, causing mill owners to resist the "barbarian" practice of employing water power. All that changed, however, in the fourth century A.D. when Rome's population dropped drastically. Soon, a portion of the great aquaduct system was allocated to the use of giant waterwheels, thus prolonging Rome's position as the eye of the universe. Then, some 400 years ago, many of Europe's great forests were almost axed out of existence to fuel the creative fires of the Renaissance. Coal was plentiful, but problems in using it properly required new techniques. The search for these led to a host of discoveries that became the technological foundations of the Industrial Revolution.

Today, the world appears to be in a similar sort of crisis, with one eye on dwindling supplies of natural hydrocarbon fuels that have powered us this far, the other on the various options ahead. We may need all of them. □



Loveland Instrument Division "pumped up" a model of the HP 970A handheld multimeter probe just to remind HP people of the big saving available through the employee discount program. Special order forms have been sent to all personnel managers and purchasing managers. The program permits an employee to purchase a 970 (or 97002A) at the current list price plus state and local taxes less 30 percent discount—one per person per lifetime. Purchase can be financed through payroll deductions.

News in Brief

Palo Alto — Hewlett-Packard has reported a 49 percent increase in sales and a 67 percent increase in earnings for the first quarter of the company's fiscal year.

Sales for the quarter ended January 31 totaled $189,168,000 compared with $126,966,000 for the first quarter of fiscal 1973. Net earnings amounted to $14,530,000, equal to 54 cents per share on 26,914,772 shares of common stock outstanding. This compares with earnings of $8,685,000, equal to 33 cents a share on 26,532,359 shares, during the corresponding period last year.

In addition to reporting first-quarter operating results, President Bill Hewlett said the company had cancelled its previously stated plans to seek long-term financing of approximately $100 million.

"We had planned to use this financing to pay off a portion of our short-term debt, which currently amounts to about $110 million," Mr. Hewlett said. "However, with our improved profit margin and the prospects for more favorable availability and cost of money, we have concluded that long-term financing is not necessary at this time.

"Despite the energy crisis and its potential negative effect on some of our markets, there was a strong, overall demand for our products during the first quarter. Incoming orders totaled $217,252,000, up 39 percent from orders of $156,075,000 booked in the first quarter of fiscal 1973.

"International orders amounted to $108,026,000, up 59 percent from last year's first quarter. Domestic orders were up 24 percent to $109,226,000."

From the president's desk

Many of you may have seen the announcement we made in January that the company was planning to convert about $100 million of short-term borrowings to long-term debt. Basically this meant that instead of paying interest costs at a fluctuating rate—which in general was tied to the "prime" rate—we would be contracting to pay a fixed interest rate over a much longer period of time, and have a known floor under interest costs. The plan had the added advantage that HP would have the money in hand and not be faced at some point in time with the banks saying, "I'm sorry. I would like to lend it to you but we are fresh out of money." A negative factor of the plan, of course, might be that we would be paying more for our money than we should, or, that at some future time we would find we did not have need for all that money and that the rate of return at which we could invest these extra funds was less than the rate of interest that we were paying for them.

Why then would we want to go this route? It was simply that all signs indicated that the cost of money would continue to be high and that since 1972 there was no firm evidence that we would be able to support future growth and still get back to a point where we would generate enough excess cash to pay down our present short-term debt.

What changed? What made us change our minds and announce last month that we were not going through with the plans for a long-term debt issue?

Before I answer that, let me make one observation that may shed some light on the decision. From the time we first started the company in 1939 through the year 1972, we had paid our own way. The profits we had generated, along with the funds that the employee stock option plan and employee stock purchase plan had provided, supplied us the cash to support our growth. At the end of 1972 our total borrowings were just about equal to our cash and marketable securities. At the end of 1973 this net difference was about $114 million in the red.

Actually, the change in our original decision was based on four important facts: First, there was a sharp decline in the cost of money (interest rate). Secondly, the first quarter's results demonstrated that in important areas we were able to control expenses with the result that we were able to show a sharp increase in profit. Thirdly, we began to demonstrate that we could do a better job of managing our assets—for example, good progress was made in reducing our accounts receivable. These last two factors were a direct result of all of you really pitching in.

But probably the most important factor was that as Dave and I traveled around talking to various divisions we sensed a distaste for the easy way out by "opting" for long-term debt and a deepseated desire to get back to the HP way of pay-as-you-go.

With these four factors in mind we we able to draw up a new, much tougher plan that would, if we were able to meet certain objectives, get us back on a current base sometime within the next three to five years. When this plan was presented to our top managers it received uniform support, and based on their willingness, the new plan was adopted and the plan of a debt issue cancelled.

I think it was a fine decision.

Bill Hewlett

CON UN CORDIAL SALUDO...

Earthquakes and floods in Mexico last year left more than 100,000 people without homes and other resources. What could a sales organization of less than 50 people do about that? Alfredo Thein, HP Mexico's general manager, invoked Corporate Objective Numero 7 on good citizenship and organized an office drive for contributions in clothing and money. For every personally given peso, HPM would contribute two more. In the photo above, Alfredo is seen handing over the combined check of more than Mex. Ps. 8,000 to Señora Pastora M. de Méndes who headed one of the relief teams.

Measure

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