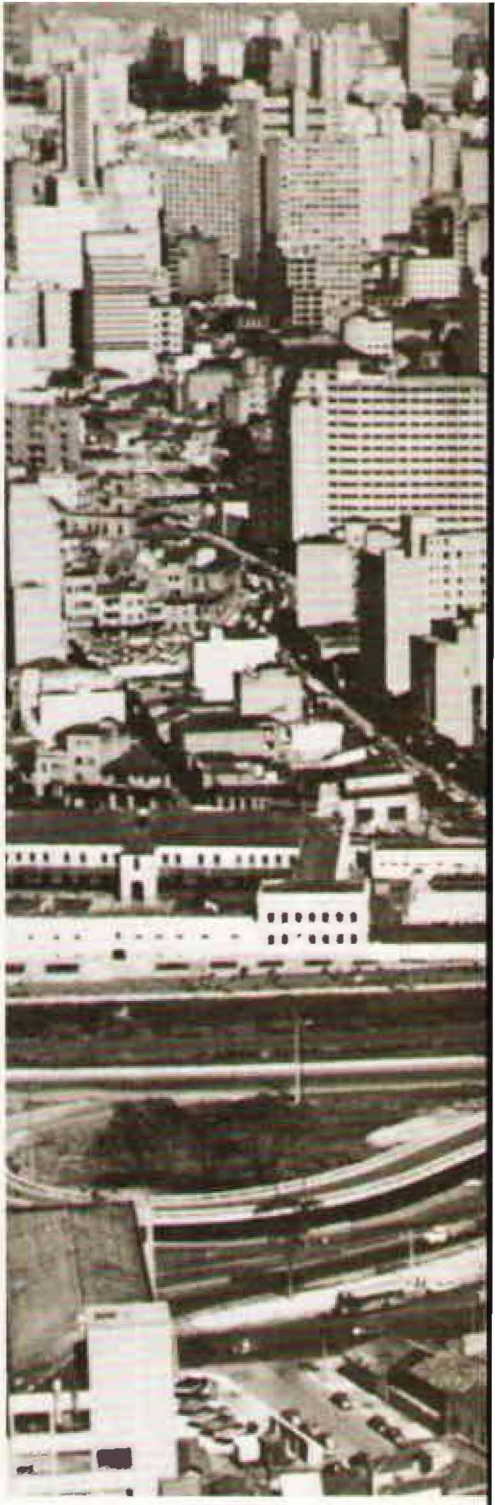
# Measure

For the men and women of Hewlett-Packard/JUNE 1975



Sao Paulo skyline —
city of 8,000,000 Brazilians

# Porquê Brasil?

□ To be sure, not many Brazilians are asking the question "why?" these days. They are much more interested in the "hows" of technology, the "wheres" of resource development, and the "nows" of successful economic planning. For it appears that this young South American giant is about to come of age — and rather rapidly, at that.

For Hewlett-Packard, the situation is encouragingly similar to that of Europe in 1960 when the company set up HPSA in Geneva and its first overseas plant near Stuttgart, Germany. The European Economic Community had been formed and great changes and growth were in the wind, conditions that helped to create the strong and diversified European manufacturing and marketing operations of such great importance to Hewlett-Packard today.

The same winds of fortune prevail now in Latin America, with Brazil being the epicenter. Recognizing this, and encouraged by Brazilian government policies and attitudes, HP has launched a program of significant expansion of its participation. At Campinas near Sao Paulo, the company has purchased a 50-acre site for the development of a future manufacturing facility, meanwhile leasing a building nearby where manufacture of medical instruments and hand-held calculators will soon start. A complete plant management team is in place — all of this in addition to an existing sales organization of some 140 people working out of offices near Sao Paulo, Rio de Janeiro and Porto Alegre.

But let's hear what several of the HP planners have to say:

"We've actually been in Brazil as Hewlett-Packard since 1967," noted Alan Bickell, Intercon director. "At that time we assumed direct responsibility for the distribution of HP products in Brazil, Argentina and Venezuela, through our own HP sales subsidiaries. It was clear


even then that the Latin American market — though relatively small then — had lots of potential.

"Sales grew steadily in Brazil until a couple of years ago when we began to recognize two significant factors:

"One — the Brazilian market had reached critical mass and was ready to explode. The basic ingredients in Brazil's success story are a land mass larger than the U.S. (excluding Alaska), an abundant population, tremendous untapped resources, including oil, and a hard working people.

"Two — the prospect of political upheaval, which has long been associated with South American affairs, does not seem to be in the cards for Brazil. The government is a mixture of direction at the executive level and representation at the legislative level, and is dedicated to elevating the economy through direction and planning. Brazil's national economic development plan aims to continue a 10 percent annual GNP growth rate through import substitution — moving to a net exporter of key world commodities, expansion of international commercial relations, and rapid development of internal markets."

Mark Gumucio, sales region manager for Latin America, pointed out that Brazil is the natural center of gravity for South America in terms of population and economic growth.

"The country's economic development

*(continued)*

# Brasil

plan," he said, "has encouraged the private sector of business without diminishing the social role of the state or interfering with foreign capital investments.

"We are now seeing the rapid industrialization of the natural resources of Latin America which are enormous to the extent that they are largely unexplored. The region also enjoys the advantages of geographic closeness, language similarities, and various trade agreements. For HP it is a unique opportunity."

Other factors, however, indicate that HP's Brazilian operation is also a lot of hard work. For example, Carl Cottrell, deputy director of International Operations, has immersed himself almost full time over the last six months in spearheading HP's relations with government and intra-government agencies that deal with trade. It's a major undertaking of long-term significance, and concludes almost three years of intensive study leading up to HP's decision to manufacture in Brazil.

Other HP participants find themselves spending lots of time solving bureaucratic problems. Bureaucracy is apparently a way of life around the world today, and Brazil has its share.

In Brazil, however, the challenge arises not from inertia but rather from keeping in touch with the constant changes being made in personnel and plans, and from the rapidly growing demands made on services such as telephone and mail.

For Brazil throbs with change. Vast projects of electrification, communications, and education are underway. As Alan Bickell sees it, these are often monumental in size but not in kind: "They are really aiming these programs at building a national infrastructure that will support their participation as a major world economy.

"That combination of planned economic growth and political stability is attracting tremendous investment. And looking at all this, we've forecast that Brazil very likely can leapfrog from its present eleventh spot in real GNP (gross national product) world rankings to as high as sixth by 1990. That's a pretty good reason for our being there." □

Architectural example in Brasilia, all-new capital city

A view of Rio de Janiero

Guenter Warmbold, general manager of Brazil manufacturing (left), and Stan Whitten, administrative manager, discuss their project with a visitor. Guenter previously was manufacturing manager at the Boeblingen plant, and Stan was finance manager at Delcon Division.

## HP TEAM SETS UP MANUFACTURING AT CAMPINAS

Reviewing components of new pocket calculator to be manufactured at Campinas are, from left: Joe Conrad, manufacturing manager, Harry McLean, medical products production engineer, Earle Ellis, APD production engineer, and secretary Cida Straccialano.

Getting ready for brisk employment program is Betty Damasceno, personnel specialist. Manpower at the temporary plant is expected to reach 80 to 90 people by the end of 1975.

In Palo Alto for quick liaison visit before returning to Brazil are Alfred Srour, order processing manager (left), and Odmar Almeida, marketing manager. Odmar formerly was Sao Paulo district manager for IPG, and gained further experience with HP and its products while studying for his PhD. at Stanford University.

BY AIR MAIL
PAR AVION
हवाई पत्र
AEROGRAMME

Mr. Russell M. H. Berg
Hewlett Packard,
1501 Page Mill Road,
Palo Alto
California 94304

प्रेषक का नाम और पता> SENDER'S NAME AND ADDRESS>
Dr. Surendra Parkhe
F.J.F.M. Hospital
Vadala Mission
Vadala
Dist. Ahmednagar
Maharashtra State
भारत INDIA

# Letters from Vellore

Along with one of his letters, Surendra (seated on left) sent this snapshot of himself and several of his classmates at the Christian Medical College.

☐ A few months ago, another aerogramme with an engraved picture of a rhinoceros in the corner arrived from India, addressed to Russ Berg of corporate marketing communications. It was the first in a long while. As usual, the salutation was a formal "Dear Sir," but the sentiment was straight from the heart:

"I am deeply grateful to all the people at Hewlett-Packard for their help financially and spiritually, because I know a number of you must have prayed for me. The success I have achieved academically is due to you. It is your personal triumph that I have become a doctor, and wherever I work the thought of helping others will always be foremost."

It all started with another letter—same handwriting, same stationery — almost eight years ago. Surendra M. Parkhe, then 17 years old, picked a name and address at random from an American magazine and wrote to HP Vice President Ray Wilbur. "By the grace of the Lord," he wrote, "I have received admission to the Christian Medical College at Vellore. But I have no money for the fees and other bills for the course."

In his impassioned plea for help, Surendra wrote of his poor parents and suggested that a rich American family might wish to "adopt" him. He promised that he would always be a blessing.

Wilbur wrote back to the Indian boy, explaining that he had two children of his own in college and could not take on another one — but he promised to circulate the letter among HP employees.

Russ Berg and other HP people took an interest. Through an exchange of letters with the American Consulate in New Delhi and the college in Vellore, Russ learned that Surendra was, indeed, a deserving student from a backward area, and scholarship funds could be administered by the college. As it turned out, not one but more than 200 people — not exactly "rich Americans" but HP employees more fortunate than the Parkhe family — "adopted" Surendra and paid his way through medical school over the next five years.

Russ and his (then) secretary, Dorothy Clark, took up a collection in the fall of each year and sent a check to the college for Surendra's tuition, room and board. With expressions of deep faith and gratitude, the boy wrote regularly to his American benefactors through Russ and Dorothy, who answered most of them. Suzanne Kimerer, now with the Santa Clara Division, also carried on a lively and rewarding correspondence with him. His letters, and the occasional progress reports from the school, indicated he was doing very well in his studies.

Over the years, the contributors at HP provided other help besides the college fees. When they learned that the school did not pay for incidentals such as books and supplies, they took up another collection and began sending a separate check directly to Surendra for his personal expenses. When he wrote that he needed a stethoscope, arrangements were made for HP's Medical Products Group in Waltham (which makes one of the best stethoscopes on the market) to send him one as a gift. Surendra showed it off proudly to the faculty and students at the college, who had never seen one made by Hewlett-Packard. When he wrote that he had to borrow a watch to measure pulse rate, they sent him one.

Their help continued through the 1971-72 school year, and the following year Surendra was to serve a compulsory term as house surgeon at the hospital affiliated with the college. He would receive his room and board and a small stipend, so there was no further need of support from his American friends.

Surendra has repaid the kindnesses of HP employees mostly by being a good student and promising to help the impoverished people of his country when he became a doctor. According to his last letter, he is now working in a small village hospital operated by the Marathi Mission in Vadala.

That may not be the final chapter in the story, however. Surendra wrote that he would be applying this year for higher studies in surgery at a U.S. hospital. He always said he would like to personally thank all those people who helped him, and he may yet have the chance. ☐

# "Engineer's holiday?"

***Some HP people are showing how technology can provide stimulating leisure-time activities***

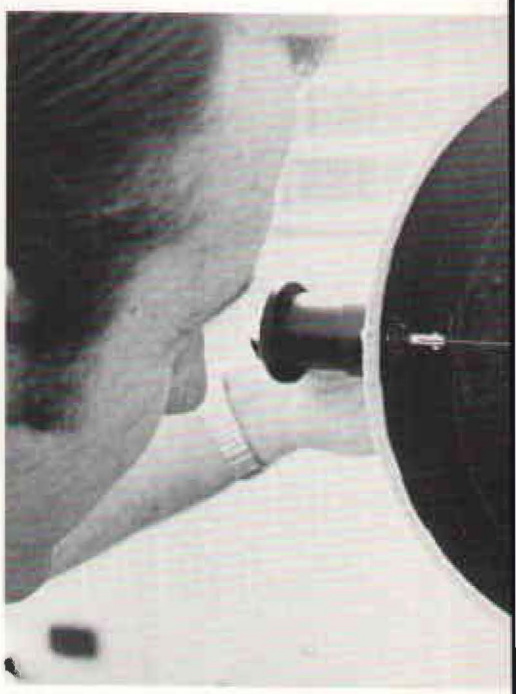
A distant galaxy lures the amateur astronomer.

Anticipating the appearance of the comet Kahoutek two years ago sparked many peoples' interest in astronomy, as it did for **John Rhodes** of Automatic Measurement Division in Sunnyvale, California. But, while most comet-gazers bought their telescopes in the department stores, John decided to build his own. By the time he finished it he had missed Kahoutek completely, but he discovered that studying the stars can be just as exciting.

Admittedly, many people in technical professions also spend much spare time growing flowers, and playing music or tennis. But quite a few, like John, find it difficult to stop being engineers at the end of the work day, and they apply their scientific and technical skills to their hobbies.

At first glance, John's reflecting telescope doesn't look like much. The tripod head is an unsophisticated wood and plastic apparatus, and the barrel is a simple cardboard tube. But inside is the challenging and time-consuming part — the parabolic mirror that collects starlight and forms the image to be magnified. The basic principles are the same as those used in the world's largest telescopes.

Grinding the glass and polishing it to produce an accurate parabolic surface free of even microscopic scratches re-



John Rhodes with his homebuilt telescope.

quired about 45 man-hours. The parabola, John explains, is the only shape that will reflect light from any source back to a single point.

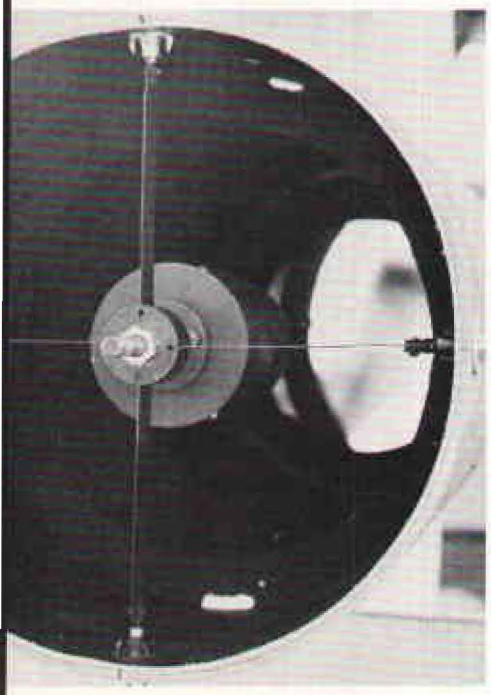
Engineering at home often requires doing sophisticated jobs with unsophisticated tools. John's telescope mirror is accurate to perhaps five millionths of an inch over its entire surface, but this exactness was achieved without any special equipment, by an optical technique devised over a hundred years ago. "The sensitivity of the test is such that I could easily detect expansion bumps in the mirror's surface produced by touching it for a few seconds with my fingertips."

Now the telescope accompanies the Rhodes family on camping trips and HP picnics. "I enjoyed both planning and constructing the telescope, but find the real pleasure is to use it on a moonless night to view the beautiful star clusters and nebulae of the northern sky. You gain a humbling perspective of man's place in the universe when you view a distant galaxy by light that's been traveling for several million years."

Among John's other recent projects was building a digital clock — one that switches to a battery in the event of a power failure. As he points out, technical hobbyists are usually interested in many different fields.

Another avocational astronomer of wide-ranging interests is **Barney Oliver,** HP's vice president of research and development, whose activities outside the company have won him nearly as much recognition as his achievements at HP. His views on the existence of intelligent life elsewhere in the universe are well known in scientific circles. In 1971 he headed up Project Cyclops, sponsored jointly by NASA and Stanford University, which gathered some of the most futuristic minds in the country to consider the probability of communicating with advanced civilizations in the far reaches of the universe. Their conclusions included a proposal for a huge array of radiotelescope antennae, perhaps covering an area ten miles in diameter, to probe for radio signals from outer space.

Ray Uberecken, his family and friends raise his huge antenna.



Radioastronomy on a smaller scale was among **Ray Uberecken's** objectives in building his own 20-foot parabolic dish antenna. When asked what prompted him to undertake the project, the Colorado Springs engineer quipped: "Insanity!"

Astronomy was Ray's first hobby — he doesn't remember exactly when his involvement with it began. "It was even before I got interested in electronics, and that was in Cub Scouts."

Ray has also been a ham radio operator for years, and with his new antenna he joined a select fraternity of 20 or 30 amateurs around the world who communicate by VHF signals bounced off the moon. "It's done on a regular pre-arranged schedule," Ray explains, "usually about once a month when the moon is closest to the earth." Other amateurs joining this network must be similarly equipped in order to send and receive signals in the VHF bands.

Using readily available materials such as steel conduit and chicken wire, Ray spent two or three hours a day over a year's time to construct the antenna. It weighs 500 pounds, and its motor-driven mount can point it in any direction. A commercial equivalent would cost on the order of $5,000, but Ray's out-of-pocket expenses were only about $350.

Radioastronomy investigations will require more equipment, which Ray doesn't have yet. He will need a clock drive to tune in a point in space while compensating for the earth's rotation. An X-Y recorder is also a necessity. Among other things, he plans to locate the "noisy" parts of the sky that affect his earth-moon-earth communication with other VHF radio hobbyists.

"Before I built my antenna, some of my friends copied signals from the astronauts circling the moon," Ray said. Weather photos and other signals from commercial satellites can also be picked up with his equipment.

Another pair of Colorado Springs engineers, dissatisfied with the quality of stereo speakers on the market, decided to

*(continued)*

Ray Kushnir shows a pair of his speakers.

design and build their own. The result was a unique speaker system and a small sideline business for **Ray Kushnir** and **Bill Mordan.**

Ray and Bill designed their speakers for low distortion rather than efficiency. But they found enough interest to warrant a small manufacturing and marketing operation, so a shop called the Audio Library is building and selling them on a small scale to dedicated audiophiles.

Stereo speaker systems actually have three speakers or "drivers" within each speaker box, to handle different frequency ranges. There is a cut-off point on the frequency scale where one stops and another takes over. In Ray and Bill's speaker the cut-off is lower, reducing the strain on each driver.

Such a speaker system is not for everyone, of course. It is built by hand, costs more than the name-brand products, and requires a more powerful amplifier. But there is nothing else like it at any price. And sometimes an R&D engineer just can't resist that kind of challenge — even after five o'clock.

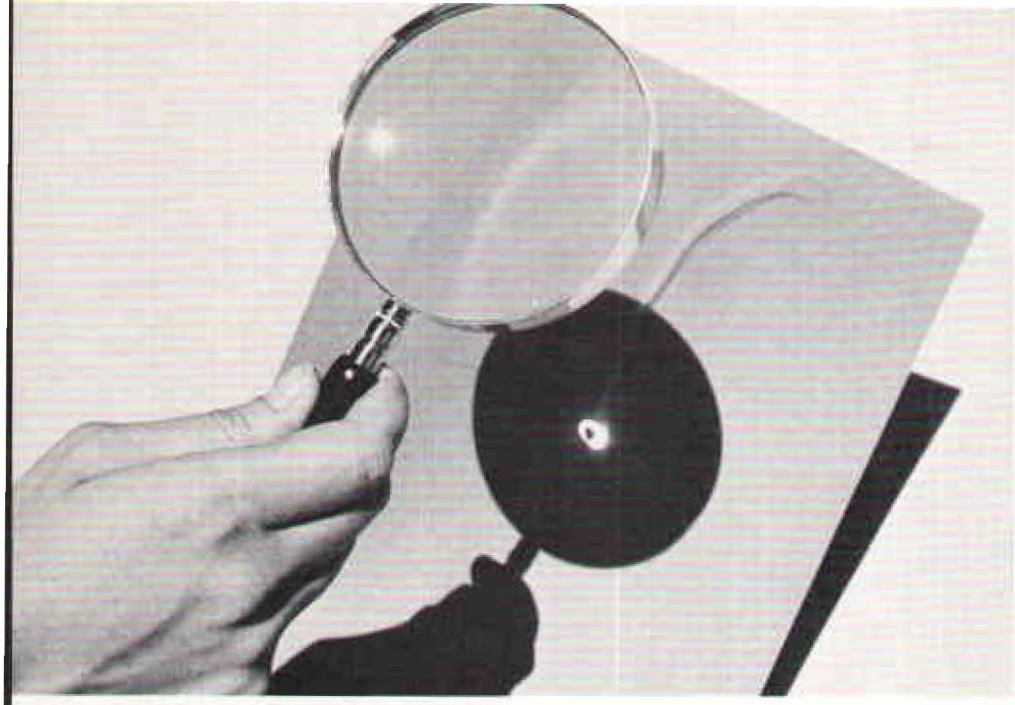
## Engineering for energy

With our present-day concern over the cost and availability of energy, it's not surprising that a lot of after-hours engineering activity has to do with conserving energy or exploiting natural sources such as the sun and wind.

**Mac McFee** of Automatic Measurement Division — who played a major role in the development of a solar heating system for the division's Sunnyvale, California, plant — went on to design and build a similar system at home. It helps heat his house in the winter, his swimming pool in the summer, and provides some of the domestic hot water the year around. The system consists of some relatively inexpensive rooftop solar heat panels, patterned after the ones he helped design and test for HP, plus an insulated water storage tank and a device that transfers heat to his forced-air furnace.

The panels themselves are made from sheets of aluminum (both flat and corrugated), aluminum tubing, black paint and a layer of glass to let in the sunlight and keep most of its heat from escaping. They're highly efficient, Mac says, even though the design is simple and building them requires no special tools. "With a swimming pool, it's definitely economical," he explains. "For heating only, the savings would be marginal." Mac spent about

Mac McFee readjusts a solar "thermostat" on his roof.



The sun — an energy source there for the taking.

$1,000 on the system, which he expects to recoup in fuel savings within two and a half years. The economics may become even more favorable if the prices of natural gas and fuel oil go higher.

**Tom Ligon,** an engineer at HP's Loveland, Colorado, facility, is testing an entirely different approach. The design for his solar heat collector includes a parabolic reflector to concentrate the heat.

This poses problems of heat loss not encountered with large, flat collecting surfaces, and Tom hopes to overcome them through research and experimentation with various materials. For instance, as a possible substitute for glass, which tends to absorb too much heat under concentrated sunlight, he is testing a mirrorized acrylic film.

For high concentration ratios, a reflector must be movable to track the sun across the sky, so Tom has settled on a fixed system with a relatively modest concentration of three to one. He is proceeding cautiously, as engineers are wont to do, by testing all his ideas thoroughly in a small system. But he is already convinced of the advantages of using a reflector.

Perhaps the most unusual system of all was designed by **George Bodway** for his new home now under construction in Santa Rosa, California. The entire deck of the swimming pool is actually his solar heat collector, with pipes embedded in the exposed-aggregate concrete surface. A heat pump will transfer heat from the pool water to the house in winter. In the summertime the process will be reversed, and heat removed from the house will help warm the pool.

The efficiency of this type of collector is quite good, according to George, and it has an additional advantage: The pool deck will never be too hot to walk or lie on, since it'll always be close to the same temperature as the pool.

**Alan Bender,** a mechanical engineer in Waltham, Massachusetts, has some ambitious ideas for both solar heating and wind energy—but he is also cautious about considering all the alternatives before investing in hardware. "Being an engineer, I'm not one to just go out and start building," he told MEASURE. "I subscribe to some far-out magazines, and so far I'm just collecting data."

Alan also has a patent on a new type of carburetor that could reduce fuel consumption in automobiles. His design uses a solid-state device called a fluid amplifier to control the flow of gasoline without all the valves and floats of conventional carburetors.

**Vaughn Marian,** a mechanical engineer in Manufacturing Division, has a similar idea for developing a microprocessor-controlled fuel injection system, with the help of a non-HP friend. Not only that, but when he reaches the prototype stage with it, he'll test it in a car he built himself practically from the ground up! The body is that of a 1959 Austin-Healey Sprite, but the frame, suspension and drive train are of Vaughn's own design and construction.

Vaughn isn't kidding himself about the originality of his ideas. "Right now the automobile manufacturers are probably spending millions to design the same thing. But we think what we're doing will have commercial significance."

Tom Ligon, mirrored by his solar heat reflector.

Since Vaughn is not an electrical engineer, he feels his after-hours activities help him stay up-to-date in electronics and "communicate with the EE types around here."

"I'm sort of a dreamer," Vaughn admitted. "There are a lot of things I'd like to do, but I'm limited by time and money."

We suspect Vaughn shares that sentiment with a great many of our HP technical hobbyists. □

# The Interface Bus takes to the road...

PROLOGUE: Every four or five years Hewlett-Packard comes up with a product concept that requires a whole new level of technical understanding by the company's field sales engineers and customers. A period of intensive training is in order—what training specialists call a "technology upgrade." One such upgrading is going on right now. It involves the Hewlett-Packard Interface Bus (HP-IB), representing HP's implementation of IEEE Standard 488-1975 Digital Interface for Programmable Instrumentation, whose development and capabilities were discussed broadly in the November 1974 issue of Measure. The current effort is aimed initially at some 500 senior HP Instruments/sales and service people around the world, clearly not something to be undertaken lightly.

Some of the scope of that effort is described in the following. It also suggests the considerable importance that HP attaches to HP-IB as a way of standardizing the interconnection of numbers of programmable instruments and devices into complete measurement systems:

PALO ALTO, Nov. 1, 1974 – Time to launch the HP-IB marketing program! That was the decision reached by the Instruments Group marketing team. Then the call went to George Stanley, Instruments Group training manager, to set up the necessary sales training program. Santa Clara Division volunteered the services of product manager Jane Evans, whose HP career includes extensive data systems experience, as the technical expert on the program. Loveland Instruments Division volunteered to furnish a road show for training customers.

Being a very logical training-minded person, George Stanley's first step was to become trained himself by getting to know HP-IB inside and out with a lot of help from Jane Evans and Corporate Engineering's Don Loughry, a principal "architect" in the design and development of HP-IB. George found it took many hours to do this.

Meanwhile at Geneva, the HPSA Instruments team had set mid-March 1975 as the date for its annual senior sales

Scenes such as this seminar for Intercon Region senior Instruments sales engineers have been repeated throughout the HP world. It represents an intensive "technology upgrade" in the new HP Interface Bus that permits standardized interconnection between many programmable instruments.

Santa Clara product manager Jane Evans served as technical expert on the (HP-IB) marketing program. Here Jane goes over a point in the laboratory workbook with Yasuyuki Katsuno from the YHP Tokyo office, during visit of some Intercon senior Instruments field engineers to Palo Alto in May.

About $250,000 worth of HP instrumentation and materials are in tow by George Stanley, en route to another airport and another (HP-IB) seminar. A very special airline schedule had to be arranged to handle George's excess baggage.

seminar. Some 200 senior European sales people would spend a week each, 100 at a time on the Mediterranean island of Mallorca for sessions of study and interchange. During their five-day stay the sales engineers would be rotated through one full day on HP-IB in groups of 20.

So the problem for the training team now became one of compressing a long and complex subject requiring many hours of study into a one-day class.

The answer: A two-part program consisting of an advance study booklet to be followed by a one-day "hands-on" laboratory workshop. The prestudy book, written by George and Jane and thick with experimental programs based on 9830A calculator-benchtop instrument systems, was in the hands of the European sales people by February 1.

PALMA DE MALLORCA, March 10 — The first of ten one-day workshops clearly indicated that the senior European field engineers had come well prepared for HP-IB. Many of them had spent evenings and weekends working over the study book, often with the help of Calculator sales people.

It also became clear during that first meeting that HP-IB was a "winner" with the sales people. They became more and more absorbed in it as its possibilities unfolded. HP-IB, they learned, already offers two dozen bus-compatible instruments, a figure that will more than double a year from now. The workshop stayed open late as they pursued questions, solutions and ideas that they planned to take back to their customers.

PALO ALTO, May 1 — Taking advantage of an opportune gathering of senior Instruments field engineers from various Intercon countries in Asia, Africa, Australasia and Central and South America, a special HP-IB seminar workshop was held here. Don Loughry joined the Jane Evans-George Stanley training team for this session with Intercon field engineers. In some cases these people, who represent many different countries in the Intercon world, will themselves become HP-IB trainers in their own markets. Other Intercon workshops will be held on a selected basis.

LOS ANGELES, May 10 — How do you handle eleven hundred pounds of excess airline baggage made up of 22 boxes containing 80 cubic feet of HP-IB seminar equipment and materials? Fortunately, a lot of planning had gone into that question, and Luci Bianco of the Corporate travel desk had scheduled all the team's flights on wide-bodied jets to insure enough room for the HP-IB equipment. All went very smoothly on this leg of the training team's U.S.-Canada tour.

RICHARDSON, Texas, May 13 — Bob Sandefer, Instruments sales manager for the western area of Southern Sales Region, said after the local seminar that "from the point of view of potential sales, this may have been the most significant piece of training we've ever done."

With such words to spur them the team winged off for stops at Atlanta (Georgia), Paramus (New Jersey), Toronto (Canada), and Skokie (Illinois). The interface bus was really rolling. □

# News in Brief

**PALO ALTO** — The company has distributed more than $10,000,000 among some 25,000 employees eligible under the company's cash profit-sharing plan.

Eligible HP employees receive two profit-sharing checks a year, one at the midpoint and the other at the end of the company's fiscal year. Employees become eligible for participation following six months of full-time employment.

Announcing the first-half profit-sharing, Chairman Dave Packard noted that "Although the amount we are distributing at the end of this week is $600,000 more than we distributed last year, it will go out to more people than ever before. Also, it is based on somewhat higher salary and wage levels. We have about 7% more people elegible for profit-sharing and, including these additional people, the wage and salary base is up almost 25% over the level of a year ago. This means that the profit-sharing percentage applied to your base earnings will be lower — 6.66% as compared with 7.9% for the first half of last year. But I think this is a fine outcome to be able to do this well in a period of serious economic recession.

"Bill and I want to thank you all for a job well done and wish you all a very happy summer."

**WALTHAM, Mass.** — More than $1 million worth of medical electronics equipment is being installed by HP at King Faisal Specialist Hospital, Riyadh, Saudi Arabia.

The 250 bed hospital is scheduled to open this spring. Medical care will be free of charge to indigent patients, and patients will be accepted on a referral-only basis.

"When completed, it will be one of the most modern and completely outfitted hospitals in the world," said Dean Morton, vice president of HP's Medical Electronics Group.

King Faisal Specialist Hospital is under the leadership of Dr. Rifaat Alsayed Ali. The hospital is a completely self-contained complex with its own power generation plant, its own water plant, and residences for the staff.

The HP equipment includes four medical computer systems, a calculator based pulmonary function analyzer and a newly introduced oximeter system which non-invasively and continuously measures oxygen saturation of the blood.

The HP computer systems will be used in various departments of the hospital. One will automatically analyze electrocardiograms and print a diagnosis within 30 seconds. Another will be used in the cardiac catheterization laboratory to assist the physician in making precise calculations of cardiac function.

A patient monitoring computer system will be installed in the intensive care and post-operative care area to monitor a patient's vital parameters including heart rate, temperature, respiration and arterial pressure.

In the coronary care unit, a computer system monitors life threatening arrhythmias of cardiac patients.

Other HP equipment to be used in the hospital includes a telemetry system to monitor the ECG signal of mobile patients; fetal monitoring systems to measure the fetal heart rate and uterine activity prior to and during delivery; and HP monitoring equipment to allow anesthesiologists to monitor the depth of anesthesia during surgery.

**PALO ALTO** — Hewlett-Packard has reported a 15 percent increase in sales and a 17 percent increase in earnings for the second quarter of the company's fiscal year.

Sales for the second quarter ended April 30 totaled $248,357,000, compared with $216,423,000 for the corresponding quarter of fiscal 1974. Net earnings amounted to $23,952,000, equal to 87 cents per share on 27,492,522 shares of common stock outstanding. This compares with earnings of $20,467,000, equal to 76 cents a share on 27,018,268 shares, during last year's second quarter.

President Bill Hewlett said the company's incoming orders for the quarter amounted to $250,375,000, a gain of 11 percent over orders of $225,706,000 booked in the corresponding period of 1974. For the six month period ended April 30, orders totaled $491,310,000, up 11 percent from a year ago.

Sales for the six months amounted to $460,376,000, a 14 percent increase over the first half of 1974. Net earnings rose 21 percent to $42,365,000, equal to $1.54 a share. This compares with earnings of $34,997,000, equal to $1.30 a share, during last year's first half.

"Our international business continues to show greater strength than our domestic business," Hewlett said. "In the first six months of fiscal 1975, orders from international customers totaled $251,298,000, a gain of 19 percent over the corresponding period of 1974. This compares with an increase of four percent in domestic orders to $240,012,000."

# From the president's desk

The United States is supposed to be a classic example of a free enterprise economy, but it is amazing how many people in this country have such little understanding of the driving force behind a free enterprise system — that is, profit.

In a survey taken a few years ago by an organization called Opinion Research Corporation, a sampling was made of public views about profit. The following question was asked: "As a rough guess, what percent profit on each dollar of sales do you think the average manufacturer makes after taxes?" The average answer came back a surprising 28 percent — with some groups ranging as high as 34 percent, and the lowest estimate around 21 percent.

The actual fact is that the average American manufacturing company makes only about 4 percent after taxes on each dollar of sales. Thus, public estimation of profit was 7 times higher than reality. It is not surprising that with this point of view of profit, there has been an increasing tendency to ask business to accept greater and greater operating costs without any offset from price increases. It is only natural to take the attitude, "They're making all that money, a little reduction won't hurt them." If after tax profits were indeed 28 percent this might be true, but with only a 4 percent margin, increased costs must be passed on.

In simplest terms, profit is the small difference between two larger numbers — the price at which a product sells, and the total of all the costs of producing and marketing it. Thus, a relatively small change in cost can make a very large change in profit. And when you are only working with a 4 percent return on sales, some of which must be paid in dividends, there is scarcely enough left over to provide for environmental protection expenses, plant and equipment modernization and for investment in new productive facilities to provide additional jobs and growth.

Of course, some of these expenditures can be made with borrowed money (proceeds of bond issues), but bonds are expensive. Top grade corporate bonds pay over 9 percent interest, and bonds must be paid off eventually, either out of profits or by additional borrowing. Federal deficit spending does nothing to ease this burden, for the only two sources of money available to the government for covering deficits are the issuing of new money (more inflation) or going into the bond market and bidding up the cost of money.

I feel strongly that it is important that people have a clearer understanding of the role of profit, what generates it, and how it is used. Although HP is not a "typical company," it is an organization about which I can quote specific figures. Let me take, for example, our performance last year. Our net sales were slightly over $884 million, and on this we made slightly more than $84 million — or roughly 9.5 percent on sales. This puts us considerably above the average corporate earnings. In FORTUNE magazine's list of the 500 largest companies, we ranked 225th in sales, but we were 125th in dollars of profit, and 47th in percentage return on sales.

Let's look at how our sales dollar is spent. Last year, almost 48 cents of each dollar went into direct cost of making our products (materials used in production, direct labor, and manufacturing overhead including such items as rent, depreciation, energy costs, supervision and the like).

Eight cents went into research and development, leading toward new products.

Sixteen cents went into costs of selling our products.

Twelve cents was spent for general administration of the company.

One cent went for interest costs.

This left about 16 cents earnings before taxes on income. Our total tax bill was almost 7 cents, with the remainder — 9.5 cents — our net earnings.

(Interestingly enough, in 1974 about 46 percent of our sales dollars, or slightly over $400 million, went to employees in the form of wages, profit sharing and other benefits.)

You can see from these numbers that, roughly speaking, an increase in our costs equivalent to 1 percent of sales produces about a 5 percent decrease in profit dollars. For the hypothetical average company earning 4 percent, an increase in costs equivalent to 1 percent of sales would result in about a 12 percent decrease in profit dollars. (In these calculations I am assuming that the taxes paid are about equal to the profit earned.)

One of the reasons for the substantial improvement in HP's earnings from 1973 to 1974 was the fact that we were able to effect some real improvements in the cost of producing and marketing our goods, and of course some relief by price increases.

So let me leave this thought with you — the next time someone says that American industry is making exorbitant profits, ask the questions, "What do you think profits really are? What do you think they should be? What is an acceptable alternative to the profit system?"

Bill Hewlett

# Calling Dr. "HIP"

It's not true that Hewlett-Packard is adding multi-lingual puppets to its personnel staff. But it is a fact that one of those furry figures of animated verbosity has been employed to help tell the HP story to new employees.

Specifically, the story of the HP stock purchase plan is told via a puppet named "Dr. HP." It's part of a series of videotape programs recently completed for new-employee orientation by the Corporate Training and Management Development department. Named the "Corporate View," the orientation package includes four videocassettes dealing with major areas of interest to new HP people. All are in color and are designed to be incorporated into orientation programs that would be presented in person by trained local HP people. Generally, with the exception of some programs on benefits they are being made available in French, German, Spanish and Portuguese languages as well as English.

The first in the series, titled "A Belief in Contribution," tells the history of the company through the use of still photographs from the files. In the English language version, the voices of Dave Packard and Bill Hewlett can be heard at times commenting briefly on events in the early years.

In "All the People," the HP philosophy is discussed by means of candid observations by HP people concerning their own experiences.

HP's major product lines are the highlight of "The Essential Resource." This program also conveys the multi-national nature of the company by featuring people and facilities in Asia, Europe, South America, as well as the U.S.

Finally, the HP benefits are shown in a modular cassette that can be tailored to the needs of a country. In the U.S. version, for example, the program consists of brief discussions of the profit sharing, group medical insurance, stock purchase and retirement programs.

Corporate Training's Linda Standley, who coordinated the production of "Corporate View" with the HP TV staff, reports that the biggest challenge came at the very last when the time came to translate the programs into the various languages.

"We learned that translation is an extremely difficult art," said Linda, "especially when you are trying to present a certain philosophical tone and also to fit it into an exact time frame. Early on we decided not to attempt to make our English-speaking characters seem as if they were speaking the other languages. That would have been false. So we simply had narrators read the non-English versions. We think the HP audiences will accept that."


Measure

EDITOR
Gordon Brown

ASSOCIATE EDITOR
Dennis Cresswell

ART DIRECTOR
Tom Martin

GRAPHICS ASSISTANT
Teri Ocegueda

*1501 Page Mill Road, Palo Alto, California 94304*



**HEWLETT-PACKARD COMPANY**
**1501 Page Mill Road**
**Palo Alto, California 94304**