



Measure

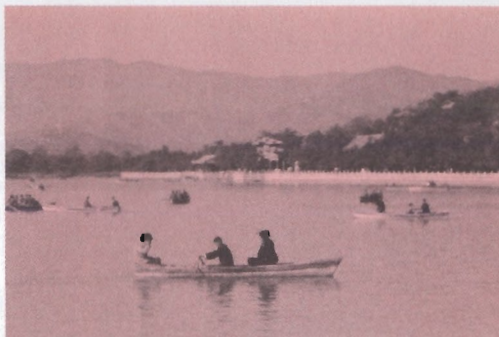
For the men and women of Hewlett-Packard/DECEMBER 1972

Mission to the Middle Kingdom



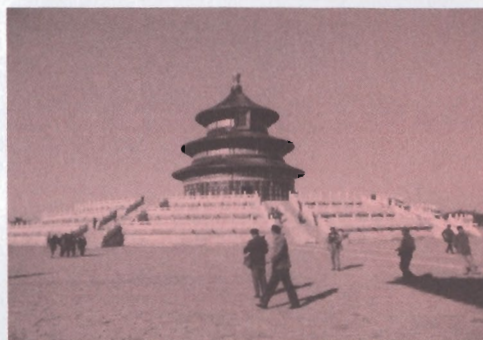
Thanks to the encouraging new relationship between Peking and Washington during the past 18 months, Hewlett-Packard was in contact with the government of mainland China—and became the first U.S. electronics firm invited there for trade discussions. Bill Doolittle, vice president—International, and Lee Ting, Far East area manager from Singapore (born on the mainland and fluent in Mandarin and Cantonese) set out for Peking in mid-October. They are thus among the very first American businessmen to get a first-hand look at the new classless society of Mao Tse-tung. And what did it look like to them? MEASURE put that and other questions to Bill Doolittle on his return to Palo Alto last month.

Kunming Lake,
Summer Palace,
Peking



Very hospitable hosts of the China Machinery Import-Export Corporation are seen with HP's Bill Doolittle at left, posed at entrance of Peking's Summer Palace. In photo above is Lee Ting, who heads Far East sales out of Singapore and who brought fluency in Mandarin and Cantonese as well as technical expertise to the negotiations. The HP reps found themselves free to wander around the capital city by themselves, and at no time felt they were being secretly observed—a feeling hard to escape in the socialist countries.

Hall of Prayer
for Good Harvests,
Peking



Great Hall,
Palace Museum
(formerly Forbidden City)

Why should Hewlett-Packard be interested in sending someone to China at this time?

“Ever since Chiang Kai-shek was driven from the mainland there has been almost a complete lack of contact between China and the United States. But in early 1971, the Nixon administration decided that our relationship with China needed a change. Then, just prior to his visit to Peking last May, he announced that American firms could trade with China on the same terms and conditions the government permitted us to trade with the socialist countries of Europe.

“As a result of this and his visit to China, we thought it appropriate to point out to the Chinese the rather extensive use of HP instruments in the mobile ground satellite-tracking station that accompanied President Nixon and that provided the world with TV coverage. We were also aware that the Chinese engineers involved at that time were most impressed with the HP-35 pocket-size calculator. We would also be able to talk about our equipment used in the permanent satellite ground tracking station installed by RCA.

“Finally, following a couple of letters from Tom Christiansen, we received a reply from the China Machinery

Import-Export Corporation saying they were indeed interested in HP, and inviting us to send a two-man delegation to discuss trade possibilities.”

How did you go about getting there?

“I had mixed emotions about going. There is very little information available from U.S. sources about China, and there is no American diplomatic representation there to provide and help the U.S. traveler. So when you cross over the border you're on your own.

“Our biggest problem seemed to be in getting a visa. But after a good deal of correspondence, Peking informed us they had a travel service in Hong Kong where we had only to present ourselves and obtain our visas. Meanwhile the purchasing agency would arrange our travel.

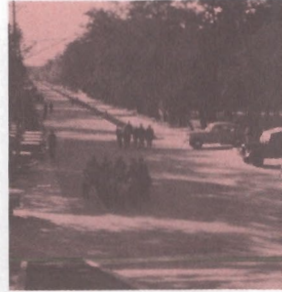
“It turned out to be not quite as simple as all that. The Monday after our arrival in Hong Kong was a holiday. Then the travel people wanted us to turn over our passports to them, which we were very reluctant to do. It's the most important document you can have abroad, and the thought of it floating around in some bureaucracy was not comfort-

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As this United Press photo testifies, the people of China appeared well fed, and warmly, though drably, clothed to the HP visitors. In the course of their stay in Canton and Peking they discovered several excellent Chinese restaurants and a few good continental restaurants in hotels catering to foreign visitors. They also discovered, however, that the local laundry service was bad!

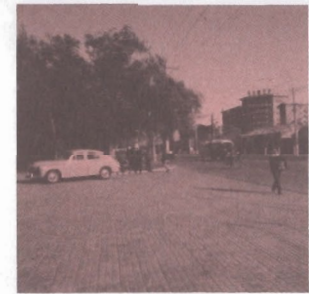
Children at the Temple of Heaven, Peking



the middle kingdom



Near the Great Wall, Putaling



Street scene, Peking

ing. But we did get it back—just as we crossed the narrow bridge leading from the Hong Kong train to the Chinese train that would take us to Canton.

“The train was excellent—a real showpiece of air-conditioned comfort. And along with it we got two hours of stirring Maoist revolutionary music. The countryside we passed through was obviously very productive agricultural land. We were told they get up to three crops of rice per year from these paddy fields.

“Again, getting from Canton to Peking presented some problems. Weather in Peking was holding up all flights—because they don’t have electronic flight navigation aids. All flights are visually controlled. So we stayed over Friday night in Canton—in a hotel bridal suite for \$10.

“The streets at the time we arrived were very empty—just as they had been for President Nixon. Later, we saw these same streets at peak commuting time. Thousands of cyclists and donkey carts move about the streets in all directions. These usually very disciplined people seem to have absolutely no concern for traffic flow or safety. It’s unbelievable chaos.

“At Peking airport the next day we became more aware of the classless society in action. Everyone carried their own bags from the plane.

“In all, it had taken us a full week to get from Hong Kong to Peking. Even though we were anxious to get on with our business, our hosts felt we should rest until Monday. This did give us a chance to see the capital city!”

What kind of freedom did you have in moving around?

“The freedom was amazing. The other socialist countries generally give you the feeling that you are being watched or listened to, that your phone calls are being recorded, and so on. In Peking we got the feeling that no one was looking over our shoulder. We had complete freedom to wander around the city.

“They’ve also recently changed their regulations concerning photography. You can now bring in loaded cameras and film without restriction, and when you leave the country they no longer take your exposed film, process it and send you only what they want you to have. However, there is an understanding that visitors should not concentrate their cameras on the less favorable aspects of life in China. They insist that their society has made great progress in the past 20 years, and they want the outside world to be more aware of this aspect. This accounts in part for the fact that my photographs show more of the scenic side of China than of the real life of its people.



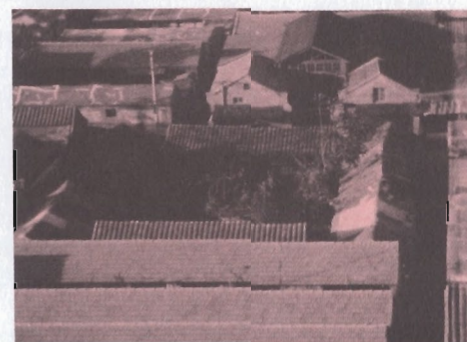
Tien An Men,
Palace Museum



Chairman Mao's portrait overlooks assembly line of Shanghai watchmaking factory. UPI reporter Arlene Lum, who covered China during the Nixon visit, was particularly impressed with the pride of the people she met, as were the HP visitors. Doolittle was told factory managers spend at least one day a week performing common production tasks, in keeping with the Chinese concept of a classless or one-class society.



Plaza, Peking



Housing, Peking

“Actually we didn't have any opportunity to see inside a Chinese home. In fact, none of the overseas people we met had ever been invited into a private residence.

“But there was much we could observe. From our hotel, for example, we could look directly down into a very typical residential area. Each block is enclosed by an eight-foot brick wall. The dwellings look inward onto a common courtyard where they keep their animals and a few growing things. Americans and Europeans would not find the conditions very attractive. One thing you never see and that is a cat or a dog—or grass that's maintained for decoration only. They've apparently eliminated everything that is unnecessary or doesn't fill a practical need.

“Buildings all seem to be painted the same battleship gray. They also have a bad smog problem, especially in the mornings, thanks to the use of soft coal for cooking and heating.

“Lee and I had to get used to a lot of staring. Our clothing was very conspicuous. Because in keeping with the one-class society, everyone dresses the same. Workers and officials all wear the same baggy black or blue Mao cotton suit. Only the young children occasionally wear more colorful clothes.

“It appears to be a sexless society, too. Women have complete liberation, and dress exactly like men except for a

slight difference in hair styling.”

Do the people appear pleased with their life?

“Before going to China I attempted to learn something about the people. One book, *Red China Today* by Edgar Snow, was particularly useful in explaining their history and struggles leading up to the revolution, and the events and trends since then, as well as how they live today.

“This was very helpful in understanding what the Chinese meant when they showed me what they had accomplished in the past 20 years.

“By our standards the life there is very plain and drab. But for the first time in their history, the peasants—who emerged the winners in the revolution—do not face starvation, and do not suffer under landlords and warlords. They've won their struggle and they are determined to keep their society classless—or one class. Everyone not only dresses the same, they also eat the same and live the same.

“But from what we were able to see, the people seemed to be quite happy with their life. We were particularly impressed with their friendliness. The hotel staff, for example, were generally smiling and friendly—which is much different from what you encounter in most other communist countries.”

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How is business done?

"There's no doubt that it is different from anything I've ever experienced before.

"In all the time I spent in Peking, only ten hours were directly devoted to business discussions with the government people. Our first meeting with the head of the purchasing organization lasted only 20 minutes after the usual cup of tea. We were then asked to come back the next day and explain HP to them. Different people became involved at various stages without any explanation. There seemed to be no titles, and no way of telling who was responsible for what.

"But they were very persistent and effective negotiators. There is no question that China is behind the times technically, but they do want the best—like the other socialist countries—and they do regard the United States as a leader in technology and a source. So I'm quite confident that over a period of time China is going to be an interesting market for the U.S. electronics industry.

"In all, it was a tremendously interesting experience. And one thing stands out: in spite of all the apparent differences in environment and philosophy, when you get to know people as we did through talks and negotiations—particularly when you have a common background such as a profession—you find they are just like you or me. Their individuality and personalities emerge.

"Of course, they make it clear that they like their society. They feel they are living much better than ever before in their long history. But while there is no starvation, it takes seven out of ten people just to feed the country, versus two to three out of ten for the U.S. to produce our needs and surpluses. So they have a long way to go by our standards. But it is my feeling that that effort will absorb their basic energies for a long time to come—rather than any big new military buildup.

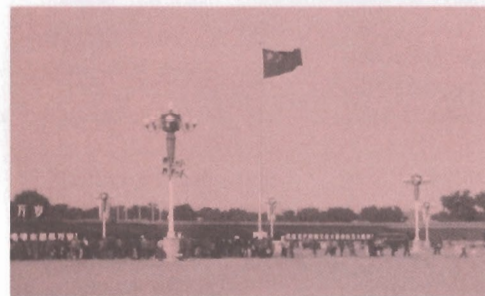
"It's going to be very interesting to see how they develop over the next 20 years." □



Dragon,
Summer Palace



Karl Marx and
Friedrich Engels,
Museum of
Chinese Revolution,
Peking

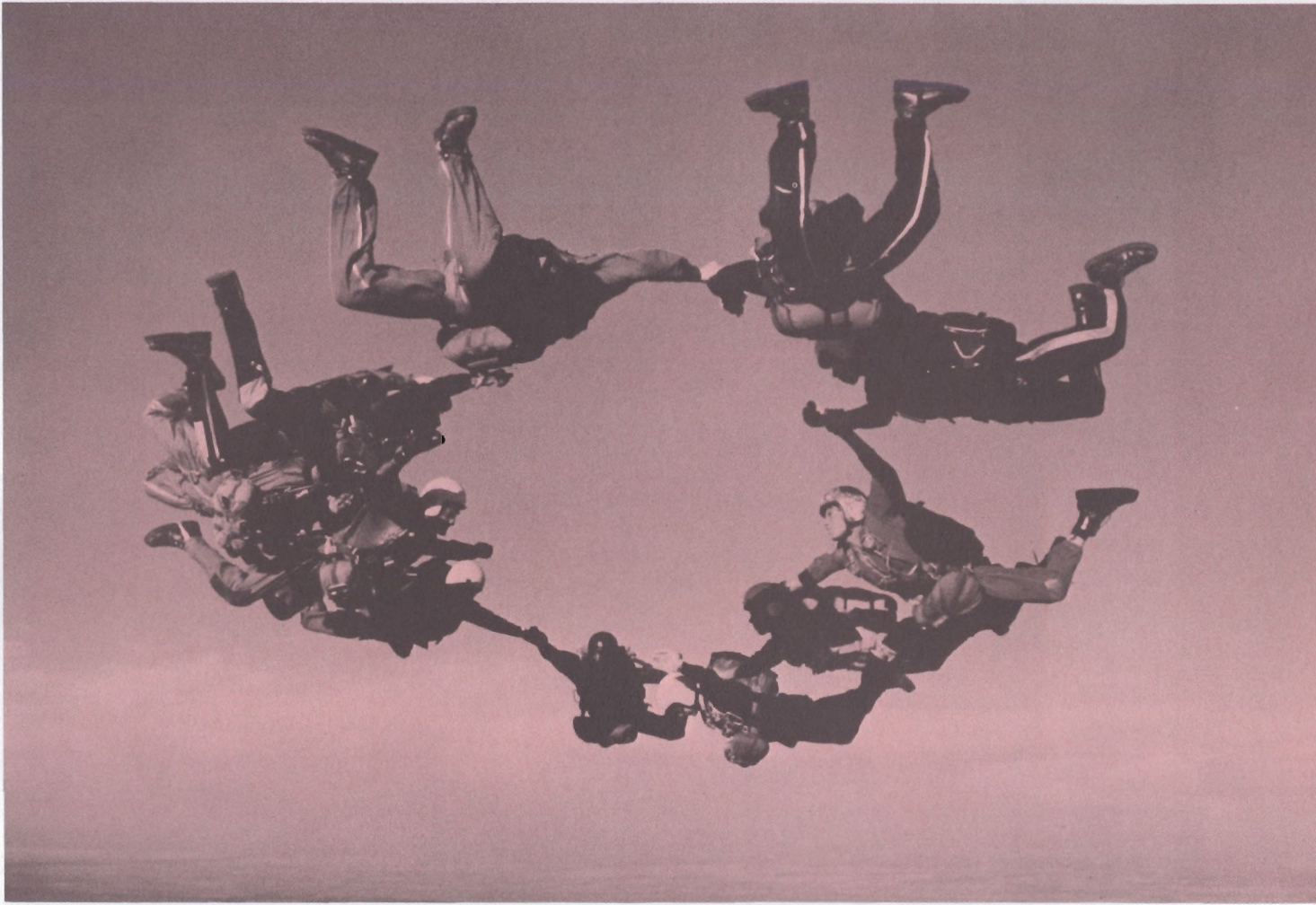


Flag of the
People's Repu-
of China

the middle kingdom

China has always felt itself to be the center of the world, hence its self-designation as "The Middle Kingdom." That pride, coupled with revolutionary zeal, is an important force behind China's drive for industrial development. Much of it is at the basic level as exemplified in this UPI photo of a commune machineworker: There the workers have diverted a stream to generate their own electricity in order to build their own tools. But, nationally, they also want the kind of sophisticated technology that can only come from outside sources such as Hewlett-Packard.





The spice of life...

There is a rumor abroad that says adventure is dying, if not already dead. That the high places have all been climbed. The deep places probed. The secret places quietly bought up. The wild places tamed with tranquilizers and TV. And the “No Vacancy” sign has already been designed for Lunar *Hilton One*.

True, the Frontier has been seized, subdued and sub-divided. Making it more difficult to walk out of your backdoor and into the tall timbers for some home-grown adventuring. But, with a little ingenuity and effort, it can be done. As the following HP people prove . . .

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Having jumped from 360 airplanes and having landed successfully on his feet 360 times, **Dick Ollins** has begun to find skydiving just the least bit boring. "The most interesting part to me now is the 'relative' work, that is working with groups of up to 20 divers to form stars and other formations as we freefall—and photographing them." Two occasions stand out starkly in Dick's memories. He recalls every tremor and every impression of his first dive, actually a parachute drop on New Year's Day, 1966. "I was calm until the plane took off. Then I realized what I was about to do, and I wanted to go back. Finally, from 3,000 feet, the jump master told me to move up, yelled 'cut' to the pilot (to reduce prop blast), and I said 'to hell with it,' and out I went. Then it all became calm and quiet, with only the air brushing through the shrouds, and I felt very happy.

"The other time was at the end of a 10-man star. The idea is to open your main chute when you reach 2,500 feet, giving time to open the reserve if the main fails.

This time the lead man didn't give the signal until 1,500 feet. By the time we had separated enough we were at 1,000 feet. Then my main chute failed to pop, giving me just two and a half seconds to open the reserve before it would be too late—"buying the farm" as they say. Maybe I'll take up Scuba diving."



spice of life



In "The Snows of Kilimanjaro," Ernest Hemingway prefaced his famous story with wonderment about a leopard found dead high up the slopes of the 19,340-foot mountain. What had driven or lured the big cat to such a barren region? **Deanna Hoover** of Santa Clara Division can testify to the sparseness of the mountain's upper reaches. She and her husband, Don, hiked to the summit area early this year during the course of a round-the-world trip (he works for TWA). After a flight from Nairobi to Moshi and a three-day trek through rain forests and moorlands, their party came to its final camp below the peak. "There was no life there," Deanna recalls, "just lava fields and snow. They woke us at 1 a.m. to get ready for the final climb. But lack of oxygen gave me a very bad headache plus acute tiredness, so I didn't make it to the top. It was a great adventure, anyway."



For **H. P. Smith**, better known as “Smitty” by all who have enjoyed his help at the Little Basin recreation area, adventure is made up of some simple ingredients: fins, mask, snorkle, spear—and a two-dollar-a-day shack on a Baja California beach. He and his son and a couple of companions generally wheel down that way in Smitty’s Scout each winter for a couple of weeks of warm-water diving. The adventure is cumulative: “I can remember a day down at Kino Bay. We snorkled out to some underwater reefs. It’s fantastic down there—the rocks, the fish caves, the fish, the light and the colors. The only species you might worry about is the eel. The sharks are all too well fed. Pretty soon we were into some lobsters, good big dinner-sized ‘bugs!’ You can see their big feelers sticking out of a hole. But you have to be mighty quick to take them by hand. Then we went looking for some fish. The water is so open and clear the big fish spook easily. So you have to look for them in the small caves, or drive them there. Then you have a chance of spearing them.” Cooked over a driftwood fire, dinner that night began with a canape of broiled sea urchin (“tastes like caviar”), followed with a *cerveche* of muleshoe scallops, then whole broiled lobsters and filets of sea bass. All washed down with the local ambrosia. A meal you might not surpass in a lifetime. While off in the distance the gannets could be seen hurtling like crashing Stukas from 200 feet into a frenzied school of fish. Life!



Ever since Britain’s George Leigh Mallory replied “Because it is there” when asked why he wanted to climb Mount Everest, mountain climbers have been recognized as quite different people. **Art Porter**, applications engineer at Colorado Springs, is a compound case: he’s climbed *every* Colorado Peak over 14,000 feet. That’s 53 mountains, including Pike’s Peak on whose western slopes he was born and raised. In addition, Art has scaled much loftier heights in Latin America, including Ecuador’s 19,700-foot Cotopaxi.

The challenge can vary, according to Art: “Many of the Colorado climbs can be achieved in a day, some just by backpacking. Sometimes the challenge of it is just getting way by yourself or with a few friends. Other times it’s a technical challenge.” To be recognized by the Colorado Mountain Club, such ascents must start below the 11,000-foot mark. An instructor in the club, Art now is one of only some 100 people to top all of the state’s 14,000-plus footers.



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If you spot a bunch of people at Automatic Measurement Division alternately sighing and smiling, here's the story:

They're sad when they think of how their 9-day,
312-mile river-raft odyssey down the

Colorado's Grand Canyon last June is now over
But they quickly recover when they think about their

plan to make the very same journey
next summer—and perhaps endless summers

to come. **Armeda Belt**, the Publications' gal who got it all
together, had made four runs when living in Arizona.

This year, thanks to her experience and planning,
she got to go as a non-paying crew member. With her
went Nick Buchanan, Elaine Martin and Carl Davidson—

all of Publications, and Gene Marcum and

Val Kelly (now Mrs. Marcum) of Sales. All attest to
the Colorado River's fantastic combination of splendor,
isolation, thrills, serenity and power—and

to the raft operator's great competence and his concern
for his passengers and the environment. In all, they

floated through more than 100 rapids, hiked many remote
trails, steeped themselves in the lore of the region,
ate superb food, and came home refreshed

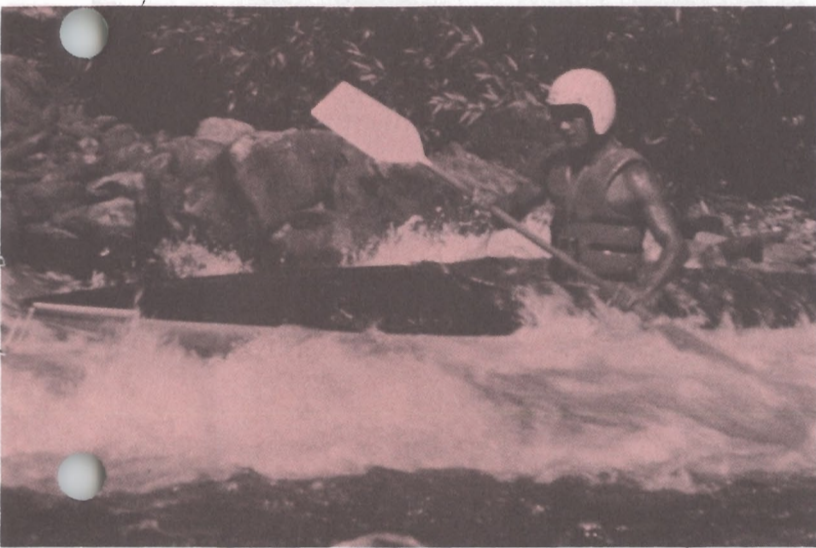
by sights beyond the reach of words.



spice of life

It seems commonplace enough these days for people to travel 7,000 miles to remote islands for a vacation. And live in a deluxe shoreside hotel or aboard a cruise ship. But to go there just to see some small birds, and to spend three weeks in a small boat doing it? That's something else.

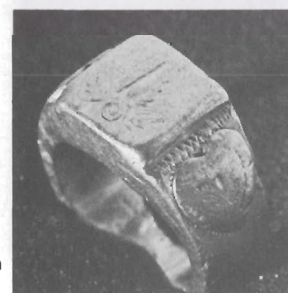
Nevertheless, that was the adventure undertaken earlier this year by **Claus Hyllested**, R&D engineer in the Physical Electronics Lab of HP Labs. His goal was the Galapagos Islands some 600 miles off the coast of Ecuador; the birds are the Darwin finches, named after the 19th Century naturalist Charles Darwin who immortalized them in the theory of natural selection ("Origin of Species"). "My wife and I joined a group of ten people aboard two small boats that were to cruise among the many small islands. My interest was to find the various sub-species of finches that had evolved from the original finches blown there from the Coco Islands. The only difference is in their beaks which have adapted to the different sources of food. One, for example, has a beak the size of its head; it feeds on the ground. At the other extreme is the warbler finch with a beak like a needle. In between is one that did not adapt its beak; it uses a cactus spine to fork out insects from the bark. Other species of native life, such as the giant tortoises, are not doing as well, due to the depredations of man, wild goats, dogs and rats. But the ocean there really teems with life. We thrived on lobster and fish. One time a crewman and I went diving for them when along came a shark. It was very interested and excited about the fish we had speared, and kept circling us faster and closer. It wasn't a really big shark. But such speed and power! We were so impressed we threw the fish to him and backed up all the way to the boat!"



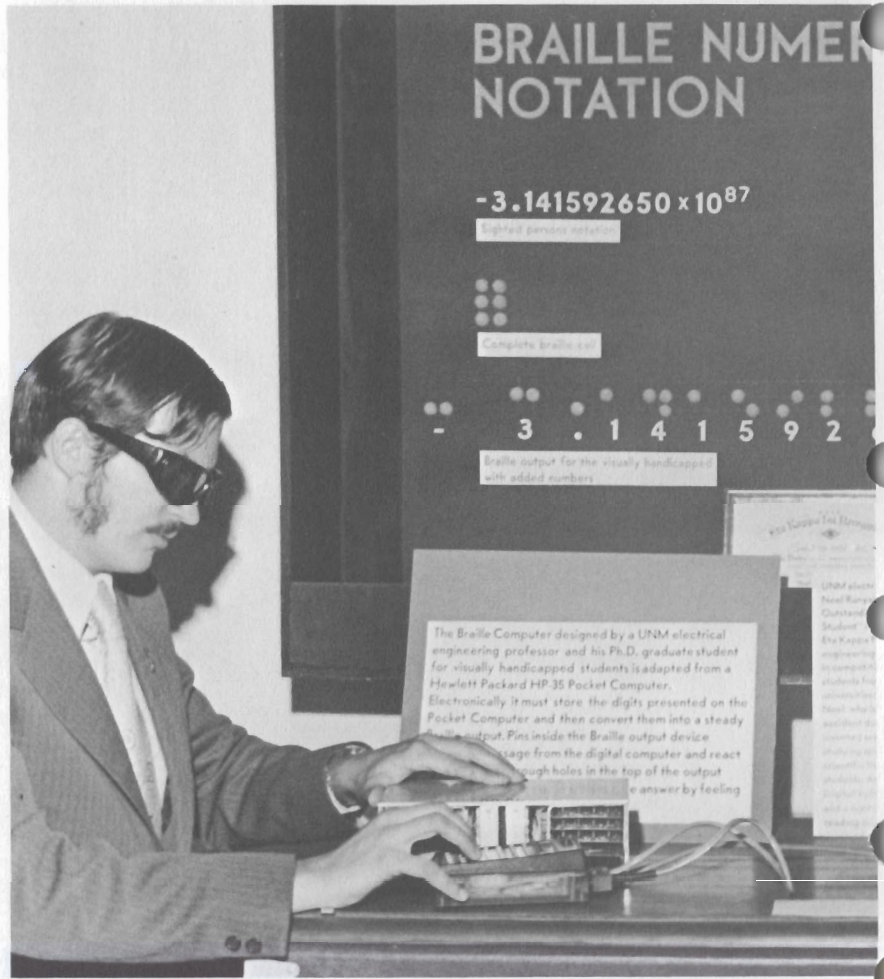
The principal feeling you get when your first try one of those sporty new fiberglass kayaks that race down river rapids is one of instability, according to **Steve Sanders**, Microwave R&D engineer. "But you get used to it, and learn how to handle it. And that's the fun of it, and also an advantage. You can rotate 360 degrees with two paddle strokes. You're sealed in, and you had better wear a helmet." Steve has been running the rapids of Northern California and Idaho, and competing on rivers for the past few years, generally with other members of the Sierra Club. In summertime they generally make a weekend of it. Winters are OK, too, as long as you wear a wetsuit. Some of the dangers of running the rapids are "souce holes" that can draw you to the bottom (and hold you there if you don't take care), brush and logs that can trap you, and waterfalls. Some of the special thrills are big rock-bred wave troughs in which you can surf endlessly (facing upstream, going no place), or shooting a white-foamed rapid—bobbing like a cork, and seeing unspoiled wilderness. Steve's much-dented helmet testifies to the many underwater experiences he has had while attached to his kayak. "Every new stretch of water is an adventure. And it sure beats waiting in those long weekend ski-lift lines."



The day he purchased his first metal detector ten years ago marked the beginning of a new era of excitement in **Al Goodman's** life. Al, a member of the night crew at the lower Page Mill complex in Palo Alto, has discovered a whole new world of treasure and lore by following the buzzing sound of his detector. "The world's greatest treasure chest," he says, "is the earth's surface—all around us. A neighbor once didn't believe me. So I went out to his lawn, and in a few minutes I had located a small handful of coins—and an 1830 crucifix." Shown here practicing on a local park lawn (practice is necessary in order to interpret the detector correctly), Al does his serious hunting in the Santa Cruz Mountains and around the gold-rush ghost cities of Nevada and California. Four years ago, near an area known to have been one of the trails of the Spanish explorers and settlers, a faint buzz prompted him to stop and dig. As his hand trowel cut deeper the sound grew stronger. Then, at 13 inches, he saw it—a heavy gold ring, crude but beautiful with strange designs. So far, with the help of historians and much library research, he has traced its possible origin to one of the early Spanish popes (when all bishops bore the title of Pope, prior to 1076 A.D.). But it is still a mystery, a golden enigma—and proof that adventure is where you find it, even in your own back yard.



Noel Runyan demonstrates hookup between HP-35 and Braille device. The device was designed by Professor Ruben Kelly and Dave Koller of the University of New Mexico.



New electronic eyes for the blind...

Using HP-35 calculator and Optacon, Loren Schoof works out computer problems at Stanford's Applied Electronics Lab. In his right hand is device for scanning printed figures. Optacon turns signals into vibrations that can be felt in the form of characters. Project was originated by Prof. John Linvill, chairman of Stanford's EE department, whose blind daughter is now a Stanford student.

□ Two blind electrical engineers on two Western university campuses recently demonstrated devices that enable them to “see” with ease the workings of their HP-35 calculators. In each case it was considered a major step forward in opening up technical careers to the blind.

At the University of New Mexico, student Noel Runyan operates a special device that directly transmits signals from the pocket-size calculator to a unit which converts them into Braille characters which he can then read with his left hand.

“It has enabled me to become independent,” says Runyan, who was chosen from 200 candidates as the outstanding electrical engineering student in the U.S. for 1972. “Always before I was required to use the cumbersome book of Braille math tables when I needed a certain logarithm, for example. When the calculator came along, it speeded things up for me a lot, but no one was around to read the answer. I was stranded.”

That same problem is at the heart of another project

demonstrated at Stanford University’s Applied Electronics Laboratory. There, research associate Loren Schoof operates an electronic reading device that enables a blind person to “feel out” letters and figures. The device, named an “Optacon,” electronically scans characters such as the lighted readout figures of the HP-35 and excites an array of 144 tiny rods. These vibrate in the form of the letter or figure being scanned so the blind reader can identify it with his forefinger. Schoof, blind since age 10, can read practically any written or printed material with the Optacon at up to 80 words per minute.

“The combination of the Optacon and the HP-35,” he says, makes it possible for a blind person to perform the kinds of calculations utilized from high school mathematics through college and business with a facility approaching that of a sighted person.”

He also used the optical scanning system on November 7 to become the first blind person to vote secretly, that is, without the help of a sighted person.

Visible progress, for sure. □





Loveland — HP has begun marketing the first desktop calculator to use a standard language that simplifies operation while greatly increasing flexibility.

The new Model 9830 programmable calculator has a typewriter-like keyboard which enables the operator to communicate with the calculator in BASIC language. BASIC, widely used in the computer industry, is similar to English.

Coupled with BASIC, the 9830's 40 kilobyte system enables the calculator to utilize a wide range of existing software packages in finance, mathematics, statistics, structures and secondary education.

The new calculator is designed for education, business, scientific research and engineering applications. A basic unit costs \$5,975. Deliveries will begin early in 1973. Also new is the Model 9866 page-width printer (priced at \$2,975) which prints at 250 lines per minute.

A built-in cassette tape drive provides basic memory of 50,000 bytes.

The Model 9830 can operate with a wide range of peripherals including the new page-width printer, typewriters, plotters, digitizers, tape readers and card readers.

News in Brief

Palo Alto — President Bill Hewlett described 1972 as "an extremely good year for Hewlett-Packard, with virtually all operating divisions reporting a higher level of business. Incoming orders amounted to \$506,939,000, up 28 percent over orders of \$397,485,000 in fiscal 1971.

"Our domestic markets were particularly strong, with orders from U.S. customers rising 32 percent to \$307,191,000. International orders were up 22 percent to \$199,748,000."

Preliminary figures reported by the company indicate a 26 percent increase in sales and a 57 percent increase in net earnings for the fiscal year ended October 31, 1972.

Sales totaled \$472,389,000, compared with 1971 sales of \$375,088,000. Earnings from operations

amounted to \$36,351,000, equal to \$1.37 a share on 26,450,000 shares of common stock outstanding. In addition, the company had an extraordinary gain of \$1,201,000, or five cents a share attributable to a change in its method of valuing inventories. This change was made at the direction of the U.S. Treasury Department. As a result, net earnings for the year are \$37,552,000, or \$1.42 a share. This compares with net earnings of \$23,881,000, equal to 92 cents a share on 26,037,751 shares, in fiscal 1971. The 1971 net earnings included an item of extraordinary income, resulting from revaluation of various currencies throughout the free world. This gain amounted to four cents a share.

Final figures will be completed in mid-December.

Cupertino — Expansion of the Data Products facility at Cupertino has been launched. Plans call for the addition of a 172,000-square-foot, two-story building to accommodate rapid growth of the R&D, production and administrative functions. The existing cafeteria will also be expanded on behalf of the 500 people who will occupy the new space. Completion is scheduled for April, 1973.

Palo Alto — John Doyle has rejoined Hewlett-Packard as director of Corporate Planning. He resigned as Manager of Automatic Measurement Division in August, 1971 in order to manager a firm he previously served as director. In his new position he replaces Tom Perkins who has resigned to devote full time to a venture capital business.

From the president's desk

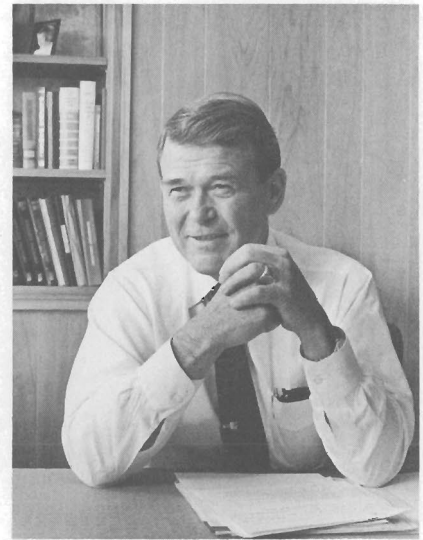
We had a really great year in 1972 and I would like to thank you, one and all, for a great performance.

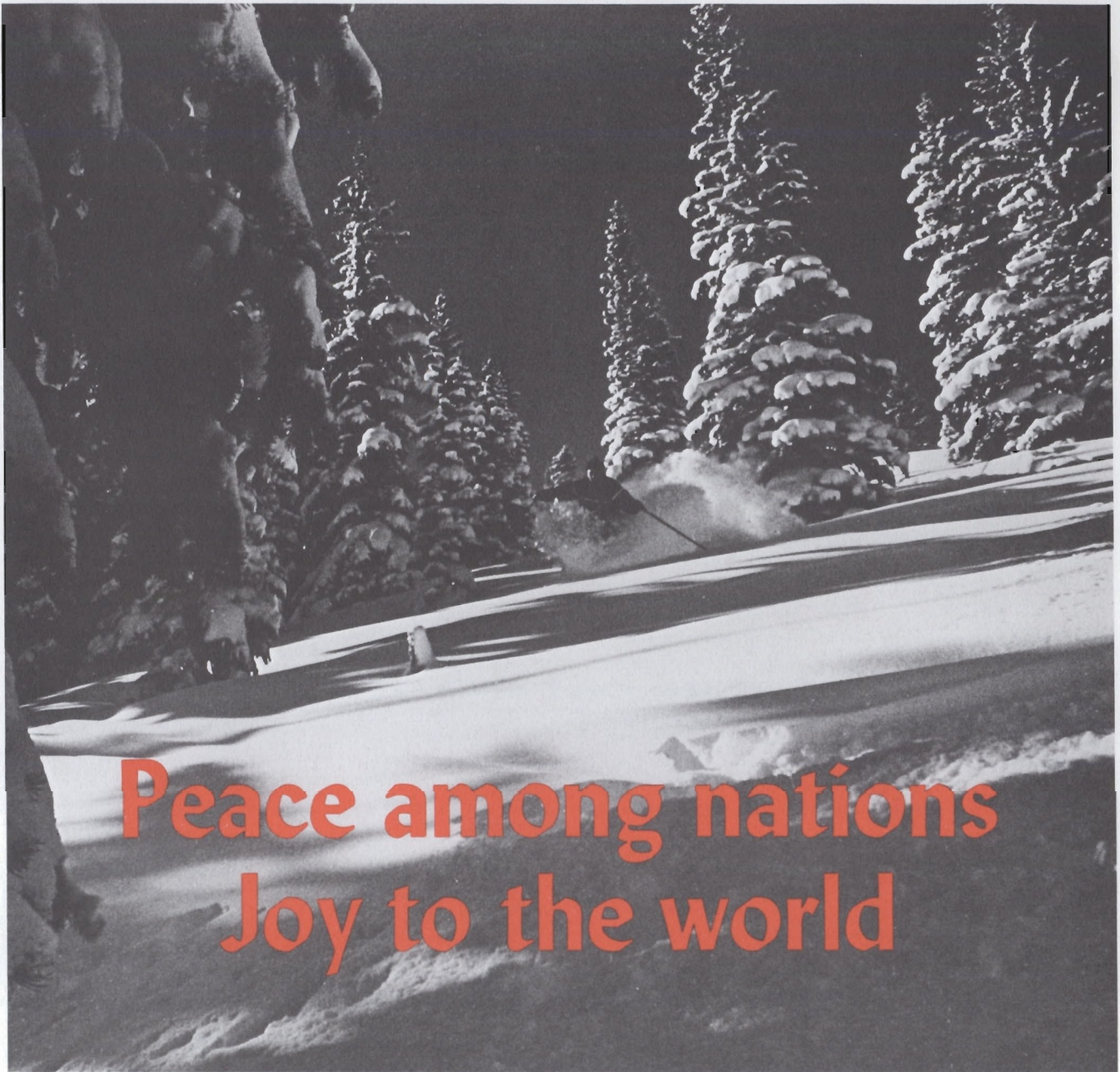
Looking back, it's clear that we went through a pretty tough five-year stretch from 1967 through 1971, with profit growing at only about a four percent compounded annual rate. During that slack period we did a lot of overhauling of the organization. We moved into the group structure. We reshaped our marketing organization from a monolithic one designed to sell only instruments, to one that is currently adapted to marketing effectively a much wider product line—medical, analytical, calculators, computers, equipment for civil and mechanical engineers, components and the like. At the same time we were streamlining the organization, we were able to move from a position of considerable dependence on government spending to our present position where less than 25 percent of our total business comes from that source.

But most of all we have been able to build a great team of people at all levels of the organization, a team that—when the opportunity presented itself as it did this past year—was able to respond in the most positive way. Our 57 percent increase in profit over 1971 was no coincidence; it came about because each person in the company put a shoulder to the wheel—and pushed.

Let me take this opportunity to again congratulate each of you for a job well done, and to wish you all the very best for the holiday season and the year ahead.

Bill Hewlett





Peace among nations Joy to the world

Measure

EDITOR
Gordon Brown

ART DIRECTOR
Tom Martin



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