

## HP Credit Union Loan Volume Zooms

DURING THE FIRST QUARTER OF 1971, outstanding loans with the HP Credit Union increased from \$413,850.77 to a figure in excess of \$650,000 (exact amount was unavailable at press time).

Some of the loan volume was attributable to refinancing. An example is where a credit union member obtains a credit union loan for the purpose of paying off another debt which was originally obtained at a higher interest rate.

The chart below shows the cumulative amount of loans outstanding since the credit union's organization:

Month Ending	Loans Outstanding
May 31, 1970	\$ 3,575.00
June 30, 1970	115,361.58
July 31, 1970	184,587.15
August 31, 1970	237,183.99
September 30, 1970	297,197.74
October 31, 1970	337,835.15
November 30, 1970	372,641.79
December 31, 1970	413,850.77
January 31, 1971	504,851.57
February 28, 1971	591,715.42
March 31, 1971 (est.)	650,000.00

HERE ARE SOME FREQUENTLY ASKED QUESTIONS regarding credit union loans and related payroll deductions.

*How do I go about borrowing money from the HP Credit Union?*

First, you must be a member of the credit union. Then you fill out a loan application form. All required forms are available at the credit union office or from your credit union representative.

*How long do I have to wait to know if my loan is approved?*

Generally, no more than three days. The credit committee meets on Tuesday and Friday mornings.

*If I take out a loan, do all my credit union payroll deductions apply against the loan?*

It depends on your wishes. For example, if you take out a \$1,000 unsecured loan for 24 months, the monthly loan payment will be \$47.07. If you wish to have \$60 per month deducted from your paycheck, the \$60 is first credited to your savings (share) account. The loan payment of \$47.07 is transferred out of your savings account on the 30th of each month, and \$12.93 remains in your savings.

*How much advance notice is necessary to effect a change on my credit union payroll deduction?*

For employees paid weekly, the Credit Union Payroll Deduction Authorization form should be in the credit union office four full working days before pay-day. For employees paid semi-monthly, the payroll deduction form should be in the credit union office seven full working days before pay-day. These cut-offs are required to meet deadlines established by data processing.

*Do my payroll deductions stop when my loan is paid in full?*

No! Payroll deductions are changed only upon your completion of another Payroll Deduction Authorization Card.

## K6FB on the Air

THE HP HAM RADIO CLUB, under the call letters K6FB, will be activated for participation in the 1971 ARRL Field Day on the last weekend of June.

Ham operators interested in participating or in reactivating the club call Bill Hamlin (W6ENU), Ext. 84-423, or Chuck King (K6CTQ), Ext. 84-640.

## ATTENTION, PLEASE!

Regarding Hillview-Hanover Intersection—

Crossing a double line may be hazardous to your health as well as pocketbook!

Recently, another accident occurring at the dangerous Hillview-Hanover-Porter intersection indicates a need to reprint an article from the August, 1970, WATT'S CURRENT regarding the crossing of double lines; to wit:

*Is it permissible to cross over double yellow lines?* This question has been raised by employees who enter the Stanford Plant or Building 15 from Hillview Avenue.

Yes, under certain circumstances. Last year, the City of Palo Alto completed the painting of the double yellow lines connecting those that had been painted on Hanover Street and Hillview Avenue. For your information, the following section of the California Vehicle Code describes this situation:

Section 21460: Double lines: (a) When double parallel solid white or yellow lines are in place, no person driving a vehicle shall drive to the left thereof, except as permitted in this section.

(b) (Describes broken lines.)

(c) Either of the markings as specified in subdivision (a) or (b) shall not prevent a driver from turning to the left across any such marking at any intersection or into or out of a driveway, or making a U turn under the rules governing such movement, and either of the markings shall be disregarded when authorized signs have been erected designating offcenter traffic lanes as permitted under Section 21657.

*A word of caution about left lanes—*

Section 21801: Left turn right-of-way: (a) The driver of a vehicle intending to turn to the left at an intersection or into public or private property, or an alley, shall yield the right-of-way to all vehicles which have approached or are approaching from the opposite direction and which are so close as to constitute a hazard at any time during the turning movement and shall continue to yield the right-of-way to such approaching vehicles until such time as the left turn can be made with reasonable safety.

*This intersection is, to say the least, a dangerous place to cross center lines safely, and is therefore the prime responsibility of the driver of the crossing vehicle!*

## Wescon Plans 28 Tech Sessions

For San Francisco Convention—

Wescon's technical program committee is aiming for 28 sessions for its schedule during the big August show and convention to be held in San Francisco's Cow Palace, it was announced here this week by Ray Leadabrand, chairman.

Leadabrand, who is executive director of the Stanford Research Institute electronics and radio science division, said his 12-man volunteer committee has agreed on 28 sessions, including two specialized "sub-programs" which will concentrate seven sessions each on the computer and information technology and the solid-state manufacturing areas of technology.

Sessions will run concurrently each morning and afternoon August 24, 25, and 26, and on the morning of Friday, August 27. Friday afternoon, the last afternoon of Wescon, will have no sessions scheduled.

## "Optimum Solutions . . ." HP's IEEE Theme

By ROSS SNYDER

Three Major Product Groups Shown—

It wasn't like all the other IEEE shows. "Sober" might be the best word to distinguish it. This wasn't a show where 'most everyone was living it up, and hang the expense. Some say the most important things that go on at the big conventions are in quiet get-togethers over lunches, small gatherings in private places, negotiations in nearby offices . . . and some of the most important are meetings that strengthen relations between our own people in the field and those in the plants. These were quieter and more serious this year, whatever the context.

The mood of sobriety pervaded the technical program and the commercial exhibits, too. A new concern was visible on the part of the Institute for the welfare of its members. There were sessions devoted to new directions for engineering talent. All doors were open free to engineers who are currently unemployed.

The Coliseum appeared not quite sold out (although the exhibits still required all four floors to accommodate those who wanted space). The time is apparently past when qualified exhibitors must wait perhaps years to get in. Some companies which had always exhibited before were absent, notably among semiconductor manufacturers. Some firms which had always been prominent were on hand, but much more restrained this year.

Imports Stage Increase—

One clear trend in the exhibits was the substantial increase in displays from other countries. Certainly, more than 20 percent of all the exhibitors were international, the biggest increase among them being from Japan.

HP's own exhibit was reduced in size from last year's 120 feet to 80, but the exhibit itself was perhaps the handsomest we have ever shown. Gone was any feeling of being in a supermarket with a bewildering array of things to vie for one's attention. Instead, on each side of our carpeted aisle were displays clearly separated from one another by attractive graphic modules calling attention to our show's central theme, "Optimum Solutions to Problems."

There were three major product groups, well distinguished. One was New Components, with light-emitting diode readouts and indicators, and Loveland's new digital panel meter as the main attractions. Another group was New Instruments, with emphasis on Microwave's new Spectrum Analyzers, with their 10-Hz-to-18-GHz plug-ins, and their new preselect option—on Colorado Springs' new 35- and 75-MHz battery portable oscilloscopes—and on Santa Clara's bold new line of IC universal counters. One entire side of the exhibit was devoted to Systems, including Love-

(Continued on page 4)

## HEWLETT-PACKARD BURGLARY RING UNCOVERED

35 Instruments Stolen Over Six Year Span—

The fate of a substantial number of HP instruments that have been missing from Palo Alto plants during the past half-dozen years has been solved: they were stolen.

This came to light recently in San Jose-Milpitas Municipal Court when an eleven-year HP employee admitted stealing more than 35 instruments since 1965. He said the instruments, valued at \$77,000, were sold to a receiver who had selected from an HP catalog what he wanted stolen.

The alleged receiver, a Sunnyvale resident, was subsequently charged with three felony counts, while the employee has pleaded guilty and is scheduled for sentencing this month.

The efforts of a Neely sales engineer and those of the HP security staff greatly contributed to the uncovering of the thefts.



DAN FRISCHMUTH passed away March 15, a victim of leukemia. Dan joined HP in 1969 and worked in Microwave Division's Marketing Department, where he was a product marketing engineer for the spectrum analysis group. He transferred to HPA in September to work as a regional sales engineer in their Marketing Department.

Dan, from Shaker Heights, Ohio, was graduated from MIT with a BSEE and also an MSIE degree. He was married in December, 1970, and leaves his wife, Clare, in Los Altos. Dan was 28 years old.

According to his many friends, Frischmuth was a man who liked physical activities and participated in the HP Sailing Club, skiing, and hiking trips. He was warm and sociable with an excellent humor, and was liked by all who knew him.

Memorials may be made to the Leukemia Research Fund, Stanford University School of Medicine, Room M-121, Stanford, California 94305.

## Ecology at Work

By BILL RANDOLPH  
(San Jose State College)

Center Reactivated—

The San Jose Recycling Center reopened for business March 6. This is a cooperative experiment of the City of San Jose and San Jose State College, with the city assuming full operation of the center by June '71. Due to limited operating staff, recyclable materials will be accepted on Saturdays only from 9:00 a.m. to 1:00 p.m.

Acceptable materials include: glass bottles (no deposit), jars (any color or size), metal cans—either aluminum, tin, or combination metal; aluminum pie plates, aluminum foil, and empty cigarette packages.

We cannot recycle newspapers, cardboard, or magazines, so please don't bring them to the center.

Additionally, we request that the public process its materials before bringing them to us for recycling. This will help us avoid a heavy backlog of materials at the center, and save time for the staff and money for our operation. Processing includes: removal of caps and aluminum

(Continued on page 4)

## WAEI Benefit Show

Fashions, Fun for Funds—

"Fashions on Broadway" will be presented May 1 in San Jose Hyatt House Mediterranean Room when the Women's Association of the Electronic Industry stages its scholarship fund benefit luncheon and fashion show.

A social hour at 11:30 a.m. will open the affair, which will provide funds for the scholarships to be awarded this year. Luncheon will be served at 12:30. Members of the organization will model clothes from Town and Country Village stores of San Jose. Fashion coordinator is Sallie Hunting of Palo Alto.

Special prizes will be awarded during the afternoon, and winners will receive various items of merchandise. Door prize is a round trip for two to Los Angeles via PSA and a two-day stay at any Hyatt House.

The Entr'Actes, official Tour Company of the Cabrini Community Theater, directed by John P. Healy, Jr., will perform.

Mrs. Bernardette Campagna is fashion show chairman, assisted by Annabelle Culver (Building 11), posters and programs; and Myrtle Headley, decoration. Tickets are \$5 (includes luncheon, show, and prize) available from any member or by calling Bea Doebler, ticket chairman, Ext. 2812; Lena Simonini, Bldg. 15, Ext. 2864 or 2896; Margaret Abarca, Bldg. 17; Mary Andrews, Bldg. 16; Cindy Caruso, Bldg. 30; or Glenna Young, Bldg. 8U.



BERNARDETTE CAMPAGNA, WAEI Fashion Show chairman, assisted by HP's ANNABELLE CULVER (Posters and Programs), and MYRTLE HEADLEY (Decorations), discuss scholarship fund benefit luncheon and fashion show slated for May 1 in the San Jose Hyatt House Mediterranean Room.

## Hewlett-Packard Wives

By ALICE WILLRODT

A Chance to Help—

HP wives finding spare time on their hands and wishing to help people in this community, may call either Mrs. Donald Cross, 321-4149, or Mrs. Don Carmean, 967-5340.

We are looking forward to having lots of fun making a myriad of items and preparing for our Christmas Boutique—proceeds of which will benefit the Volunteer Bureau of Palo Alto. The Volunteer Bureau places volunteers in the various agencies and services, thus benefitting more and more children and adults and adding to the greatness of the whole community.

The March meeting was an interesting handicraft showing at Buttons 'N' Bows Shop, with refreshments following at Mrs. Jean Hilton's home.

If interested in learning "Macrame," come to our April 28 meeting at the home of Mrs. James Grace. For information, call her at 323-5539.

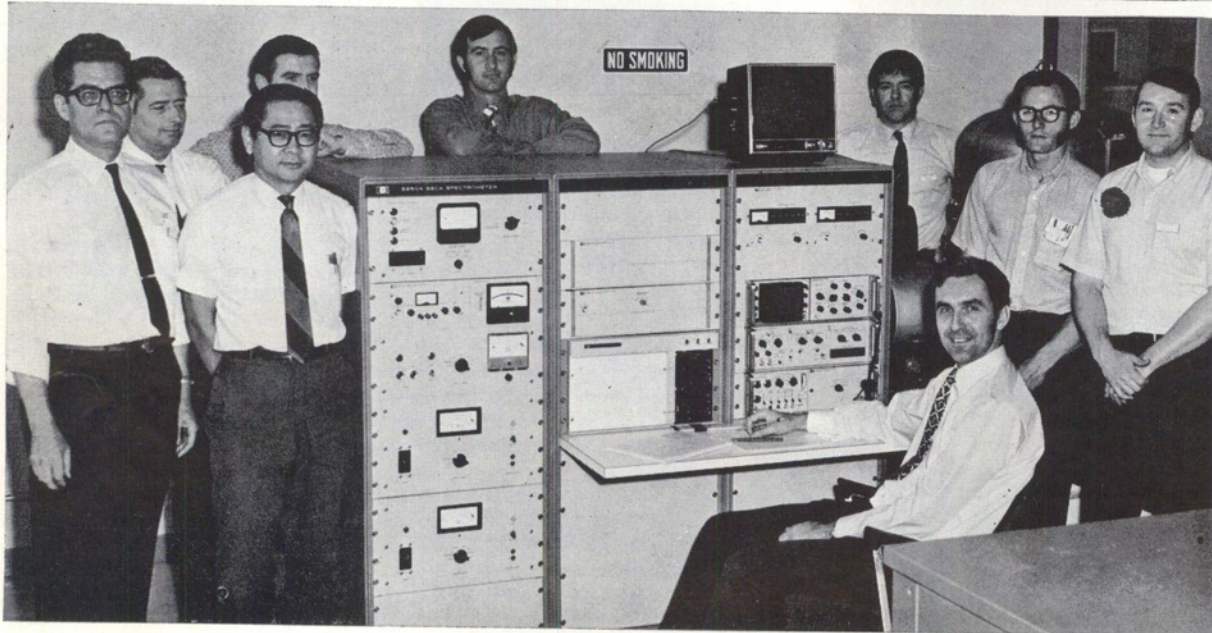
Thanks to Mrs. Ian Band for her hospitality in opening her lovely home for our February meeting.

Through an oversight, we missed Jean Hilton as a board member in our recent list of officers.

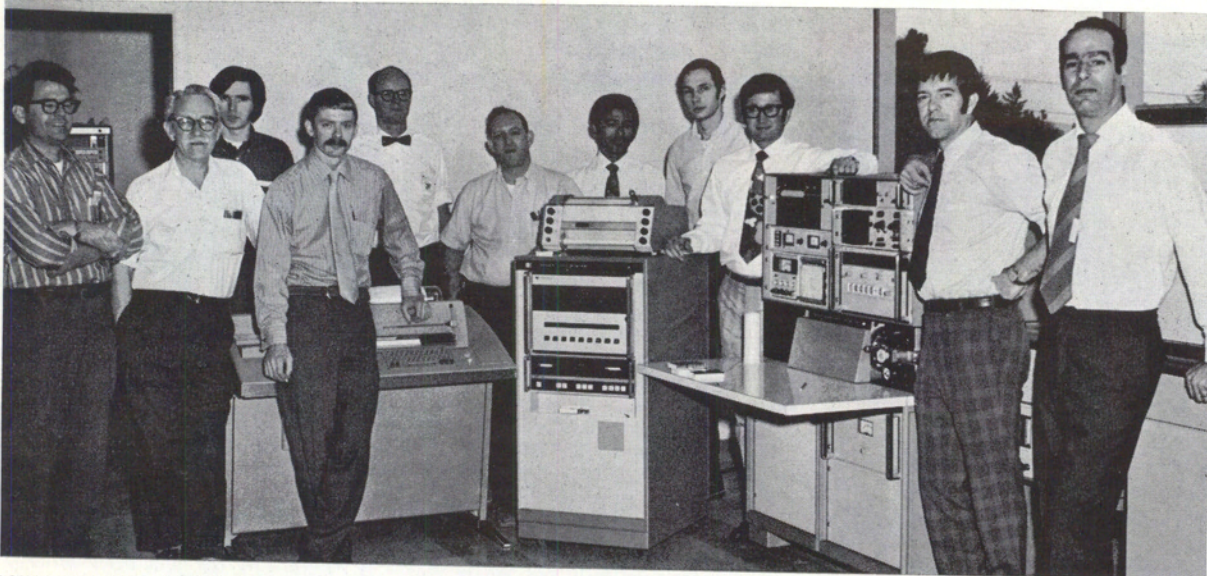




HPL/PEL TEAM developing ESCA, many of whom were also active in the development of the HP 5930A Mass Spectrometer. In photo, front row, left to right, are: PAUL RICHERT, HENRY YOSHIDA, GEORGE BORG, ANN MITCHELL, GEORGE NELSON, JOHNNY RATCLIFF, WALT NEUMEYER; back row: AL BENJAMINSON, BOB KARNATZ, HUGO FELLNER, FRANK ADAMS, CHUCK TAYLOR, RUDY MEITZNER, CLAUS HYLLESTED, CHUCK TYLER, BILL EBERT, RON LACKEY, BOB HANSEN, CLARENCE BLOM, FRANK BARNETT, DON NORGAARD, BOB MOODY, and FRANK URA. Inset photo: LARRY LABARRE, DON HAMMOND, and JOHN VAUGHT.



SCIENTIFIC INSTRUMENTS' ESCA team. In photo, left to right, are: HAROLD ROCKLITZ, HARRY WEAVER, FRANK BUNYA, ATTILIO MELERA, GAYLEN GROUER, JOHN HEARN, ROGER RAUSKOLB, JERRY RECTOR, and CHET HAIBEL.



SCIENTIFIC INSTRUMENTS—Mass Spectrometer team readies the 5930A Mass Spectrometer and its 5932A Data System for the March 1 Cleveland introduction. Left to right: REESE TURNER, BILL KRUGER, DAN JACKSON, BOB BOARD, NORTON BELL, GEORGE STUTLER, GREIG NAKAMOTO, NED KUYPERS, DAVE BANKS, JOHN HEARN, and BRUNO BIENENFELD.



GRADUATION EXERCISES for the Electronics Technician Apprenticeship Program and the Machinist Apprenticeship Program produced four new members to HP's growing and talented technical personnel. Pictured, seated left to right, are: JIM LEWIS, ED CHURCH, RON LIDDELL, and LARRY BROWN; standing: ELIX LUNA, Cupertino Division; Vice President RAY WILBUR; PAKIN DERTORSSIAN, Mountain View Division; BILL ROBERTS, Cupertino Division; SAM GROMLEY, Customer Service Center; and HOWARD FOSTER, Manufacturing Division.

## THE STORY OF ESCA

"The Big Idea"—

At the January Management Meeting in 1968, Emery Rogers described the opportunities and challenges in the analytical instrumentation market and pointed out that new technologies arrive on the scene every seven to ten years. Technologies such as infrared, mass spectroscopy, and NMR represent major instrument areas and evolve from a big idea. He suggested that we look for the next big idea.

Luis Alvarez, one of our illustrious board members who attended that Management Meeting, recognized the work of Professor Kai Siegbahn on photoelectron spectroscopy as a potential big new idea, and called it to the attention of Bill Hewlett. After some preliminary discussion with Professor Siegbahn, we were off and running on an investigation phase in March, 1968. Professor Siegbahn, who is head of the Physics Institute in Uppsala, Sweden, worked very closely with us that spring and summer, doing a very thorough analytical and paper study of the instrumentation. Many of the significant concepts were conceived during that very productive period. Hugo Fellner, Frank Barnett, Bill Kruger, Vas Peickii, Howard Poulter, and Don Hammond (director of P.E.L.) all contributed during that very dynamic era on ESCA.

In September, 1968, the project entered the "L" phase. Bob Moody became project manager and organized a very effective team. Vas Peickii, Larry LaBarre, John Vaught, Jerry Rector, Frank Bunya, Bob Hansen, and Walt Newmeyer as a design team worked very effectively with Bill Nicewonger and his terrific precision machine shop to implement some of the very difficult designs. With the completion of the first instrument in Spring 1969, we entered the shakedown phase.

As an integral part of the design team, Attilio Melera represented the viewpoint of the chemist, operating the instrument, injecting samples, and providing feedback to the development team about operational problems. Harry Weaver joined the team in November to assist Bob Moody in the technical management of the project and to verify performance specifications for the lens Beta spectrometer system. Harold Rocklitz assumed the responsibility for the lens, Chuck Tyler for the detector system, and Don Norgaard and Claus Hyllested for the electronics.

*Monochromator—*

The monochromator remains one of the outstanding contributions of ESCA. It was carried out by Hugo Fellner, John Vaught, Rudy Meitzner, Henry Yoshida, and Ron Lackey.

A multichannel detector system provides superior sensitivity.

In November, 1970, the instrument was transferred to Mason Byles' new Scientific Instrument Division, where John Hearn assumed the engineering manager's responsibility for the product.

Of course, ESCA was not the first product from HPL to be transferred to Scientific Instruments. When it moved to Building 17, it rejoined its sister project—the 5930A Mass Spectrometer—which had left HPL in March, 1970, to be one of the original projects of the new division. Reunited, the two programs set their sights on the Cleveland Show which had been chosen for the introduction of both instruments. Roger Rauskolb was responsible for managing this phase and the design was joined by Chet Haibel. ESCA became the 5950A and the design was finalized. It was repackaged in the new Corporate colors.

On March 1, ESCA was exhibited along with the microwave spectrometer and the mass spectrometer at the Pittsburgh Conference in Cleveland.

## THE 5930A MASS SPECTROMETER

*Fingerprints Molecules—*

By early 1970, there were several analytical instruments projects under way in different locations of the Palo Alto area. In March it was decided to combine the activities of the HP Labs Mass Spectrometer team with those of the Microwave Scientific Instruments group, and form the Scientific Instruments Division.

The 5930A Mass Spectrometer is an instrument which identifies molecules by plotting a mass spectrum of the molecule on a strip-chart recorder. This mass spectrum is a "fingerprint" of the molecule which is unique. HP's new dodecapole mass filter—the heart of the spectrometer—provides a good, clear spectrum free from the artifacts common in other medium resolution instruments.

A list of key contributors to the mass spectrometer includes many of the names already given ESCA credits but, in addition, Reese Turner (Dodecapole), Ned Kuypers (Industrial Design), George Stutler (Technician), Norton Bell and Bruno Bienenfeld (Electronics) should be mentioned.

Dan Jackson from Avondale provided invaluable support to Bob Board in the Applications Research area and Dave Banks handled the marketing activities.

The Scientific Instruments Division is now one year old. It has two other products on the market besides ESCA and Mass Spec. The 8460A MRR Spectrometer is the latest version of HP's microwave spectrometer and is selling well, while the little 8330A Radiant Flux Meter looks like a runaway best seller.

All of the design strategies became realities. It is the only instrument on the market with a monochromator which suppresses satellite sunlight peaks, eliminates background, and provides higher resolution than is possible from the conventional characteristic emission sources. The very flexible and superior sample handling capability is attractive to the user and the parallel entry detection system adds greatly to the information gathering rate. This is a tremendous technological achievement for which this research and development team can be justifiably proud.



CONGRATULATIONS are in order for RON NUNES (4A), who received his Electronics Machinist certificate on February 22. He earned his certificate by taking the required job-related courses and by operating equipment, such as, the Monarch combination lathes, Hardinge automatic and hand-operated turret lathes, and the Lapointe and Pioneer broaches, located in the small turret section (4A). Recently Ron was transferred to the Swiss automatic lathe area to learn how to set up and operate this equipment. Pictured, left to right, are: GEORGE BLIGH, Ron, CORBIN GOIN, STAN WIGHT, and JOE SPINOZZI.



...about



**Direct Claims Handling Group Medical Insurance—**

We have had an opportunity to evaluate HP's new direct billing system and the results are most satisfactory. However, we did find that the "Out-Patient Hospital Service" needs clarification.

Out-Patient Hospital Service means services rendered by a hospital to patients *not* confined overnight, such as emergency room use in case of minor accidents or the use of X-ray and laboratory facilities when a patient enters and leaves the hospital the same day and is not registered as a bed patient.

Several hospitals in this area will not handle insurance forms for such services, even if the employee presents his Medical Benefit Guarantee Card. If this happens, take the following action and, in most cases, your insurance benefits will be paid promptly.

1) Complete *only the employee section* of a Connecticut General claim form. Attach the hospital bill and any additional bills you have received related to the incident and mail them directly to the insurance company. Be sure you complete item "F"—description of accident or sickness—in detail.

2) Should the hospital require immediate payment, request a receipt to mail with your claim so that you will be reimbursed directly rather than for the benefit payment to go to the hospital. This will avoid duplicate payment to the hospital.

3) Have the attending physician (the physician's name is usually shown on the hospital bill) complete another claim form. Fill in your name, patient's name, and sign the employee section before giving the form to the doctor. He should mail the completed form directly to the insurance company or return it to you for mailing.

If you have any problems with this procedure, contact the Claim Office by phone or mail. The address and phone number are shown on your Medical Benefit Guarantee Card.

**Bowling Winners**

**5L Men Take First Prize—**

Cappy Cappadona (5L) and Dave Larsen (5L) of the Palo Alto Bowling Association placed first in the Men's Doubles at El Camino Lanes, Saturday, March 27. First prize was \$125 plus handsome trophies.

Entered Average: 158—Cappy  
173—Dave

584 Scratch—Cappy  
574 Scratch—Dave  
200 Handicap  
1,358 Total combined score

\* \* \*

"How did you do in school today?" the father asked at the end of his son's first day in school.

"Not so good, Pop. Gotta go back tomorrow."



**Easy Speakers Elect Bill Merg Prexy**

**HP'ites Invited to Join Organization—**

The Easy Speakers' personal development and public speaking programs will be under the guidance of newly elected officers. The club's annual election was held March 24 at the Santa Clara plant. Many HP local divisions are represented by the slate of officers:

Bill Merg, president (Microwave); Bill Kelly, vice president (Manufacturing); Noe Garza, committees manager (Santa Clara); Ed Albert, secretary/treasurer (Cupertino); and past president Roy Ingham, Santa Clara, advisory member of the board.

The HP Easy Speakers meet on the second and fourth Wednesday of every month at the Santa Clara plant main conference room at 6:47 p.m. All HP employees are welcome. Call Ross Redeker, Ext. 2005, for information.

\* \* \*

Then there was the calf that was accidentally shot by a near-sighted hunter. Its last words: "Tell Mom I died game."

**HP Scholarship Program**

**Now in Full Swing—**

The 1971 HP Scholarship Program is now in progress and will continue through April 15. Both applications for awards and contributions to the fund will be requested during this period.

To be eligible for a Scholarship Award, an applicant must be a graduating high school senior, a son or daughter of a full-time HP employee (at least six months), and plan to pursue his education further in a college or university. Application blanks may be obtained from your supervisor, housemother, or your Personnel Department.

To facilitate contributions to this very worthwhile program, tab cards were distributed with March 31 paychecks. Contributions may be made in any of three ways—a weekly or semi-monthly payroll deduction from each check for the year, a single deduction from your May 12 or 15 paycheck, or cash. *We urge your support!*



THE TRANSFER of LOU MONTGOMERY from the Key Punch Department of WALT MOY, Building 3 Lower, to the Santa Clara Division's Purchasing Department as a secretary brought out a spontaneous celebration with a cake and gift (Lou has been with HP for ten years). Shown in photo, left to right, are DOTTIE GORDON, REYNA GRAHAM, Walt, Lou, DONNA GROOMER, ADELE YOUNG, and SUSAN RUDGE.



PATIENCE IS A VIRTUE is a motto which ED CONTRERAS proved pays off at HP. He is pictured with his co-workers in Bldg. 2U as he celebrated his American citizenship. Ed arrived in the U.S. in 1964 from El Salvador. He worked in the HP cafeteria as a dishwasher and while there, struck up an acquaintance with PETE VOGT, who helped him get his foot in the HP doors by giving him a job as a janitor on the graveyard shift. He then worked for GENE FORRESTER in Technical Maintenance, then to Waveguide's Machine Shop for ED FOSTER, and finally to NORM MALFATTI'S Machine Assembly in Bldg. 2U. Ed is going to Foothill College to further his quest for knowledge and is proud of the various ways in which HP helps its people obtain the goals they seek. Pictured are (only those facing camera), left to right: MARY RIETZ, JUDY JAINE, PICK LAKIN, ED ULRICH, BOB YOUNG, Ed, BILL KABAGE, RON CHURCH, ROY STOWE, NORM MALFATTI, and BILL KEILIG.



EASY SPEAKERS CLUB members look on approvingly as their new slate of officers pose for "Watt's Current" photo. Elected for the year 1971-72 are: BILL MERG, president; NOE GARZA, committee chairman; BILL KELLY, vice president; and ED ALBERT, secretary-treasurer. Left to right, kibitzers in background are: BEA HARBICK, RUTH PALMER, MARIALIS COLLINS, GEORGE WESTBROOK, GEORGE HOFFSCHILDT, ROSS REDEKER, ROY INGHAM, JOHN BLUNK, and DON HAWKS. Not shown in photo: DOREEN PETERSEN and MIKE SPASEY.



MARTIN MANSON, Building 4 Upper, of Packaging, shown placing completed production floor document on side of Microwave instrument ready for 6A shipment.

**Microwave Installing Newest Production Control Systems**

By RON CHURCH and BOB GILMOUR

Over the years, several different systems have evolved within Microwave to control and identify the different types of products on the production floor. A five-part dispatch slip has been hand-prepared at the rate of about 20,000 per year. Tens of thousands of colorful orange, green, red, yellow, and brown stripe punch cards have helped us maintain controls. In addition, a production failure/test record card and a product identification card have been a part of the present system.

This is now in the process of change. Studies have been under way for the last several months to simplify this system, and arrangements have been made for the computer to do some things it has never done before at Hewlett-Packard.

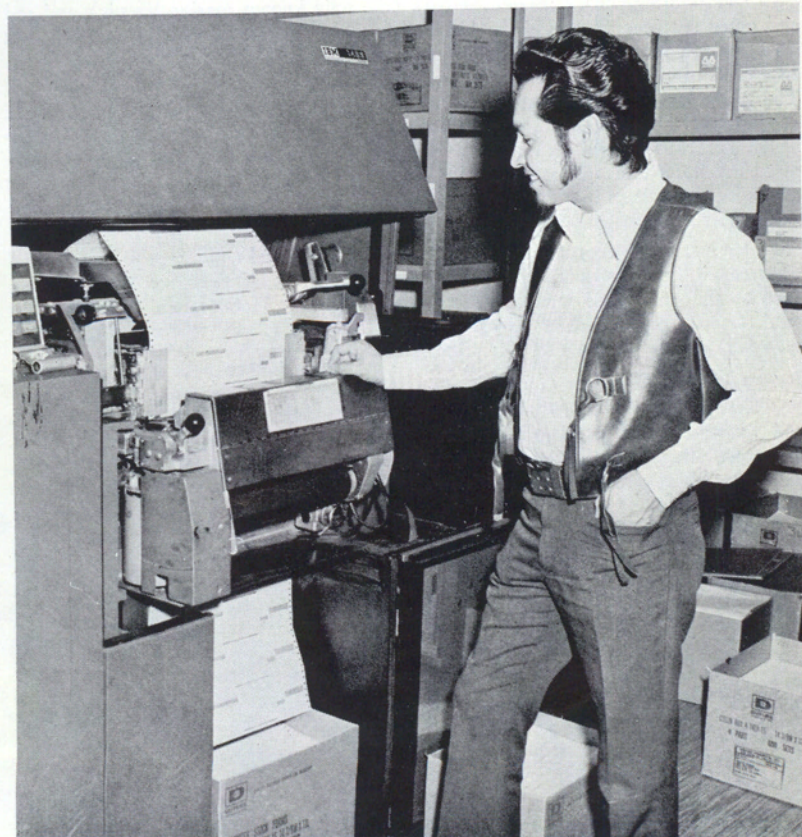
A single form has been designed to replace over seven forms now in use. The computer is printing much of the information on this new form, with special oversize characters—some are as large as two-thirds of an inch high that can be easily read at a distance. In addition, when requested, the computer is calculating and printing serial numbers on each of the forms that accompany serialized instruments. The computer can print the new documents at a rate of about 100 per minute.

Training of the hundreds of people that must know about this new form is now under way. So far, over 200 persons in production, packaging, order processing, finished goods inventory, and shipping have attended the visual presentation. A written procedure is being given wide distribution.

You'll be hearing and seeing more about this new document very soon. In fact, since it consolidates several documents, it will be one of the highest volume forms used in the Company.

Please note the pictures at right showing the old and new forms and some of the highlights of our progress.

Your cooperation and assistance in helping during the installation of this new system is greatly appreciated. Also, several other new systems are now under development that will help improve our operating performance. They will be installed over a period of time. You will be hearing more about them before long.



JOE MORALES of BAEDP, Building 3 Lower, shown adjusting line printer for preparation of production floor documents (please refer to above article).



# ADVENTURE — GALAPAGOS ISLANDS, 1970

By JOHN BORGSTEADT

*Editor's Note: "Watt's Current" is most fortunate in being able to bring to its readership the following account of life on the open seas on the way to the exciting Galapagos. Reporter-photographer John Borgsteadt is a 23-year man with HP in Materials Engineering (Bldg. 17).*

"Nowhere else in the world"—

"I took the latitude to know where the Islands were; they are between 1/2 and 1 1/2 degrees south latitude . . . (and 90 degrees west longitude). On the second island, the same conditions prevailed as on the first; many seals, turtles, iguanas, tortoises, many birds like those of Spain, but so silly they do not know how to flee, and many were caught in the hand . . ."

So wrote Fray Tomas de Berlanga, Bishop of Panama, in 1535 after his discovery of a group of isolated, volcanic islands about 500 miles west of Ecuador, and later named the Galapagos, meaning tortoise.

Three hundred years later, Charles Darwin, passing among these islands aboard the *Beagle*, found two huge tortoises, about 200 lbs. each, ambling across the lava; there were no others like them anywhere in the world. Great black lizards, some four feet long, sunned themselves on the black, volcanic rock along the shore. A rust-colored land lizard had burrows which filled so much earth on James Island that it was difficult for the *Beagle* party to find a place to pitch a tent. Of 26 kinds of birds found, all except one far-ranging finch were peculiar to these islands. All 15 kinds of fish that were caught were new species, and so were nearly all of the insects and many of the flowering plants.

Aboard the "Te Vega"—

One hundred thirty-five years later, 30 Sierra Club members boarded the 156-foot gaff-rigged schooner "Te Vega" in Balboa, Panama, and set sail for the Galapagos Islands to see first-hand the terrain and wildlife that had inspired the Darwinian theory of evolution.

Schooner life began immediately after arrival in Panama by Pan American as we boarded Te Vega in light rain, heavily laden with diving gear, telescopes, cameras, etc.

At 20:30 on January 12 we moved out into the Bay of Panama in light rain and windless sea; later dropped the pilot and set course 210° straight for San Cristobal Island, 950 miles away—the 200 horsepower diesel giving a 7-knot speed. On the third day out the skies cleared, the sea become deep blue, and a breeze from the west was enough to hoist sail—this was the real beginning of our schooner experience; the schooner's gentle roll was suddenly changed to a steady heel to port, and both ship and passengers came alive. Bikinis and shorts were the norm as temperatures approached 85° with moderately high humidity.

At 5 p.m. on January 17 we approached Wreck Bay on San Cristobal Island, with about 30 wooden buildings along the shore and a population of several hundred. After entering the small bay we welcomed Ecuadorian officials aboard to present our plans and receive instructions apropos to visiting an Ecuadorian national park. We also received our Galapagos Islands pilot and guide aboard—essential for island navigation and locating wildlife.

Our first contact with the Galapagos dispelled notions of tropical splendor; of the fifteen islands, about six attain altitudes of several thousand feet and have significant vegetation, even jungle at the higher altitudes. Many, however, are small volcanic lumps only 1/2 to 2 miles in diameter and a few hundred feet in height, and project from the sea bottom 10,000 feet below. They sometimes appear as layers of red, brown, and black lava speckled with giant cacti (opuntia) and light brush. The wildlife that we found on this lava had to be seen to be believed—and none of us will ever be the same after contact with the acres of nesting birds, gulls, and marine iguanas, the giant land tortoises and land iguanas, colonies of seals and sea lions—all together and totally without fear of humans.

Friendly Natives—

Our first wildlife contact was on Hood Island. Te Vega anchored about a half mile off the rugged lava shoreline and its Boston whaler landed us on a small sandy beach, past colonies of sea lions. They showed no inclination to avoid us, and we learned that they were most entertaining diving companions, imitating our underwater acrobatics, loop for loop, bubble for bubble.

Mockingbirds boldly approached us in search of fresh water; those who offered any were quickly surrounded by them. There is very little fresh water on the islands, except captured rainwater, and that from a few wells. (We were limited to the Te Vega's meager supply.)

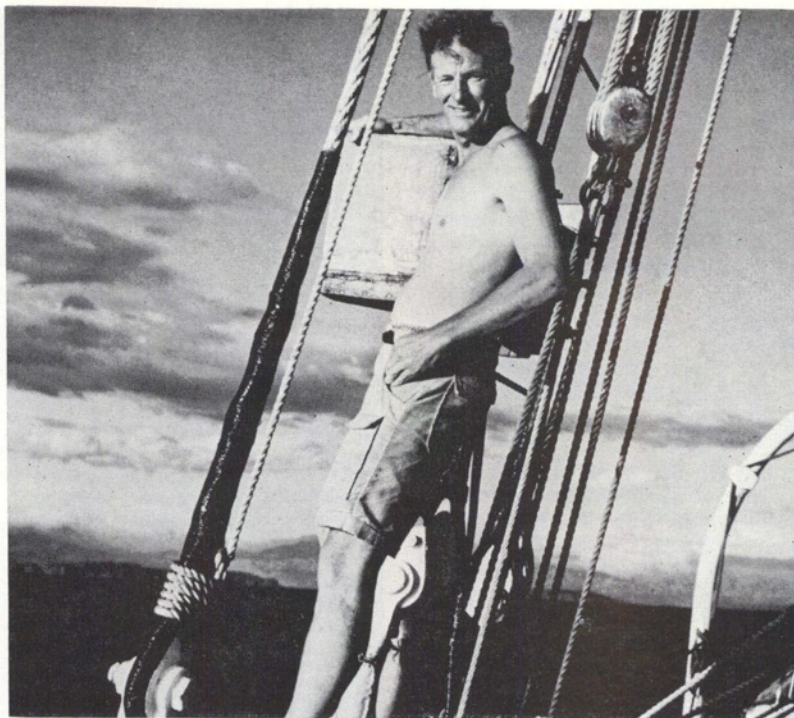
Biologist's Paradise—

Two-foot-long black marine iguanas (the only known marine lizards) and red and green sea iguanas shared the black sea-washed lava with the mockingbirds, sea lions, penguins, gulls, flightless cormorants, and the brightly colored Sally light-foot crab. In every case, as Darwin and sea mariners said, the creatures did not flee. The gulls lay their eggs and raise their families on bare ground (one nesting swallow-tailed gull was undisturbed as her wing was gently lifted to permit us to watch her chick in the process of hatching). Our telephoto lenses were unnecessary; the gulls and iguanas virtually lived in classic poses, and remained so at distances closer than our lenses could focus. True to iguana lore they spit "steam" from their nostrils—but only to clear away excess salt!

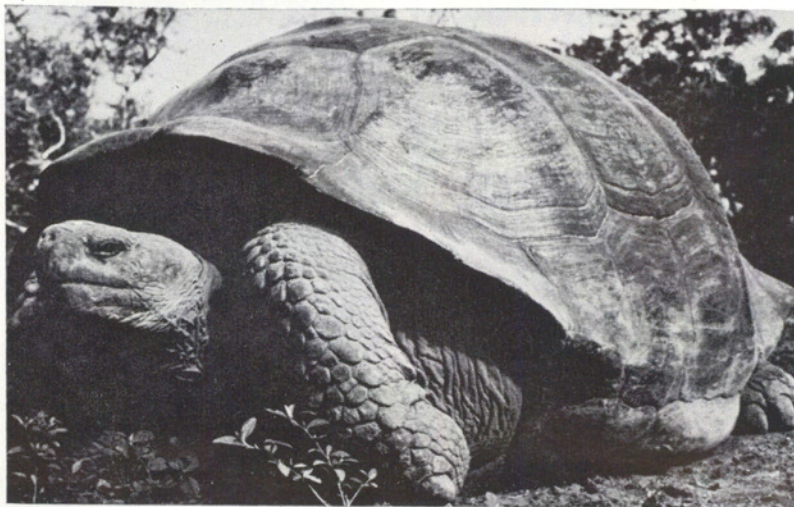
We learned to expect this close-in contact as we sailed from cove to cove, island after island. Some islands contain many indigenous species; however, other species, such as the giant land iguanas near Gardiner Bay on Hood Island and the giant land tortoises on the rim of Alceda Crater on Isabella Island, would not have been seen without the guidance of our pilot, Karl Angermeyer.

Nature in the Raw—

Skin diving in the 75° water with 30 to 40-foot visibility was very exciting, and we were soon spending a portion of each day at anchor cavorting with seals, sea lions, sting-rays, the usual tropicals, Parrot fish, Trigger fish, Moorish Idols, puffers, and a variety of reef fish. The prickly feeling we often noticed while



LANDLUBBER goes to sea—JOHN BORGSTEADT aboard Te Vega.



VENERABLE Island Taxi! Tortoise—land, not sea turtle—goes one mile per hour but emits no carbon dioxide! Above specimen, of *Geochelone Phantastica*, is approximately 100 years old and weighs about 350 pounds. It was photographed on volcano crater rim at 4,000-foot level on Isabella Island.



PREHISTORIC MONSTER? No, just a friendly marine iguana by the name of "Amblyrhynchus."

diving were the schools of Wrasse (Cleaner fish) giving us a "cleaning." We were often pursued by groups of "puffer" fish—some approaching within inches—that blew up to volleyball size when handled. Five and six-foot white-tipped sharks made frequent appearances (one in shallow beach surf), thus clearing the water of all divers. We watched Manta rays "frolic" in the shallow surf where we were wading, and were left speechless, sitting on a small beach as a Galapagos Hawk walked by, caught a crab, and had dinner right in front of us. Nearby, a flight of 40 Pink Flamingos in formation circled the lagoon.

Land of Darwin—

The Galapagos adventure was a moving one. For a moment it reduced my life to a few simple and powerful factors: being at sea; being on isolated, primitive volcanic islands; being with some of the oldest surviving creatures; looking into brilliant skies at night at new constellations; walking through giant cactus and the white-bark palo santos in early morning hours while climbing to a crater rim; watching in awe the very same scenes that caused Darwin to speculate, then later to begin the crumble of centuries of notions on how "creation" took place.

Darwin's inquisitive mind needed the simplicity and isolation of the Galapagos to clearly demonstrate the development of species that he described 25 years later in his famous paper, "The Origin of Species." For a moment, we shared in that same, never to be forgotten wonderment!

## IEEE Show

(Continued from page 1)

land's new 50-channel Minisystem, Microwave's new Automatic Spectrum Analyzer, and AMD's elaborate 9500 series automatic stimulus/response system.

One could not visit the HP booth—as big crowds did, every day—without realizing that HP's ability to serve its customers is vastly broader than it was only a short time ago.

The instrument makers were relegated upstairs to the third floor this year, after all those years at the top of the front-door escalators on the second floor. That decision was questioned by some, in view of the increasing relative importance of instruments to the show.

Economics Determines Attitudes—

The number of HP people at the IEEE was down a good deal, maybe only half as many as last year. Everyone noticed that New York's familiar "Who needs you?" attitude was much tempered this year. The hotel and restaurants seemed ready to welcome the business; service was better, and some said they found a few places where prices were lower!

That wasn't true of taxicabs, however. After a recent strike, their charges went up about 50 percent. As a result, it was said you can now get a cab anywhere, anytime, even in the rain—"fewer customers, lower tips," one driver reported.

## Recycling Center

(Continued from page 1)

rings from the necks of soft-drink and beer bottles; washing, crushing, and the removal of labels from tin cans. (The removal of labels from glass isn't necessary.)

The center is located on Singleton Road across from the city dump. (Take the Capitol Expressway to Senter Road and proceed on Senter to Singleton.)

Although the center will expand in operation in the future, it is not intended to be a self-perpetuating enterprise. We hope that with consumer education and demand for bio-degradable packaging, recycling will become obsolete. But until industry is motivated the consumer should realize that deposit bottles are actually more economical than no deposits, that aluminum cans are easier to recycle, and that bags and other paper goods *can* be used more than once. It should be remembered that when *the consumer* motivates industry, our service will no longer be needed—and we can hardly wait!

\* \* \*

A poultry raiser wrote to the Department of Agriculture:

"Gentlemen: Something is wrong with my chickens. Every morning I find two or three of them on the ground, cold and stiff, with their feet in the air. Can you tell me what is the matter?"

Came back the reply:

"Dear Sir: Your chickens are dead."



BEST WISHES were given to ANNE LYON, Travel Desk, pictured above with husband DAVID (5U), when she left HP to await Little Miss Lyon, who arrived March 13. She was name-tagged Katherine Kelly.



"MAN O' WAR" attracts mate with inflatable scarlet pouch.

## New bonus interest rate.

Buy U.S. Savings Bonds.

