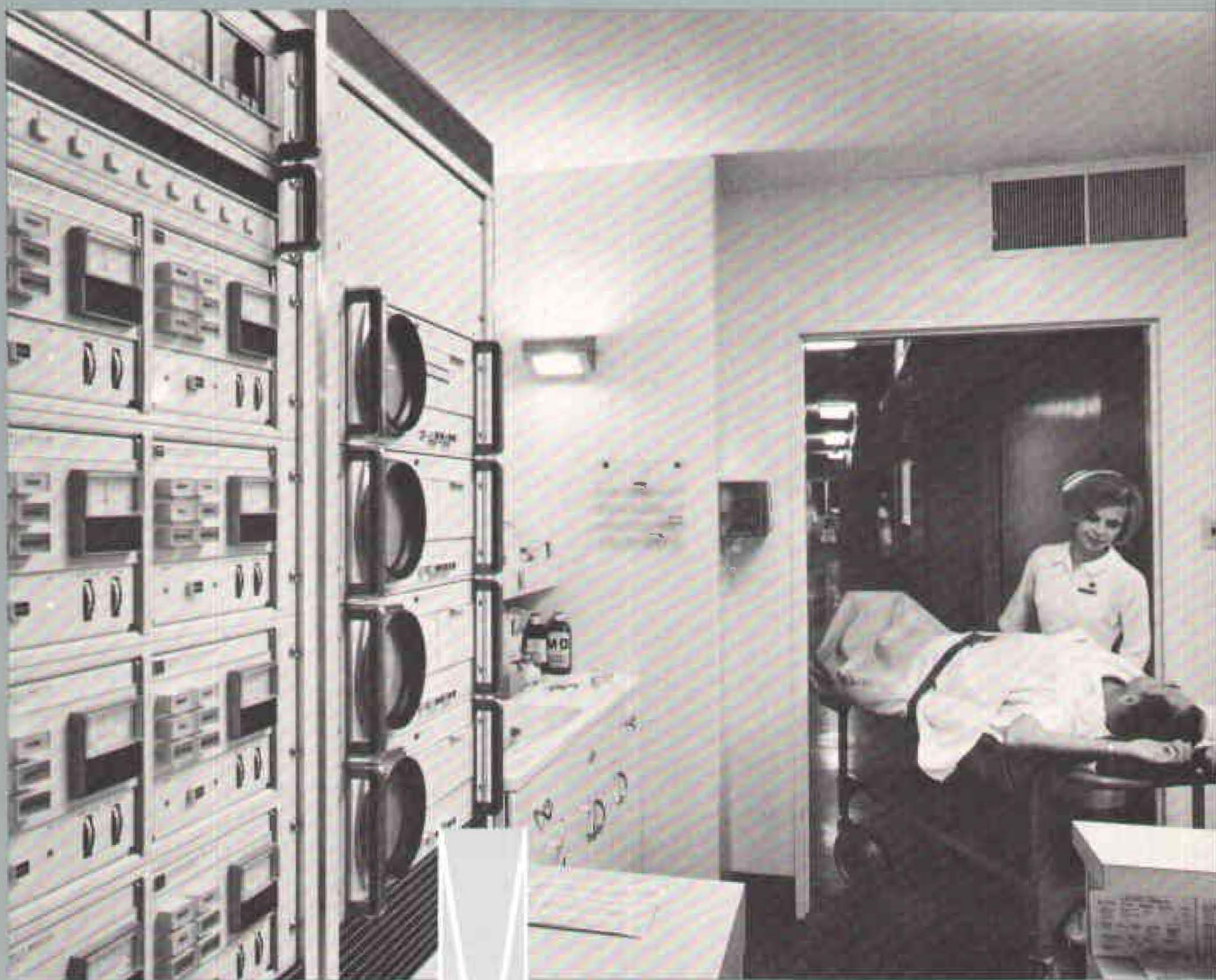


November 1966



Measure

In this issue

*Patient monitoring at Washoe
Perspective: HP Labs*

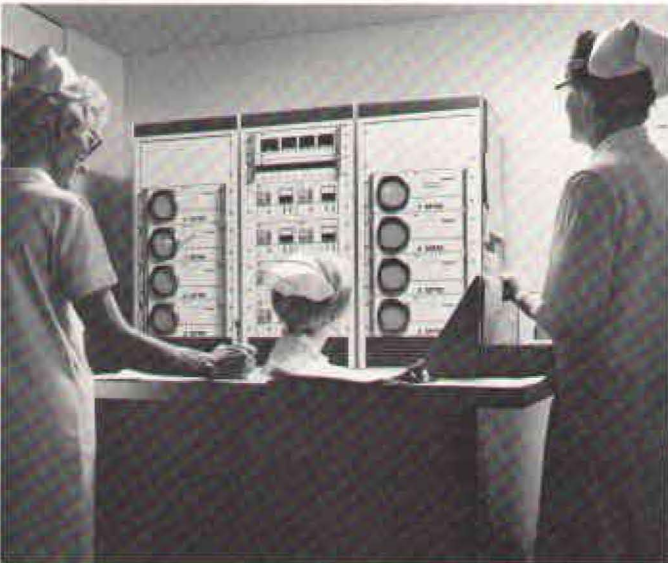
HP patient monitoring equipment:

Front-line defense for cardiac victims



Electrode is attached by nurse to new patient in cardiac care ward at Washoe Medical Center. Nurses were trained in use of the HP monitoring equipment during course of installation. Eight patients can be monitored at one time.

Visual as well as audible alarms alert nursing staff at Reno's Washoe Medical Center to cardiac emergencies. Center reports mortality rate of acute cardiac patients has been reduced since introduction of monitoring equipment.



Physician at Washoe Medical Center studies heart data preserved on continuous-loop tape recorder installed at two bedside monitoring stations. Tape enables him to review cardiac action leading up to distress condition.

□ While HP instruments have been involved in many of the great dramas of modern science and engineering, it's rare that they are shown in the context of life and death—the day-to-day drama of people struggling for survival and health. It is eye-opening, then, to see HP patient monitoring equipment from the Sanborn Division performing life-saving service as a matter of routine.

One excellent place to witness such performance is at the Washoe Medical Center in Reno, Nevada. Here, a Sanborn installation provides continuous monitoring of the hearts of as many as eight cardiac patients at one time in the center's cardiac care ward. In addition, the HP equipment automatically makes 10-second recordings of the heart readings every 15 minutes for later evaluation by physicians. Two of the channels are equipped with recorders that make a continuing record of readings so that events leading up to a distress condition can be preserved for study.

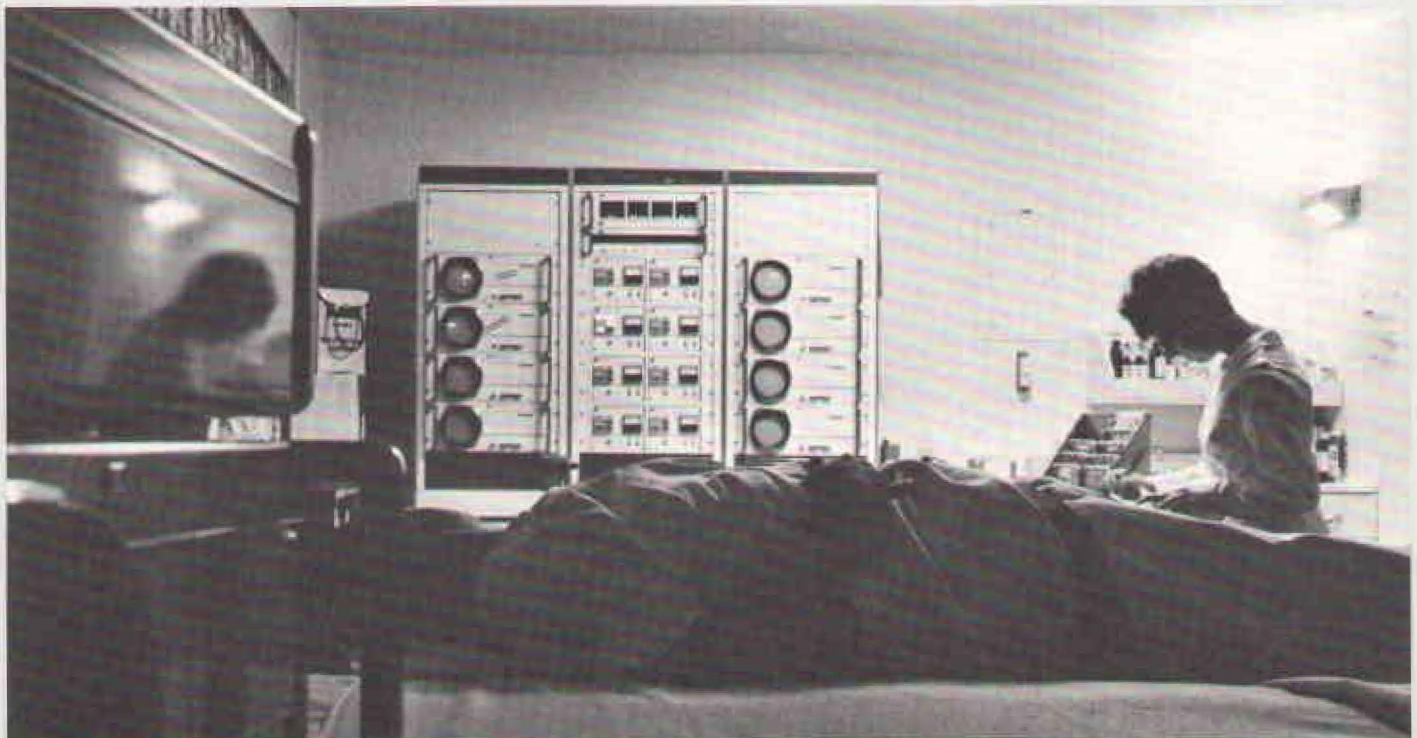
Nurses are quickly alerted to such conditions by an alarm which rings as soon as the heart rate of a patient goes beyond preset limits. Other Sanborn equipment may then come into use, including a mobile cardiac resuscitation system which has a synchronized dc defibrillator, a heart pacemaker, and electrocardiograph (ECG) monitors.

The installation has special significance for hospitals similar to the Washoe Medical Center in size and organization. The 415-bed Nevada community facility draws cardiac patients from a large geographic area. However, because it does not have a staff of interns and resident physicians, it must rely on the nursing staff as the first echelon of defense in medical emergencies during off hours. A step-by-step schedule for installing the equipment enabled the nurses to take over smoothly and fully as soon as installation was completed.

During its first year, according to reports from the hospital, the patient monitoring system has alerted the nursing staff to a number of distress conditions which might otherwise have proved fatal had the equipment not been there to indicate the need for immediate attention.

Overall mortality rate has been 17.7 percent for monitored patients during their hospital stay as compared to the 30-40 percent previously reported.

The hospital now is planning to expand capacity to 765 beds and include a new specially designed cardiac care unit with monitoring capabilities. □



During first year at Washoe Medical Center, HP patient monitoring system has alerted nursing staff to a number of cardiac emergencies that would probably have been fatal without the immediate alarm and attention provided by the equipment. On the average, four units are in use at any one time, and as many as seven of the eight have been in simultaneous operation.

International show time for HP products

With sales offices in 55 foreign countries, reaching customers in more than 100 nations, HP is increasingly cast in the role of international exhibitor. Typical are those events pictured here.

The recent New Zealand Electronics Conference, for example, was the first of its kind held in that island nation. According to HP's representative, Sample Electronics (N.Z.) Ltd., the company's products drew strong interest, particularly from government departments concerned with forest products. The electronics conference was followed in October by the International Nuclear Conference, where the HP product line was again solidly represented.

The annual electronics show in Tokyo was the occasion

for an HP double header: A bright new product exhibit at the show, plus a private microwave show for specially invited customers. Despite a typhoon, the show booth attracted more than 3,000 visitors, while the microwave show enabled the marketing personnel to talk in depth with about 300 key clients.

Another kind of showing—the customer seminar—was held several months ago in Tel Aviv for almost 60 HP customers. During the four-day meeting, customers heard different topics presented each day in the form of lectures and demonstrations. The seminar was the second held by HP in Israel. Interest was reported to be particularly high in storage scopes and DC calibration instruments.



NEW ZEALAND



JAPAN



ISRAEL

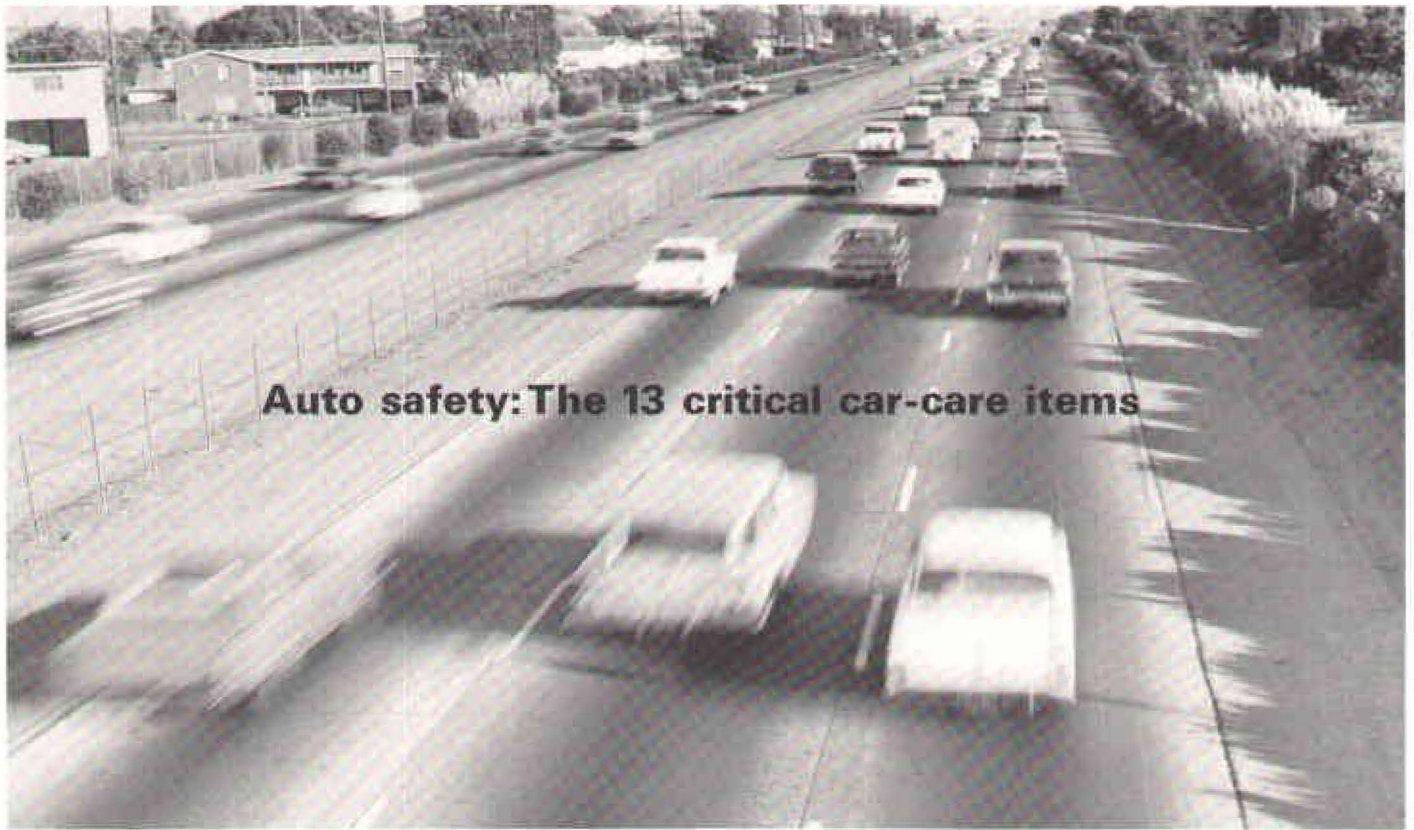
HP customers "graduate" in gas chromatography

At West Conshohocken, Pa., last month, 36 customers received diplomas for attendance at two three-day seminars on gas chromatography applications presented by HP's Eastern Sales Region. Mick Redstone and John Schmit of F&M Scientific Division presented the course. The customers, chemists, and engineers pictured below with session leader Schmit, came from a wide range of universities and industries throughout the northeastern states. Many in-

quiries and reservations have already been received for the next gas chromatography sessions planned by Eastern Sales Region.

Central Sales Region hosted a similar customer training course at Skokie, Illinois, under the title of the National Chemical Neophyte Training Seminar. Visitors were presented with a variety of subjects related to gas chromatography.





Auto safety: The 13 critical car-care items

□ If you drive regularly—as most HP employees do—winter weather adds to the hazards of your daily travels. So it's a good time, now, to take stock of the following automobile safety features. Most of these items are based on inspection standards enforced by many states. All represent deficiencies which you, the driver, can correct with little effort:

Brakes: A brake that is readily pushed to the floorboard or has to be pumped needs attention—now. The hand brake should be able to hold the car in place on a hill (with the gear in neutral).

Tires: New tires have about 11/32-inch of tread. It's time to replace at 2/32-inch or when cords, cracks, cuts, or bulges show. Most failures occur in the last 10 percent of tire life. Never be without a spare and the necessary tools.

Steering: If you can move the steering wheel more than an inch without the front wheels turning (in motion straight ahead) have the steering adjusted. If you get “wobble” at certain speeds, your tires need balancing or aligning.

Headlights and taillights: Improper headlight adjustment is the most common citation issued during highway patrol inspections. Check your headlights for high and low beam shift, and go to an official station for adjustments. Be sure taillights are working and clean.

Turn and brake lights: Have someone walk around your stationary car while you operate all turn signal lights and the foot brake.

Windshield wipers: Defective vacuum line or electrical circuit can cause erratic movement. Periodically clean blades

and switch on for a few seconds. Don't wait for the next storm to replace worn blades.

Rear view mirrors: California and other states require outside lefthand mirror on all 1966 model cars. You'll need one in older cars also if you carry bulky loads or many people.

Horn: Make sure it sounds forth every time you use it. Otherwise, have wiring checked.

Battery: As with other items under the hood, service station attendants should be asked regularly to check the condition of your battery.

Glass: Cracked, scratched, or dirty glass can be a source of danger from light reflection and diffusion which may “blind” the driver. Keep window areas clean and unobstructed.

Muffler: If muffler sounds noisy when engine is first started, inspect for leaks or have the entire exhaust system checked. Danger is from fumes leaking into car.

Safety belts: Most traffic safety experts agree that safety belts can save your life. If you have them, wear them.

Flares and flashlights: Carry at least three flares of the “15-minute” kind. In emergency situations, place one at least 100 feet between your car and oncoming traffic. You should have a flashlight too, for night emergencies and repairs.

Eighty percent of cars checked by highway inspectors fail to pass at least one category. Quite a few of these failures are serious, and more than one out of a hundred spells disaster just around the corner. Don't let it be yours. □



Its role: Adding a new dimension to HP research

□ Through the years, the growth of HP divisions has been spurred by active, product-oriented programs of research and engineering. This has enabled each division to keep its product lines out in the forefront of a rapidly changing technology. In recent years a need was seen to back up these creative programs with concentrated efforts in several selected areas of advanced research. To this end, HP Laboratories, a central corporate R&D organization, was established last year.

Formed initially from three research groups in the Palo Alto complex, HP Labs today employs 207 persons in four laboratory groups. Included are Solid State, Physical Electronics, Special Projects, and Electronics Research—plus Administration, a section responsible for accounting, model shop, and corporate library.

The staff is drawn from a variety of technical fields including physics, chemistry, electronic engineering, mechanical engineering, biology, and mathematics. Additionally, an impressive roster of consultants in other fields such as medicine and computers is called upon to augment these talents. The total research program encompasses over 75 active development projects and represents roughly 18 percent of HP's total engineering program.

There are three kinds of continuing activities under way within the laboratories.

The major effort—60 percent of the total—is directed toward corporate sponsored research. It is the task of the Labs to backstop the divisions with a supply of advanced materials, processes, and techniques, and to take “far out” ideas down the road to feasibility. An example of the result of this kind of work is the vector voltmeter, now in production in the Microwave Division, that was conceived and demonstrated in HPL.

A second activity—about 20 percent of the total—is work sponsored and supported by specific operating divisions. These programs range from consulting assistance through complete device and instrument development programs. A typical project is the continuing work of HP Labs in the improvement of quartz crystals for frequency and time standards, sponsored by the F&T Division.

The remaining portion of the research—also about 20 percent — is sponsored by outside organizations, principally government agencies. This work is generally of a very fundamental nature, the results of which add to the mainstream of basic knowledge. These non-proprietary research findings are frequently published, thereby adding to the stature of HP Labs in the scientific world.

What areas of technology are the labs engaged in? The Solid State Lab under John Atalla is researching the physics and chemistry of new solid state materials, developing ways of using such new materials, and creating new state-of-the-art devices and integrated circuits.

Physical Electronics research directed by Don Hammond is concerned with improved electron and molecular beam devices, electro-acoustics, laser developments, techniques for vacuum deposition of films, analytic techniques, and quantum electronics phenomena.

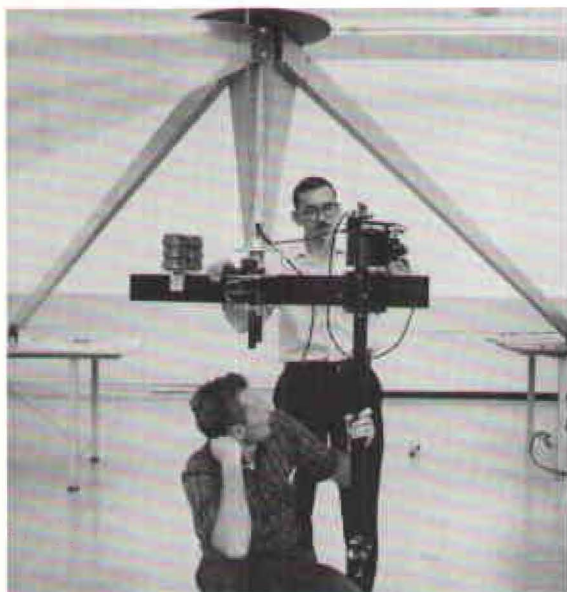
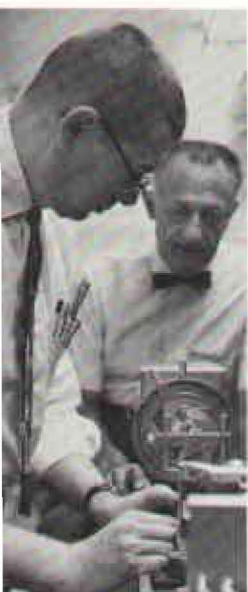
Electronics Research Lab programs directed by Paul Stoft include studies of fundamental processes such as low level amplification, modulation, detection, mixing, logical circuit design, information handling, and processing.

The Special Projects group under John Cage presently works chiefly in the areas of medical and chemical instrumentation.

Tom Perkins, HPL administrative manager, notes that the library service is available to all divisions. The staff now includes two professional librarians, two library assistants, and a technical illustrator. Plans call for expanding the collection of publications and the programming of all titles and indexes for quick computer reference.

Barney Oliver, vice president of research and development, emphasizes that “HP Labs does not compete with the divisional R&D programs. Rather, we're here to help them at their request—in projects leading to the development of specific products, and to investigate new areas of technology for the corporation as a whole.

“It's our policy to assist and encourage any division wishing to take over an HPL development. Our goal is to build an organization that, through its contributions, earns the respect and support of the operating divisions and of the scientific community.” □



Accelerating growth of technology requires constant HP efforts to contribute to the state-of-the-art in various fields. LEFT: Laser research project is checked by Len Cutler (left), director of quantum electronics research, and Vas Peickii, engineering consultant. CENTER: Legs of mechanism will straddle pool of water in test of ultrasonic diagnostic scanning device. Don Lobdell, transducer engineer (standing), and Dick Crawford, electrical engineer, check project. RIGHT: Claire Ossig pulls run of silicon wafers from furnace for integrated circuit research. Taking furnace temperature is Dorothy Hicks. Jessie Kafka records each reading.



Managers' conference brings together, from left: Barney Oliver, vice president-R&D; Don Hammond, physical electronics; Paul Stoff, electronics research; John Cage, special projects; Tom Perkins, administration; John Atalla, solid-state. HP Labs now has more than 75 advanced R&D projects under way.



Model shop of 15 R&D model makers creates prototype tools and devices. Working with miniature lathe is Leonard McQuaid.



Corporate library is being improved by expanded services. John Gulbrink (foreground), Physical Electronics Lab, researches project. Mark Baer, libraries manager, and Bill Petru (right), technical processes librarian, confer.



Expansion of Stanford Plant's Building 1 will allow growing space. Solid State group will move into new area early in 1967.



□ Why should Hewlett-Packard play week-long host to 200 or so laboratory managers from 23 states and Canada while they discussed the state of affairs in the electronics industry?

The Second Symposium, as the September gathering at Palo Alto was called, did indeed cover a lot of topics that had little to do directly with HP except as member of the industry.

Why? According to Noel Eldred, HP vice president of marketing who welcomed the visitors: "This industry is no longer working out of a garage. We are coming of age. So, in serving our customers, we have to look beyond the purely technical side of the industry and concern ourselves with the problems and arts of management.

"This meeting," said Eldred, "should let us talk together, have a look at the whole industry, so that we can learn by the interchange."

And interchange they did. There were seminars on defining accuracy in measurement, and what instruments will

HP's Second Symposium, by



HP was host at Palo Alto recently to almost 200 managers and supervisors of instrument laboratories from across the country. Week-long symposium included panel discussions, with plenty of questions from the floor.

be like five years from now. There were panel discussions on centralization of test equipment, use of computers in lab management, service contracts, manufacturing support, the role of the instrument technician, and the recruitment and training of qualified technicians. Then there were speeches—on the industry's wage and salary picture, on technical support of research and development, and on "a logical new philosophy of instrument maintenance." Finally, there were individual conferences, technical talks, a banquet, and tours of the HP Standards lab, Western Service Center, Palo Alto manufacturing divisions, and the new two-mile-long Stanford Linear Accelerator.

The three dozen panelists and speakers brought in by HP for the symposium represented an impressive cross section of the nation's technical and scientific community.

Carl Mahurin, HP training manager, whose group arranged the symposium, said the second meeting was quite a

bit bigger in attendance and broader in subject matter than the first symposium held in 1964.

"We didn't just dream up the idea," Mahurin noted. "It came about by popular demand chiefly from members of our field sales forces. They saw a need for more exchange of ideas between those customers who manage or supervise instrument laboratories and maintenance facilities. These are men whose backgrounds are technical, but who deal more and more with people and the problems of organization, and less and less with instruments. However, they are still our customers and we need to demonstrate our interest by encouraging greater interchange of ideas. The symposia were designed for this purpose."

Will there be a Third Symposium?

"Nothing is certain yet," Mahurin added. "We'll just have to let popular demand run its course once more. Ask me again in 1968." □

popular demand



Tours of HP Palo Alto facilities included manufacturing divisions, HP Standards Labs, and Western Service Center. Above, tour group is seen visiting Microwave machine shop. Corporate training group supervised all arrangements.



Exchange of ideas concerning common problems and opportunities in the industry was achieved through a combination of informal meetings as well as tours, panel discussions, and seminars. HP field sales and service personnel heard favorable comments about the symposium for weeks following the event.

Swedish distributor becomes wholly owned subsidiary

Establishment of a wholly owned marketing organization in Sweden has been achieved through the purchase of HP Instrument AB, distributor of the company's electronic products throughout that Scandinavian country.

Several reasons determined the need for a direct marketing organization, according to Bill Doolittle, vice president of international operations. Most important were the expansion of the company's product line and the desire to create closer sales relationships.

The Swedish firm was purchased from Erik Ferner, who had been an HP distributor since 1955.

The new subsidiary is headquartered in Solna Centrum, near Stockholm. A branch office is maintained near Goteborg. Following the purchase on November 1, three new HP Instrument AB directors were appointed, including Hans Swedberg and John Kallstenium of Stockholm and Dick Reynolds, managing director of Hewlett-Packard S.A., Geneva.

Bill Hewlett is elected to Chrysler's board of directors

The Chrysler Corporation's directors have elected Bill Hewlett a member of the board. The election was announced at a meeting of the Chrysler board in New York on Oct. 27.

The HP president thus becomes associated with an industrial enterprise ranked by a *Fortune* magazine survey as the fifth largest in the nation last year.

The Chrysler post is the latest in a lengthening series of major industrial and institutional appointments held by Hewlett.

He is a director of the Kern County Land Company, FMC Corporation, The Rand Corporation, and the J. I. Case Company. Hewlett also serves as a trustee of Stanford University and Mills College. He is a member of the President's Science Advisory Committee, the President's General Advisory Committee on Foreign Assistance Programs, and the National Academy of Engineering.

PEOPLE ON THE MOVE

HP - PALO ALTO

George Enslow, F&T engineering staff—to physical electronics labs, HP Laboratories.

Richard Johnson, materials management staff—to customer service, Western Service Center.

Ed Kehoe, marketing staff, Microwave Division—to product training, corporate Marketing.

Phyllis Kendall, nurse, Dymec Division—to Palo Alto Personnel.

Shirley Matynack, nurse, F&T Division—to Palo Alto Personnel.

Dorothy Wilson, nurse, Microwave Division—to Palo Alto Personnel.

DYMEC

John Brawn, engineering staff, F&T Division—to production engineer, Dymec.

F&M SCIENTIFIC

Glen Suth, product support, F&T Division—to product support, F&M Scientific.

MICROWAVE

Doug Lanterman, materials purchasing—to order processing staff, Microwave.

Al Steiner, product training, corporate Marketing—to sales engineer, Microwave.

CENTRAL SALES REGION

Joe Knupp, staff engineer—to field sales engineer.

Len Petraitis, staff engineer—to field sales engineer.

EASTERN SERVICE CENTER

Dan Terpack, staff planner—to parts manager, Eastern Service Center.

HP (FRANCE)

Jacques Brugere, personnel supervisor.

Serge Prudhomme, advertising supervisor.

SANBORN

Craig McClendon, Palo Alto manufacturing engineering—to manufacturing engineering staff, Sanborn.

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from the chairman's desk

A few weeks ago we dedicated our new plant in Scotland. Bill Hewlett and I attended the affair, and we both took the opportunity to visit some of our other European operations, including our manufacturing plant in West Germany and the Geneva offices of HPSA.

We had a fine program in Edinburgh. There was a dedication ceremony, followed with tours of the plant for townspeople, and then a dinner for some of the leading citizens of the area, including Mr. William Ross, Secretary of State for Scotland.

The move from Bedford has gone very well. We have had a wonderful reception at our new location, and good reports in the press both in Scotland and England.

Great Britain is presently faced with some serious economic problems. The government has put a freeze on wages and prices, so there will be some difficulties as a result of this during the coming year. However, the acceptance of our products continues to be enthusiastic and we should have a fairly good year in Britain despite the state of the general economy.

I am sometimes asked why we place so much effort on our European market when it costs more to sell there than it does in the United States.

We are working hard in Europe because it represents a large potential market for our products, particularly those we make in the United States. This helps generate more jobs, and more profits for reinvestment, which in turn improves the opportunities for everyone in the company.

It is very gratifying to see how well known Hewlett-Packard is in Great Britain and on the European continent, principally because of the quality and usefulness of our products. As an example, two members of Parliament with whom I had dinner in London were very knowledgeable about our operations. I found this to be true in Budapest, too, where I met with several government representatives. It was also very obvious in West Berlin where I watched some of our people put in an extra-long day demonstrating HP products in a mobile laboratory for a steady stream of visitors.

Our European business now amounts to about \$30 million a year. A major share of this business is from sales of products manufactured in the United States. In view of this, one may ask the additional question as to why we have plants in Europe.

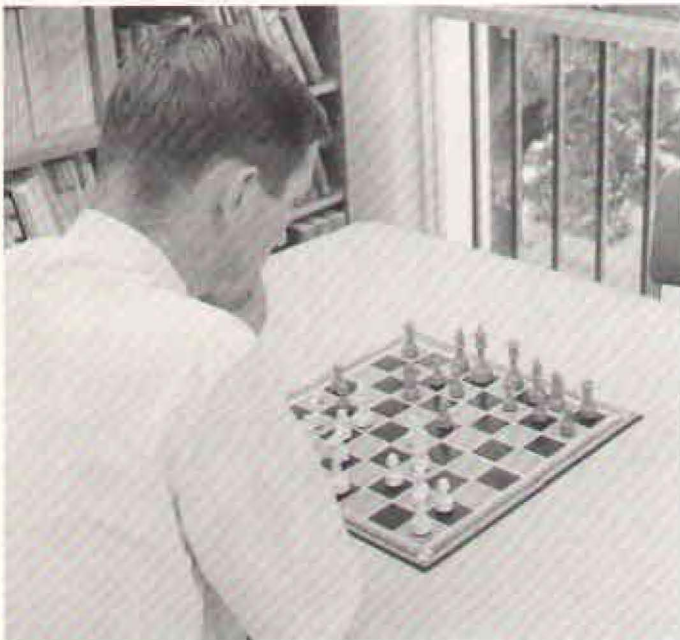
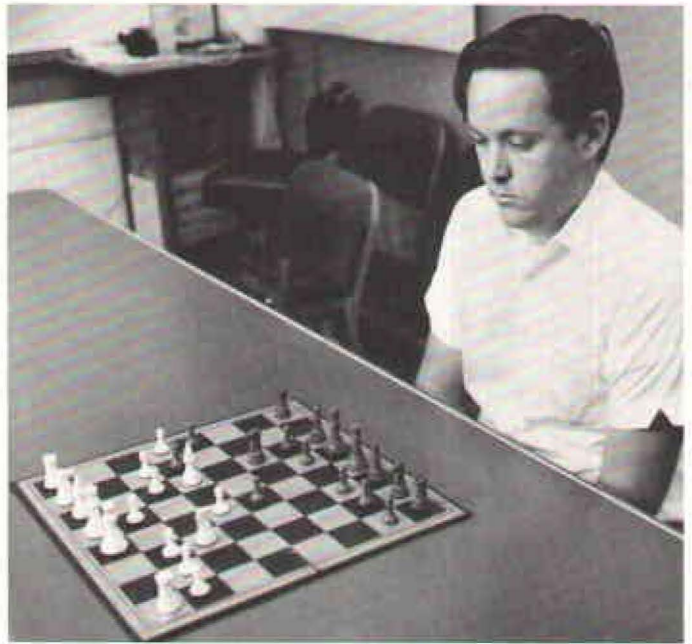
One very practical reason is that transportation and duty charges added to the prices of some U.S.-produced HP instruments tend to put them in an unfavorable competitive position with European products. This was the situation with our power supplies, for example, and by manufacturing power supplies in Germany last year, we were able to greatly extend our sales lead in this important product area.

Then, too, European governments, in some cases, will not permit import of a product if a similar one is made in that country, or they may place the duty immeasurably high to practically prohibit sale of the imported product. Therefore, there are some products in our line we would not sell at all if we did not make them in Europe.

But beyond this, we feel there are some very important intangible reasons. Our manufacturing plants in Europe create greater knowledge and awareness of our company and a broader acceptance of all our products in the European market. They also enhance the understanding and goodwill between nations, and at the same time are helping to strengthen the concept of free enterprise throughout the countries of the Free World.

David Packard

**Dynamic duo
in
divisional duel**



HP's operating divisions carry out friendly competition in many ways: competing in sales, service, products, growth, size, and in some cases even athletic contests. Now Moseley and Loveland Divisions have introduced yet another form of competition—chess-by-mail. Locked in the intense mental combat of this tourney are two of the 22 participants, Moseley's Steve Suzko, left, and Loveland's Jerry Nelson. While chess regularly can be rather time-consuming as players ponder moves, chess-by-mail sets the records for elapsed time for single games. The HP chessmen figure that some of these games may take as much as two years to complete. Since the tournament started last spring, the players have made about a dozen moves. Such blazing speed and energy are enough to keep a fellow warm all winter long.