

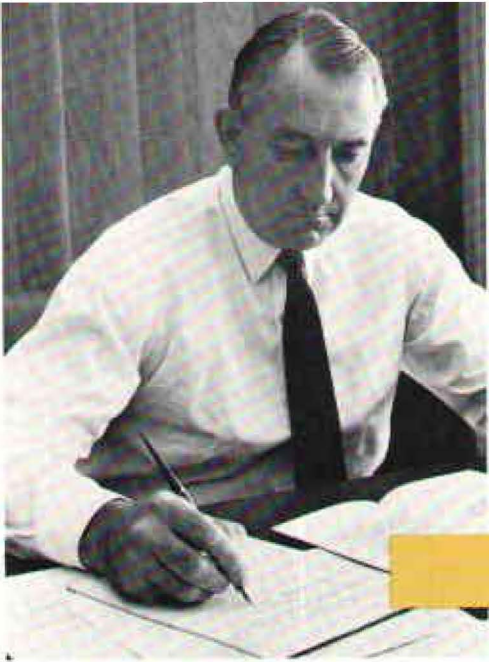
April 1964



# Measure

## In this issue

*IEEE . . . Behind the Scenes*  
*Sanborn's Transducer Division*



*from the chairman's desk*

**M**ANY OF US attended the IEEE Show the latter part of last month. It was held at the Coliseum in New York City as usual, but for the first time in many years the attendance was slightly less than the previous year.

As indicated by the report on the following pages, we had a well-planned, attractive exhibit with the entire corporate family united in a central area. Attendance at our booth was excellent. Most of the week our aisle was crowded, even at those times when attendance at other exhibits was noticeably light.

As is usually the case, our new products attracted the greatest attention, and this year we had the best group of new instruments we have had for a number of years. The show also gave our people a chance to look over competitive equipment in considerable detail. Although none of our competitors showed anything really advanced or significant, many of them introduced products which compete directly with some of our older instruments.

In summary then, the attendance was smaller, there was plenty of competition—particularly for some of our older products—but our new instruments and systems were clearly ahead of the field, more so this year than in several years past.

Reflecting on the week's activities in New York, I am convinced that we are facing a tougher, more competitive

market situation than we have encountered for some time. But I am equally convinced that it is just this type of business climate which should enable us to do relatively well. We have been concentrating for years on building strength and excellence into our company—from engineering on through manufacturing, marketing and service. This is the year wherein this established, built-in capability should hold us in good stead and actually increase our competitive lead.

I do not mean to imply we can rest on our laurels. On the contrary, it will take a substantial extra effort all along the line to keep us out front in 1964. The most important single ingredient for success in our field is new product development, and we expect everyone engaged in this activity throughout the company to work harder, use more ingenuity, and move new ideas from the incubator to the market faster and more efficiently than ever before.

Now that IEEE time is over and we begin to manufacture and sell the new instruments we have shown, it's time to plan for the next round—the WESCON Show in August. We are calling on every engineering group to accelerate its new product programs and assure that the next vintage of new instruments for WESCON is the best ever. It's not enough to merely maintain our leadership; we must extend it by a truly superior performance. The IEEE exhibit indicated to me we are well on the way.

*David Packard*



**T**HE VERDICT was unanimous among HP people who attended: *the highlight of this year's IEEE show in New York City was the big exhibit of products from the HP family of companies.*

Admittedly, not all of the other 797 exhibitors agreed with this opinion (it's suspected they may have been prejudiced), but HP has some arguments in its favor. For example, 64,000 people attended the show and a solid majority of these visited the HP booth at least once during the three days starting March 23.

And a further point. This was HP's biggest exhibit ever and the first time that all major product units of the company have displayed their wares in the same area. There was no intention to monopolize all the space, but it took two sides of a carpeted aisle 90 feet long to pack in the more than 300 different products from Boonton Radio, Dymec,



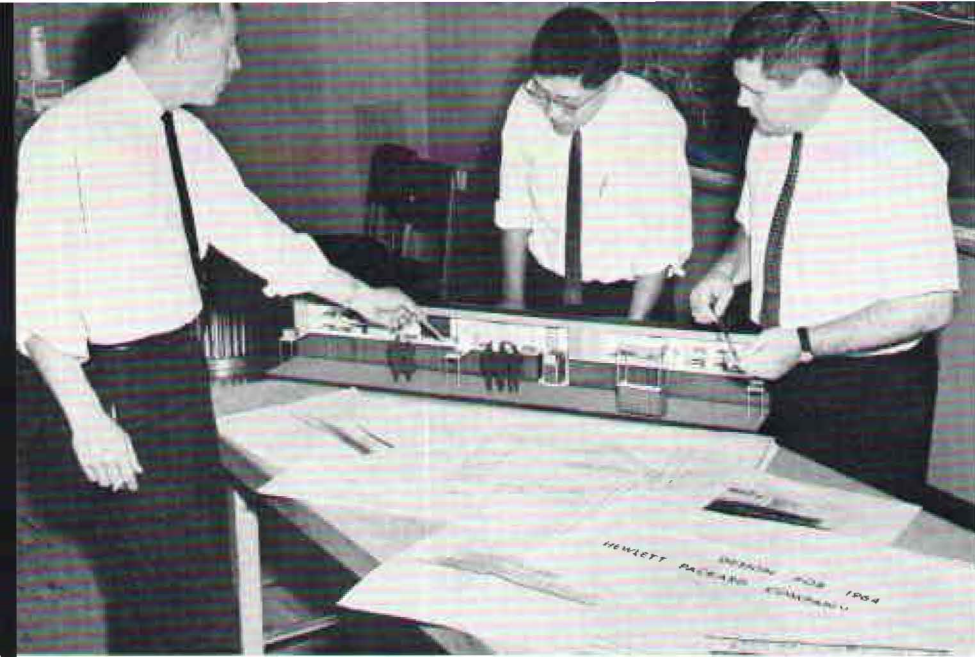
Sanborn's direct writing, optical recorder (4500 series) was one of a score of new instruments unveiled by the company.

## **IEEE: a new booth and togetherness**

Harrison Laboratories, HP Associates, Hewlett-Packard, F. L. Moseley, and Sanborn. The list of the company's new products on display would reach to your elbow.

IEEE also provided the first opportunity for the brand-new Hewlett-Packard modular-designed booth to be put to use. In fact, this 60-foot showcase was finished just in the nick of time. Building a new booth and preparing for an exhibition of such magnitude can be a grueling assignment involving months of work and many thousands of dollars in cost. The following two pages present a glimpse of what went on this year behind the scenes.





Three models were completed before booth construction got under way. Left to right: Jim Shimer of HP sales promotion department discusses possible modification with Roy Ozaki and Jack King of industrial design.



Artist at exhibit construction firm completes translucent panel to be mounted along top of booth.

**The new booth has clean lines,  
looks easy to plan and build...  
but it ain't necessarily so**

IEEE has left town for 1964 . . . the Coliseum in New York is back at its more peaceful occupation of housing political rallies and ladies' wear exhibits . . . and already HP marketing and advertising people are thinking about next year's show.

"That's the way it goes," says advertising and sales promotion manager Harry Lewenstein. "The show itself is almost an anti-climax for us. By the time we're ready to set up our booth in New York, we've already put in months and months of work."

First official inspection by company management of completed system was held two weeks before show time in Palo Alto plant cafeteria.

Major trade shows always come around in a hurry for Jim Shimer, who is in charge of coordinating HP's participation in shows.

Take this last IEEE show, for example. Shimer had the responsibility of not only coordinating the space for all company exhibits, but also of supervising the design, construction, and delivery of a unique new Hewlett-Packard display booth.

"The decision was made," says Shimer, "to create our own booth design rather than go outside as in past years. We knew what we wanted and we knew how we wanted to display our instruments—dramatically and in a way that they could be demonstrated easily."

After preliminary meetings, the Palo Alto industrial design department prepared sketches, and from these two different models were built. More meetings followed, many opin-

Transcontinental van with special racks and compartments was used to transport entire 60-foot booth in sections to New York.







Construction of intricately designed booth required skilled craftsmanship.



Near completion, large section of display booth is checked out by men from advertising and sales promotion department.

ions were obtained, and eventually a third model was built to scale using the better features of the first two.

Now back to the drawing board, this time to finish the detail drawings and prepare manufacturing specifications. The date was December 15, 1963, and one month had already elapsed. Time was slipping away.

Sanford Exhibits of San Francisco came in with the low bid for fabricating the modular booth and they began work on January 10. Exhibit construction is a very specialized business requiring a high degree of craftsmanship. For Sanford, one of the best firms of its kind on the West Coast, the 60-foot HP booth was the biggest and most complicated job it had received in a long time.

The booth is built in 2- and 4-foot wide components which can be arranged in different ways, depending on the requirements of each show. It will be used over and over again throughout 1964 and during the next several years; thus, its materials and structure are of the highest quality.

On March 2, Lewenstein, Shimer, and other members of the HP A & SP department visited Sanford's shop to make a final inspection of the assembled and nearly closed-in booth. Four days later it was carefully broken down and shipped to the Palo Alto plant. Then it was reassembled in the plant cafeteria exactly two weeks before the New York show. The shelves were filled with instruments and a preview was held, attended by a large group of HP people and customers. Briefing sessions were held for those who were going to man the booth. Then, on March 12, the exhibit was dismantled and shipped by a special moving van 3,000 miles to New York City. The van arrived at the Coliseum on the 19th and for the next two days the exhibit was assembled again. More briefing sessions for field engineers followed. On Monday, March 23, the show began and ran through the 26th.

Then, once more the entire booth was dismantled and shipped to the next town on the schedule. That's show biz!

Everyone agreed the booth made a striking appearance along HP's carpeted aisle in the New York Coliseum.





# Sanborn's versatile transducers cut energy down to

**W**HAT DO these things have in common? An earth shattering explosion of TNT . . . a barely perceptible contraction of a muscle . . . the pressure beneath the cornea of a human eye?

One answer is that they all represent forms of energy which can be measured electronically. But measuring such diverse phenomena precisely would be difficult today, if not impossible, if it weren't for a device called a transducer.

Basically, a transducer converts one form of energy into another. The microphone, for instance, converts sound into electrical energy and the loudspeaker does just the opposite. They are both forms of transducers.

Since 1956 Sanborn Company has been producing transducers which sense a physical quantity—such as a heartbeat—and translate it into an electrical signal for measurement.

It was only natural to add transducers to the product line, because all the physical quantities which Sanborn recorders measure must be presented to the recorder as analog electrical signals. By designing and producing its own transducers, Sanborn can control quality better while carrying out a sustained program to develop new transducers and improve old ones.

In 1961, a separate Transducer Division was formed as a result of the rapid growth of the original operation. The division employs 27 people and is located in a building a mile from the main plant in Waltham, Mass.

Sanborn transducers serve in many interesting ways. For instance, the "267 line" is used extensively in the catheterization of the heart. In this process a small flexible tube called a catheter is inserted into a blood vessel leading to the patient's heart. The pressure at various points in the heart is externally translated into a measurable electrical signal by a pressure transducer connected to the catheter. The position of the tip of the catheter is tracked by X-ray.

Another new and interesting line is the applanation pressure transducer which enables a physician to measure internal physiological pressures externally. To measure pressures accurately, the device must be held against a relatively thin, flexible membrane, such as the cornea of the eye.

Several Sanborn transducers are being successfully applied outside the medical field. For instance, a microforce transducer is being used by a New Hampshire manufacturer in conjunction with Sanborn recording equipment to test ball bearings. An unusual velocity transducer was recently sent to the Aberdeen Proving Ground in Maryland to measure the blast characteristics of special explosive powders. The device was designed to withstand repeated shocks and has a response time of less than ten micro-seconds.

Whether it's a subtle pressure change within the human heart or a blast from an explosion, Sanborn transducers can "cut that energy down to size" and deliver it in the form of an electrical signal for precise measurement.

Sanborn started manufacturing transducers in 1956, formed separate transducer division in 1961. As evidence of growth, test section shown here is as big as entire operation three years ago.

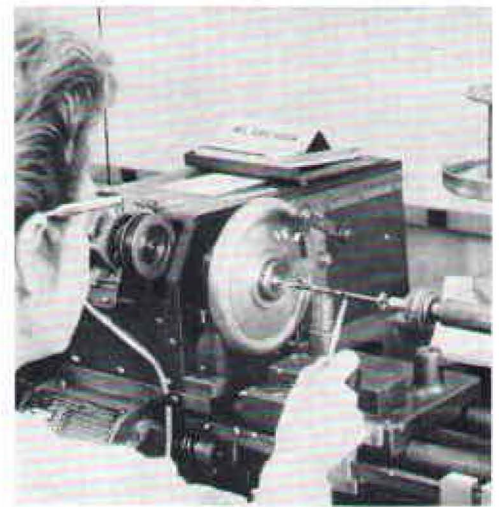




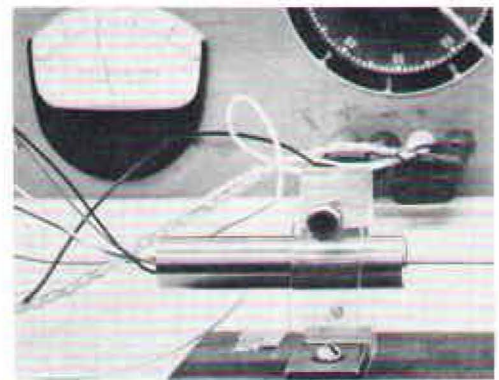
size



Tom Garber, head of transducer engineering, manager Steve Scyocurka, and assembly foreman Elroy Enman study test data on largest transducer produced to date (shown on table at left).



Above: Doris Hough winds coils for use in DC differential transducers with an expert touch. There are many kinds of transducers used for many purposes, but basically they all convert energy of one form into another form. Below: Gleaming metal tube in test rack is a DC differential transducer.





*around*



*the circuit*

BY NOEL E. PORTER, *Vice President, Operations*

**M**ARCH ORDERS continued at a relatively high level and shipments were generally good all across the board. With a strong performance in February and March plus our expectations for April, we should have an excellent second quarter—well above our first quarter's performance. While it's difficult to predict with any accuracy what will happen during the remainder of the fiscal year, we have good reason to be optimistic. If we can maintain our momentum and benefit by the usual seasonal upswing, we can wind up the year considerably ahead of 1963.

As Dave Packard points out in his letter, we had a highly successful IEEE exhibit and are now bearing down hard to have a broad array of new and significant instruments ready for WESCON.

We're devoting a lot of thought and effort to our medical instrumentation line, trying to make the most of our total corporate know-how in this promising field. We recently had a full-day meeting in Chicago with our key Sanborn medical people and then looked in on the convention of the Federation of American Societies for Experimental Biology. This group is well oriented to electronic and scientific instrumentation, and keenly interested in our products.

We're all proud of the fine "new look" that Sanborn presented at the IEEE Show. This division has developed a number of important new products and is working hard to upgrade instrument quality, strengthen its marketing and customer service functions, and generate higher profits.

At Boonton, good progress is being made in setting up the new Eastern Service Center. This major customer service facility will be operated by the Boonton Division under General Manager Bill Myers, with responsibility for overall policies and coordination with other service facilities resting with Ray Demere, customer service manager.

Our new order processing system is being successfully extended to additional sales groups. Next in line is the Southwest Sales Division, to be followed by Horman, Crossley, Bivins & Caldwell, and Stiles. Our new WATS telephone service from the Stanford plant seems to be working well and should effect a substantial reduction in our long distance telephone costs.

Construction of the new F. L. Moseley building in Pasadena is moving along rapidly. Moseley is installing an electronic data processing system similar to Loveland's, and is currently working hard to get the many new products introduced at IEEE into full-scale production.

Despite a couple of fires and other construction problems, the new oscilloscope plant at Colorado Springs is just about on schedule. The scope people plan to start moving into their new quarters this summer, and hope to be fully settled by the end of the fiscal year. On another construction front, the new Harrison Labs plant in New Jersey is all but completed and will provide this fast-growing division with an additional 45,000 square feet of space.

Looking overseas, foundations have been completed for the new Yokogawa-Hewlett-Packard facility on the outskirts of Tokyo. On the other side of the world, construction is well under way on the large addition to the GmbH plant in Boeblingen, West Germany.

We're busy on many fronts and hopefully looking forward to posting record highs in sales, production, and earnings.

### **Savings bond campaign set for April 13-24**

THE BENEFITS of buying and holding U.S. Savings Bonds will receive renewed emphasis throughout the Hewlett-Packard Company during the period of April 13 through 24.

Letters to the homes of employees at many manufacturing and sales office locations will stress the security and tax advantages of savings bonds, their competitive interest rate, and the over-all benefits to the saver and the country. Enclosed with each letter will be a convenient payroll deduction form.

Announcements on bulletin boards and posters will also point out the advantages of regular saving through the purchase of savings bonds.

The HP campaign is a part of a nation-wide savings bond drive being conducted during the month of April.





Mechrolab building in Mountain View, Calif., has modern facade and 32,000 square feet of working space.

## Mechrolab becomes new HP subsidiary



Dr. Harry C. Ehrmantraut is head of the scientific instruments firm.



Assembly of four membrane high-speed osmometers nears completion. Instruments determine molecular weights of substances.

**A**NOTHER significant step toward expansion into new fields of electronic instrumentation was announced March 17 by HP when it was revealed that the company had completed an agreement to purchase the assets of Mechrolab, Inc.

The Mountain View, Calif., firm manufactures highly sophisticated instruments for the fields of biomedicine, chemistry, and various other areas of science and industry.

Mechrolab was founded in 1959 and has shown steady growth since then. Sales in 1963 were approximately \$1 million. The plant and office building, a modern one-and-a-half-story structure with 32,000 square feet of usable space, is located at 1062 Linda Vista Avenue in Mountain View, just a few miles south of HP's Stanford complex.

Two of the company's principal products are vapor pressure and automatic membrane-type osmometers. Both instruments are used by a wide range of industries, universities, hospitals, and government agencies for determining molecular weights of substances, especially polymers.

The company also manufactures a blood clot timer, widely used in clinical laboratories. The instrument automates the process of determining coagulation data, a vital test procedure formerly done by technicians who agitated blood samples by hand and noted clotting time with a stop watch.

An auto-manometer is another of Mechrolab's products.

This instrument is used to automatically determine and measure various types of gases present in liquids.

The new subsidiary has 55 employees and is headed by Dr. Harry C. Ehrmantraut, president. Other management officials include: Joe Gentile, executive assistant to the president and treasurer; Sydney Greenberg, director of research; Gale Hallett, director of marketing; David Hogan, product line manager (biomedical); Jim Rankin, product line manager (chemical); Art Turnbull, production manager; Bill Walker, engineering manager; and Vern Whitlock, quality assurance manager.



## Familiar faces... some words on citizenship



PRESIDENT LYNDON JOHNSON and Dave Packard met for the second time late in January when The Business Council conferred with the President in Washington, D.C., to discuss various important issues affecting the business and economic life of the nation.

The subject of equal employment opportunity was a key matter on the meeting agenda, along with unemployment and taxes. HP's policy on fair employment was typical of that found among companies represented on The Business Council, and it was re-emphasized in a memo to all HP management from Dave Packard.

In part the memo said: "It is well to remind ourselves of our corporate objectives of maintaining good citizenship and of recognizing the personal worth of employees. These two objectives are particularly fitting for the long-standing and current problems relating to minority groups.

"Historically, HP has had a non-discrimination policy applying to hiring and subsequent personnel actions relating to employees. We must continue to make every effort to minimize any possibilities of discrimination, not only because it is good corporate business, but it is our responsibility as citizens.

"There is nothing in our policies or practices to indicate that we will lower our standards or favor any person who is not qualified. We will consider all applicants who are qualified regardless of their race, color, sex, creed, or national origin."

### **HPIA now in operation**

ON APRIL 17 a new international company—Hewlett-Packard Inter-Americas—became fully operational, with Tom Christiansen at the tiller.

In announcing the new Palo Alto-based organization, International Vice President Bill Doolittle said that HPIA will promote the sale of all products in Canada, Central and South America. "Among other things, it will have responsibility for developing strong, technically competent distributors and training their field and service personnel. In general, it will provide the same services to our entire corporation that HPSA has provided in Europe for the past five years."

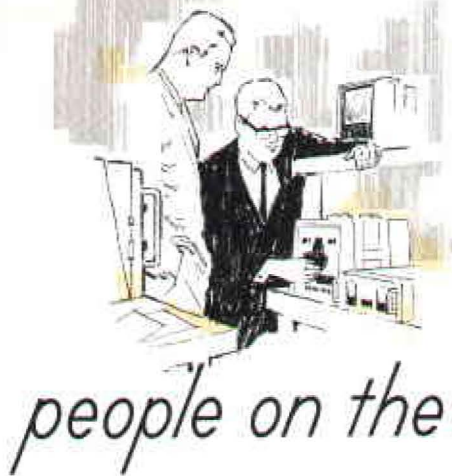
### **New quarters for VmbH**

HP'S GERMAN sales organization recently moved its main office in Frankfurt to a new building on the outskirts of the city. The 40 employees there now have about 8,000 square feet of office space to help carry out their work in selling to industry and the government in West Germany.

VmbH has 15 other employees at branches in Hamburg and Munich. Since it was established in 1959, the firm's sales have increased tremendously. Joe de Vos is manager.

The full name of the company is seldom spelled out, but for those who are curious, HP VmbH means Hewlett-Packard Vertriebsgesellschaft mit beschränkter Haftung. In English, that means Hewlett-Packard Sales Company, Ltd.





### HP PALO ALTO

**Ben Aleszka**, in-plant engineering, Oscilloscope Division—to service test engineer, repair section, Customer Service.

**Dick Cline**, sales manager, Oscilloscope Division—to marketing manager, Oscilloscope Division.

**Bob Deitz**, central process engineering—to R&D staff, Oscilloscope Division.

**Jack Olney**, credit manager, Palo Alto finance—to credit manager, corporate finance.

**Charles Thompson**, central tool engineering—to Microwave tool engineering.

**William Wesolowski**, central tool engineering—to Microwave tool engineering.

### HP ASSOCIATES

**Don A. Smith**, manager, special products, Microwave Electronics,

Palo Alto—to administrative assistant to Director of R&D, HP Associates.

**Robert J. Picha**, equipment engineering, Raytheon Semiconductor, Mountain View—to equipment engineering, HP Associates.

### INTERNATIONAL

**Franco Mariotti**, field engineer, HPSA—to manager, Hewlett-Packard Italiana S.p.A.

### SANBORN

**Thomas Myette**, systems analyst, Systems Department—to staff assistant, Materials and Scheduling Department.

### NEELY

**Leon Hamner**, electronic engineer, General Dynamics, Pomona—to staff engineer, North Hollywood office.

## Packard, Hewlett named to new executive posts

THE HP board of directors, meeting in New York on March 26, elected company co-founders Dave Packard and Bill Hewlett to new executive positions.

Packard moves from president to chairman of the board and chief executive officer, a newly created post. Hewlett, formerly executive vice president, becomes president. The board noted that the new positions reflect "the growing magnitude of the company's world-wide operations."

Since founding HP as a partnership 25 years ago, Packard and Hewlett have been continuously active in its management. Packard has served as president since the company was incorporated in 1947, while Hewlett served as vice president from 1947 until his election as executive vice president in 1957. Both are also active in a number of professional, educational, and civic organizations, and serve as directors of many well-known business firms.

A few days prior to the board announcement, Packard was named by the United States Steel Corporation as a candidate for election to its board of directors. He also was recently elected to the board of General Dynamics Corporation.

# Measure

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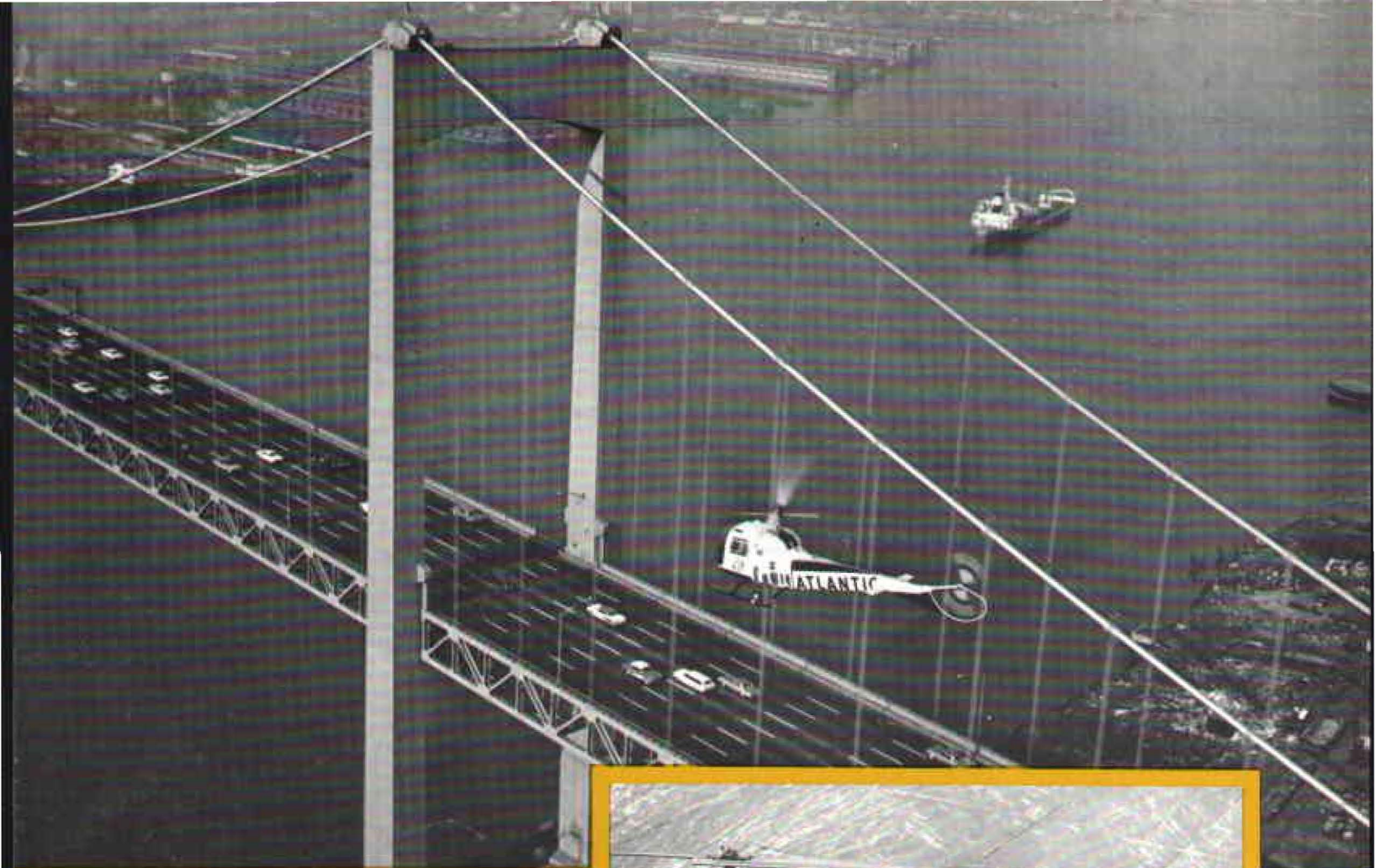
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"I often say that when you can measure what you are speaking about, and express it in numbers, you know something about it; but when you cannot measure it, when you cannot express it in numbers, your knowledge is of a meager and unsatisfactory kind . . ." LORD KELVIN (1824-1907)





## "GO PATROL"

### UNKNOTS

### PHILLY TRAFFIC

HELICOPTERS rise above traffic tie-ups in the Philadelphia-Camden area, and their crews relay advice to motorists via rebroadcast on local radio stations. The helicopters, supplied by Atlantic Refining Company, transmit to the stations at 450 megacycles. Radio frequency bands are nearly as crowded as the highways these days, and the FCC requires rigid accuracy on frequency transmissions. The Robinson Sales Division provided station WIP with an HP 5245L counter to assist station personnel calibrate the receiver. The accuracy and versatility of the counter made a hit with the technicians, and so the broadcasts continue daily and traffic in town flows smooth as silk—sometimes. Pictured at right are helicopters, ground support equipment, and personnel involved in Philadelphia's "Go Patrol."

