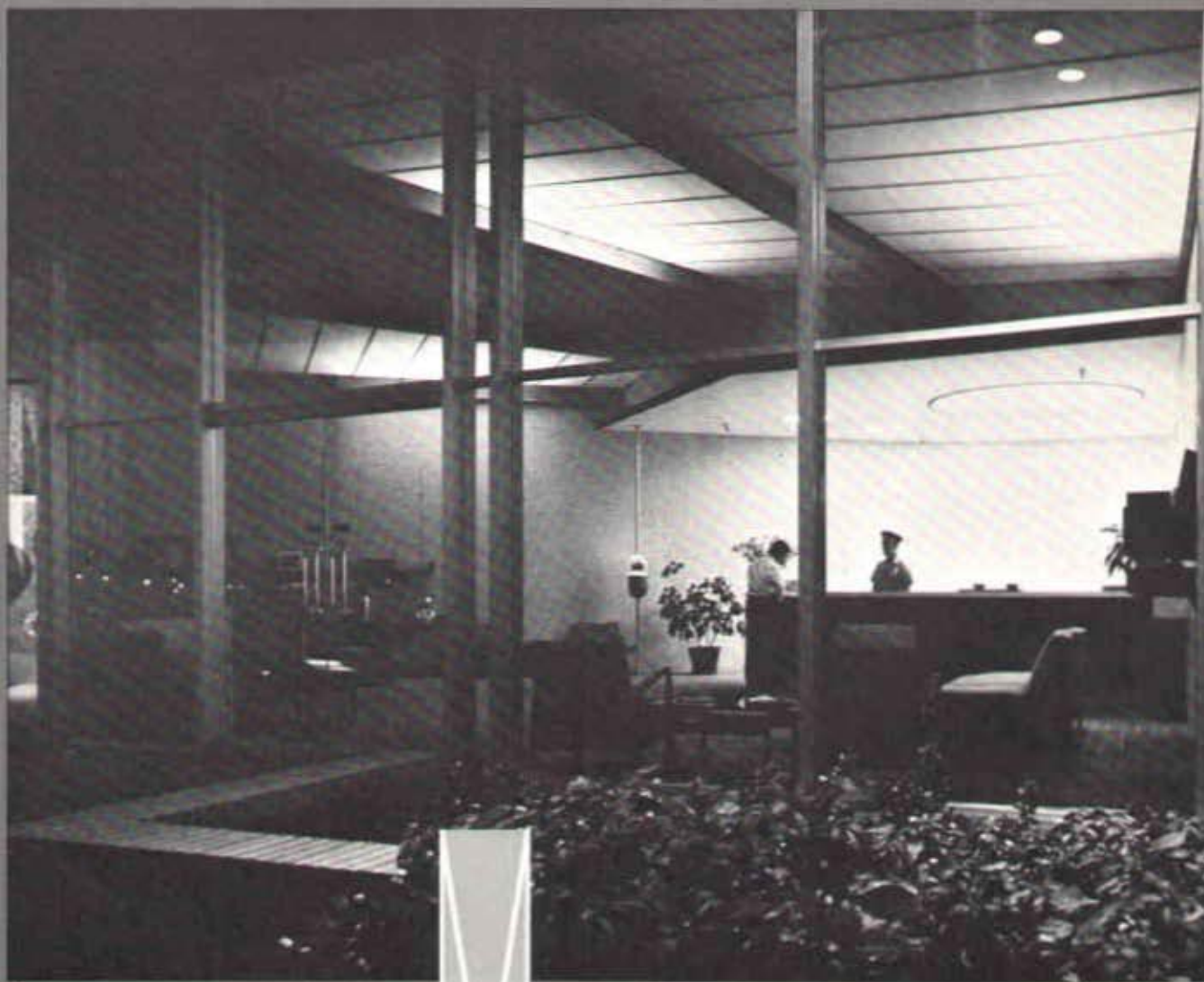


November 1965



# M e a s u r e

**In this issue**

*One night at HP*

*Dynec in perspective*



## One night at HP

At night, an HP plant is a study in contrasts. The darkened parking lot gives way to the brilliantly lit laboratory. Over the stillness of a warehouse, the rhythmic clatter of a milling machine can be heard a distance away. A swing shift crew in a production area appears especially cheerful and alert. A supervisor—clad in slacks and sport shirt, and perhaps a little weary from the day—returns to the plant after dinner at home. Uniformed guards lend an air of authority while making their rounds. And the inevitable clean-up crews perform their magic as they put everything in order for the new day. The night is rich with activity at many HP locations—activity which seems a little different than during the daylight hours, a little more informal. On these pages is a photo essay, showing the company that never sleeps.

*... sometimes there just aren't  
enough daylight hours to get  
a job done*



*... seemingly lost in a sea of  
empty desks, this man finds the  
lonely atmosphere ideal  
for concentration*



*... a rush job—or maybe an idea that couldn't wait for morning—brings this young engineer back to his drawing board*



*... at day's end, an empty manufacturing line serves as a training area*

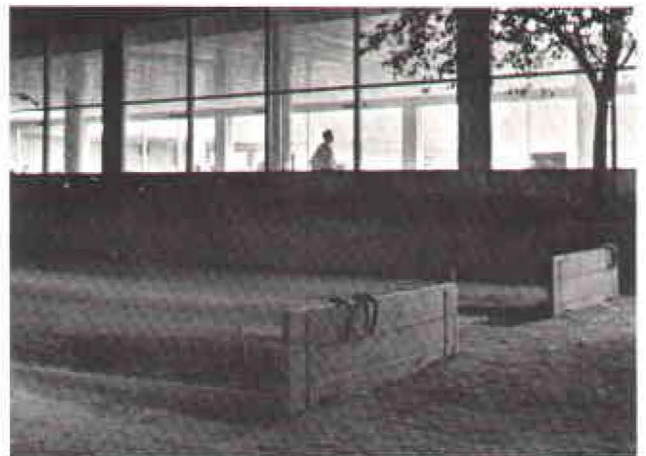
*... a machinist, on swing shift duty, works in unaccustomed quiet*



*... inventory withdrawals and receipts are posted on Purchasing's file cards each night*



*... beyond a lonely recreation area, the plant presents a cheery sight*





Noel E. Porter, Vice President, Operations

**F**ISCAL 1965 WAS A BANNER YEAR. In both orders and shipments we exceeded our targets significantly, and our net profit was way up over fiscal '64.

As we move into the new year, the domestic order picture continues very strong. This is true both for our general commercial markets and the government sector. We booked some large government orders this past year and expect to continue to do so during fiscal '66. Our international business is holding up well, and continuing to grow at a faster rate than domestic. We expect international to account for about 25% of our total orders in '66. □ While part of our top performance can be attributed to the general high level of our national economy (brought about to some extent by Vietnam), a much larger share is the result of our new product effort.

Our engineering groups, both at the divisional and corporate level, are continuing to strengthen their capabilities for new product and new market growth, and a strong recruitment program is underway to attract the best talent from many of the major centers of higher learning in the Free World.

Diversification is a key element in our continued growth. To broaden our base in the promising area of chemical instrumentation, we have recently consolidated the Mechrolab product line into the F&M Scientific division. And, we chalked up a first a few weeks ago when we displayed our new line of analog magnetic tape systems at a technical meeting in Miami.

In addition to these areas, we are making some significant strides in the field of scientific and technical data processing applications through the combined efforts of Dymec, Datamec, and ICM. During this past year, we also announced our entry into the nuclear instrumentation field, one with good long-term growth possibilities.

□ Other fiscal 1965 achievements included continuation of Marketing's program to consolidate geographic sales areas into regions and completion of our automatic order processing system which now ties in all of our major field sales offices with all of the manufacturing facilities.

In the manufacturing area, we have continued to improve efficiency by developing better methods and procedures, by modernization of machinery and equipment, and with the use of new numerically controlled machine tools. These efficiencies have led to significant reductions in our overhead

## All signs point to another banner year

costs. We want to continue this program during fiscal 1966, and intend to spend a substantial amount of money for new machinery and other equipment, and for manufacturing processes including microcircuitry.

As the story on page 10 of this issue indicates, our new plant construction and plant modification programs are going at a furious pace. In order to keep up with our growth, we are having to add rather large "hunks" (100,000 sq. ft. or more) to make any sizeable dent in space requirements. More than half a million square feet of new floor space is now under construction at HP facilities in various parts of the world.

□ This growth brings with it a high degree of complexity in management and future planning responsibilities. Short and long range planning is receiving considerable emphasis at both the corporate and divisional level. All in all, it's a bright and fascinating challenge to be in a business that is so closely coupled with the fast moving and fast changing technological world in which we live.

We are now a few days into fiscal 1966, and the future looks great. Our targets for the new year have been set, and they conservatively indicate significant gains over 1965. If we exceed these new targets (as we did our targets for '65), we'll ring up another winner. ◀



## Mechrolab to move East

In a move to combine related lines of HP products, the Mechrolab Division will join forces with F & M Scientific Division in Avondale, Pa.

Mechrolab, now located in Mountain View, Calif., produces osmometers, automated viscometers, and other instruments for chemical and physical analysis. It was acquired by Hewlett-Packard early in 1964 and became a division shortly thereafter.

The transfer of Mechrolab operations to Avondale will take place during the next few months. Included among those members of the Mechrolab management and research teams who will join F & M are Art Turnbull, Tom Whatley, Chris Schick, Pete Chiesa, and George Bogart. John Cage, who has been serving as division manager, will remain in the Palo Alto area for reassignment to other HP management responsibilities. The remainder of the division's 55 people will join other Hewlett-Packard operations in the San Francisco Peninsula area.

F & M Scientific is one of the country's leading producers of gas chromatographs. This line of instruments is used extensively in the fields of chemistry and biomedicine for the analysis of compounds. F & M is firmly established in the markets where osmometers, viscometers, and other Mechrolab instruments are sold.

Production of the full Mechrolab line of instruments at Avondale is expected to get underway early in 1966. The consolidated operation will be directed by Frank W. Martinez, Jr. who founded F & M Scientific in 1957 and has served as division manager since his company joined HP in August.

## MEASURE gets a report card

In August a questionnaire designed to sample readership attitudes toward MEASURE was sent in a random mailing to one out of every ten HP employees in the United States.

The returns have now been tabulated, providing MEASURE editors with valuable information about the magazine and the people who read it. For instance, 97% of those who replied reported that the magazine is available each issue. But as would be expected, not everyone reads or reacts the same to each issue.

According to the survey, 86% "read every issue" and 14% are "occasional readers." To the question "How much of MEASURE do you read," 10% said some, 53% said most, and 37% said all.

Opinion on what kind of article is most interesting is definite among those surveyed. Articles on company plans for the future lead the way with 99% rating them as either interesting or very interesting. Next come news reports on how the company is doing and close behind are articles on company growth, new products, and product applications. Lowest scores were given to general news.

Several questions, asked for statistical purposes, provided interesting information on HP employees. Educationally the survey group (and probably the entire company) breaks down as follows: 10% college post graduates, 16% college graduates, 36% some college, 28% high school graduates, and 10% some high school.

Jobwise, 42% work in manufacturing, 19% engineering, 15% marketing, 12% administration, and 12% services and other jobs.

And here's good news for HP women. The men outnumber you two to one.



### New HP recorder has plug-ins for its plug-ins

Plug-in electronic modules for HP's new 1½-megacycle magnetic tape recorder have plug-ins nested within. Each of these is a press-bar to select desired play-back mode. Clever design by Microwave Division helps make recorders much less costly than others of comparable performance.





## HP Perspective: Dymec Division



### "We've got a lot going for us"

**D**YNAMIC DYMEC IS A MAJOR HP division which, almost to the man, is irrepressibly optimistic, and proud of it. And for sound reasons too. The past has favored Dymec, the present looks good in most every area, and the future is filled with promise.

□ Are these glowing terms of praise? You bet, but you can't tell the story of Dymec without getting caught up by the contagious enthusiasm of these people. They're individualists, to be sure. Not that they don't pride themselves on being a solid pillar in the HP organization, but they just as fervently protect their divisional identity.

In a way this is a surprising quality because Dymec—at least product-wise—is uniquely tied to nearly all HP divisions. Data acquisition, microwave, and data processing systems have been made up of instruments and components from as many as six other divisions. As one Dymec manager put it: "Our products are getting to be corporate systems."

□ The electronic systems business has been traditionally less profitable than the individual components and instruments business. Since several instruments may go into a system, manufacturing, assembly and checkout costs can be relatively high. In the past, many systems were custom-built for customers, which eliminates some of the economic benefits of mass production. And, it's a competitive business (Dymec has at least four or five major competitors for any line) which means that potential customers can shop.

But Dymec is rapidly turning the tables on such generalizations. In just the last year, changes in the manufacturing operation have brought dramatic results. New methods of handling materials, computerized production control, and new tooling methods have been introduced. The entire physical operation is presently being consolidated from four locations to one integrated operation.

The payoff to these moves has not been far behind and is expected to be even greater when the consolidation is complete in December. Manufacturing costs already have been reduced; productivity is up; quality has improved all along

the line. Ask people in manufacturing how this was accomplished and they'll tell you "through tender, loving care."

The marketing people are just as proud of their advances and success in improving efficiency and increasing sales. Much credit is given to the HP field sales organization which, in the words of one marketing man, "gives us the best coverage of any systems manufacturer in the country. Most competitors sell from the factory, but our sales divisions are out there where the action is." In the last five years, Dymec sales have doubled and this trend is expected through the next five years.

□ Working hand in glove with engineering and manufacturing, Dymec marketing people are determined to convince customers that Dymec does their total job, even to installing the system in customers' plants.

Being able to do the total job is related to one of Dymec's most important contributions to the systems business. The division has brought standardization to systems, providing customers with a single source of supply, and making it possible for them to order a complete system for a specific need from a data sheet. These customers can include almost anyone who must gather, record, and process data from one or several points with speed, accuracy, and economy. Heavy industry, laboratories, aerospace prime contractors, and universities represent major classes of users.

□ To the question "what makes Dymec run" there is but one answer—people, all 460 of them. With deep conviction one department head said: "We hire the best. We take great care in screening, interviewing, and testing. We stress skills. In a sense, everybody in the division is in training. We want to excel." Discounting divisional pride such statements represent, it's hard to argue with fact. Dymec's employee turnover rate is only one-sixth the rate of the electronics industry as a whole.

Division Manager Bob Grimm sums it up pretty well: "Our people are flexible, dedicated, and able to get the job done fast. Thanks to them, we've got a lot going for us." ◀





In a cryogenic temperature experiment with liquid nitrogen, Al Benjaminson, manager of transducer engineering, uses a new quartz thermometer (on shelf above) for ultra-precise measurement.



A Dymec digital data plotting system with a Data-mec tape transport is tested by Jim McCabe.



In production checkout facility, individual instruments and entire systems are assembled and tested.



A customer's systems requirements get careful study by this marketing group. Left to right: Nino Mateos and Don Willett, application engineers, and Lee Egberman, regional sales manager.

Project Engineer Gil Seymour checks out an element in a complex Doppler tracking system which combines products of several divisions.



Busy administrative section shows Dorcas Higashiuchi at the files, Nancy Thoman in right foreground.

Management staff meets weekly. Left to right, seated: Frank Westley, personnel; Kay Magleby, special engineering projects; Bill Sayre, accounting; Bill Gross, sales; and Frank Wheeler, manufacturing. Standing: Bob Grimm, gen. mgr.; and Don Loughry, development engineering.





*in this age of scientific discovery and fast changing*

## **How good are patents?**

Patent Attorney John Chognard holds a wire resistor wound on an elastic core. The diameter of the core is reduced after winding to relieve stresses on the wire. The patent has just been granted. Invented by John Hoyte, in corporate process engineering, the invention was searched by the U.S. Patent Office which found that a related patent was filed in 1877.





OVER THE YEARS, HEWLETT-PACKARD has been granted over two hundred patents by the United States Patent Office. This is rather impressive if only from the standpoint that it proves HP people are highly inventive. □ But what else does it mean for the company to hold patents? What are they and what do they do for HP? These and other questions were put to the company's chief patent attorney, John Chognard, and his answers were enlightening, sometimes surprising.

First off, the handbooks say that a patent is a grant by the United States giving an inventor the right to keep others from making, using, or selling his invention in this country. It is a printed document providing a description of the invention and spelling out in the claims that which distinguishes the invention from anything else ever patented. The term for patents is 17 years, after which the invention passes to the public domain.

"There's plenty of misunderstanding about patents," says Chognard. "A lot of people think they give you a monopoly—or that they are an iron clad guarantee that the wolves will stay away from your door. It just isn't true."

As he points out, a patent reduces but doesn't eliminate the chances of your ideas being stolen—and when they are, it's not always worth the time and effort to take the culprit to court.

Of even greater importance is the effect of modern-day research and development efforts by industry, schools, and the government. Things are moving so fast that an invention can be obsolete before its patent application is approved in Washington.

□ So why bother? In Chognard's words, what you do with patents depends on the kind of business you're in. If you're in an industry with a narrow product line and where little research is being done, then a patent is like a six shooter and you can hold everybody at bay. On the other hand, if you have a diversified, complicated line like Hewlett-Packard, a patent can be used as a bargaining tool. You can license the patent to other manufacturers and draw royalties. Or you can trade-off with other companies. You let them use your new invention if they'll let you use theirs. Everyone comes out ahead—especially your customers, who get a better product.

Chognard places great emphasis on the point that patents

serve different companies in different ways. The field of electronic instrumentation presents unique problems for the patent attorney because of its advancing technology and the complexity of its products. An HP instrument may involve the use of as many as a dozen patents covering components and circuitry. A new drug, on the other hand, often involves a single patent.

The number of patents a company holds, says Chognard, is usually related to the amount of research and development it carries out. "Generally, the company that does 5% of the research in a field has 5% of the patents."

At present, Hewlett-Packard is filing about 75 patent applications a year. Each application may take as little as two or as much as ten years before allowance by the U.S. Patent Office. Before an application is filed, Chognard and his staff of three attorneys will conduct a preliminary patent search to make sure the invention has not been previously patented. Often they will find several related patents. If this occurs, they must study each one to verify that the HP invention is significantly different from all the others and that it is not something which would be obvious to anyone expert in the field of the invention.

□ The application consists of formal papers (a petition, a power of attorney, and an oath), specifications of the invention, and the claims. An examiner at the U.S. Patent Office will check the application to see if it fulfills requirements and then he will conduct his own patent search. On the basis of this, he may allow all claims, reject some of them, or reject all of them. If all claims are allowed, the application can move on through the Patent Office with a minimum of trouble.

However, in the case of a complicated invention with many claims, it is likely that the examiner will locate prior patents which may lead him to reject one or more claims. If this occurs, then Chognard's group must file an amendment within four months and hope for a favorable ruling. A considerable amount of correspondence can flow between HP's patent group in Palo Alto and the U.S. Patent Office in Washington before the invention is fully protected.

In spite of the fact that they aren't an impregnable shield against infringement, and that they may be made obsolete by new inventions, patents are still essential to a research-minded organization like Hewlett-Packard. ◀



## PEOPLE ON THE MOVE

### HP PALO ALTO

**Sherman Davis**, plant engineering — to engineering and construction.

### COLORADO SPRINGS

**Jim Brockmeier**, service engineering—to applications engineer, Colorado Springs Division.

### DYMEC

**Aldo Falossi**, applications engineer—to regional sales engineer.

### FREQUENCY & TIME

**Johnny Morton**, F&T production manager—to manufacturing manager.

### MICROWAVE

**James Green**, corporate environmental test—to environmental test, Microwave Division.

**Walt Noble**, corporate customer service—to engineering staff, Microwave Division.

**Alan Steiner**, materials management—to engineering staff, Microwave Division.

### EASTERN SALES REGION

**Rod Foley**, branch manager, Englewood office (RMC)—to area manager, Syracuse.

**Stu Yellen**, field engineer, New York office (RMC)—to branch manager, Englewood.

## HP's biggest construction program moves ahead



## at home and overseas

□ New buildings which will add more than a half-million square feet of working space are now under construction at HP locations in the U.S. and overseas.

In the Palo Alto area, five units are in various stages of construction or modification. The largest of the projects is taking place at the Stanford complex where Building 5 and adjoining Building 6A are being readied for occupancy early in 1966. They will provide a combined total of 175,000 square feet of floor space.

Building 5, the only three-level structure in the complex, will house Microwave Division administrative operations on the top floor and the Western Service Center plus a large meeting room on the second level. The bottom floor will connect with present Building 4A (Mole Hall) and new Building 6A. All three of these areas will be used for warehousing.

Nearby, on Porter Drive in Stanford Industrial Park, a new 44,000-square-foot facility is only a month away from completion. Called Building 15, the single level, flat-roof structure will house Paeco transformer manufacturing and the new printed circuit manufacturing operation.

□ That portion of the building on Page Mill Road now occupied by Paeco is being remodeled and enlarged by 8,000 square feet for use by HP Associates. This project will be completed shortly after Paeco moves across the park to Building 15 in January.

A year from now, HP's Datamec Division will move four blocks south of its present plant on Middlefield Road in Mountain View. Plans call for a new one-story pre-cast con-

crete building providing 65,000 square feet of floor space on a 17-acre lot.

The Loveland Division construction program is moving on as planned in Colorado. Work started in September on Unit B, a near-duplicate of Unit A completed three years ago. When the building is finished next summer, it will provide 121,000 square feet of space for manufacturing, warehousing, and a cafeteria.

□ In the East, architects are drawing plans for a 20,000-square-foot addition to the F & M Scientific Division plant at Avondale, Pa. The new space is needed to house Mechrolab operations and provide additional space for F & M (see page 5.)

Plant remodeling at Sanborn Division in Waltham, Mass., is nearly complete. Lighting and air conditioning have been greatly improved along with a general upgrading of manufacturing areas.

Construction is moving ahead at the big new plant at South Queensferry, Scotland. The 91,000-square-foot building is the first unit of a three-phase complex which will eventually provide 250,000 square feet of working space (drawing shown above) for HP's United Kingdom operation. The present operation at Bedford, England, will be moved to South Queensferry in stages beginning next April.

As at most HP locations, the Paris sales office is feeling growing pains. A small addition will soon be completed there, along with remodeling. ◀





*from the chairman's desk*

**W**E HAVE JUST COMPLETED one of the most successful and interesting years in the history of the company. It was a period of growth and change, one in which we expanded our product line and markets, strengthened our organizational structure, increased our operating efficiency, and achieved good gains in orders, shipments, and earnings. Although specific figures are not yet available, we will be reporting these in due course.

As we move into fiscal 1966, I am confident that we will have another good year. Business conditions are generally favorable, and we expect the demand for our products to increase appreciably over 1965.

In setting our plans and objectives for the new year, we are devoting a good deal of attention to personnel development. As we have often pointed out, the key to our success is *people*, and certainly this is truer today than ever before. The targets we have established for 1966 indicate a continuing high rate of growth, but this can only be accomplished if we have capable people in all phases of our operation—engineering, manufacturing, marketing, and administration.

While we intend to broaden and supplement the various training programs available within the company, this is only part of the answer to meeting the need for qualified people. The larger and more important part is self-development, the effort each of us makes to increase his own skills and knowledge so he can assume greater responsibility.

There are countless opportunities both inside and outside the company for an individual to broaden himself. Through in-plant training programs, through night school, through correspondence courses and individual study programs he can sharpen his skills and increase his effectiveness in his present job. In addition, he can extend his total capabilities and become better equipped to move on to more important and rewarding jobs.

To some, self-development through education is an unnecessary sacrifice; to others, it represents an opportunity for increased contribution and greater personal satisfaction. To some, it is dull and unrewarding; to others, it is an exciting adventure filled with challenge and promise for the future. What you make of it is largely up to you.

In the years ahead there will be an increasing and critical need throughout our company for good people in every job—people who are versatile, creative, productive, adaptable to change, and who have the essential qualities of leadership and imagination so necessary to a rapidly expanding business. I hope that each of you will recognize this need, and the opportunity it affords for personal growth and achievement.

*David Packard*

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# Measure

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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)





*It is night and a lone engineer is totally engrossed in a problem left unsolved in the daytime hours. The time is for thinking and the neatly stacked chairs in a darkened cafeteria seem to add to the hush of the evening. It happened one night —it can happen any night at HP.*