Measure

For the men and women of Hewlett-Packard/APRIL 1974

Your share in HP profit sharing growth:

a philosophy
a formula
a reality...

*When the first half's profit sharing checks are handed out
next month, it might be interesting to study the reactions of some
of the people around you: Will their checks be received as if they were
totally unexpected—a surprise "gift"? Or will they be pocketed
as if profit sharing is a totally expected benefit?
Frankly, both reactions would be off target.*

There is nothing that guarantees there will always be profits to share. Nor is profit sharing a gift that might be offered one time and, regardless of circumstances, taken away the next. Profit sharing at Hewlett-Packard is both a philosophy and a formula.

The philosophy says that since employees have a vital role in the profitability of the company, they should also have a stake in its profits. To that end, 12 percent of operating profits before taxes are distributed as cash profit sharing, and in the U.S. ten percent of U.S. profits before taxes are placed in the profit-sharing retirement plan of U.S. employees. Other percentages go to taxes, to investors (many of them employees), and to finance future growth and opportunity for all HP people. The philosophy further says that all parts of the company share equally in profits, in spite of individual variations in profit levels from division to division. In any one year some divisions experience downturns in particular markets, while some others must make heavy commitments to finance future growth, thus making that year less profitable for them. In this way, a general manager such as Santa Clara's Al Bagley can say: "Last year was different. We were not a drag on anyone (in the company). In 1973, Santa Clara was out in front pulling more than our share of the load and helping the outfits who, for various reasons, were not faring quite as well. This is especially gratifying to those of us who can remember those years when this division was not doing as well as the rest of the company, and it was no

fun to realize that we were being carried by the earnings of other divisions."

The formula sets the percentage of profits that will be allocated both for cash profit sharing and the retirement profit sharing programs.

When the earnings for the first half of 1974 are known later next month, for example, Corporate Accounting's George Grammater will establish the cash profit sharing figure by making the following calculations: Using the pre-tax earnings total, he will subtract all items classified as "extraordinary" non-recurring items; these are earnings resulting from such activities as selling surplus properties or from currency revaluations, that do not flow from our normal manufacturing and selling operations. What is now left is the "operating profit." This becomes the base. George then sets aside 12 percent of that base as the amount to be shared. By dividing this amount into the payroll of the eligible participants he can then tell you the percentage of your semi-annual pay you will receive, providing you have become eligible by service of at least six months. George will perform the same calculations late in November to establish the second-half cash profit sharing.

At year end he also calculates the company's contribution to the profit-sharing retirement program. Because this is a U.S. program (other countries have equivalents or alternatives), George will start with the domestic U.S. pre-tax earnings, exclude the extraordinary items, deduct for state income and franchise taxes, then take out 10 percent of the remaining

amount as the retirement contribution. Employees begin their participation in the retirement program during their fourth year with the company, their vested share of the total fund value increasing at a rate of 10 percent per year until fully vested at the end of 13 years' service.

Now for the big IF: All of the foregoing things happen—if the company makes a profit—an operating profit. And the bigger the operating profit, the bigger the profit sharing.

The prime question, of course, is the one that asks whether our individual efforts at improved efficiency and savings on the job have a real bearing on what we get back in shared profits.

There again, the figures tell the story: Had we held operating costs versus sales in 1973 to the same ratio as 1972, we would have added some $4 million to the base figure, approximately $500,000 to cash profit sharing, and nearly $400,000 to the retirement fund.

Can we get back to the more favorable ratio range—or better—in 1974? Management has a prime responsibility here, and in 1974 concentrated attention is being given to improving our control of inventories, avoiding over-hiring, reducing receivables (what customers owe us), and keeping over-time to a minimum. But individually and collectively, HP people can exert great influence in the same direction. A lot of people are working very hard at that this year, as the following examples testify:

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Bill Vance carefully plans his travels around a large Midwest sales territory that includes many smaller accounts.

profit sharing

Gotta know the territory...

The image of the successful salesman as a self-starter is true! More than most other professionals, he's on his own as to where, when and with whom he will spend his day. Planning the most efficient use of his time, in fact, is the single most important effort he can make—over and above exercising his pure ability to sell—in improving the profitability of his coverage. Some idea of what that means may be seen in the approach to sales planning taken by Bill Vance, a senior Electronic Products field engineer out of the Skokie, Illinois, office: "I've divided the territory into five or six routes, each of which has a set of well-established accounts as well as potential new prospects. That way I can make the rounds with a minimum of dead time. The business here is mainly smaller accounts so I can't afford to drive long distances without calling on a number of good prospects. And I make sure I end the day at a big center where there are plenty of options to spend time with customers.

"I also try to make a sale without first having to come back with a demonstration unit. I suggest that in the interest of saving their time, the customer could commit to the purchase, and trust to the operation of the purchased instrument. They are going to do that anyway, and if it doesn't perform to their needs we will of course make it good.

"But overall, I attempt to think in terms of profitability to HP. Our first job is to help solve a customer's problem as efficiently as possible. But there's nothing wrong in being aware of the profitability of a sale and giving it an extra push."

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Eliminating resistance...

How can—and do—R&D people contribute to profitability? Count the ways: New ideas for new products; improved product capabilities; more efficient and pleasing design; lower cost products through the use of new technologies and materials. Increasingly, such results at HP flow from an interchange of information and ideas. Here's how one design group significantly cut some costs while actually improving performance and reliability...

Data Systems Division this month introduced two new minicomputers that clearly illustrate this exchange. Specifically, the front-panel switches represent an adaptation of the highly original switch system invented and patented by HP Labs for the keyboard of the HP-35 calculator.

How one particular feature of the adaptation came about is revealed in an anecdote told by Dave Horine of the computer hardware design team: "In talking with one of the computer architects, he misunderstood what I said about the problem of attaching the switch plate to the PC board. Then I misunderstood what he said in reply. I thought he said 'Why don't you eliminate resistance welding, and hold it down mechanically?' I said: 'Hey—that's a great idea!' But he said: 'No, that's not at all what I mean'. So it's hard to tell who invented the idea of mechanically anchoring the plate, using snap plastic buttons. But it does point up the benefits of interchange between disciplines—even when they don't completely understand each other."

The result is a switch system that combines low cost with low physical profile, complemented by ruggedness and ease of operation. In saving HP the need to go outside for a system it also allowed the designers to tailor the panel to their own concepts. The switch system, in fact, could well become a "standard" for other HP products.

Closeup of keyboard elements shows relationship to keyboard of the HP-35 calculator.

(continued)

Design team at Data Systems reviews new computer keyboard project: from left are Dave Horine, Bob Pierce, and Larry Peterson. (Project leader John Stedman not present.)

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profit sharing

As one now-retired professor used to tell his students: "Defining the problem is at least half the solution." Applying the same kind of axiom to industrial situations, it might be said that making a problem visible and tangible to people goes a long way in obtaining their help toward correcting it.

That, in any case, has been the approach taken by Colorado Springs Division to the costly problem of "scrap"—materials and items consigned to the junk bin because of flaws and failures of some kind.

With a unified effort, the quality assurance and manufacturing departments launched the program because "The problem of scrap involved everyone who made decisions about the quality of a part or product. Individually, those items might not seem to amount to much. But collectively, they represented a considerable investment of time and materials. We were concerned both for economic and ecological reasons."

The resulting Scrap Awareness Program was launched last September. Prominent displays of scrap were set up. The high cost of scrap was publicized. Meanwhile, procedures were worked out to monitor the "non-conforming material" cards as the basis for gathering cost data and for charging back that cost to the responsible department.

All of this was done in a positive, non-punitive manner. Results were somewhat astounding: The monthly scrap rate has dropped to almost half of the previous level. In many cases, parts were being regularly scrapped because of some small "non-conformance"—yet the non-conformance never affected the performance one iota.

The program represents a true savings, not only in an ecological sense with so many materials shortages these days, but also in that the people are becoming trained to make sound value judgments that can significantly affect profit. With the strict scrap review system, the possibility of creating quality problems for customers is minimized.

Let the people know! That's the approach that Colorado Springs Division has taken to its scrap-reduction problem. Three active people in the awareness program are, from left, Pete Penninga, Jan Trujillo, and Don Phelan.

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Privileged ideas...

You may well wonder who those privileged production people are at Santa Clara Division who enjoy reserved parking, appear on television, have their photographs displayed on the bulletin board, receive Certificates of Appreciation, and wear distinctive ID badges. It turns out that they are all monthly winners in a continuing program of methods improvement. Each had successfully submitted an idea for improving some aspect of their work. Begun about three years ago, the program is not exactly a competition, but it does take on some of the promotional aspects of a contest. In all other aspects, it follows HP's philosophy that contribution of ideas is part of the job and that the contributor stands to benefit through his participation with general profitability and growth of the company.
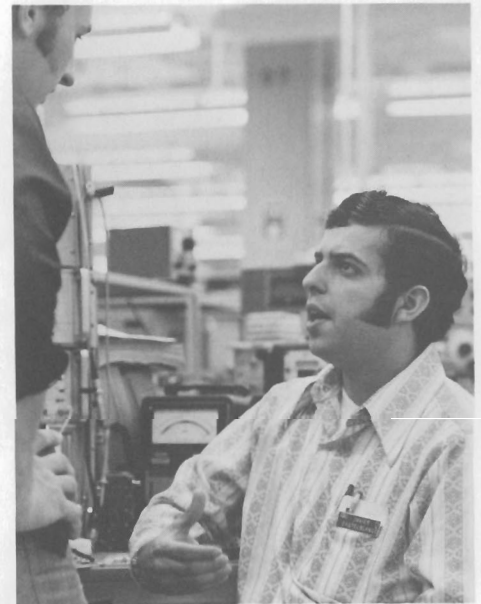
Every Santa Clara manufacturing department is asked to generate and submit a number of suggestions each month. Since the supervisors are involved at this stage, there's a very good chance that the ideas reaching the evaluation committee have already proven effective. Others, however, may require some capital investment or cooperative activity. Such was the case of a suggestion that the contents of all tool boxes be pooled, then everyone start over again by withdrawing only what they need. Almost needless to say, this resulted in barrels of surplus tools—enough for a long time to come. Last year, the overall methods improvement program resulted in savings estimated at over $21,-000 for the division. Thanks to some big ideas developed in the crystal and optical products labs, 1974 is already sure to surpass that figure. □

Simple but effective idea of using transfer tape to keep many transistors in place for simultaneous wiring was suggested by Santa Clara's Sandy Aveni. MI—Methods Improvement—aims at encouraging hundreds of such contributions through a program of personal recognition and modest incentives such as privileged parking.

Present champion of Methods Improvement campaign at Santa Clara is test tech Javier Castelblanco with 15 "Edisons"—good-idea light bulbs—to his credit, one for each accepted idea. Javier has been averaging more than one Edison per month, a pace seemingly designed to bring him perpetual privileged parking.

Eliminating one whole back-and-forth sequence in wiring of decade blocks at Santa Clara was suggested by Carol Hanes. Estimated savings for such ideas range from $10 to more than $1,000 each.

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Bob Greenleaf's second life

For most of us, the "struggle to survive" generally is seen as a remote, abstract concept, That sort of thing happens to other people—to unfortunates in overcrowded places, to people who fall asleep at the wheel, and those who take up trans-Atlantic ballooning. Even friends and relatives who become seriously ill usually vanish from everyday view behind the impersonal doors of hospitals and bedrooms.

Pictured just prior to entering hospital are Judi Schweiger and her brother, Bob Greenleaf.

A hale and hearty Bob Greenleaf back on the job at Avondale.

It can be a bracing experience to work next to or just meet a person such as Avondale Division's Bob Greenleaf. Three years ago, at age 23, Bob lost his kidneys to a rare blood condition known as the "good pasture" syndrome His life became a rigid routine of rest, part-time work and visits to the hospital for dialysis.

Dialysis is not treatment: it's survival. It substitutes a mechanical process for the blood cleansing functions of the kidneys. Bob had to spend six hours every other day connected to the machine. Complications sometimes threatened the whole process.

In time he was able to resume work as a mechanical assembler on a part-time basis. But the constant shuttle tended to wear him down, sometimes to the point of desperation.

But several factors kept Bob from despairing. For one, the people of Avondale really rallied to his support. Fund drives, including dances and cake sales, raised several thousands of dollars to supplement insurance coverage and rehabilitation payments. Fellow employees lent a direct hand—such as Personnel's Janice Bolden who took a course in the handling of problems associated with dialysis patients. Bob's wife, Cindy, became an expert in the operation of the dialysis machine—to the point where once she instantly reacted to the presence of air in one of the lines (almost certain to have caused an embolism), and cleared it.

Then there was his sister, Judi. For many months Bob had waited out the possibility of a kidney transplant, thinking what it would mean to be able to return to a near-normal life. But time and again this was denied, sometimes by the priority of other candidates, and other times by an obvious mis-match—the "rejection mechanism"—revealed by tests of potential donors.

Younger-sister Judi thought about this. It happened that she worked as a medical secretary in the dialysis unit of the Veteran's Hospital in Atlanta, Georgia. Marriage and motherhood had intervened, but the time came when she realized she was Bob's best and perhaps only hope.

A long series of tests finally confirmed her eligibility as a donor. Judi and Bob entered the University of Pennsylvania Hospital in Philadelphia on January 6, and were operated on two days later. The transplanted organ functioned immediately and successfully. More important for the long haul, the rejection mechanism —the body's automatic defense against invading organisms—was minimal due to their close biological relationship. It meant Bob would not have to take the strong medication that in many cases has a depressing effect.

Today, Bob is back on the job full time—and smiling. So is Judi. Now you know why.

□

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"To stimulate excellence..."

In hundreds of classroom laboratories around the world today, future engineers, scientists and physicians are working and learning with the aid of some of the world's most advanced electronic instruments—at no cost to themselves or their universities.

Source of this aid is HP's instrument donation program, a program not too well known within the company but one that over the years has won HP many friends in the academic community. Its stated goal is "to stimulate excellence on the part of universities in the education of students in science, medicine and engineering."

Since the people in the best position to recommend support of a donation request are the individual field engineers calling on the universities, colleges and technical schools, primary responsibility for the program rests with the regional and country sales organizations. Overall administration is coordinated by Corporate Training's Mert Ebright.

All requests and recommendations are carefully evaluated. Sometimes they involve new HP products, while others are satisfied by used equipment, perhaps former demo stock. The company is concerned with a fair distribution of equipment so a school can receive instrumentation according to its needs, not just because of its size and influence. Conversely, it is also important not to make contributions so small and spread out that their value becomes negligible.

The goal of furthering the education of people in the fields of science and technology is primary to the donation program—meaning that no other reasons are needed to justify it. But, clearly, there are direct benefits to the company.

Sometimes, for example, a professor or college department head needs help in getting a small lab established as a means of demonstrating its importance. Or a project has to be launched before funds are available in order to attract staff, support graduate research, or obtain research contracts. Then there is the case of teachers who are held in such esteem in their fields that their use of a product constitutes a virtual endorsement.

But the biggest boost comes from the many thousands of students who are exposed to the use of equipment that gives them deeper insights into the physical realms of their studies. Along with it many of them gain an appreciation of the company and the skilled people who made that equipment available. □
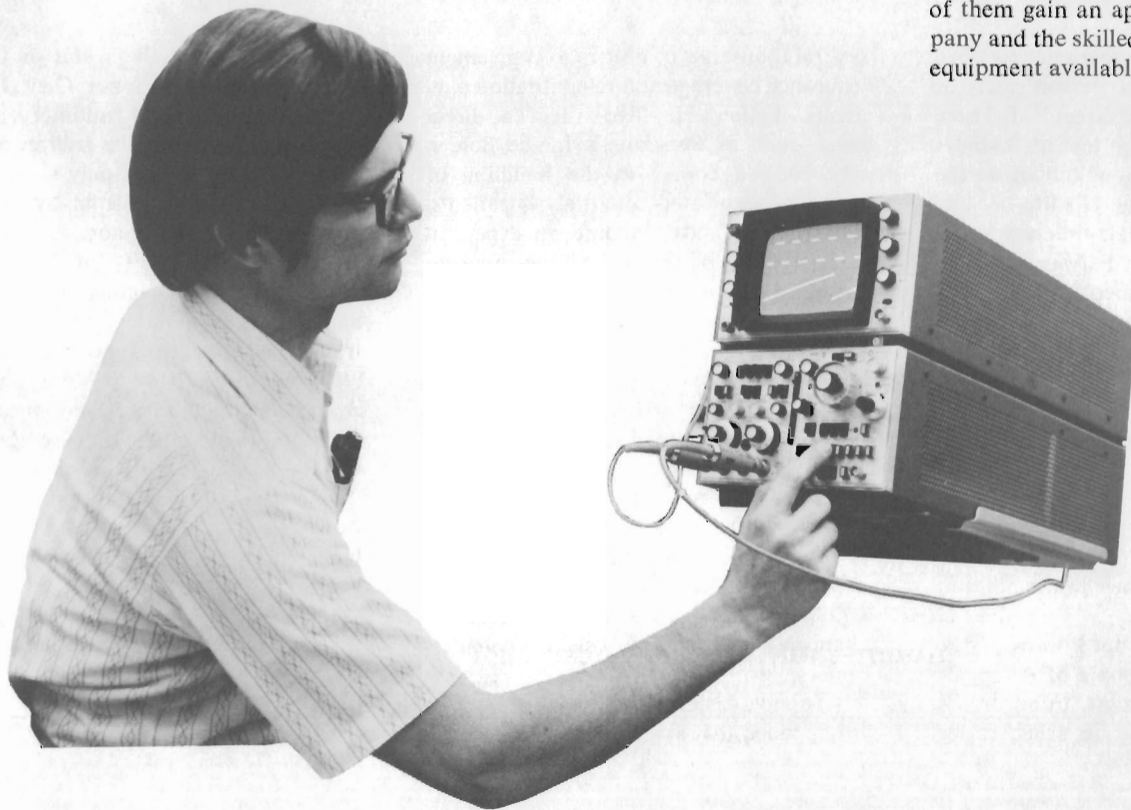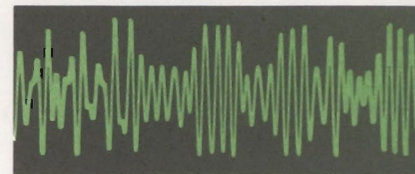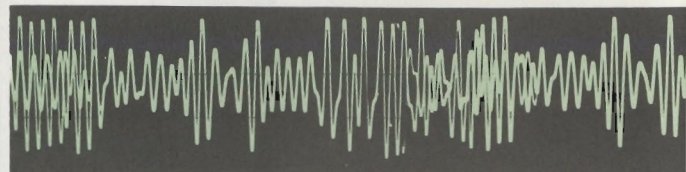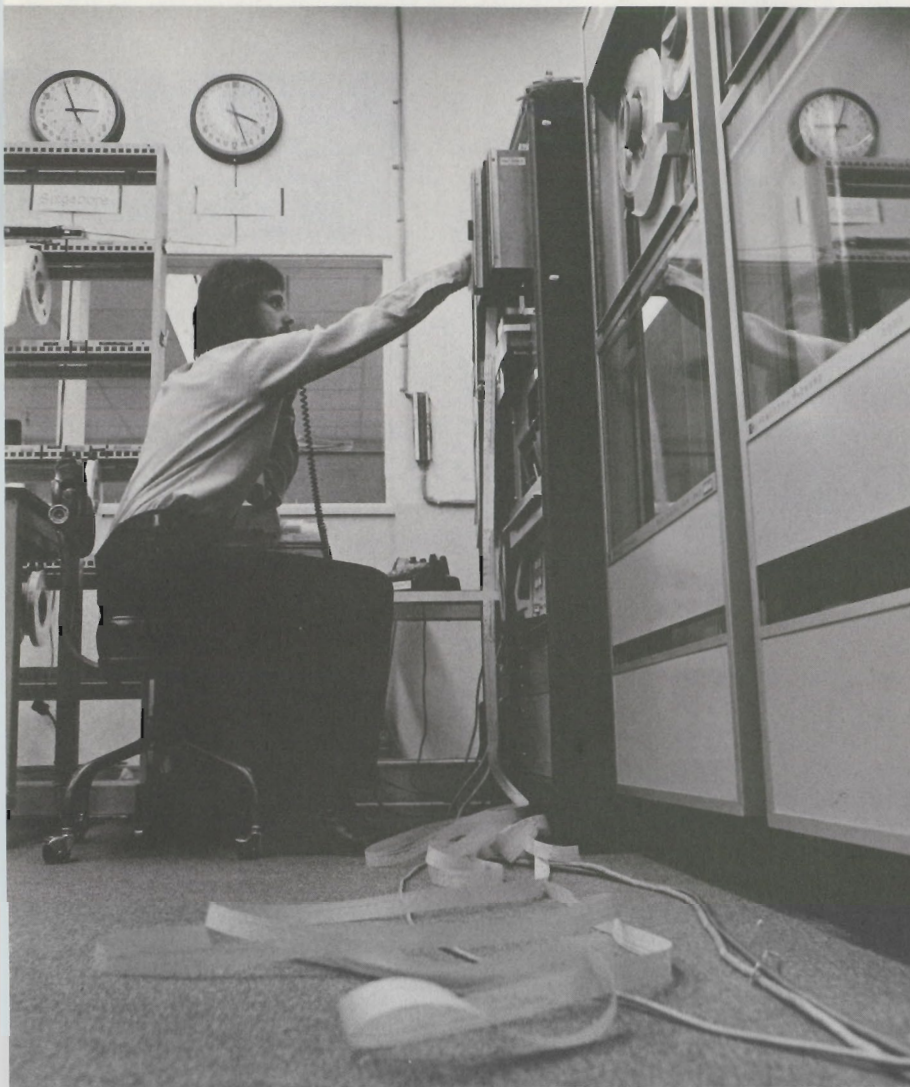
Fast as a speeding electron...
THE PENNY POST RIDES AGAIN!

After hearing about the high cost of everything, including the past month's 25 percent increase in mail costs, you may well wonder when or if there is ever going to be any good news? Don't leave. There really is some good news. Namely that you can send a message of average length—about 50 words— to any HP division or sales region in the U.S. and Canada for less than 1¢, and to locations around the world for about 18¢. What's more, it will arrive there next morning, and it won't be garbled or hijacked on the way.

Louis Ross, daytime operator in Comsys Central, listens for dial tone in setting up computer connection to another HP organization. Essence of Comsys speed and savings relative to other forms of telephonic and telegraphic communication is the computer-to-computer "conversation".

... PENNY POST

The foregoing emerged by way of some Corporate statistics on the cost of HP telecommunications. The figures show an overall rise to almost $11 million in 1973 for all forms of telecommunication including voice calls and data transmissions, compared to $7.2 million in 1972. In contrast, the amounts paid to common carriers—the phone companies—for printed data transmission over the same periods declined from $1.5 million to $1.4 million, even though the volume of data increased three and a half times. This happy turn of events resulted from the startup of a new worldwide communication system named Comsys. Under development for several years by the Corporate Marketing Services group, Comsys is actually an all-purpose network used for interchanging all kinds of information including customer orders,

shipment information, price list filing, customer data, repair and parts orders, sales order statistics, and payroll information. Comsys' tremendous capacity also allows —even loudly encourages—its use as the general message carrier within the company.

So low in cost per message is Comsys, that its use in place of much personal telephoning and memo communicating is worth serious consideration. And why not? Providing you don't need a lot of back-and-forth discussion and if tomorrow is O.K. at the receiving end, the price is unbeatable by a long shot.

To see how this works at the local level, consider the case of a message originating in one of the U.S. divisions or sales regions and addressed to sales headquarters for HP-GmbH in Frankfurt:

If the message were personally phoned the cost would be $6.75 station-to-station or $12.00 person-to-person, for the minimum three minutes; such calls also require one of the communicators to rise very early in the morning or stay up late at night, due to the problem of time zone differences. By airmail the letter would take a 25¢ stamp and require from three to seven days in transit. By regular Telex it would cost a minimum of $2.55 for a minimum 66 words. Comsys could do it for about 18 cents.

Now let's look at Comsys: Basically it's a system of computer-to-computer communication via phone connections—line, satellite, and microwave. The HP 2100 computers at the various regions and divisions reduce the characters in a message to digital "bits"—zeros and ones— for purpose of high-speed transmission.

Your 60-word message breaks down into approximately 350 characters, each character into eight bits, for a total of some 2,800 bits.

When your message is sent from your Comsys or TWX location to Comsys Central in Palo Alto—the central batching

and distribution point for all U.S. Comsys communications—the bits are transmitted at a rate of 4,800 per second. Given the three-minute minimum for a call, then, your office theoretically could send about 450 such messages during the one call. Then, by an interesting technical modification developed by HP's telecommunications specialists, your Comsys computer system can print data at the same time it sends or receives messages. This ability to do two jobs simultaneously, combined with the computerized compression of data, gives Comsys a capacity far beyond other such systems, as well as its highly favorable cost-per-message rate.

That capacity is significant: Without adding another cent of cost for equipment or transmission charges, Comsys could easily handle a much greater volume of general message traffic within HP.

The system itself is a bit complex, but still under development to make it even less expensive and more useful to more people within the company.

As it is presently organized, your message to Frankfurt would go to Palo Alto's Comsys Central (sometimes called the "2116 room" after the HP computer that first anchored the communications program), where it is put on tape with all the other thousands of messages going to or from HP organizations. Five times a day the accumulated message traffic is processed through the IBM 370 which sorts and batches the flow, and makes it available on magnetic tape to Central.

At 10:30 p.m. Palo Alto time, the Central operator would call up the Geneva office and transmit the day's accumulated data for all of Europe. Geneva will receive this about 6:30 a.m. their time, run it through the Geneva 360 computer for European batching, then call up the various Comsys locations including Frankfurt. By mid-morning the message should be available for internal mail distribution. Such links are available not only to Europe

but also to Singapore and Japan. Additional links will be connected during 1974 with Australia, Brazil and South Africa.

The Comsys people recognize several limitations to the system. Final delivery of a message, for example, is very dependent on the internal mail service at the local office or plant; some messages have been known to wait around undelivered for at least a day. Then there is the problem of replies: for some reason many people do not respond quickly to printed telecommunications so their authors turn to voice connections instead or as backup.

As for mail, the day may yet dawn when systems such as Comsys will be able to employ such devices as electronic scanners and deskside CRT displays of written communications—true electronic mail.

A major member and user of the Comsys system is Customer Service Center. Here, one of CSC's computer systems is monitored by operator Susan Biddle. The Comsys network will be virtually worldwide by the end of 1974, and gradually acquire capabilities that will add utility and flexibility of communications within local regional organizations.

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News in Brief

Waltham, Mass. — Lew Platt will become general manager of HP's Waltham operations, according to Dean Morton, vice president, Medical Electronics Division.

In his new position, Platt will be responsible for product development, marketing and manufacturing of patient monitoring products, and respiratory care systems and consumables. More than 700 people are employed at the Waltham operations which previously were managed by Morton.

Platt joined HP eight years ago as a manufacturing engineer at Waltham. He became plant engineer in 1966 and subsequently served as industrial products marketing manager, manufacturing engineering manager, and most recently as division R&D manager.

In announcing the new position, Morton cited significant growth projections for both the Waltham facility and a new site being developed by HP in Andover, Massachusetts.

"Although the first Andover building will not be ready for about two years," said Morton, "our Andover operations group has been a fully functioning organization of 350 people for nearly one year, under general manager Burt Dole.

"By this June we expect our Waltham plant addition will be completed, effectively more than doubling our space here."

Avondale, Pa. — The appointment of Mason Byles as general manager of the Avondale Division has been announced by Emery Rogers, manager of the Analytical Products Group.

Byles temporarily will continue as analytical marketing manager at Avondale. In announcing the change, Rogers, who formerly headed the division, said he will maintain Avondale as the base of operations for the Analytical Group.

Goal of the changes, he said, is "to accelerate the process of placing HP Analytical on a strong world-wide continuing basis, and to take best advantage of the major opportunities that our new-product programs have presented to us."

Cupertino — Data Systems Division has announced a new series of minicomputers. The new 16-bit machines utilize recently developed 4K RAMs (random access memory) as their main memory element.

Hewlett-Packard is the first major minicomputer maker to offer the new 4K RAM memory system. Its use has made possible substantial reductions in size,

Avondale, Pa. — *HP's Analytical Instrument people refer to their new 5830A gas chromatograph as "the analytical answer machine." Introduced to the chemical-analytical industry at the big "Pittsburgh Show" (which actually was held in Cleveland!) early last month, it drew extraordinary attention and acclaim. The 5830A combines and integrates all of the chromatographic functions that in existing machines are performed by separate items of hardware. Functions are performed with a speed, ease and accuracy totally new to the field, using a small digital computing processor.*

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weight, power consumption and cost of minicomputers, while improving memory speed and reliability.

The two models introduced are the first of an entire new family of HP minicomputers aimed to provide best fit to each of a large number of uses. The two models are both microprogrammed with an internal 24-bit processor, and memory parity, power-fail, and extended arithmetic unit (EAU) are standard.

Model 2105A, only 5¼ inches high, can contain 32K 16-bit words of memory within its mainframe, and has four powered I/O channels. Model 2108A, 8¾ inches tall, has nine powered I/O channels, and a 32K memory (expandable later this year to 64K), all within the mainframe.

Unusual environmental immunity has been designed into the new machines. Options include power standby (reserving memory content for at least two hours if a total line failure occurs), power failure detection and automatic restart.

Base prices in the U.S. are $7,400 for the 2105A, and $11,000 for the 2108A, for OEM purchases of five or more. First customer deliveries are expected in June.

Palo Alto – Microwave Components, the OEM component organization that grew up within Microwave Division and Stanford Park Division, is in the process of becoming part of HPA.

Describing the consolidation, HPA general manager Dave Weindorf said "it finally brings together all OEM components activity in one organization. The combination will help us develop a more integrated component strategy and provide our field people with a simpler, more effective interface to the manufacturing facility. Our customers will benefit through better servicing of their OEM component needs."

Cupertino – The Riverside County Flood Control District has ordered an HP-3000 computer system from Hewlett-Packard Company.

The district will use its HP-3000 to speed engineering calculations needed to determine flood routing, channel capacity and other factors related to the design and construction of flood control projects. Because of its multi-terminal capability, the HP-3000 will enable several engineers to use the system simultaneously for more efficient use of the computer.

The HP-3000, costing approximately $175,000, contains 96K of core memory, a 50 MByte disc drive, printer, card reader, magnetic tape drive and plotter. Delivery is scheduled in early June.

A Hewlett-Packard Model 45 pocket-sized calculator was used recently in an unusual application by the British contingent of a UN relief team in the drought-stricken Southern Sahara. Transporting supplies and vehicles 2700 miles across the desert, they used the calculator as part of an improved method of navigation by dead reckoning. "We found the calculator very useful in speeding up our calculations," reported the navigator, "partly because it has polar coordinate functions pre-programmed in." Using distance measurements from a truck's odometer and a sun compass for direction, the HP calculator eliminated the need to plot each change of course graphically.

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A great leap forward...

When first he learned of Data Systems' new "Terminal-Oriented Administrative Data Systems" (T.O.A.D.S.), which are software systems that will give school organizations simultaneous administrative and instructional usage of their HP minicomputer systems, the editor said: "Aha!" or words to that effect.

His mind conjured up a picture of computer-wise students plugging into the administrative side of T.O.A.D.S. to effect certain changes in the school records. No need to spell out what those changes might be!

Of course, it turned out that such suspicions were totally ill founded. "In fact," said Data Systems' Dave Sanders, "strenuous precautions have been taken to prevent unauthorized access to student data files. Only specified terminals in a timeshare system, for example, can reach such files, and then only with the latest code."

T.O.A.D.S. represent HP's first entry into the educational administrative data processing field and are the first minicomputer software systems of their kind.