

Cosmos and Marathon

Automatic Guided Vehicles cruise the aisles with loads for Northlake production lines

The doors to the staging area of the "clean room" automatically open, but no one enters. Slowly, an AGV turns the corner and enters the room. Its blinking lights and beeping tone announce its presence. In milliseconds, it communicates with the computer, which tells it to pick up a load of PCB stock. It obeys and leaves the room as quickly as it entered. You look around for a human controlling the unit—but there is no one.

Sound like a scene from a science fiction movie? Well, it's not. This happens every few minutes at Communication Systems' Northlake facility where GTE's first Automatic Guided Vehicles (AGV) serve the printed circuit board fabrication and fine-line departments, and transport partially fabricated boards through precision screening, photo developing, plating, drilling, electrical testing and blanking operations.

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Baby Cosmos (right) and Marathon stand ready to move assembly components from one work area to another. These units are GTE's first Automatic Guided Vehicles to serve printed circuit board fabrication and fine-line departments.



Communication Systems employees load an ISDN module onto a special moving van for its trip to Thousand Oaks, Calif. General Telephone Company of California and GTE Communication Systems will conduct a joint demonstration of ISDN capabilities on GTE's GTD-5 EAX digital central office system beginning in June.

General Telephone of California, GTECS announce ISDN field trial

General Telephone Company of California and GTE Communication Systems announced April 9 that they will conduct a joint demonstration of ISDN capabilities on GTE's GTD-5 EAX digital central office system beginning in June.

The ISDN trial is the first to be conducted by a GTE telephone operating company and the second in the nation to use the GTD-5 EAX system. GTE's first ISDN GTD-5 demonstration began in December in Phoenix with Mountain Bell.

The California trial is set to run for approximately a year and will be conducted in two phases. The first phase will serve General Telephone of California employees, linking the company's headquarters office here with three regional sales offices.

The second phase will begin in August and run for nine months. During this period, ISDN services will be demonstrated to approximately 1,000 General Telephone of California business customers at three sites.

ISDN capabilities to be demonstrated include simultaneous transmission of voice and data, high-speed facsimile transmission, circuit and packet switched data transmission, and interactive editing between computer work stations. Additionally, General Telephone is developing a wide range of other applications using ISDN capabilities.

ISDN modules located at Thousand Oaks, Norwalk and Ontario, Calif. will provide a total

of 60 lines of basic (2B+D) through a GTD-5 EAX digital central office switching system located in Newbury Park. The two B channels will each simultaneously send and receive voice and data at 64 kilobits per second. The D channel is used to carry signaling and packet data information at 16 kilobits per second.

Bernard Heiler, General Telephone of California Vice President of Marketing, said that a broad range of telecommunications services will be transported over ISDN. These include telecommuting (working by computer at home), electronic catalog shopping, electronic banking and electronic mail. ISDN will allow utilities to read customer gas, water and electric meters remotely using the existing customer telephone line.

"ISDN will be the public network of the 1990s," said Heiler. "It will provide not only the capabilities of the present public telephone network, but also capabilities normally associated with private networks. The added functionality which ISDN brings to our network will stimulate use of the public network."

"We're looking forward to participating in the field trial with General Telephone of California," said Stephen Smith, Vice President-Marketing for GTECS. "This demonstration will give business customers the opportunity to experience first-hand ISDN's potential for greater efficiencies and economies in their day-to-day operations."

• Cosmos

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To help identify each of the vehicles, an employee contest was held to name the AGVs. Mary McNeal's entry of "Baby Cosmos" was one winner and Emma Small's suggestion of "Marathon" was the other.

"AGVs have been around for years," says Norm Zaremba, Manager-Manufacturing Research and Engineering. "They have been successfully used in large manufacturing operations and warehousing, but our needs were slightly different. We needed an application that would fit into an electronic manufacturing environment—vehicles that are relatively small, yet able to carry heavy loads."

The Munck Autech company of Virginia designed and built GTE's AGVs. Other vendors provided the custom-designed conveyors and interface equipment that interact with them. Both of the vehicles are bi-directional and follow some 1,800 feet of buried wire as a guide path. A computer with special programs guides the vehicles along the guide paths and serves as the "brain" that constantly monitors their status and location.

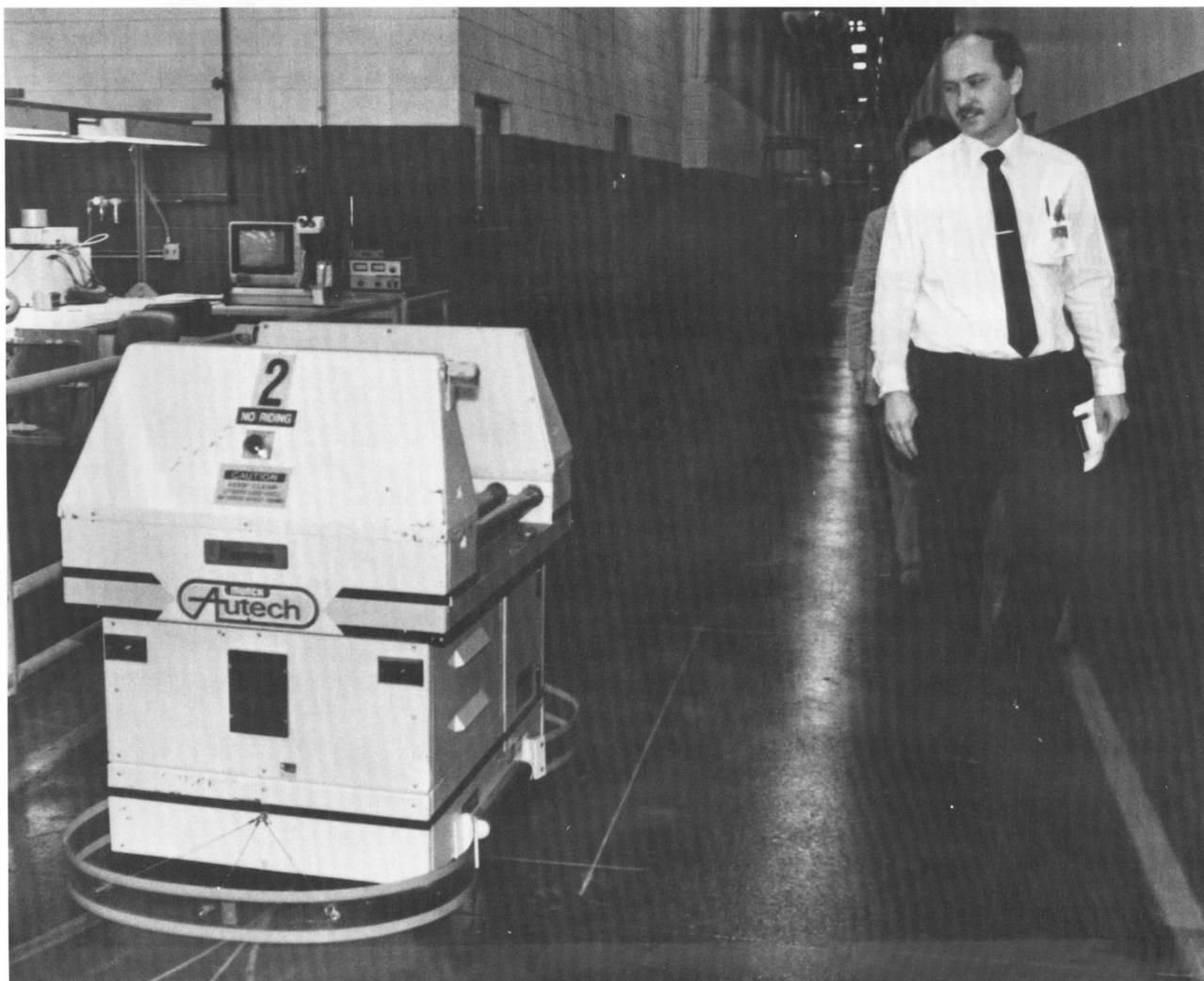
John Orwin, Supervisor-Manufacturing Research and Engineering, says that the AGVs have performed extremely well since being introduced in November. "Our goal was to reduce the handling of printed circuit board panels and the related damage that was caused by handling," he said. "By using AGVs we could cost effectively move smaller quantities per load and adopt just-in-time delivery to the successive stages in the manufacturing chain. And our handling-related damage has virtually disappeared, enabling us to deliver top quality products consistently."

Orwin also noted that the layout of the plant evolved as processes were introduced and AGVs serve this adjusted layout well,—meaning that it is much less expensive to set up a flexible AGV system than it is to make a major department layout change. Baby Cosmos and Marathon can run as long as 16 hours on a single battery charge. When a battery is getting low, the unit automatically goes to the recharging station and signals a supervisor who replaces the drained battery with a fully charged one.

Brian Shanahan serves as the Project Engineer for the AGVs and beams with fatherly pride when he talks about their work. "They move at a speed that would be a fast walk for a human," he says, "They also slow down for corners, humans, pinch points, conveyors, doors or just about anything else that comes into their paths."

Shanahan says that the units have numerous safety features built in. "We protect people from the vehicles and the vehicles from people," he adds.

The units use ultrasonic devices to detect the presence of objects or obstructions in their paths. When in operation they make a beeping sound and flash their lights to warn employees of their movements and automatically slow down when they come within range of any object. They immediately stop when something touches one of their bumpers and remain stopped until the obstruction is removed. They even signal a supervisor if the obstruction remains for longer than two



Marathon scoots down an aisle at the Northlake production facility on its way to pick up a load as employees keep a weary eye on the "beast."

minutes.

Both Cosmos and Marathon are in constant touch with their host computer. At every information point located throughout the buried cable route, they tell the computer three things—battery level, load status and location. The computer then provides instructions for the unit to follow.

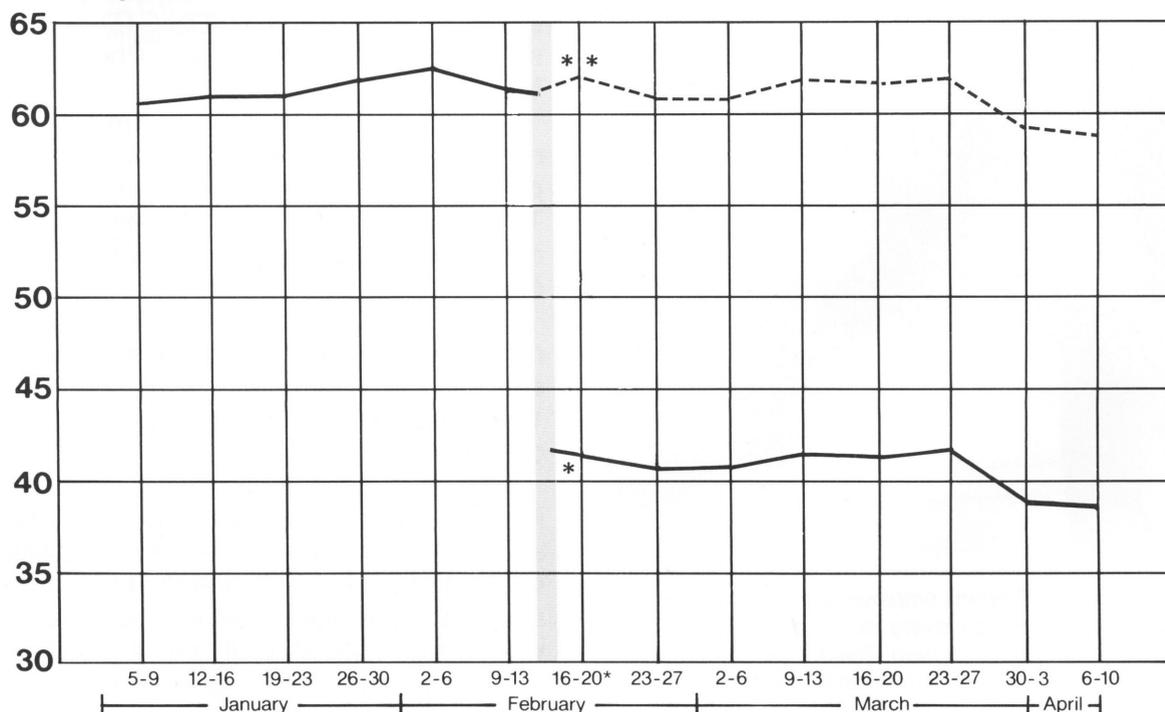
Both AGV units currently serve 12 work stations and are scheduled to have nine more work cells added to their routes this year. At

the work cells, employees push a button to summon an AGV after placing completed work on a mini-conveyor system. The computer adds the stop to the route of the next available AGV, which then carries the load to the next programmed drop-off point.

"The AGVs have the capacity to meet Northlake's production requirements throughout 1987," says Zaremba. "But, we're already looking at expanding AGV use to include other processes."

Charting GTE stock activity

GTE Common Stock activity is given for the past three months. The chart indicates the as well as the Friday closing price.



*The three-for-two stock split approved by the Board of Directors and Stockholders takes effect.

**Dotted line indicates the equivalent level if split had not occurred.

Up to date

New Personal Services software enhances time management job

You want to set up a meeting with four other project managers. In the past, you'd have to telephone those people and their secretaries, suggest a time, ask if everyone is available, schedule a conference room, then get back to them all to confirm the meeting. It was a frustrating and time consuming task.

But now, thanks to PS370 there is a better way. Utilizing this mainframe resident software package, that same manager can scan the calendars of each of the people she wants at the meeting, see instantly what times they all are available, and message them with the time. Conference rooms also can be reserved in the same way.

"This package can save Communication Systems a lot of time and money," says Karen Bleich, Manager-End User Education. The electronic mail system provides a menu driven communication source between all CS sites. Anyone with a terminal or PC (IBM, McIntosh, etc.) can use the system, and, according to Bleich, can save up to 60 percent of what Telemail services cost.

Information Management has big plans for this tool. Already, the R&D department has committed to switching to PS370 as one part of an overall office system architecture. Also, Human Resources and Finance have started using it.

"It's greatest advantage is its ability to communicate easily between locations at a reasonable cost," says Bleich, adding that the service is available through coaxial connection, dial up modem, Telenet, or OMNI.

It also provides an excellent way for people within a department to communicate. Using its document transfer, the writer of a paper or



The main menu of PS370 presents a convenient way to organize and to access this powerful program.

report can quickly and accurately forward the document to his or her supervisor for approval. The supervisor can edit the document and return it with changes just as quickly.

The program also can store telephone and address lists, as well as providing a daily planning calendar.

"This system can have a big impact at all levels of the company in terms of office automation," says Cliff Hall, Director-Information Management. "Whether at the office, at home or on the road, we are economically providing the capability for an individual to electronically 'work their desk'."

Hall is confident that as more and more employees are trained on the system, the value of using this package will grow. Besides Hall, other executives have taken to supporting the conversion. Bud Clay, Vice President-Research & Development, and Ernst Burri, Vice President-Finance, use PS370 and, in fact, have begun to look at ways to make the "electronic desk" a reality in the management of their own organizations.

To sign up for PS370, employees have to call either Linda Foster, Ext. 4434, in Phoenix or Lottie Kurdek, Ext. 7338, in Northlake. They

must have a terminal or a PC with either a coax connection to an OMNI, TSO or a dial up modem. Employees using a 327X or 8100 terminal also can use PS370.

Training and documentation are available through the Information Centers in Phoenix and Northlake. Also, the Help function associated with PS370 allows users who don't have the time to attend a class to learn the service on their own.

For more information on this newest service to come to Communication Systems, contact your nearest Information Center.

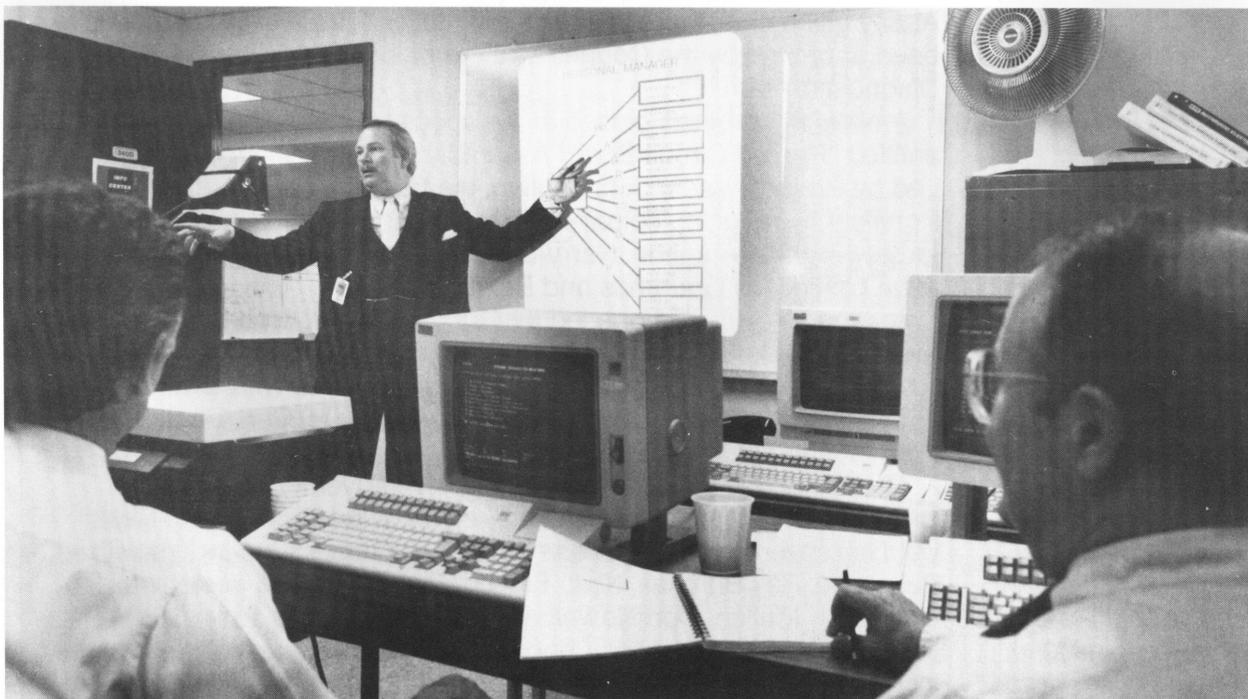
GTE ranks among top in community involvement study

Community leaders across the country ranked GTE seventh in United States corporations that have the strongest reputation for excellence in community relations, according to a research report released early this year.

The report, "Project Excellence: Perceptions of Corporate Social Involvement" documents the findings of a study conducted by The Center for Corporate Community Relations at Boston College.

Through a mail survey, mayors and executives from local United Ways and Chambers of Commerce in 72 major U.S. cities were asked to name the companies in their area with excellent community relations. The survey was based on eight criteria for excellence and the participants were asked to recommend up to nine companies in their geographic area that best satisfied these criteria.

Raters from 64 cities responded to the survey, singling out 584 of the tens of thousands of companies located in those cities for special mention. The top ten, in order of ranking, are: U S WEST, BankAmerica Corp., Pacific Telesis Group, IBM, Pacific Gas & Electric, Honeywell, GTE, Bellsouth, Bell Atlantic, and Southwestern Bell.



Ray Dooley, an instructor with International Computer Management, explains some of the aspects of PS370 to Frank Greco (left) and Joe Piro.

IBM 3270-to-asynchronous software package offered by Telenet

Telenet Communications Corp., a subsidiary of US Sprint, has announced the availability of STX (SNA-to-X.25), an IBM host software solution that provides a common access point to the Telenet Public Data Network (PDN). The software package allows 3270 terminal users access to asynchronous hosts and public database services attached to the PDN. Now users can use their existing terminals to access asynchronous hosts or other services such as *Dow Jones*, *The Source* and *Telemail(R)*.

Previously 3270 terminal users requiring access to both IBM 3270 applications and asynchronous hosts needed two terminals, one 3270 and one asynchronous. The STX software solution provides users an alternative to purchasing additional 3270 asynchronous terminal hardware solutions.

STX will automatically keep a journal of all asynchronous applications activity. STX users can scroll backward and forward through the journal to review data without extending the connect time on the asynchronous host. Users can also transfer files between IBM hosts and the asynchronous hosts and spool data from the asynchronous host applications to their IBM printers.

The STX software package was developed by Duquesne Systems Inc. a leading supplier of system and user productivity enhancement software for medium and large IBM mainframe computers.

Telenet now has a full complement of IBM software support packages to meet the business user's requirements.



Work begins on Building 5

Construction crews arrived at Building 5, Communication Systems new headquarters building in Phoenix, in early April to begin putting up walls, running wires and all of the other things that will lead up to The Move.

All aspects of this project are either on schedule or slightly ahead of schedule at this point, reports Al Wuest, Director-Facilities. Wuest is pictured with the office furniture that will be used in Building 5. The gray and blue tones of the walls and upholstery complement the natural wood grained desks and cabinets.

Marketing, Sales and Strategic Planning will be among the first departments to take up residence in the new headquarters building, with The Move (Phase 1) happening May 15-17. All other departments will make The Move in mid-June.

Quality Council closes out three projects; results are better products at lower costs



(Left to right) Bertha Smith, Joe Ahmann, John Gulino, John Beyer, Jim Grammas receive congratulations from George Bradley on the completion of one of the quality projects begun in 1986.

At an expanded session of a recent GTE Communication Systems Quality Council in Northlake, three major projects that were initiated in 1986 were brought to formal conclusions and the employees who participated in making them successful were recognized for their contributions and hard work.

Quality improvement projects are assigned to special task forces at Northlake and Genoa which operate under the guidance of the Quality Diagnostic Team, which in turn reports to the Quality Council. At any given time, there are approximately 20 open projects that have been approved by the Council and are being tracked by the Diagnostic Team.

Among the projects closed at the special meeting was an effort entitled "Printed Circuit Board Assembly and Solder Improvement." Led by Project Leader John Gulino, the task force succeeded in significantly reducing solder defects. Working with Gulino on the task force were Joe Ahmann, Harry Betker, John Beyer, Ralph Bloom, John Carlin, Jim Grammas and Bertha Smith.

Another project, this one led by Grammas, increased the yield and reduced the defect level of backplanes and resulted in a \$142,500 savings for the company. Serving on the task force with Grammas were Bob Bukowski, Dalton Gaines, Felix George, Curt Gustafson, Paul Pietrantonio, Dave Price and Gil Orsi.

The final project closed was entitled "Improvement of Printed Circuit Board Assembly Test Yield" and resulted in substantial test yield improvements. Ed Naproa led the task force and worked with Bukowski, Ray Burokas, Keith Essex, George Grutza, Gustafson, Jim Halik, Ron Mullen, Don Nowak and Rich Prymicz.

Vice President-Manufacturing George Bradley thanked each of the task force members, saying "The teamwork and dedication exhibited by the task force makes it possible for us to achieve our quality goals."

Service Anniversaries

The following employees celebrated their Service Anniversary with Communication Systems during the First Quarter of 1987. Their dedication and commitment to excellence are greatly appreciated.

Congratulations and thank you!

45 YEARS

MATT McGIVERN-NORTHLAKE

40 YEARS

B.J. FRANKOWSKI-NORTHLAKE
E. PARKS-NORTHLAKE
L.H. KARPOWICH-NORTHLAKE
D.H. ACORD-NORTHLAKE

35 YEARS

A. SLADEK-NORTHLAKE
J. KYLES-NORTHLAKE

30 YEARS

V.M. KOLIS-NORTHLAKE
H.R. BROWDER-NORTHLAKE
R.G. FERGUSON-NORTHLAKE
M.F. SENESE-NORTHLAKE
K. McCRAY-NORTHLAKE
K. KUNDERT-NORTHLAKE
B.J. HOLDEN-NORTHLAKE
J.T. MARKHAM-NORTHLAKE
GLENN F. BOWMAN-NORTHLAKE
S.G. LAUDANI-NORTHLAKE
J.B. KILPATRICK JR.-INSTALLATION
R. LUCCHETTI-NORTHLAKE
N.D. PARASHIS-NORTHLAKE
M.S. MORROW-NORTHLAKE
R.D. POWELL-INSTALLATION
A. VELEZ-NORTHLAKE
M. OBAYASHI-NORTHLAKE
J.M. KURZEJA-NORTHLAKE
D.S. BARGATZE-NORTHLAKE
J. CORNEY-NORTHLAKE
H. BROWN-NORTHLAKE
E. RAYMOND-NORTHLAKE
J.W. ROBERTSON-NORTHLAKE
MARY KNUR-GENOA
J. RUSSO-NORTHLAKE
S.G. SKINNER-NORTHLAKE
M.L. PERRY-NORTHLAKE
F.L. MATTHEWS-NORTHLAKE
W.E. ISOM-NORTHLAKE
M. STRICKLAND-NORTHLAKE
P.L. PENNINGTON-NORTHLAKE
L.L. LOFTON-NORTHLAKE
B.L. JOHNSON-NORTHLAKE
BARRY RAYKOSKE-PHOENIX
W.D. GOLDSTEIN-NORTHLAKE
D.J. CAVETT-INSTALLATION
P.W. NORTON-NORTHLAKE
W. JACKSON JR.-NORTHLAKE
A. SITARAS-NORTHLAKE
J.J. GROHOLSKI-NORTHLAKE
V. KRZENTZ-INSTALLATION
J.P. ZAJAC JR.-NORTHLAKE
REBECCA E. ARUNDEL-GENOA
A. WILKINS-NORTHLAKE
A.E. WEDDINGTON-NORTHLAKE
M.E. PEARSON-NORTHLAKE
J. NELSON-NORTHLAKE
ALLAN T. RUSH-PHOENIX
C.L. CROOM-NORTHLAKE
M. ROSOL-NORTHLAKE
F. RUSSO-NORTHLAKE
H.A. BENNETT-NORTHLAKE
O.L. SCHULER-NORTHLAKE

D.M. WEST-NORTHLAKE
P.A. FINKLEA-NORTHLAKE
E.R. COLLINS-NORTHLAKE
E.P. FORD-NORTHLAKE
FREDDIE FRANZ-GENOA
D.A. MOORE-INSTALLATION
B.J. BRYANT-NORTHLAKE
WESLEY S. TEGGE-PHOENIX
J. SANTIAGO-NORTHLAKE

25 YEARS

M.E. BALCH-GENOA
E. BUDEK-NORTHLAKE
R.E. JANCZAK-NORTHLAKE
J.T. MICHALAK-NORTHLAKE
LINDA WILLIAMS-GENOA
T.N. HAIR JR.-INSTALLATION
J.T. MCHUGH-NORTHLAKE
I. APRILE-NORTHLAKE
J. HEREFORD-NORTHLAKE
FRANK CALVELLO-NORTHLAKE
E.E. ZAMORANO-NORTHLAKE
N.J. THOMAS-NORTHLAKE
J.W. BRETHER-GENOA
J.L. TOTIS-NORTHLAKE
W.M. RUTAN-NORTHLAKE
HELEN VAN DUSEN-GENOA

20 YEARS

JAMES HOFF-PHOENIX
D.J. STEWART-NORTHLAKE
S. McCOTTRY-NORTHLAKE
MARGARET ELLIS-GENOA
D.I. JONES-GENOA
C.G. PUF AHL-GENOA
W. DAVIS-NORTHLAKE
H.A. ASHER-NORTHLAKE
DONALD O. HAMILTON-PHOENIX
R.L. HUGHES-NORTHLAKE
DALE HOPPE-PHOENIX
L.A. THOMAS-INSTALLATION
M.L. DEMPSEY-NORTHLAKE
R. GRANT-NORTHLAKE
T.E. JALOWY-NORTHLAKE
R.G. CUTRERA-NORTHLAKE
F. PIZZI-NORTHLAKE
G. McINTOSH-NORTHLAKE
J. KRAEMER-NORTHLAKE
S. FIANDACA-NORTHLAKE

15 YEARS

J.A. HAAG-NORTHLAKE
J.R. AUSTIN-INSTALLATION
M.A. DOPICO-NORTHLAKE
J.A. WATSON-NORTHLAKE
RICHARD A. PERRY-PHOENIX
C.B. BRANSON-PHOENIX
B.L. SCHMIDT-NORTHLAKE
J.C. STALLINGS-NORTHLAKE
R.E. CRAWFORD-INSTALLATION
W.E. WHITE JR.-INSTALLATION
B. PATTERSON-INSTALLATION
S.S. CHIN-PHOENIX
W.C. SILLMAN-PHOENIX
M.D. COPENING-INSTALLATION
C.A. SOTO-NORTHLAKE
BERNICE M. REDNOUR-GENOA



Out in front with GTECS

During the Eastern USTA Showcase held in Indianapolis, GTE Communication Systems used the Indy car and the slogan, "The Front Runner," as the theme of marketing efforts. One promotional effort aimed at supporting that theme was to give away a miniature Indy car to the person whose "key" unlocked the prize. Joe Goeddel, Plant Manager of Harrisonville Telephone Company, held the lucky key. Harrisonville Telephone Company is one of Communication Systems' customers. From left to right are Henry R. Gentsch, President of Harrisonville Telephone Company; Bob Hyser, National Account Manager, Independent Telephone Companies, Central Region; H.R. Gentsch, Executive Vice President and General Manager of Harrisonville Telephone Company; Goeddel; and Harold Vangundy, Account Executive for Independent Telephone Companies, Central Region. Driving the car is Ira Goeddel—the very happy son of the winner.

Public awareness of GTE climbed in 1986

Ninety-one percent of Americans are aware of the GTE name and 72 percent of them can identify the GTE logo, according to the 1986 "Annual Summary of Awareness and Perceptions of GTE." In 1985, awareness of GTE's name was at 85 percent and 71 percent of the nation's population recognized the logo.

Awareness of GTE far surpasses the public's awareness of Regional Bell Operating Companies (RBOCs) which ranged from 17 percent (U S West) to 64 percent (Southwestern Bell).

Among business executives, 62 percent felt they knew "quite a lot" or a "fair amount" about GTE, an increase from the 40 percent reported in 1978, the first year business executives were surveyed. The range for RBOCs was 2 (Bell Atlantic) to 18 (Ameritech) percent.

While in the total national sample 91 percent of the general public were aware of GTE, the percentage varied by selected groups. The highest awareness level was found in locations where GTE telephone companies operate. There, 97 percent of survey respondents were aware of GTE. In the Washington area, this was 95 percent. Among men the awareness level was 96 percent; among women, 85 percent.



Cholesterol and you

Editor's Note: The following article was written by David Makowicki, fitness supervisor, under the direction of Jay Bisgard, M.D., corporate medical director.

Thirty-seven percent of all deaths in the United States are caused by coronary heart disease, making it the nation's number one killer. A major factor contributing to this disease is elevated blood cholesterol, whose medical name is "hypercholesterolemia." While elevated blood cholesterol is a major factor in heart disease, so are smoking and high blood pressure. When two or more of these factors coexist, the risk to heart disease increases greatly.

Cholesterol is a fat-like substance that is synthesized by our bodies, primarily our liver. Its uses include forming cell membranes, bile acids (these emulsify fat during digestion) and various hormones. We also consume cholesterol in the foods we eat—in dairy and animal products, including eggs, red meats and organ meats. It is not present in any foods of plant origin.

Elevated blood cholesterol can occur when we consume foods that are high in saturated fat or cholesterol. Since saturated fat is more harmful than dietary cholesterol, it is worse to eat, say, a fried fatty pork chop (high in saturated fat, low in dietary cholesterol) than it is to eat a boiled egg (low in saturated fat, high in dietary cholesterol).

Cholesterol in excess of the body's needs can build up on the inner walls of arteries, narrowing the space through which the blood must flow. When this occurs in arteries to the heart, coronary heart disease results. Eventually, the buildup can block blood flow completely, causing a heart attack.

Cholesterol is transported through the blood stream by combining with protein to form "packages" called lipoproteins. Total blood cholesterol (serum cholesterol) is a combination of several types of lipoproteins. As far as heart disease is concerned, there is a good type of cholesterol, high density lipoproteins (HDLs), and a bad type, low density lipoproteins (LDLs).

LDLs deposit on artery walls, especially when elevated levels appear in the blood stream. HDLs, on the other hand, do not appear to deposit on artery walls and increased levels may help to keep arteries clear of LDL deposits. Therefore, higher levels of HDLs may decrease the risk of heart disease and lower levels may increase the risk.

Obese people have low levels of HDLs, but the level increases when they lose weight. Aerobic exercise also increases the level of HDLs.

Communication Systems Offering Cardiac Profile Blood Tests and Blood Pressure Checks

Heart disease is the No. 1 killer in the United States. It is also preventable by changing one's lifestyle to reduce risk factors. Communication Systems wants to encourage its employees to take charge of their health and well-being by discovering their possible risk factors such as elevated blood cholesterol or elevated blood pressure. Once someone knows of a particular risk, changes can be made to reduce it.

To help employees define their individual risks, Cardiac Profile Blood Tests and Blood Pressure Checks will be conducted during May at Phoenix, Northlake and Genoa.

All active employees are encouraged to sign up to have their risk factors determined through this thorough blood chemistry test. The test will look for Cholesterol (HDL and LDL), will determine the percent of HDL (the good cholesterol) and the ratio between HDLs and LDLs. The test will also look for Triglycerides, various glucoses and will also obtain health information relating to liver function, kidney function and other bone and tissue conditions.

The tests will be given in:

Phoenix—May 14 and 15

Northlake—May 27 and 28

Genoa—May 29

Employees must sign up with the Health Services Department at their location prior to being tested. Communication Systems is subsidizing part of the cost of each test. However, employees will be required to pay a minimal fee when they sign up.

Polyunsaturated and monosaturated fats decrease the amount of LDLs, whereas saturated fats favor the creation of LDLs. Dietary cholesterol also increases the amount of LDLs, however, to a lesser extent than saturated fats.

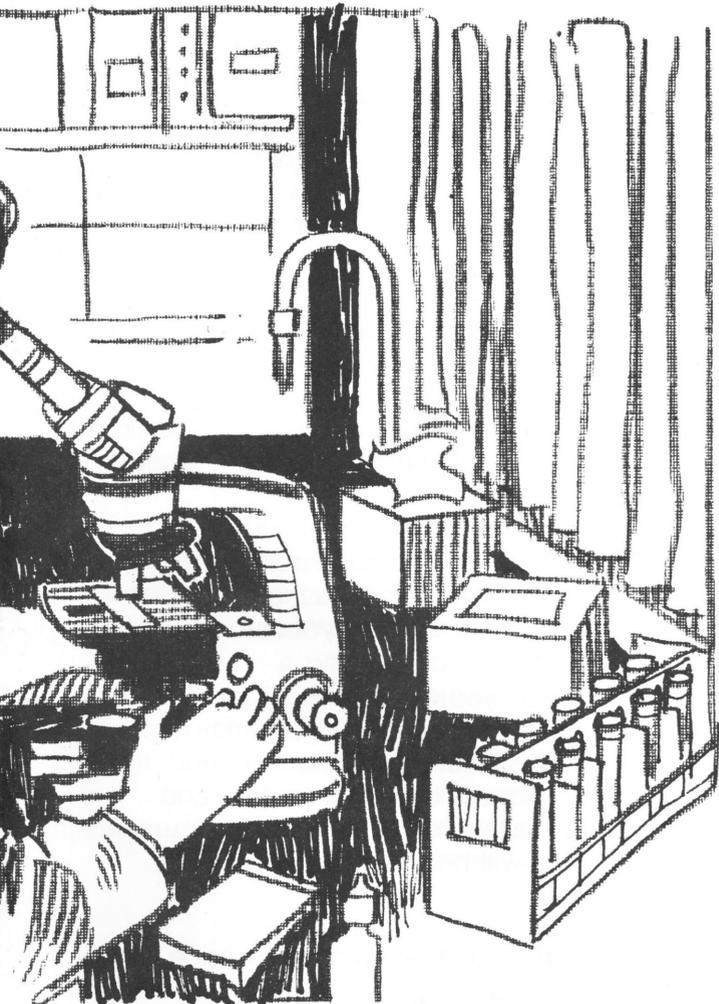
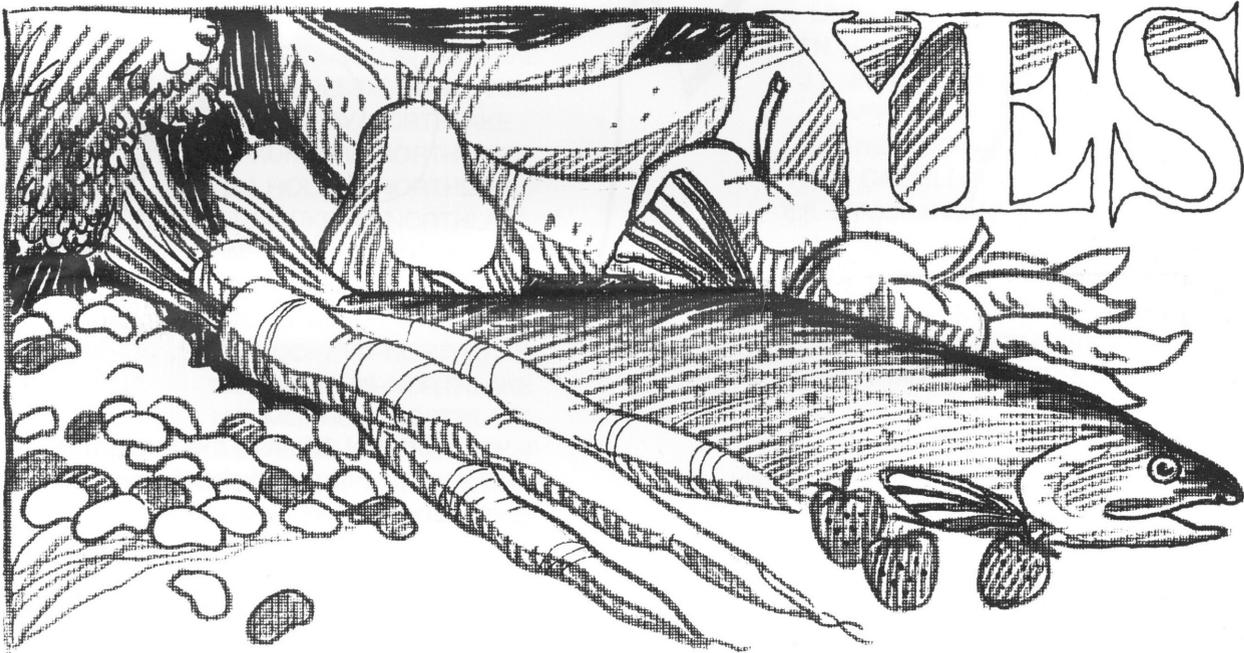
By choosing the healthy alternatives in the accompanying list, you can improve your cholesterol balance. However, when making dietary choices, bear in mind that the American Heart Association states that total fat intake, whether saturated or not, should not exceed 30 percent of total calories. (The American average currently is 40 percent.)

Water soluble fibers also help maintain a healthy cholesterol level. These are present in oats, beans, carrots, pears and a variety of other fruit. Fibers that are not water soluble, such as wheat bran, appear not to have any effect. Fish should be eaten two or three times a week because it contains an ingredient that lowers the level of LDLs.

Cholesterol level is easy to determine through inexpensive blood tests that can be administered by a doctor or another health professional. Everyone should have his/her cholesterol level checked so that corrective action can be taken if the level is in the risk range. (See chart.)



ur health



Choices for a Healthy Heart

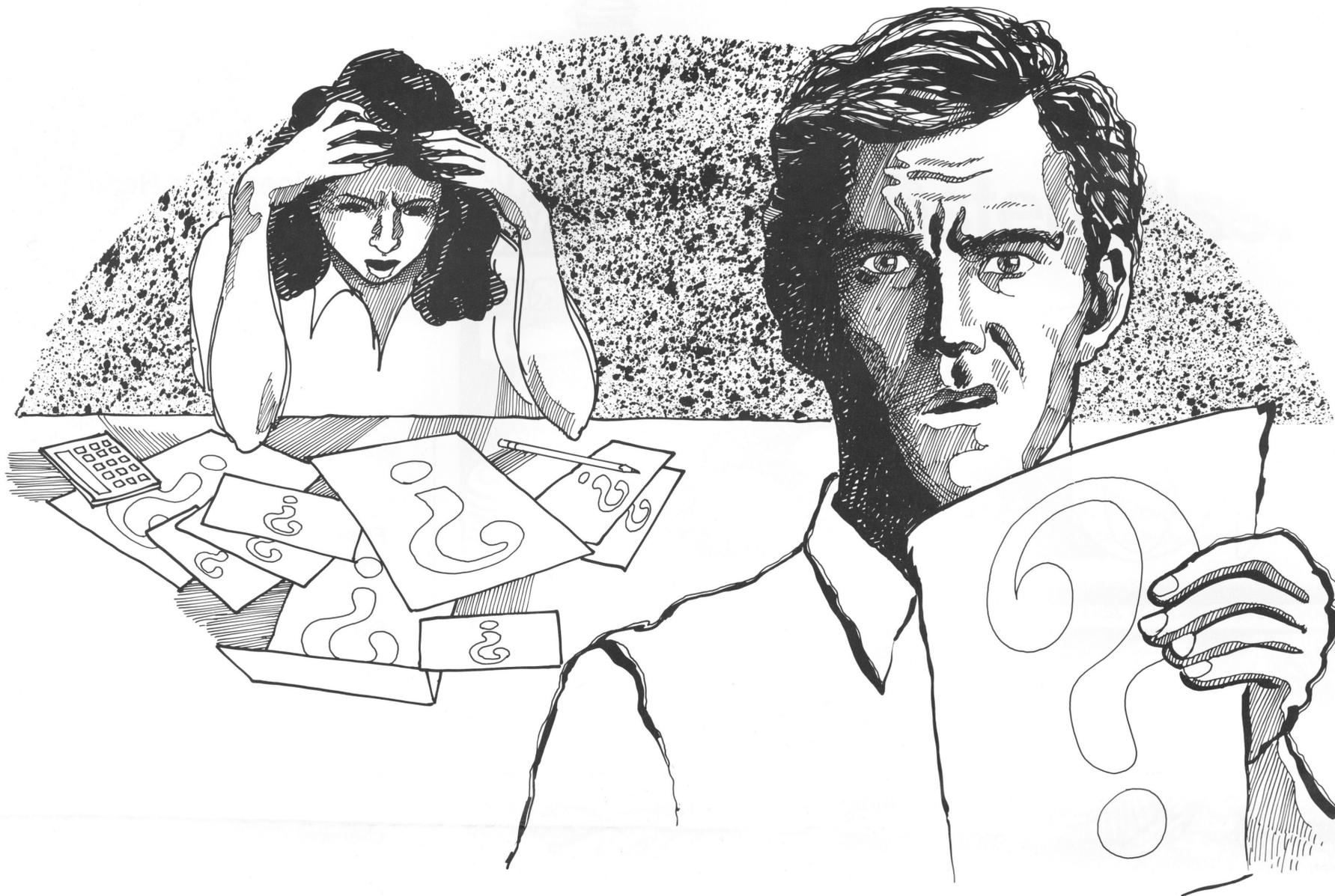
Avoid (High in total fat, saturated cholesterol) polyunsaturated	Healthy Alternative (Low in total fat, fat, monosaturated fats replace saturated fats)
Animal fat, hydrogenated fats	Polyunsaturated and monosaturated oils (corn and olive oil respectively)
Fatty red meats, organ meats	Lean red meats, fish, shellfish (excluding shrimp)
Poultry skin	Skinless poultry
Processed meats (cold cuts, sausage, hotdogs, bacon, hamburger)	Turkey, chicken breast, lean roast beef
Whole milk products (includes many cheeses)	Skim milk products, low fat cheeses
Butter, sour cream	Polyunsaturated margarine, low fat yogurt, Baked goods
	Fresh fruit and vegetables
Eggs	Egg whites
Fried food	Baked, broiled, boiled food

Total Cholesterol Values (American Medical Association)

(mg/dl)*	Risk of Heart Disease
Total Cholesterol Values	
130-200	Ideal range
200-240	Mild increase in risk
240-265	Moderate increase in risk (moderate hypercholesterolemia)
265 or more	High increase in risk (severe hypercholesterolemia)

(In the lower values, the risk is negligible no matter what the value. However, for values higher than 180, the higher the value, the greater the risk. About 20% of adults have values above 240.)

* milligrams per deciliter—a medical measure of cholesterol.



Another look at the new W4

The ink was still wet on the new W4 form issued by the IRS under the 1986 Tax Reform Act when an outcry went up from thousands of angered taxpayers. Most were confused, some to the point of having to seek professional assistance in filling out the number of exemptions they needed to claim. Lawmakers hurriedly instructed the IRS to reissue the confusing form. Although the agency complied, some tax experts say there isn't enough difference between the two forms to warrant waiting to get the updated version.

The Payroll department expects to have a supply of the new, new W4 (the W4A) by late April or early May. However, they also say the IRS's attempt to simplify it fell short. All employees are required to fill out the W4 (either the W4 or W4A) by Oct. 1. Payroll suggests that if you haven't already completed the form, to do it as soon as possible and not wait for the Oct. 1 deadline. All employees should have received the new W4 in late February in their mail at work. If you haven't received this form, you should contact Payroll.

The following list of questions and answers addresses some of the concerns often voiced regarding this new form.

Q: Why do these new forms have to be filled out at all? The size of my family hasn't changed in years.

A: The new form reflects the sweeping changes embodied in the Tax Reform Act of 1986. Withholding allowances, as we had known them in the past, may not accurately reflect the correct level under the new law. If you ignore the new form, it's possible that you will have too little or too much tax withheld.

If too much is withheld, you will probably get a tax refund next year. On the other hand, if too little is withheld, you could face a big tax payment next April, as well as the possibility of heavy interest charges and penalties.

IRS rules state that your withholding must be 90 percent of your 1987 tax bill or 100 percent of your 1986 tax liability.

There's also stiff penalties for those of you who may try to knowingly short change Uncle Sam.

Q: Is the new W4 form really that much different from the old one? Is it really that difficult to fill out?

A: Although the actual piece of paper you have to return to Payroll isn't that much different from what you've filled out in the past, the process you must go through to determine those numbers

is very different. Most of the four-page form contains the worksheet, some tax tables, and a list of instructions.

Q: I've heard that the IRS reissued the new W4 in an effort to make it easier to fill out. When will I be able to get one of these forms and is the company going to mail them out?

A: The IRS has reissued the new W4 form. The new one is called the W4A. But, according to some payroll experts, it really isn't a whole lot different from the other one. It's still four pages, and still has an extensive worksheet that must be completed.

The Payroll department will have a supply of these new forms by early May. However, there are no plans to mail them to everyone's home. If you would like one, you should contact Payroll and request that it be sent to you.

Q: And what if someone decides to skip it all together, and dodges the Oct. 1 deadline for turning the new W4 in to Payroll?

A: WELL, you won't go to jail. But, Payroll will automatically give nonmarried employees one deduction and married employees two. This could—and probably would—lead to inaccuracies in your withholding level.

Q: Where do I return my form once I have it filled out?

A: You should return it to your Human Resources representative where you work, or you may send it directly to Linda Ustrak, Dept. 729, in Northlake.

Q: What if an employee shreds the worksheet, and sends in the form without going through those motions?

A: Tax experts recommend against that. But employees with simple tax situations may need to fill out only the first five lines of the worksheet.

Q: How will someone know if they should take a deep breath and plunge deeper into the worksheet?

A: If you have income from a source other than your GTE job that totaled \$950 or more for the year...you need to fill out the rest of the worksheet. Also, for those of us who itemize deductions, again, fill it ALL out.

Q: Are there shortcuts for employees who itemize?

A: Sure. To figure out allowances for itemized deductions, employees need to: estimate allowable itemized deductions; enter their applicable standard deduction, which is already figured into the tax tables; subtract the two to arrive at their additional deductions; divide by \$1,900 to determine additional allowances and—finally—add them to the ones previously determined.

Q: So what about this Tax Reform Act of 1986? What are some of the major changes besides this new W4?

A: Sales tax deductions, two-earner deductions, IRA deductions (for employees covered by an employer's pension plan), have all been eliminated. Consumer interest (other than mortgage) will drop to 65 percent deductible in 1987, 40 percent in 1988, 20 percent in 1989, 10 percent in 1990 and is eliminated altogether in 1991.

Personal exemptions, however, increase to \$1,900 for 1987, \$1,950 for 1988, and leap to \$2,000 for 1989.

Q: What if I make a mistake filling this thing out and find out later that my withholding is all messed up?

A: Fortunately, employees can file a new W4 form every time their tax situation changes significantly. CSC's Payroll department will make the necessary withholding adjustments.

Q: Where can an employee go for more help?

A: The IRS has a toll free number that you can call for assistance in filling it out. Also, everyone is encouraged to take their questions to their own financial consultant or tax adviser.

Payroll and Human Resources can answer limited questions about the form, but are not in a position to advise you on your personal financial matters.



Employees involved in the W2 project are: (left to right) Linda Ustrak, Kim Engle, Harry Patel, Sue Derer, Mike Lakota and Frank Pizzi.

A new view of the W-2

In the past, employees' W-2 forms—traditionally printed on a seven-part carbon form—left a lot to be desired concerning print quality. Anyone needing to use any of the forms on the bottom of that stack often had to struggle to read the numbers.

This year, however, the print quality on your W2 form was the best it has ever been. And, that good news is possible, thanks to the combined efforts of several departments.

Frank Pizzi, Coordinator-IM Data Center, headed the project to bring laser print technology to the old drudgery of paying taxes. Thanks to Pizzi and employees from Corporate Systems Payroll Support Group, the Payroll Tax Department, and the Data Center departments, GTE Communication Systems once again demonstrated it's ability to be the best.

"It took a lot of coordination to get so many different departments working together," said Pizzi, adding, "But the cooperative effort by everyone was great."

GTE supports hospital quality with grant to Tampa facility

GTE recently announced its support of a state-of-the-art, computerized hospital quality assurance program to help meet today's critical need for cost-effective, quality health care. The GTE Foundation has awarded a grant of \$92,000 to Tampa General Hospital to implement and test an 18-month pilot program, which will serve as a model for hospitals across the country.

The program, when completed, will provide the facility with a fully computerized system to monitor continuously the quality of medical care. The improved system will enable Tampa General Hospital to complete quality-of-care assessments with access to the full range of data required, including patient-oriented clinical information as well as financial, manpower, supply and other data.

"GTE is committed to health-care cost

containment efforts, which at the same time help to ensure that quality health care is provided," said Edward MacEwen, GTE's Vice President-Corporate Communications. "This grant will enable Tampa General Hospital to monitor costs and still maintain quality medical care for the entire community," said MacEwen.

"We recognize that non-profit hospitals are under severe pressure to provide quality health care in a cost-efficient manner due to today's highly competitive health-care environment. The GTE grant provides Tampa General Hospital with needed tools to further build an efficient and accurate quality assurance program," said MacEwen.

"Members of the governing board, the medical staff and the administration are grateful to GTE for this expression of faith in our ability to pilot successfully," said Newell France, President of Tampa General Hospital. "GTE will have made a contribution to improved patient care across the nation."

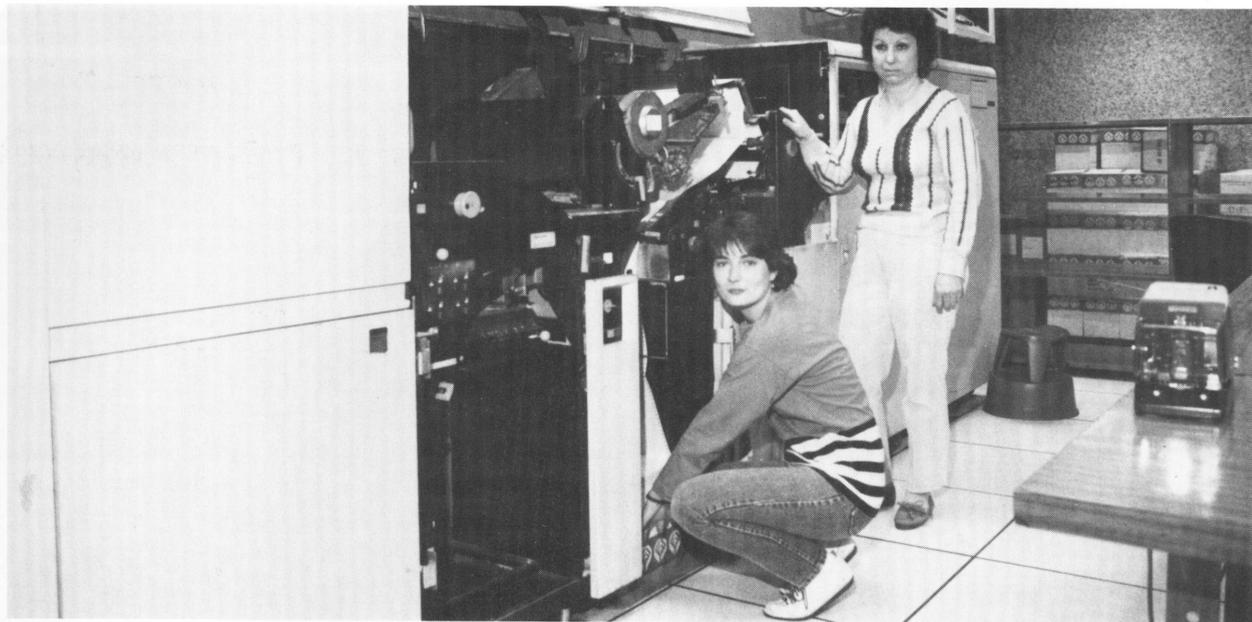
Trees thrilled!

Printer retired as demand for paper reports declines

During the fourth quarter of 1984, print requirements at the Northlake Data Center had grown to an all-time high of 9 million feet per month. The three IBM 3800 laser printers had reached their capacity and provisions had to be made to meet the growing print needs of the user community. This meant having to purchase or lease of a fourth laser printer, a very expensive machine. However, some voices in management thought that an alternative to continued dependence on printed material should be found.

From that alternative, the "Save The Forest" program was born. This project, embodied the Vision and Values of GTE, was under the direction of Art Perdakis, Manager-Data Center Customer Services. The goal of the project was to offset the need for growing print demand, provide an overall cost-effective approach to printing, and—in fact—reduce the number of laser printers by one.

The project started gaining momentum in June 1985 as the project team made up of Peter Amenowicz, Casey Baran and Colleen Farrell started educating the user community and installing software to more effectively manage data to be printed. That's when the print savings finally started to be realized.



Kathy Valquisti (left) and Margaret Augustyn check the paper on the IBM 3800 laser printer just before it was removed from the Data Center. GTE Communication Systems was able to remove the printer as a result of the success of the "Save the Forest" program.

The user community was very receptive to the idea of reducing print costs. Many individual users significantly contributed in the project team's efforts.

As a result of this cooperation, unneeded reports were identified and eliminated. Large volume reports were converted to microfiche, and the number of multiple copy reports reduced, while several others are now being archived and printed only on demand.

The implementation of "TWO-UP" printing, a facility allowing two pages to print on one, and "CA-DISPATCH," which allows for select data printing, were enthusiastically received by the user community. These two features

vastly reduced print requirements.

An advanced feature of "CA-DISPATCH" scheduled for installation during the second quarter of 1987 will provide online viewing capability of reports. This should increase even more the company's ability to reduce printing requirements.

By using the tools available today, an industry-wide print trend toward producing more and more paper reports has been reversed while still meeting user print demands. The evidence of this success culminated on April 6 with the removal of one laser printer.



5A line card displayed at USTA Showcase

Maureen Doyle, Director-Network Switching Training, shows GTE Communication Systems' new 5A line card to an interested conventioneer at the USTA Showcase held in Las Vegas during April. The 5A line card is an example of how Communication Systems is using state-of-the-art techniques—such as surface mount technology, VLSI, and robotics in the manufacturing process—to bring ISDN Age hardware to our customers.

Final phase of P.O. Plus implemented

The final phase of P.O. Plus was quietly implemented March 30 by Northlake's GTEMPS Project Team, adding all E-Route part numbers to the GTEMPS system and eliminating the need to manually generate purchase orders. This installation marks the end of a series of implementations which began in August 1985.

The latest addition—E Routes—contains about 2,500 part numbers that include items not manufactured by GTE but are included in the products we sell to our customers. These items are sent directly from our vendors to our customers.

P.O. Plus is one of many modules which make up the GTEMPS system. GTEMPS stands for GTE Materials Productivity System.

The P.O. Plus system gives buyers in our Purchasing Department the ability to issue purchase orders to vendors on-line. Those orders are then approved and mailed out the next day—cutting in half the time that it took under the old manual system.

Participating in the final GTEMPS conversion were Len Pederson, Lorenzo Anglada, Pat Locanto, Vicki Pilut, Bill Adams, Dave Bryteson and Leslie Mackin—all from Purchasing. Serving on the Project Team were Becky Pence, Gordon Stripling, Les Yuen Vam Vengurlekar, Jim Gorska and Hank Burkiewicz.

Short Takes

US Sprint cracks down on code abusers

Two computer hackers in New Jersey have been arrested for code abuse and numerous other violations as part of US Sprint's program to go after code abusers. The company worked with local U.S. Secret Service officials to track down the two hackers.

US Sprint is presently following over 20 leads in the seven Atlantic division states, and hundreds of leads nationwide, as part of its new program to get tough with code abusers.

"Unauthorized use of long distance codes is not a game. It's a violation of federal law," said Atlantic Division President Gabe Battista. "Law enforcement officials also are acknowledging that the problem is serious and extensive. We're working with them all over the country to apprehend offenders."

The collaboration with legal officials is the latest extension of US Sprint's overall program to stem code abuse.

In addition, US Sprint's Atlantic Division is beefing up efforts to recover the income by re-billing the customer who actually made the calls, according to Atlantic division Customer Service Director Jack Reigle. "We also monitor all accounts to spot sudden high usage," said Reigle.

Code abuse is an industry-wide problem, according to Reigle. The Communications Fraud Control Association, formed in 1985 to go after the growing problem, estimated \$584 million in code abuse in 1984.

US Sprint's recent efforts with law enforcement officials and the Regional Bell Operating Companies have led to other successes. In the last month, numerous suspects all over the country have been arrested.

The Atlantic Division just identified two computer hackers operating out of the District of Columbia that were "into the business for thrills rather than for profit," according to Jay Stenger, Regional Security Manager for US Sprint. Instead of prosecuting, the company used them for information about a substantial ring of probable code abusers. In another case in Virginia, the division was able to bill back thousands of dollars in what had been lost revenue.

'Spear' action teams established to meet Winning Connection goals on product standardization

Three action teams have been established by the Telops Management Committee to implement standardization processes and measurement systems in the area of network equipment procurement, according to Kent Foster, group vice president-headquarters staff.

The teams will operate under the program name SPEAR, which stands for Standard Products Ensure Aggressive Results.

An effective product standardization program was identified in the Winning Connection task force study as one of the critical actions needed to improve Telops' quality and cost position as the company enters a more competitive era.

"During the Winning Connection study, we discovered that nearly 60 percent of all the new products and components purchased for our network were non-standard," said Foster. "Historical evidence indicates that less than half of these non-standard items will meet Telops quality specifications."

Range of Products Cited

Non-standard product purchases ranged across all areas of network activity, including transmission equipment, outside plant, and customer premises equipment.

"As a result, we have quality product gaps, customer satisfaction has been jeopardized, our maintenance costs have increased and productivity has dropped. This translates to increased costs," Foster said. "The establishment of and adherence to a product standardization program will be a major step toward improved quality across our network. Our SPEAR teams will address these issues and develop an implementation plan to correct these problems."

Foster noted that C. F. "Butch" Bercher, vice president-marketing, General Telephone of the South, has been selected to coordinate the SPEAR team activities. The teams themselves

will have representatives from Telops staff and each of the GTOCs.

The SPEAR action teams will be working over the next three months to establish specific accountabilities and measures, create a focal point for control, define vendor administration and resource requirements, all aimed at the implementation of a standard GTE purchasing policy.

"It's imperative this be done in order to ensure the highest levels of GTE quality and meet, if not surpass, our customers' expectations. By doing so, we will improve our competitive edge in the marketplace, a key Winning Connection goal if we are to achieve success in the very competitive 1990s," Foster concluded.

US Sprint breaks new TV ad campaign

US Sprint, the nation's fiber-optic, long-distance telephone company, put its crystal-clear medium to the test for a television commercial that began airing in April.

For the commercial, a singer in New York picked up an ordinary telephone, sang into the mouthpiece—and broke a glass bud vase in Los Angeles. The bud vase was an ordinary, off-the-shelf item that any consumer can buy.

The sound was carried coast to coast via one of US Sprint's two all-digital fiber-optic transcontinental routes from a recording studio in New York City to a recording studio in Los Angeles, where it was amplified.

"This first ever over-the-telephone demonstration clearly shows the quality and clarity of US Sprint's fiber-optic communications network," said Ed Carter, Senior Vice President of Marketing. "The commercial is indicative of why more than 75 percent of the business people who took part in a comparison survey preferred the quality of US Sprint's fiber-optic lines."

Amtrak, Railfone announce expansion of service area

Passengers on Amtrak's Metroliner trains between Washington, D.C. and New York City are now able to call anywhere in the world using Railfone mobile telephone service, according to a joint announcement by Railfone, Inc. and Amtrak. Railfone is a subsidiary of GTE Airfone.

"The international calling feature permits the growing number of Metroliner travelers who are part of the international business or government communities to remain in touch with customers, staff members and others throughout the world," said John Goeken, President of GTE Airfone.

Railfone on-board telephone service was first offered on Metroliner trains in June 1986. Until now, however, the service has been limited to calls within the continental U.S., Hawaii and Puerto Rico.

Goeken also noted that CHOICE credit cards have been added to the list of those previously authorized, which include American Express, Carte Blanche, Diners Club, Mastercard and Visa.

To initiate international calls, passengers simply slide a credit card through a special slot in the telephone. After receiving dial tone, they can dial a call like they would any other at home or at work. Passengers needing assistance can dial "O" for customer service.

The charge for international calls is \$15 for the first three minutes and \$2.50 for each additional minute or fraction thereof.



Around Communication Systems

Darlene Bieneman, IM Staff Analyst, recently was presented the "Outstanding GTEMail Coordinator Award" by GTE Service Corporation at the GTE Telemail Conference in California. She was recognized for her outstanding efforts in providing support and training to more than 1,500 Communication Systems GTEMail subscribers.

"Bieneman serves as the resident expert for our Telemail system within CSC," said Ron Ziolkowski, Manager-Information Center. "She is recognized throughout the GTE organization as one of the most knowledgeable employees when it comes to solving Telemail problems."

• • •

In a strong show of community spirit, 23 Genoa employees joined together to raise \$1,382.36 for Big Brothers/Big Sisters, and had a lot of fun in the process.

"Bowl for Kids' Sake," a bowling tournament annually held in March in the Genoa area, is the organization's main fundraiser. Its success depends on support from community-minded companies like Communication Systems—

and for several years now, GTE employees haven't let them down.

"We have a lot of caring, concerned people here, and that's proven by our excellent results in pledges and participation," Linda Wittrup, R.N.-Genoa and coordinator for this year's efforts, said.

• • •

Big Brothers/Big Sisters is a nationwide organization that specializes in matching adult volunteers with children and teenagers who need more guidance and attention than they can get from their own family. Genoa employee Patricia Greene and Phoenix employees Geraldine Chase and Jeffrey Buck have volunteered in this way for BB/BS and as a result of their work, GTE Communication Systems granted the two agencies a donation of \$2,250 under the Volunteer Initiatives Program.

• • •

Doug Hillestad was named Phoenix R&D Employee of the Month for March. "Doug

displays a dedication toward getting the job done with a thoroughness that is always above expectations," said Bruce Voris, Supervisor-SVR 1621/1641.

"It was through his skills in problem isolation and resolution—and interfacing with site personnel—that the Salem, Ore., milestone was met with such success," said Voris.

Hillestad recently moved from a system test/field support role to a design maintenance role. Since making that transition, he has started leading the design maintenance effort as the overall Group CTS coordinator.

• • •

People are the heart of any business. From CEO to part-time clerk, we're all individuals, with individual hopes, dreams and aspirations. We also all become involved with myriad activities, both in and out of work.

This column is about those endeavors. It's about everything that goes on in CSC people's lives. Whether it's winning a major award for the company, securing a patent, or being installed as president of the local Moose Lodge, it's of interest to your co-workers.

We hope you will contribute items of general interest to this column. Please forward any information you feel would be appropriate to: Ron Taylor, Manager, Employee Communications, in Phoenix, or call (602) 581-4225.

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