

FAIRCHILD
HORIZONS



In this issue . . .

The graveyard on HORIZONS' cover has nothing to do with a story inside. It stands on its own as the Best of Show-First Place Scenic winner in HORIZONS' first annual photo contest. Ray Gouldsberry, Sales Support manager for Distribution, Discrete Products Group, was judged by a panel of three experts to be the creator of the most interesting photograph in this contest.

Judging went smoothly (as smoothly as could be expected when the task is to name nine winners from a field of almost 400 entries), until the final category, Scenic. Ray Gouldsberry took first place, Ray Gouldsberry took second place, Ray Gouldsberry took third place. It wasn't until the photographers' names were uncovered that the judges knew they had a dilemma. As the ground rules state, Ray received his first place award, and his other two outstanding Scenic entries were given special Honorable Mentions. The other top entries in the Scenic category were moved up accordingly. In each category, using a point system, the judges selected seven outstanding photographs—21 in all. In a second voting, they narrowed that field down to five in each category, three prize winners and two honorable mentions. The results of the judging are published on pages 12 through 14.

The year of Europe. In this issue, we look at Semiconductor Components European headquarters in Wiesbaden, Germany (pages 2 through 5.)

Fairchild, the customer. An introduction to some of the small companies which call Fairchild "customer." Page 10-11.

For an introduction to members of management of Semiconductor Component's product Divisions and SBUs, see pages 5-7.

An area called "the chosen spot of all the earth" by Luther Burbank is now home to Fairchild. Pages 8-9.

New applications for semiconductor products results in a new organization for Systems and Equipment Products, **Communications Equipment**, page 15.



Where We Are Wiesbaden, Germany

Everywhere huge cranes are silhouetted against the sky, seeming to pull multi-storied buildings out of the ground. Everywhere aging buildings are being razed to make way for modern and more efficient housing, business offices, and plants. And everywhere structures that are of significant architectural or historical importance are covered with scaffolding to receive a scrubbing and repairs that will insure their continued existence.

Simply driving through any major Western European city you feel the new affluence and activity. That initial impression is confirmed in conversations with housewives, businessmen, and workers.

It is the year of Europe. All recognized economic barometers point to Europe's rapidly growing influence in all of the world's major social and economic endeavors.

For the tourist, many Western European cities still retain their ochre and orange hue; the color impression created by the terra-cotta roofed plaster and stone houses and buildings of the Middle Ages and Renaissance. But, if you focus a little closer, you realize that tucked between the castles, cathedrals, and monuments are some of the world's strongest contemporary economic powers. Virtually every major company in the world has established a foothold in Great Britain and on the European continent in order to participate in their economic growth.

And Fairchild is no exception. Both of its major organizational units—Semiconductor Components and Systems and Equipment Products—have operations in Europe with headquarters in Wiesbaden and Munich, Germany, respectively.

The business activity that is evident throughout Europe is reflected in Fairchild offices throughout Great Britain and the Continent. For Semiconductor Components, this action can be traced to its European headquarters in Wiesbaden.

A leg of the autobahn, the four- to six-lane highways that cross most of Germany, will take you from almost any point in the country to the Fairchild plant. Located in Southwest Germany, the area surrounding Wiesbaden is rolling hills which are remi-

niscent of Northern California when they wear their summer mantle of green. The carefully planned autobahn snakes inobtrusively through the countryside.

Tucked in valleys on either side are towns and cities; some showing the effect of industrial progress in their blanket of smog, but most, like Wiesbaden, retain an atmosphere of robustness and health with crystal clear air, and farmlands and stands of trees running up to the cities' edges. In the Rhine Valley, where the Fairchild plant is located, a visitor obtains the impression that its people have not lost touch with the earth. The agricultural products that spring from the lush hillsides and farmlands are evidence that centuries of respect for the land is repaid in bountiful harvests. Most evident among the crops are grapes which will leave the vineyards for the winery to be transformed into the area's renowned white wines and champagnes. The hillsides climbing from the Rhine River are carpeted in vineyards. And atop virtually every pinnacle is a medieval castle; a reminder of the importance the river played as a means of transportation and a buffer against enemies in its history. And the Rhine has not lost its significance in modern-day Germany. Despite its picture-postcard prettiness, it is a working river. Barges carrying agricultural and industrial products from one port to another are seen with more frequency than pleasure craft.

The Fairchild plant is located in an industrial park within walking distance of the Rhine. Its neighbors are several national and international firms, which, like Fairchild, have found Wiesbaden to be an excellent site from which to serve the markets of Europe. The city's proximity to an international airport in Frankfurt, some 20 miles south, the excellent highway system and a city government that is encouraging to business decided the company on Wiesbaden when Fairchild sought a site for its European base in 1970.

The city shows its origins in some carefully preserved structures that date from the 13th century. Architecture representative of the past seven centuries details Wiesbaden's growth from a health spa during the Middle Ages to its present status as capital of the German state of Hesse. Because of its importance in government, many members of Wiesbaden's

work force are employed in governmental administration offices.

The downtown area of Wiesbaden is bisected by wide boulevards with pedestrian malls in their center. Flower kiosks, newsstands, and tobacco shops line the malls. On either side of the boulevards are shops and stores that offer virtually every human necessity and luxury. A Wiesbadener need never leave his city for shopping, entertainment or recreation. There are theatres, restaurants, parks, and of course, the Rhine. Wiesbaden residents are proud of their city's self-sufficiency. That pride is expressed in reaction to an apparent undercurrent of competition with Wiesbaden's nearest major neighbor—Frankfurt.

Many of the streets in older sections of Wiesbaden were laid long before the automobile was an idea. Drivers must accommodate the whims of the winding narrow brick-lined lanes that wend through some sections of the city. But the effort is worth it. It is in these narrow streets that you see the half-timbered houses that every schoolchild associates with Germany. Many of the old homes in the Rhinegau (vineyard) section have been converted into restaurants where the local product flows freely at meal-times.

Visitors are drawn to Wiesbaden by the reported curative powers of its mineral springs and by its history.

The city's population, however, is as concerned with tomorrow as yesterday. Fairchild employees and those of other companies within the city realize the opportunity that lies before them. The city, the country, and all of Europe is poised on the threshold of an economic spurt that is unprecedented in decades.

Europe suffered a recession in 1970 and 1971, though it was briefer and less damaging than the economic setback which occurred in the United States. The Continent and the British Isles have recouped from their recession with renewed economic strength and eagerness to expand their position in world markets. This ambition has been realized in the steadily increasing growth in demand for most commercial, industrial, and consumer products. Within the walls of the Fairchild plant in Wiesbaden, the impact of the growing demand for electronic products can be witnessed. Expansion is underway. The plant will soon install a MOS wafer diffusion facility; the first diffusion operation in a Fairchild plant outside the United States. Once the installation is completed, 20 furnaces will be in operation turning out several thousand three-inch silicon wafers each week. The test and finish activity will also be expanded to further develop the plant's ability to package and check out MOS and DIC circuits to the most



stringent electrical specification.

"This expansion of our manufacturing capability," states Dave Marriott, European General Manager for Semiconductor Components, "establishes Fairchild as a true European manufacturer rather than simply a distributor of devices made in other parts of the world. Our manufacturing capability will offer us greatly increased opportunity to participate in the fast-growing European market for our products. Having a product readily available for shipment is a prime consideration in Europe where the competition for semiconductor sales is fierce. We face the familiar names such as Texas Instruments, Motorola, and National, as well as European manufacturers of semiconductor devices such as Phillips and ITT. Local manufacturing, when economically sensible, can give us that all-important edge on the competition."

The growth in demand for electronics products, particularly to satisfy the consumer market, has resulted in an 80 percent increase in Fairchild sales in Europe in 1972, and a projected 100 percent increase in 1973 over 1972. Fairchild has accomplished this dramatic growth through the

efforts of a marketing staff located in offices in the United Kingdom, France, Germany, Scandinavia, Austria, Italy, and a network of distributors in other areas of Europe.

"Doing business in Europe," Dave Marriott reveals, "is different than in any other area of its size in the world. Europe contains many diversified national and cultural characteristics; so, most companies which attempt to serve all of Europe, develop national sales forces. We are developing a pattern of European marketing personnel who are capable of dealing with customers throughout Europe. Obviously, the benefit of this organization is that it allows us greater mobility in assigning personnel, and gives the individual greater opportunity for career growth. I believe," he continues "that many other companies will follow our lead in European marketing. The countries themselves have recognized that they gain greater strength by forming an economic coalition with their neighbors and, therefore, many of the national jealousies are relaxing in favor of a strengthened Europe."

Dave, who accepted the assignment as European General Manager in



Dave Marriott

September, 1971, after five years as Plant Manager in San Rafael, California, has concentrated on developing the marketing and administrative force that he believes is vital to full participation in the expanding European economy. "We," he states, "have a very high caliber mar-



keting staff which will expand by at least 60 percent in the next 18 months to provide the coverage we need for the sales opportunities that are out there. Our administrative staff," he adds, "is being carefully groomed to the nuances of doing business in Europe. At the heart of our administration is our staff of secretaries who are all multi-lingual." (This is frequently a visitor's first view of Fairchild-Europe. The pretty receptionist concludes a telephone call in French, greets a visitor in German, and without asking your name, greets you in English. Not only can these multi-lingual wonders speak numerous languages, they can guess the country of an individual's origin before a word is spoken.)

However, as at all plants around the world, Fairchild employees are more alike than different. They're involved in the similar problems surrounding manufacturing, marketing, and delivering products. To keep the voice of Europe heard in this time of worldwide shortages in semiconductor products, Customer Service representatives burn up the TWX lines between Germany and California; and when the situation demands it, they make telephone calls to their product sources in San Rafael, South Portland, Maine, and Mountain View.

Fairchild-Europe, which objectively admits that it is not in the running as one of the top three semiconductor suppliers in Europe, has set its sights on becoming number one in integrated circuits in its markets within the next few years. This is an ambitious goal considering the deeply entrenched competition it will meet along the way. But, if enthusiasm, conviction, perseverance and impressive experience in the semiconductor industry is what it takes, Fairchild-Europe will make it.



New Semiconductor Products Organization Poised For Growth

**One new group, plus
Four new divisions, plus
Three new Strategic Business Units, equals
An organization created to respond to
growth in the semiconductor industry.**

Realized and projected growth in most of Fairchild's semiconductor product areas resulted, in July and August, in an organization realignment in Semiconductor Components which elevated Analog Products from Division to Group status, created four new divisions, developed three new activities—Strategic Business Units—and resulted in the promotion of Paul Reagan from South Portland Plant Manager to Digital Products Division Manager.

It is an organization prepared for action with dedicated attention to product development, manufacture and marketing in each of the company's major semiconductor markets.

But you can't follow the action, unless you know the players. So, here on these pages, are the teams of Semiconductor product division and SBU management which are responsible for helping to move Fairchild into first place in all areas of the semiconductor components business.

**Analog Products Group,
LIC DIVISION: Jim
Smaha (foreground), Di-
vision Manager; (stand-
ing, left to right) Jerry
Markus, Marketing Man-
ager; Al Sprowl, Produc-
tion Control Manager;
Lew Wallbridge, Indus-
trial Relations Manager;
Charlie Gray, Consumer
Products Manager; Jim
Boyd, Packaging and
Off-Shore Coordination
Manager; Pete Weiler,
Maintenance Engineer-
ing Manager; Murray
Wilson, Commercial
Products Manager;
(seated, left to right)
Bob Muller, High Rel
Operations Manager;
Doug Finch, R & QA
Manager; Dick Forrest,
Power Products Man-
ager; and Fred Roeder,
Operations Manager.**





Analog Products Group, CAMERA SBU (left to right) Ron Grable, Manufacturing Equipment Engineering Manager; Cliff Smedley, Camera Operations Manager; Frank Perrino, Camera Products Engineering Manager; C. J. Stoll, SBU Manager; Don Hammond, Production Inventory Control Manager; Lynn Miner, R & QA Supervisor; and Dave Murray, Controller.



Analog Products Group, AUTOMOTIVE—IMS SBU (left to right) Muni Aggarwal, R & QA Manager; Joe Flowers, Operations Manager; Jim Hazle, SBU Manager; Craig Jorgensen, Production Control Manager; and Jim Rapaich, Industrial Marketing Manager—IMS Products.



Digital Products Group—DIGITAL PRODUCTS DIVISION. Paul Reagan, new Digital Products Division General Manager, bears the expression of a man on the move. At the time this issue went to press, Paul was continuing to bear the responsibility of South Portland plant manager as well as his new assignment. This photograph was snapped as he was packing his brief case to head for the airport to fly from Mountain View to South Portland, (or was it South Portland to Mountain View?) He promises that as soon as he has settled he will gather his Digital Products Division staff together for a group portrait.



Digital Products Group—MOS DIVISION: Phil Thomas (foreground), Division General Manager; (left to right) Dave Deardorf, Wappingers Falls Plant Manager; Gary Sutton, Division Controller; Jerry Schoonhoven, Operations Manager; John Hambidge, Manufacturing Engineering Manager; John Waller, Industrial Relations Manager; Bernie Aronson, Product Design and Development Manager; Bob Seeds, Research and Development Manager; and Doug McBurnie, Operations Control Manager. Missing: Bill O'Meara, Marketing Manager.

Discrete Products Group—DIODE DIVISION: (clockwise) Steve Carmichael, Hi Rel Products Manager; Ron Burley, Diode Products Engineering Manager; Horst Muenzenberg, Diode Production Manager; Alex Danks, R & QA Manager; Max Maydew, Controller; George Wells, Diode Division Manager; Herman Martin, LIC Products Manager; Don Brown, Material Production Control, Test and Finish Manager; and Bill Elder, Manufacturing Engineering Manager. Missing: Bob Feld, Industrial Relations Manager.



Digital Products Group—BI-POLAR MEMORY STRATEGIC BUSINESS UNIT: (front to back) Bill Baker, SBU Manager; Jack Higbee, Manufacturing Manager; Gary Adams, Multi-Chip Memory Systems Manager; Don Ashton, Production Control Manager; Bob Nevala, Design Test and Application Engineering Manager; Jerry Secrest, Product Engineering Manager; Jim Murphy, Packaging and Assembly Manager; and Doug Peltzer, Product Engineering Manager.

Discrete Products Group—TRANSISTOR DIVISION: Dave Heck (center), Transistor Division Manager; (clockwise) John Barnes, Small Signal Operations Manager; Stan Brehm, Quality Assurance Manager; Fred Rubi, Power Products Marketing Manager; Jonnie Tedrick, Industrial Relations Manager; Don Lewis, Small Signal Product Line Controller; George Bechtel, Microwave Products Operations Manager; Pat McClenahan, Production Control Manager; Ernie Hoyer, Transistor Manufacturing Engineering Manager; and Mike Shahbazian, Power Product Line Controller.



Missing: Ralph Miller, Operations Manager-Power; and Ray Bortner, Marketing Manager-Small Signal.



Discrete Products Group—OPTOELECTRONICS DIVISION (left to right) Bud Frye, Division Manager; Bruce Crockett, Wafer and Die Fab Manager; Bill Lehner, Equipment and Facilities Manager; Bob Beckwith, R & QA Manager; Bob Napoli, Sensor and Emitter Products Manager; Paul Ames, Production Control Manager; Clay Marr, Product Marketing Manager; John Moll, R & D Manager; Michael Brooks, Industrial Relations Manager; and Dick Hannigan, Controller.



Wine, Roses and Silicon Materials

Less than an hour north of San Francisco, there are the renowned Sonoma vineyards, flowering meadows, woodlands, rolling hills, riverside forests, silent stands of redwoods, and the Valley of the Moon immortalized by Jack London—Sonoma County, California. It is an area that attracts many of the state's residents for recreation and relaxation. Many Fairchilders in the San Francisco Bay Area have memories of a pleasant weekend or vacation on the shores of the Russian River. Luther Burbank called the area, "... the chosen spot of all the earth as far as nature is concerned." And now Fairchild calls it home. It is the location of a new Semiconductor Components plant to contain a needed expansion to the Material operations and will enhance the company's capacity to grow silicon crystals and slice and polish wafers. This added capability is in response to the exploding demand for semiconductor devices; devices that begin with the wafer.

Fairchild's decision to establish a Materials operation in Healdsburg in Sonoma County, a town of 5,800 residents, will have a major influence on the economic life of the community. Initial hiring goals are not great; there will be 70 production operators employed at the plant by the end of 1973, and the work force will grow to approximately 700 members over the next few years. But, in a town the size of Healdsburg, the Fairchild plant represents major employment opportunities. It also gives the local population alternative job choices. Until Fairchild established its plant there, most of the Healdsburg work force was employed in agriculture or in businesses that provide services for vacationers.

Healdsburg Plant Manager Jack Callahan states that members of the

local school system have planned visits to the Fairchild plant to determine how curriculum can be altered to help prepare students for jobs with Fairchild. "It's heartening," Jack states, "to experience the reception we have received in Healdsburg and to realize that Fairchild can make a significant contribution to the community."

Starting new Fairchild operations is nothing new to Jack. He was involved in the initial set-up of the semiconductor assembly lines in Mountain View, was instrumental in the establishment of the Shiprock plant, and has served as a manufacturing trouble shooter in virtually every area of the semiconductor assembly and support operations.

"A material operation," he states, "is different than any other area of the semiconductor process. First, it requires major investments in capital equipment; a considerably greater investment than any other phase of the manufacturing process. And it also requires a special kind of facility. Fairchild started with a basic structure in Healdsburg and is presently investing a considerable amount of capital to prepare the building for our needs."

The mushrooming demand for semiconductors has created an industry-wide shortage of silicon wafers. Without wafers there can be no devices. The existing Materials operation in Mountain View is now operating at full capacity and there is no space in Mountain View which could house the



needed expansion; so, Fairchild facilities experts went scouting for a site that would be within a half-day drive of the headquarters plant, (Healdsburg is two hours away by car) and in an area with an available labor force which contained a facility that could be remodeled to Fairchild's needs. The search narrowed to Healdsburg and a warehouse that was once used to store prunes. Because of the extensive construction requirement to adapt the facility to contain a Materials operation, Jack Callahan saw time moving faster than the construction schedule. He had promised that Healdsburg would deliver its first polished wafers to Mountain View by the end of July. By mid-July, Jack's intention of sticking to his original commitment held fast—if only he had an area in which he could set up a polishing line. Problem solved. Healdsburg's first ten semiconductor operators went to work in temporary quarters. The first wafers were delivered to Mountain View right on schedule. The polishing line will be the first operation to move into the renovated facility. It will be followed, in December, by the start-up of the crystal growing activity, and by mid-1974, the Healdsburg facility will contain a complete semiconductor Materials operation.

Employees at the Healdsburg plant have the unique fringe benefit of walking to the Russian River, a block and a half away, to enjoy their lunch by the water's edge. But, aside from the pastoral setting, the Healdsburg facility has quickly come to resemble Fairchild semiconductor operations around the world in its race to satisfy the demand for its product.

Sonoma County is now the land of wine, roses and silicon materials, and the combination seems to be melding well.



Jack Callahan, Healdsburg plant manager.



George Coppinger, Healdsburg Industrial Relations Manager.

Though production was set up initially in temporary quarters on the Healdsburg site, no corners were cut that would affect employee or environmental safety. The collective efforts and semiconductor experience of Jack Callahan, Phil Garcia, Plant Engineer (below, left) and Don Benham, Production Manager (below, right), turned a temporary structure into a completely equipped wafer polishing line. The strange looking structure behind Phil, though it may never earn esthetic honors, is a very effective filtration system that removes all ammonia and silicon from liquids used in the polishing process and allows them to enter the city's sewage system free of contaminants. The Healdsburg project allowed Jack, Phil and Don to demonstrate their lengthy experience in manufacturing and their construction skills. For the first several weeks after Fairchild purchased the Healdsburg site, the three men could usually be found with hammer or saw in hand and they prepared the temporary quarters for occupancy.



Phil Garcia surveys the progress of construction on the former fruit warehouse which is being transformed into one of the most modern semiconductor materials plants in the industry.

Fairchild, the Customer

Everyone knows what a customer is. Even if you've never actually seen one of Fairchild's customers, you have a good mental image of how he or she looks and behaves. We know that they can display a wide range of emotions ranging from glowing appreciation for a job well done, to exasperation when an order is late, or downright disgust if a product doesn't perform beautifully at all times under any conditions. The word "customer" is spoken in a special tone of voice. "The customer wants this right now" can throw a department into frenzied activity. "The customer sends his or her praise . . ." can produce smiles on dozens of faces. "The customer is coming to visit . . ." stimulates activity that resembles spring housecleaning. And when the customer arrives you pretend to be totally involved in your work while watching his movements out of the corner of your eye and wondering if he knows how important he is to Fairchild. The customer is a remote, all-powerful being who determines the regularity of our paychecks. That definition works fine if it's applied to someone else. But, does it fit you and other Fairchild employees? It should, because Fairchild is "customer" to literally thousands of manufacturers, distributors and service organizations in the

world-wide communities in which it operates. A call or a visit by a Fairchild representative to Roger Printing in Syosset, New York, to Inmet in Los Altos, California, to Electronic Wire Services, Inc., in Inwood, New York and to thousands of companies like them, stimulates the same response Fairchild customers can expect when they call on our company. Many of the smaller companies with which Fairchild does business can trace a good portion of their income directly to purchases or services ordered by Fairchild. Because it uses the products of local manufacturers and the services of local businesses in getting its work done, Fairchild becomes deeply involved in the economic life of the communities in which it operates major plants. And many of these "vendors," as these businesses are known in purchasing jargon, develop a business personality that encourages Fairchild to return to them again and again when the company has need for the type of product or service they provide. Fairchild looks for the same qualities in its vendors that its customers seeks in—quality products, on-time delivery and dependable service. Typical of the local vendors with whom Fairchild does business are:

Electronic Wire Services, Inc. Inwood, L.I. New York

"Ken Sonnenberg can always be counted on to jump in on any emergency and meet us more than half way," states Herb Helmers, purchasing manager for the Industrial Products Division. This extra service plus the fact that Sonnenberg's company, Electronic Wire Services, Inc., maintains a highly competitive pricing structure and is willing to meet any fair price while delivering quality products, has earned a special place for the company in IPD's list of vendors.

Electronic Wire Services (EWS) produces printed circuit boards for many customers in New York. For Fairchild, the company assembles, flow solders, and inspects all of the boards used in IPD products. In spite of EWS's growing capacity it continues to maintain its "family image." Ken's wife, Elynor, handles accounting, payroll and record keeping for EWS from the family home, while his son, Michael, a communications major at Hofstra University, pitches in during the summer months to add his contribution to the family business.

Electronic Wire presently employs 15 people. Ken opened his company in 1962. From the beginning, the small company concentrated its efforts on production of printed circuit boards and harness wiring. In 1964, a large contract with an educational company



Ken Sonnenberg

for amplifier boards prompted Electronic Wire Services to add flow soldering equipment which gave it the capability of soldering 10,000 boards each working day.

In 1967, success forced EWS out of its original 1200 sq. ft. quarters and into a much larger building in the same city. The move was accomplished over a weekend. The company was packed up, moved, and resettled without the loss of a single work day.

The quality of EWS products established the relationship with Fairchild in 1963. The company's consistently excellent delivery record and ability to respond to IPD's urgent requests has maintained that relationship.

**Inmet
Los Altos, California**

Isy Haas, three years ago, decided to leave his job as Research and Development manager for a semiconductor manufacturer (not Fairchild) to open his own company, Inmet. The interests of Inmet are so specialized that it could only exist in an area such as the San Francisco Peninsula where there is a large concentration of semiconductor companies. Its product: mask layouts for integrated circuits. The mask is the design which establishes the device's function. Every semiconductor company has a mask layout activity and each of them experiences pressure points in its workload. When the pressure becomes too great, they turn to Isy, or another specialist like him, for relief.

For Isy, Inmet provides the outlet for his entrepreneurial needs and uses his lengthy experience in semiconductor design. For company's like Fairchild, Inmet provides a vital service.

Isy started in his business as a consultant in semiconductor design, and as he examined the services required by the local semiconductor industry, he ultimately narrowed his interest to the design and layout of masks for integrated circuits. "Most of my customers," he explains, "are small companies. Fairchild calls me in on a project only when its workload can't be handled by its own layout designers. At a time like that, Fairchild isn't simply looking for another pair of hands, it wants someone who will take on the responsibility of the entire project."



Isy Haas (standing)

At present, Isy is assisted by a single full-time layout designer and calls in part-time or temporary designers to assist with peaks in the company's workload.

"I decided to strike out on my own," he explains, "to see if an R&D egghead could actually run a business and find satisfaction in it. I have and I can." He adds that Inmet might not always fall into the category of a small business as Isy is examining new ways in which he can use his knowledge to provide additional services to the semiconductor industry.

Fairchild, according to Purchasing Agent Bob Smith, has found a skilled and reliable vendor in Isy Haas, egghead entrepreneur.

**Roger Printing Company
Syosset, New York**



Leo Tucker and Roger Samuels

Fairchild was searching for a printing company to handle the newspapers published for the operations of the company located on Long Island in New York. So, it went to one of its neighbors, Roger Printing Company, which had recently set up shop almost directly across the street from the Space and Defense Systems plant.

The quality of the company's product looked good and the price was right, so Fairchild found a supplier in a neighbor. That was three years ago.

Roger Printing is a young company staffed by young people. Owner Roger Samuels opened the

shop while in his twenties. He recently passed the mark that separates the generations. Trained as a graphic artist, he received the opportunity to learn about the printing business and decided he liked it; so much so that he went into business for himself.

"We print a great deal of material for local business such as stationery, specification sheets and newsletters," Roger explains. "I like doing the publications such as Fairchild's newspapers more than any other job we handle. They are not so full of mathematical detail as spec sheets and I learn about the company and the people. Fairchild," he adds, "is a great customer—they pay their bills promptly." (For small companies, the speed with which its customer pays their bills can often mean the difference between meeting the payroll or not.)

Leo Tucker, also 30, makes up the other half of the Roger Printing staff. Leo came to work as a pressman via a roundabout route. Originally trained as a machinist and gear cutter, his job dissolved when his company moved out of the state. An ad for a printing apprentice led Leo to Roger Printing four years ago and the beginning of a new career. When he arrived for that first interview, he knew nothing about printing, but was anxious to learn. "Leo has quickly learned everything he needed to become as good (and sometimes much better) a pressman as I am."



ANIMALS—First Place
Bob Muller, Mountain View
original: black and white print

PEOPLE—First Place
Tom Cooper
Walnut, California
original: color print

SCENIC—Second Place
David Coutts, Mountain View
original: black and white print

PEOPLE—Second Place
Hans Baumgartner, Commack, New York
original: black and white print



They came from Korea, from New York, from South Portland, from Hong Kong, from Palo Alto, from Mountain View . . .

More than 100 by mid-July, more than 200 by August 1, and, by the close of the first HORIZONS photo contest on August 15, almost 400 entries had been received from Fairchild amateur photographers around the world.

The number of entries far exceeded any expectations. They gave Employee Communications personnel a great number of pleasurable hours as they sorted through the hundreds of photographs to prepare them for judging. They gave contest judges—Jim Carter, Semiconductor Marketing Services Art Director; Steve Allen, Semiconductor Components Photographer; and Rick Klain, Systems Technology Division Photographer—several hours of difficult decisions.

On this and the following pages are the results of that decision-making: the winners of the 1973 HORIZONS photo contest.



ANIMALS—Second Place

Lee Chirk Ying, Hong Kong
original: black and white print

SCENIC—Third Place

Fung Ping Kwong, Hong Kong
original: black and white print



PEOPLE—Third Place

David Shields, Mountain View
original: black and white print



ANIMALS—Third Place

Anthony Smith, Palo Alto
original: color print

Special Honorable Mention for Excellence

(left and below) Ray Gouldsberry,
Mountain View
originals: black and white prints





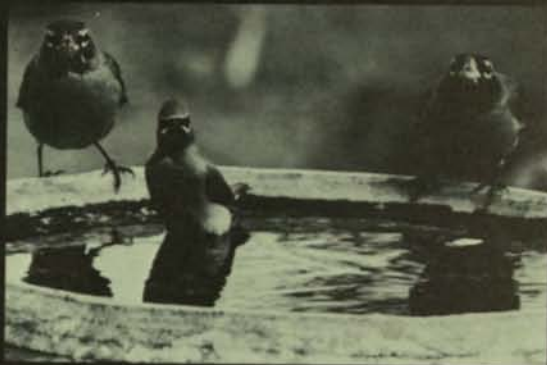
PEOPLE—Honorable Mention
Patricia Bernard, South Portland, Maine
original: color print



PEOPLE—Honorable Mention
Lo Lai Ching, Hong Kong
original:
black and white print



ANIMALS—Honorable Mention
Robert Johnson, Mountain View
original: black and white print



ANIMALS—Honorable Mention
Larry Matthews, Mountain View
original: color slide



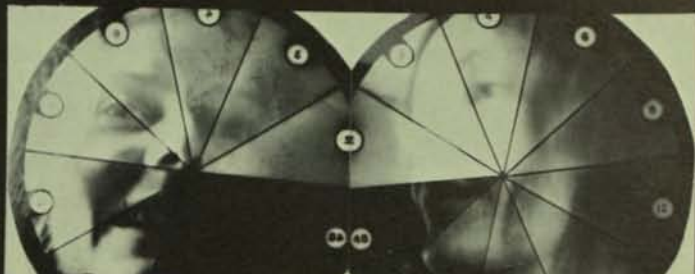
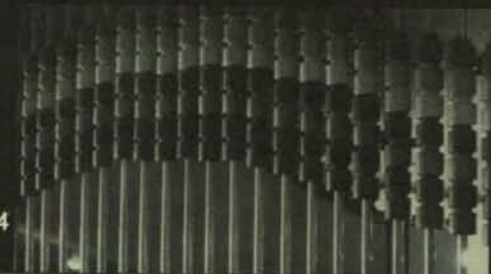
SCENIC—Honorable Mention
Janet Ingram, Mountain View
original: color print



SCENIC—Honorable Mention
Don Ertel, Mountain View
original: color print

MISCELLANEOUS—Honorable Mention
Jung Hee Kim, Korea
original: black and white print

MISCELLANEOUS—Honorable Mention
Lin Parsons, Mountain View
original: black and white print



We've only just begun . . .

We've got transistor radios, hand-held calculators, solid-state color televisions, an infinite variety of electric kitchen gadgets, and now the semiconductor has found its way into the automobile. It looks as though we're finally there—all the applications for semiconductor devices have been uncovered and exploited.

Take a deep breath.

"We've only just begun," states Shel Eglash, general manager of the newly formed Communication Equipment activity of the Systems and Equipment Products Group. He believes that applications for semiconductors are as limitless as the imagination. This belief was born out of a project in which Shel has been involved for the past year and a half and which has resulted in the activity he now heads.

In early 1972, Shel was assigned the task of developing a proposal for utilization of Fairchild's advanced semiconductor technology in new and potentially profitable end-user products.

The only restraint was that he should not consider product fields already fully occupied. That eliminated computers and computer peripheral equipment, calculators, radios, televisions, and many other existing electronic and electrical products.

Not stymied by small things, Shel and his brain-storming side-kick, Lev Dawson, now Director of Operations for the Communications Equipment activity, daily came up with a list of products that would ease a workload or entertain without treading too heavily into areas that are already being served.

Then, they would apply other measurements to their product ideas: "How large is the potential market for the device?" "What would be the marketing problems involved?" "Is the technology involved closely related to Fairchild's existing or potential expertise?"

"We didn't want to be pioneers," states Shel. "What we were looking for was a product or products which could fit into a broad existing market, would have built-in saleability, and would not represent a radical departure from Fairchild's current interests. Because there were so many product ideas from which to choose, we felt that we could be selective in settling on our first product."

What is most interesting is how Shel became involved in the product search to begin with. Fairchild, until the formation of the Communications Equipment activity, had not applied its vast semiconductor technological know-how heavily to end-user products. Not that there is anything wrong in that. Devoting attention to a development and manufacturer of semiconductor devices made business sense for a good many years.

But, at the same time, there was encouragement to broaden the company's product base to temper the reaction to fluctuations in the market for semiconductor devices. So, under the guidelines established, Shel and Lev went in search of a product.

The results of this search and the developmental efforts which followed were unveiled in July at a press conference for reporters from technical and business journals.

The first products of the new organization are two high-speed buffer memories which improve the performance of current teletypewriter systems.

They are "why didn't someone do this before" products. The cost-savings possible with the buffer, the potential market for the units, and the relatively low cost of the systems, make them an ideal first venture into the data communications business.

There are more than half a million teletypewriter systems in use in the United States alone that could benefit from the addition of the Fairchild teletypewriter buffers with savings of up to 92 percent in costs. The buffers accept information through any standard teletypewriter, store it,



Shel Eglash and Lev Dawson in the new Communications Equipment facility in Sunnyvale, California.

and then transmit it at up to 120 characters per second. This is 12 times the transmission rate possible with previous equipment. Therein lies the savings. The largest single cost factor in a teletype system is the charge for telephone lines to carry the messages from one teletype center to another. The faster the messages can be relayed, the less the cost.

Customer reaction to the new buffer systems speaks for itself. Before the concept was out of the blueprint stage, companies with major teletypewriter networks were expressing serious interest. Once the first dozen prototype models were complete and debugged, Communications Equipment began phasing its first run of 200 units into production in its new facility in Sunnyvale.



Talking It Over

At some time, every employee has some questions about Fairchild's policies and practices that affect his or her relationship with the company. Your immediate supervisor is the source of most of the answers to your questions.

However, Fairchild recognizes that there are times when an employee is hesitant to bring a specific problem to his or her supervisor's attention. If this is the case, visit the Industrial Relations Office and discuss your problem with the representative who

serves your plant or area. Talking it over with your supervisor or your Industrial Relations representative can usually provide solutions to problems and information about company policies that will bring a clearer understanding of Fairchild's expectations of you and the programs the company has established to assure fair and equitable treatment of all employees.

Talking it over when the problem or question first arises can prevent unnecessary anxiety.

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HORIZONS

and comfort partially stemmed from the misleading belief that the nation's supply of energy was infinite. But will American families, like Mort's, used to luxuries like a large comfortable car, be able to respond as rapidly to the energy shortage? Mort's family eagerly switched to the small engine car—"My wife and son have never operated a standard shift before. They actually looked forward to it."—turned off the heat in their swimming pool not knowing when it will go on again, turned down the thermostat in the house and questioned every use of energy in their personal lives.

There's evidence throughout the company that many employees demonstrated amazing resiliency in adapting to the life changes the energy crunch has brought.

By this time, Evelyn Pisculli, As-



Elmer Webster (left) and Leo Czarnecki decided to pool driving as soon as the first evidence of a gas shortage began to appear.

sembler in the Audio/Video Cartridge Department of the Industrial Products Division in Commack, New York, has adjusted to the confines of a recently-purchased Volkswagen. Evelyn's former preference in automobiles ran to large station wagons and other big engine cars. Today, she doesn't pull up to a gas station pump more than once a week. A further contribution to the resolution of the energy crisis is made by sharing the V.W. with her son in their morning and evening commute to Industrial Products, where they both work.

The gasoline shortage has had greater impact on some employees than others. Imagine Joe Vanco, Design Engineer at Industrial Products Division, who faces an 80-mile round trip commute each day. Even before the energy crisis began to

show its true character, Joe was re-evaluating his use of a large engine car on the lengthy drive. Economy prompted him to sell his large car for a Ford Pinto, moving his per gallon mileage from 10 to more than 30. His decision is doubly satisfying now that he is frequently limited to a less than full tank of gas as stations attempt to stretch their allowances over all their customers.

Joe also feels the energy crisis in a 15 minute extension to his normal commute time created by the 50 mile maximum speed limits, down from 65-70 mph, on New York state expressways and parkways. New York was among the first states to reduce speed maximums to encourage motorists to use fuel more efficiently. (Tests have proven that up to 25 percent greater mileage can be obtained by reducing speeds from 70 to 50 miles per hour.)

Joe admits that he saw evidence of the impending crisis as early as June of 1973, when he could not obtain gasoline for his boat from tanks along the water's edge. This is one of the sacrifices he faces as he adapts to the energy shortage—eliminating or limiting the use of his boat next summer.

Recreation is one of the areas that has been hardest hit for employees. At this time of year, on Fridays the parking lots surrounding the California plants are usually dotted with automobiles on which sets of skis are strapped. Even with excellent ski conditions this year in the Sierras, some 220 miles away from the Fairchild facilities, the signs of the weekend skiers are less and less obvious as many employees forego their favorite sport for gasoline economy. If gas rationing becomes a reality (which it well may be by the time this issue is out), employee-skiers who have joined with others to rent a cabin for the snow season, may receive little return from their season's investment as they attempt to stretch their ration allowance over more basic driving needs.

Basic transportation needs are what most employees are thinking about as they face the gas shortages. Car poolers, in addition to adapting their own schedules to fit the requirements of two or more other employees, are encouraging others to follow suit. Their cars bear bumper stickers suggesting "Try car pooling—it's a gas"; they wear badges—"Cool

it! Pool it!"; they display key chains—"Prevent gas pains. Form a car pool" (all supplied by Fairchild) in an attempt to encourage everyone to get together to conserve on gasoline.

Among the employees who are travelling together for the first time as a result of car pooling efforts at Fairchild are:

Bud Webster, Manager of Equipment Engineering for Linear Wafer Fabrication, and Leo Czarnecki, Manager of Mechanical Equipment and Maintenance, claim that their flexibility is the single most important element in making their share the driving program work. Both have jobs which don't always end at 5 p.m., so their departure time from the Mountain View plant each day can vary. If one or the other has to wrap up a task before he can leave, the other can always find plenty to keep him busy while he waits.

The two men, stimulated by the energy shortage, formed their driving duo in mid-November. They make the twice daily commute from their homes in Saratoga, California, approximately 15 miles away from the headquarters offices. Because of the similarity of job assignments, Bud and Leo begin the day's work the moment they are in the car in the morning, and the job doesn't stop until they separate in the evening. "We discuss problems we're encountering," states Bud, "talk through new projects and generally benefit from the other's knowledge and advice. Bud and Leo are among hundreds of San Francisco Bay Area employees who have demonstrated their support of energy conservation by forming car pools of two or more persons.

In the Volkswagen shown at the beginning of this story are employees who have gotten together as a result of computer matching. They are Palo Alto and Menlo Park, California, residents and Fairchild employees: Leonard Ekkelkap, Joel Bittner, Donald Penrod, and Gloria Actor.

What more sacrifice can be demanded? Can we learn to live with a diminished level of oil? Can we manage without creating severe and lasting damage to the economy? These questions remain unanswered in late December, 1973, at the time this issue of HORIZONS goes to press.

Change: our attitude toward leisure

In a society nurtured in the work ethic, do we do ourselves and our company injustice by working too hard or too long? This may seem strange question for a company publication to pose, because, after all, it like every other element of the corporation is supposed to be committed to enhancing the performance of the corporation. It is. And this is why we ask, "What role does leisure play in our lives?"

This is particularly significant to Fairchild employees who are involved in a fast-paced business that can demand every moment of waking hours. The pressures of our business are not restricted to the company's executives, engineers and managers. They filter through to touch everyone. The employees who leave the job after eight hours frequently find that the job does not leave them. The anxieties of an unfinished project remain, the concern about a drop in production can't be digested when quitting time comes or what remains after the pressure is lifted are vague uncertainties. Isn't this all part of a worker's life? It needn't be, state some of the people who hold high pressure assignments within our company.

Ginny Swiggam, former Product Line Controller for Microwave Products, had some soul-searching to do before she accepted her previous assignment. She joined Fairchild as a member of the Corporate Finance Staff and transferred after nine months to the Transistor Division Finance Department where she was responsible for a clearly delineated portion of the Division's financial accounting responsibilities. Prior to that, she has worked on the staff of a public accounting firm handling very specific responsibilities. When she was offered the assignment of Product Line Controller for Microwave she realized that she would be entering a job that had much broader parameters. She would be required to accomplish as much as was necessary to establish accounting procedures for the line and to carry out those responsibilities. She knew that the job would demand a great deal—perhaps more than she was prepared to give. "I knew that, at least in the beginning, it would require long hours, sometimes seven days a week and would mean that I would have to forego the long vacation trips I so enjoy because, as an operation of one, you can't expect someone else to pick up your duties in your absence."

As is obvious, Ginny decided that she was ready to take on the pressure assignment. "You have to be in the right frame of mind to accept pressure," she believes. All her predictions of the job's demands were

realized. Fourteen-hour days are usual. "I can cope with long days without undue exhaustion," she believes. "It's a seven-day schedule that gets me down. If I go more than five days without a break, I feel it." Even if she manages to stay one weekend day away from the office, Ginny confesses that she isn't as refreshed as if she had two days off.

What does Ginny do to get her mind off her job when she does find time for herself? Collapse into bed? No. If the weather permits, it's a fast game of tennis and a swim to relieve the mental exhaustion that her job creates. If the California rain drives her indoors, she's likely to be involved in wall-papering her recently purchased condominium, wrestling with drapes she is attempting to hang or moving furniture.

"I like to throw myself into a project or activities," she explains, "that command my full attention. It gets my mind off the job for awhile. When I do return to it, I've swept some of the cobwebs out of my brain because of my change-of-pace activity. By the way," Ginny adds, "I should confess that I like problems and pressure. I don't think I could be happy with a routine job." (Ginny has since accepted another equally demanding Controller's assignment with the Communications Equipment Division.)

John Berczuk seeks quiet pleasure to relieve his job tensions. As Director of Manufacturing for the Space and Defense Systems and Defense



Ginny Swiggam

Products Divisions, his work days are filled with conversation and commotion. Spending little time in his office, he prefers to be "out in the trenches where the action is." Translation: he spends most of his work hours in the Divisions' assembly areas, machine shop, engineering service laboratory and drafting departments. There he is faced with resolving problems, planning for tomorrow's work load and keeping abreast of the evolution of products. Most of the systems which are created under John's direction are one-of-a-kind models with all the decisions and planning that such a business suggests.

John describes himself and people like him as professional worriers. "I thrive on the decisions I must make in my job. I receive great satisfaction out of puzzling a problem through to a solution and I also like the pressure that is inherent in any manufacturing operation such as ours . . . to a point." John has identified his saturation point and when he reaches it, you're likely to find him evenings in the basement of his Long Island home making "small pieces of wood out of larger pieces." Wood-working that is

leisure (continued)



Frank Marinaccio at work and below aboard his sailboat #12042.



John Berzak demonstrates what happens when he makes a large piece of wood smaller.

completely absorbing allows him to shut out the rest of the world. He sets no deadlines on his carving projects and frequently doesn't know what his end product will be when he starts. Sometimes his wood-working projects are functional; at others: they're simply decorative. To describe what happens when a large piece of wood is made smaller, it may be a piece of driftwood picked up on one of Long Island's beaches that now hangs in the Berczuk's home transferred at John's hand into a carving of a ship.

"I don't run away from work

pressures through woodworking," John states, "I'm actually eager about going to work in the morning. That eagerness," he maintains, "is sustained because I am able to push my job aside at times to concentrate fully on a quiet pastime that I enjoy."

Frank Marinaccio, Project Engineer at the Industrial Products Division, may carry a work problem with him all the way to the water's edge on a weekend, but he leaves it on the shore when he boards his sailboat. The demands of maneuvering his boat in competition will command every bit of attention that he is able to give.

That problem that he carried with him to the shores of Long Island's Great South Bay, may concern how to accomplish a seemingly impossible design project with a nearing deadline. It may be a mulling over of an unpredictable delay in a product design that is scheduled for showing to customers in the near future. "As our major product shows grow closer, the pressure is intensified on product designs that are scheduled to be demonstrated for customers."

But, throughout the year, when he's

decided that he can do nothing further to expedite a project, he heads for the water every weekend except those in which polar bears would be driven off by the frosty gales. John just recently competed in a Frostbite Series of races on the Great South Bay.

Throughout his adult life, Frank has found that he can approach the tasks he must accomplish with much greater efficiency and creativity if he's allowed himself a respite from them. "Even in college," he remembers, "I scored far better on examinations if I allowed time for a break in

a study schedule."

Anna Martin, Production Supervisor at the Shiprock, New Mexico plant, has little time for anything more than keeping the line for which she is responsible flowing smoothly during her work day. Accomplishing this means assuring that there is a smooth work flow to the 33 assembly stations in the Die Fab area she supervises, that the production equipment is operating properly and that the operators are not encountering problems which interfere with their productivity. Anna admits that sometimes it is difficult to keep cool when everything appears to be going wrong. "It sometimes becomes very tense around here," she reveals.

Anna states her prime responsibility is to relieve the peripheral pressures from the people who actually accomplish the assembly job. This might mean getting materials to the line, having a faulty machine repaired, or listening to an operator describe the problems that are slowing production. The problems may involve a production procedure or may be a personal distracting concern that is keeping the operator from working efficiently.

Anna uses her familiarity with the production process to resolve assembly problems; her familiarity with Fairchild policies and resources to attempt to solve personal problems.

Pressure doesn't end for Anna when she leaves the plant each evening, it just switches from Fairchild to her family. She goes home, prepares dinner, responds to any demands that her children, husband and the maintenance of their home requires and, then—only then—is there time for Anna. She uses the remains of the day to "totally relax" with leather working. She cuts, laces, and stencils leather to create hand bags and other useful and decorative leather articles. Because she shares her hobby with her husband and son, she has found that her relaxing hobby has other beneficial results. "Since we have been doing leather-crafts together for the past three years, I believe that we have established a new level of communication. Working together on an enjoyable hobby, we are more relaxed and open with each other. While we're working, we discuss things that are of importance to each of us. We arrive at family and life decisions in a very natural and shared way."

Change: our attitude toward unproductive tension

How do you know if you're too tense, devoting unproductive anxiety to the job?

For the answer to this one, we went to the Fairchild expert on the body and psyche, Dr. O. Bruce Dickerson, Corporate Medical Director.

"There's no absolute measurement that will confirm tension that is too great," Dr. Dickerson reports. "Simply measuring blood pressure, pulse and heart performance, won't establish how much is too much tension for an individual.

"Better equipped than a doctor to diagnose an individual's tension tolerance are his or her family and friends. If you're concerned that you are getting too tense, ask them if you talk about your work to the exclusion of almost every other subject. Ask them if you haven't time for their problems and concerns because you are so totally wrapped up in your own. Granted there will be a time in everyone's life when job pressures will demand almost total devotion. The human body and mind is capable of responding to and coping with these brief, intermittent demands. Sustained tension, however, is eroding. It leaves a person susceptible to psychological and physical problems. Fatigue, the most usual manifestation of prolonged tension, wears on the body leaving it vulnerable to physical illness and wears on the mind, leaving it vulnerable to unfounded anxieties.

"A recent study demonstrated that members of my profession are no different than the men and women involved in business when it comes to coping with unproductive tension. A study of doctors, sponsored by a medical group, attempted to evaluate productivity in relation to activity and tension. Hundreds of doctors participated, their work day was traced, their results were measured, in an effort to determine whether prolonged tension resulted in more efficient performance. Of course, the researchers already knew that tension was physically damaging. The conclusion: those doctors who spent

some portion of their day in quiet planning and who had some recreational or relaxation outlet far outpaced the scurrying physicians who were on the run 12 to 14 hours per day. In the only ways in which a doctor's performance can be measured—service to patients, intelligent diagnostic decisions or the result of research efforts—the physicians who allowed some time to stand away from their demanding schedule to plan and evaluate, to set priorities, were the more productive in terms of their specialties than those who created a constant whirlwind of activities in meeting all demands made on their time. It seems pretty obvious to anyone, that a patient with a possible fatal disease will require more attention and concern than one with a cold. But, clouded by tension, even these obvious distinctions become difficult to make.

"I do not believe that I am undermining the future of the corporation by suggesting that its members adapt a more healthful and, I believe, satisfying way of life by allowing themselves some time to put the demands that are made upon them into perspective. Set priorities—even this action demands that you spend a little time with yourself closing out momentary distractions for a brief period each day or week. Once you have a plan, you have some measurement on which to gauge your success. And at the risk of being totally subversive, I suggest that in that introspective time you spend a few moments savoring your recent past accomplishments. Finding satisfaction in your accomplishments places you in a better frame of mind in which to address your future tasks.

"Allow some space in your life for some activity or non-activity that will take you completely away from job tensions. I'm not suggesting that everyone dash out to the tennis courts, golf course or ski slopes at every possible opportunity. For some, involvement in sports can create as much tension as the job. If you're a highly competitive individual, you may



Dr. O. Bruce Dickerson

create more pressure on yourself trying to beef up your tennis score, hone down your golf score or cover the face of a mountain in record time. Reading may be your ideal diversion. Or, perhaps, you're one of the fortunate few who can spend an hour or so, when not completely exhausted, just doing nothing, though I'm afraid that this is becoming a lost skill. Some people are trying to recapture it by studying yoga or becoming involved in transcendental meditation. In our hectic world, we have to have a label for being satisfied with being alone with ourselves for a few moments.

"Looking over my advice to fellow employees on how to cope with unproductive tension, I think I'm going to take some of my own suggestions . . . maybe next week I'll have a few moments to establish some firm priorities so that I won't be distracted by tension-producing peripheral pressures. No, that won't do; it will probably have to be next month, after I get the medical program running smoothly at . . . or, maybe in March or April, after . . ."

Change Creates Opportunity

Five years ago one of the proudest sights on the road was a ten-foot length of gleaming chrome and shining paint. The number of horses you had under the hood, the ads said, told the world something about your personality and status in life. The obvious inference—the more horsepower you could claim, the greater the measure of your personal vitality.

The image of the large luxury car has suffered damage in the ensuing years. It, along with its less showy associates, has been called unsafe at any price, an air polluter, and now, the final blow, an energy hog. A haze has settled over its once-proud image.

Can the auto makers, particularly those in Detroit, salvage the reputation of the automobile? "Yes," says Jim Hazle who is particularly concerned about this subject as Manager of Fairchild's recently organized Automotive SBU. "Auto makers have responded to legislation in safety and pollution with relatively rapid speed. Today, we have seat belts that the driver and passenger cannot ignore. We have pollution control devices which monitor and check the exhaust emissions allowed to enter the atmosphere. Anti-skid systems, now used on trucks, are slated for us in automobiles. With legislative prodding, the auto makers have demonstrated that they can respond to new demands made on the automobile.

There has been a gradual change of attitude toward the automobile. Up to the mid-fifties, the bigger and more showy the better, was the way in which American cars were judged,"

Jim believes. "Then the U.S. began importing tiny cars that got 25 miles to the gallon of gasoline. Their appearance was, at kindest, described as functional. Some of these small imports were good for laughs in their first few appearances on U.S. highways, but then a funny thing began to happen. Maybe out of curiosity, people began flocking to foreign car distributors that were cropping up across the country. They came, perhaps, to get a closer look at the oddities. Frequently, they left as owners of a Beetle. Who could argue with the low cost, excellent mileage and good performance history of the car? And, after all, it wasn't nearly as uncomfortable as it appeared, particularly when you weighed comfort in direct relation to price tag. Today, it is difficult to remember a U.S. highway without numerous small, imported cars.

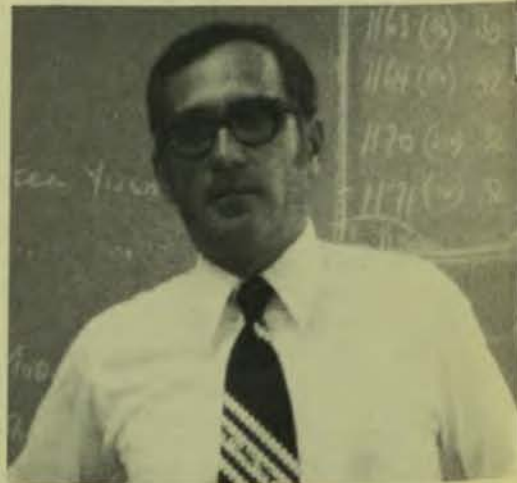
"American auto makers, seeing the inroads the upstart Bug was making, responded with compacts and sub-compacts and developed an appreciative and faithful market for their efforts.

"U.S. auto makers have responded to market needs," Jim continues. "You'll have to remember that customers continued to demand the large engine car even after there were smaller, less fuel consumptive versions available. Today, the automobile industry, particularly in the U.S., faces new and pressing demands in the face of the energy shortage. We'll see more small engine cars produced and sold this year than their larger counterparts. Next year, that ratio will grow even greater if the energy crunch continues (which we are led to believe it will). I'm sure that on the drawing boards this minute at Detroit's design studios,

are plans for cars that will have minimal demands on fuel. You must remember that the U.S. auto industry is very well established and very innovative; but like any industry, it doesn't change something its customers like. I'm sure that forecasters in the auto industry predicted safety and pollution legislation long before they occurred, and saw the energy shortage looming on the horizon. Which auto maker, however, would dare to tell its customers that they should and must wear seat belts before its competitors did? Wouldn't that have taken away from the dashing, carefree image that was sold along with their cars? What auto company would insist that its customers buy only small engine cars when what they were shopping for was the maximum power available? When safety and pollution standards were established on a common footing for all, the auto makers responded rapidly. Now that energy is a vital consideration, I believe that we will see some remarkable and rapid changes in engine designs to reduce fuel consumption.

"Today, the Automotive SBU at Fairchild is delivering an electronic ignition control system to General Motors for evaluation, a system that promises to greatly improve the efficiency of fuel management. The new electronic module used on some General Motors 1974 model cars offers an ignition system that can operate efficiently for up to 50,000 miles without a tune-up. Traditional ignition systems require attention at about 12,000 miles and, even then, fuel consumption increases as the ignition deteriorates to the point that it requires tune-up. Automotive experts report that fuel efficiency can

Jim Hazle



deteriorate by up to 30 percent when an ignition system is in need of tune-up.

"Change in the auto industry as it responds to safety standards, pollution control and, now, the energy shortage, increases Fairchild's opportunity in designing semiconductor systems to aid in achieving these goals. I have been very impressed in my short association with members of the auto industry over their concern for reliability. Before an auto design goes on the production line, every system and part in that car has been tested and retested to ensure that it will perform reliably in the numerous environment and stress situations an automobile will encounter. Once an auto company has established a record of reliability in a system it, naturally, is reluctant to change that system and again through the lengthy testing that is necessary to establish the reliability of the new system. Pressed by other considerations, however, such as the energy shortage, it will be much more receptive to change. That's where we come in. Semiconductor systems can offer electronic implementation of a great number of automobile functions presently being handled in other ways. This change of attitude toward the automobile, therefore, opens up exciting new opportunity for the semiconductor industry."

The Automotive SBU of the Analog Products Group was established in August, 1973, as a result of the projections of growing use of semiconductor systems in the automobile industry. Fairchild, in addition to supplying semiconductor devices to manufacturers of automobile electronic systems, is designing and manufacturing sub-systems to participate more fully in this growing and potentially profitable market. This new product direction is also a deliberate move to diversify Fairchild's interests to lessen its dependence on the semiconductor device market.

Since establishing the Strategic Business Unit, Jim Hazle has assembled a small staff of managers and has developed Fairchild's first automotive systems manufacturing department in a building in the Mountain View complex.

Change can bring Impressive economies



A celebration was in order on November 13, when Brigadier General Nikitas Manitsas, Commander of the Defense Contract Administration Services Region, New York, visited the Fairchild Defense Products Division. The purpose of his visit was to present Vice President-Federal Systems Group General Manager Lou Pighi with an award to recognize DPD engineering changes on products ordered by the U.S. Navy which resulted in gross savings of \$5 million.

To formally recognize the significance of the DPD-suggested engineering changes which resulted in this impressive cost savings, there were talks by General Manitsas; Lou Pighi; Fred Schmidt, Defense Products Operations Manager; William Schwint, Value Engineering Manager; Ed Ayril, Program Manager; Al Borchert, Program Director; and Ed Levy, Contracts Manager. The talks were followed by an exchange of symbolic checks between Lou Pighi and General Manitsas. An oversized \$2 million "check" went to Pighi to recognize the savings Fairchild realized as a result of the engineering changes. In return, Pighi presented General Manitsas with a \$3 million check to represent the savings the U.S. Government has experienced as a result of the DPD Value Engineering Changes.

Change: Our view of Corporate life?



Yesterday's college student is today's business man or woman. News and feature stories tell us the campus and the corporation are separated by a chasm called the generation gap. The values of more established members of business and industry are different than those of the young, educated and socially concerned people now entering the work force. Are they? Decide for yourself. The following is a dialogue with a very established member of business, Fairchild President C. Lester Hogan, and one of the corporation's newest members, John Katsaros, who is presently involved in the Semiconductor marketing training program.

Before beginning this interview, HORIZONS knew the two men had something in common—that they are both graduates of Lehigh University. Other than that, there was no attempt to decide what John's position would be on any of the questions that were posed. Dr. Hogan's view on many subjects are well-known to HORIZONS as the result of previous interviews, so in response to each question, we asked John to go first.

HORIZONS: What do you feel, John, are the Corporation's responsibilities to you as an employee? What do you expect from this company?

John: Well, considering that I'm right out of school, single and young, I'm not really interested in my long-term benefits such as family protection and insurance and all that. I'm more interested in how well is the corporation going to expose me to new environments in the next two years. If I were to stay on the same track for two years, in the same type of job, doing the same type of thing day after day, I don't think I'd last, because the first four or five years out of school are the most important years of my career. These are the years in which I'm going to be building a base, and the rest of my life is going to depend on that base. Judging from the papers I read in school, much of a scientist's most important work is done before the age of 27. These are the creative years of my life, and I want to make sure that the company takes advantage of that.

HORIZONS: So as a new, young employee you're looking for developmental experience?

John: Yes. Above salary and everything else.

Dr. Hogan: I absolutely agree with everything that John has said. A person right out of school should be interested in the opportunities that Fairchild can afford him in the first few years—the opportunity for not only doing meaningful and important work through meaningful experiences, as John pointed out, but opportunities for growth, responsibility and authority within the company—that's the important thing. Our ability to keep the bright, young people that we are going to need to grow in the next few years is going to be based on our ability to meet those kinds of challenges.

HORIZONS: Do you see your needs changing as you grow older? Are the kinds of things you want from a corporation going to change?

John: One thing that Dr. Hogan has brought up was responsibility. Right

now I don't think that I'm ready to accept responsibility in terms of a management position; and if it was offered to me, I would turn it down. I don't have the base yet for that type of work. That's not what I'm looking for right now. But I think six years out, that will be what I'm looking for.

HORIZONS: You have not even mentioned things that many people look for such as job security.

John: I can afford that basically because I'm not married yet; so job security isn't very important right now. If I did not have the job six months from now, I'm sure that I could take care of myself. Even if I were to be offered an exciting job and they said, "In six months you're not going to be working for us anymore," I think I'd take it. One of the promises I made myself was that I would not take a job just for security.

HORIZONS: What do you believe are a corporation's responsibilities to employees in general?

John: I think a corporation should be a community-minded employer. If the attitude is taken that an employee will get more than just a paycheck from a corporation, I think that will benefit both the employee and the employer.

Dr. Hogan: I think that in one sense the corporation's first responsibility and concern is and should be for its employees—above all other interests. Now, you can say that we have other interests—we're in business to make a profit or we have to worry about the shareholders, the people who own the company—but in the final analysis, the only distinct asset we have are the people who we have working for us. If we can attract to Fairchild the best people, the best brains, and keep them happy, dedicated, working hard, motivated to do the best job they know how, then we're going to have the best product at the best cost, and we're going to be the most profitable company in our industry. The shareholders will be well taken care of if you can get the best employees motivated to work the hardest and do the best possible job. For that reason, I think it is the primary responsibility of management to make certain that

you have an operation that can attract the very best people and motivate them to do the very finest job.

HORIZONS: John, Dr. Hogan has mentioned responsibility to shareholders. Have you thought that one through?

John: I've never considered the shareholders since I've been here.

HORIZONS: If you were a shareholder, what do you think the corporation's responsibility would be to you?

John: I've never considered it from that point of view. If I were a shareholder, I would expect the corporation to bring me in some money and to do as well as they possibly could given the financial resources available to them. But if I were to work for that same company, I would expect them to go out of their way to help me and my family if I were ever in trouble or if I needed a couple of days off or something. As an employee, I would have a different point of view.

Dr. Hogan: One of the points that I've tried to make is that if you look at the whole picture, you really don't have two people trying to pull in two directions. I don't have two groups of people—employees trying to pull me one way and shareholders trying to pull me the other way. They are really both trying to pull me the same way. They may not realize it, they may not ask me the same questions, but I really believe that they're interested in the same thing. The shareholders are interested in return on their stock. That's fine, but the way to produce these results is to get the best people

in the world working for Fairchild and motivated. I think that if you ignore the responsibilities to the employees, you will eventually fail in the eyes of your shareholders. The shareholders want the company to grow and be prosperous so that the value of their stock will increase. The employees want the company to grow and be prosperous so that it can offer greater opportunities and rewards.

John: I think that very often the responsibility that Fairchild has to employees doesn't come out in the dollars and cents which interest the shareholders. Like the car pools that are being organized at Fairchild. Now we're using Fairchild resources to organize the pools and there really isn't going to be any money back on that. Now, how would a stockholder look upon that?

Dr. Hogan: Well, I think that if the shareholder understands the complexity of the total problem, he would approve of it, because of several reasons. One is that if we can save fuel, we can perhaps have enough fuel to go around to avoid closing factories. So, again, through our ability to make a contribution to saving that fuel there is a better chance that the factories, ours and others, will keep running. This is doing something for the shareholders, believe me.

HORIZONS: Dr. Hogan, what responsibilities do you have to the shareholders?

Dr. Hogan: I absolutely have an obligation to the shareholders—that's one of my prime responsibilities. So far I have never had a shareholder come to the annual meeting and ask a penetrating question where I was not able to explain to him that some action we have taken was, indeed, in his best interests. Otherwise, we wouldn't have done it, if we hadn't believed it to be in stockholders' best interests. When you get right down to it, no matter what the needs of the employee are, we as a company are better able to satisfy the needs of each and every employee if we're a prosperous, healthy, growing, expanding company. And all the needs of the shareholders are taken care of in the same way.

HORIZONS: There are other publics, too, that you must be concerned about—your responsibility to the community, for example.

John: I definitely think that every corporation has a responsibility to not only the immediate community but to the world.

HORIZONS? How does that responsibility manifest itself?

John: Well I think the big thing that's coming out these last six months is how wasteful we are and I think that every corporation should take a look at itself and say, "Where are we wasting any type of resource?" A corporation has a responsibility to go beyond the dollar. It must look at itself in perspective to the world.

Dr. Hogan: I agree with that. We have, in the past, not been conscious of the waste of resources because we assumed that all resources were like air and water—almost free for the asking. Many things have happened in the past few years. One of them is that many of the nations of the world which 20 years ago were "have not" nations in the sense that they did not have large purchasing power and ability to buy up any of the natural resources of the world, now have that ability. As a result, many of the other peoples of the world have a standard of living approaching the standard of living in the United States, so we find more competition for resources. And this competition for resources is what has really caused sudden shortages, whether it be gold or oil or lumber or whatever. I agree with John in the fact that we have always been very wasteful of many resources. I think that the new prosperity in the world has brought about the pinch as much as anything else, plus the fact that we have grossly mismanaged the usage of resources. But it is now



essential for us, as John pointed out, to go back and look at all of these things; but again I say that it's not really because we're altruistic, it just makes economic sense that if all of the people of the world are going to enjoy the standard of living that we have in the United States (and we hope that we can bring that about), it's going to stretch the available resources even tighter than they are now.

HORIZONS: Do you honestly believe that the corporation of today, of 1974, is a little more of an integral part of all of its communities, has broader concerns, than five or ten years ago?

Dr. Hogan: Absolutely. We're part of a total community of man. As you travel around the world and see the real abject poverty that exists in many parts of the world, you think that just cannot go on. There has to be a way of helping those people to have some of the better things in life such as the opportunity to go to school, become educated and better themselves, which is not yet possible in all parts of the world today. First you have to increase personal income so that people have the time and the money so that they can afford to send their children to school, so that somebody can pay the taxes to build the schools and the children can be taken off the farm where they're needed today. There are parts of the world where this can't be done yet. But to reach the point that this worldwide standard is achieved, we're going to stretch our resources on the planet. I'm still an optimist. Eventually, there is some limit as to what this planet can support—it can't go on forever. But if we make judicious use of resources and recycle the resources that are available to us, it's probably possible that this planet could support up to 20 billion people in a pretty good standard of living, but not if we stay in the mode of wasting things.

HORIZONS: What is the corporation's responsibility to the customer?

John: To begin with, the corporation supplies the product and the product should be what the corporation specifies. But to go beyond that, the corporation which sells to consumers should realize that its job is not to just sell the consumer something he wants, but ask questions for the consumer, "Does he need it," or "How can we make it safer?" A lot of consumers like sports cars. I think that

it's the corporation's job to make sure that they're safe, not just something they can see like a padded dashboard, but make sure that it's something safe to drive and won't fall apart on them. The objective is not just to meet the specifications but to go beyond that to give the consumer something that he probably won't look for, but he needs.

Dr. Hogan: I think that's true. Of course, we're in a little different kind of business, because we don't sell to the end consumer—we sell to other large companies that manufacture equipment that goes to the end users. Therefore, we have long ago recognized our responsibilities to our customers because we have to face that same guy next year and the year after, and he can afford engineering and quality assurance groups to evaluate what we've sold him. We have to have a good track record to keep him as a customer. So from purely selfish motivation we have always set up a goal of providing not only something that meets the specification but goes beyond. And the customer does notice it—it takes two or three years after he begins to buy our product before it begins to affect his pocketbook in terms of warranty charges, but he eventually sees it as our product begins to replace the other supplier's product in the field.

HORIZONS: We have talked about the company's responsibility to the employees, stockholders, customers, community—do any of these responsibilities conflict? Can you really serve four publics well?

John: Well, I think the best people to make sure that these don't conflict is the government. They're in a position to tax people who waste goods,

penalize industries which don't serve the consumers properly. They're in the position to make sure that companies serve employees properly and make sure the corporation serves the stockholders just as well. I think that the government does play a pretty good role. They're very good on minimum wage laws and they have good medical care requirements and all that. Financially, as far as a company taking care of its stockholders, the SEC is usually there to find trouble. I think where the government has been lacking is in the responsibility the company has to consumers, and also the responsibility a company has to society.

Dr. Hogan: I think you're right. When I speak on campus, a lot of students, who don't understand the problem very well, attack me as a representative of a corporation for all the sins of all corporations present and past. The thing is they don't understand that as an individual, sometimes there is almost nothing I can do. The government has a role, if you like, to be a referee in this game. It's like a game and if you don't have a referee, somebody may cheat. If the average salary in the United States is 65 cents an hour, there is no way as a company I can say, "Hey, that's unfair, I'm going to pay \$2.00 an hour." I'd go out of business; I can't do that. So, the government has to legislate the minimum wage and we all must obey it. On pollution control—of course our industry isn't really a bad industry compared to steel mills and what have you; but, nevertheless, we do have scrubbers on the roof, and we do have to take gases out of the exhaust system and this is expensive even for us. It costs a lot of money, not only

(continued page 16)



Change: Our language

We bend it, contract it, re-shape it. We allow jargon and slang to slip into it. The purists balk at the ways in which we manipulate it. But, as long as we can communicate in it, does it matter that we change our language a little? The English language does change as people develop words and expressions that more nearly describe an experience or a feeling than any words they've ever used before. Few employees would admit to using slang expressions or words in their everyday communications, but after a few minutes of conversation here are some examples of the new language we uncovered. We are living in a world in which "cool" is no longer used only as a measurement of temperature, and "heavy" is not simply a measurement of physical weight. The translations shown below are provided by the employees pictured.



Barbara Johnson
Micro Optics Operator,
Optoelectronics Division
"Lay it on me"
translation: Tell me about it
or give it to me.



Mike Tomlinson
Distribution Clerk, Cost
Accounting, Mountain View
"Far out"
translation: Something—an
experience, a person, a
food—is very enjoyable.



Katherine Bell, Assistant
Laboratory Technician
Optoelectronics Division
"That sure is tight"
translation: Something is
wrong (unfair).



Rick Rudolph, Assistant
Cost Accountant, Cost
Accounting, Mountain View
"Getting down"
translation: Being very
natural and doing some-
thing really enjoyable.



Lottie Bell
Micro Optics Production
Process Specialist
Optoelectronics Division
"Right on"
translation: I agree or
something is very positive.



Christine Caston
Micro Optics Operator
Optoelectronics Division
"Can you dig it?"
translation: Do you
understand?



Paul Baker
Production Control Super-
visor, San Rafael
"That's a heavy message"
translation: That's a pro-
found statement.



Debra Harris
Micro Optics Operator
Optoelectronics Division
"What it is?"
translation: What's going
on?



Rex Atcheson, Clerk
Linear Division
"Let's get it together"
translation: Let's get or-
ganized.



Mary Tate
Micro Optics Production
Process Specialist
Optoelectronics Division
"Sit down and kick back"
translation: Relax

South Korea—a country with a culture that dates back hundreds of years before the Christian era and boasts an economy that is outpacing other countries of Asia.

The country, through the discipline, energy and passion for education of its citizens, has created a virtual miracle in economic recovery since the Korean War. The greatest progress has occurred since 1962 when President Park, Chung Hee, established the country's first Five-Year Plan. As a result of the very successful realization of the goals of two Five-Year Plans, the Korean economy has achieved a percentage growth in gross national product that exceeds even industrious Japan.

Though GNP figures reflect a nation that has overcome numerous political obstacles to establish itself as a significant factor in the world economy, they tell little of the life in the gracious and serene country. They do, however, point to the phenomena in which Fairchild has participated since it established its first plant in Korea in 1966.

According to Jim Perry, Korean Plant Manager, "Korea is fantastic. The country is exciting. It is on the move and Fairchild's plant has performed amazing production feats this last year." But, amazing feats are commonplace among the Korean people these days.

In little more than 10 years, South Korea has moved from its virtual dependence on agriculture to a country with a developing, diversified industrial base. Fairchild has been part of this growth of the past seven years. Originally established as an epoxy transistor assembly plant to support the Hong Kong operations, the Fairchild activities in Korea have been expanded to include assembly of eleven major products and it is capable of molding, tin plating and testing devices.

Most of the 5000 employees at the Fairchild plants in Korea have followed the country's movement from the farm to the factory. At Fairchild, more than 70 percent of the workforce has come from the country to work in Seoul, one of the most populous cities in the world.

Because of the youth and recent growth of the Fairchild operations in Korea, many of its employees are young, single people who live nearby

the plants, sharing accommodations with co-workers.

The first Fairchild plant in Korea was originally located in a rural area. Today, it is in the midst of a densely populated urban community. The second Korea plant, officially opened in October 1973, is in an industrial park surrounded by other recently constructed plants. The feature that sets Fairchild Korea's modern buildings apart from other Fairchild facilities is the virtual absence of parking lots. Few cars are privately owned in Korea, relieving its citizens of the guilt of excessive fuel consumption which their U.S. counterparts carry as a result of the energy shortage.

Working six days each week, Korean employees have limited

Where We are South Korea

leisure time, but what they have, they fully use. Fairchild employees take advantage of recreation programs sponsored by the company such as volleyball and ping pong, and they enjoy hiking and bus outings to local sights of interest. A recent hobby exhibit at the plant, Jim Perry reports, demonstrated that many of the Fairchild women are expert at needlework, weaving, embroidery and other similar handicrafts. Television has not taken over Koreans' evenings and weekends, as fewer than 10 percent of families own a set. Evidence of growing personal affluence is, however, apparent in the dress of employees who now have the extra funds to spend on stylish clothes and other non-essentials. Along with the country's economic growth, has come increasing work alternatives for its citizens, greater expectations from jobs and even more intense pursuit of higher education. However, education has always been vitally important and coveted by Korean people.

New job opportunities have created new life styles. The extended family

that included aunts and uncles, parents and grandparents, so vital to an economy geared toward agriculture is giving way to the nuclear family. Young married couples live separately from their families and, most recently, some young women have continued to work after marriage to assist their husbands in establishing an economic base for the family. Young people in Korea today tend to follow the Western way of life while the older generation clings to its traditional Eastern style. There seems to be little conflict between the generations, however; because personal growth and progress has always been held in high esteem. Apparently, if that growth and progress necessitates a departure from tradition, it can be accepted.

Korea's soaring economy is obvious in the building activity in Seoul as structures reach to the sky to create space for new offices and shops in the heavily populated city. Seoul contains 18 percent of the country's total population. In 1963, little more than 10 percent of the country's citizens lived in the capital city.

THE PEOPLE

The Korean people are the most fascinating attraction of the country. An ancient and homogeneous race, they are distinct from both the Chinese and Japanese peoples. Thought to be descendants from two strains—the nomadic tribes of Mongolia and the Caucasian people of western Asia—the Koreans have both Occidental and Oriental characteristics. The traditional dress of Korea consists of loose white robes and baggy trousers for the men, while women wear short, snug jackets and brightly colored flowing skirts. Young people, however, seem to prefer Western styles.

Korean homes have been heated for centuries by flues placed under the floors—a method similar to radiant heating which has recently become popular with some American architects. Most Korean houses are built in the shape of a "U", and a wall is stretched across the open end to form a courtyard.

Rice, poultry, fish, and vegetables are the principal foods eaten by most Koreans, though there is some fruit. Rice is the staple of the diet, as it is for most Asians, but the most popular dish is kimchi, a highly

spiced pickled combination of cabbage, turnips, onions, celery, and other vegetables. Many Western travelers find it quite tasty (one called it cabbage pickled with vengeance). Korean women enjoy the highest status of any women in Asia. All Koreans over twenty-one, women included, have the right to vote. And they do.

HISTORY

Korea has one of the oldest civilizations in the world, but much of its early history is clouded in the mists of legend dating back to about 2000 B.C. A Chinese refugee named Kija is supposed to have founded a colony in Korea in 1122 B.C. and established a dynasty which lasted approximately one thousand years. At the beginning of the Christian era there were three kingdoms in Korea—Pekche, Koguryu, and Silla. The Silla dynasty, which may be traced back to 57 B.C., managed to unite the three kingdoms in A.D. 669.

Koreans call their nation "Chosun," meaning "Land of the Morning Calm." It is a fairly accurate term, for throughout Korea's history the nation has managed to remain calm and relatively stable despite the turbulence of Asian life which swirled about. From the establishment of a united Korea in 669 until 1910 there have been only three dynasties—the Silla, Koryo, and Yi—which speaks for the stability of the people and their leaders. Few nations in history can claim such continuity.

Korea, which was once known as "The Hermit Kingdom," was closed to foreigners and foreign commerce until 1883, when it signed a treaty with the United States. Engineers from the United States helped the Koreans develop their mines and built, in Seoul, the first modern street-car system in the Orient.

Korea was made a protectorate of Japan in 1905 as a result of the Russo-Japanese War. In 1910, Japan absorbed Korea into her empire, and although the Koreans resisted they were relatively helpless. A "passive" rebellion was launched in 1919, but this effort went unnoticed because the rest of the world was nursing its wounds from World War I.

The Japanese maintained control of Korea during the troubled years that followed and didn't leave until after World War II. In 1945, by a

wartime agreement meant to be only temporary, Korea was divided along the thirty-eighth parallel. Russian troops occupied more than half of the country north of that line; American troops settled in the south. Since Russia wouldn't permit the United Nations to enter the zone it occupied, the UN conducted elections in the area occupied by the United States on May 10, 1948. It was the first free and democratic election in Korea's long history. Representatives who were elected to the National Assembly (similar to the U.S. Congress) chose Syngman Rhee as President, and the Republic of Korea was inaugurated on August 15 of that year. On June 25, 1950, North Korean Communist troops crossed



Thousands of employees attended the dedication ceremonies at the new Korean plant in October.



Above, Metropolitan Seoul. Below, the Deogsu Palace, Seoul.



the thirty-eighth parallel, launching an all-out invasion of the new republic. The UN declared the act "a breach of the peace," demanded an end to the fighting and an immediate withdrawal of Communist troops. On June 30, President Truman sent in United States military forces. UN troops soon followed.

The fighting seasawed up and down the Peninsula. Chinese troops entered the war, and UN forces, driven back beyond Seoul, counter-attacked and had the Chinese on the run when the Communists called for a cease-fire and armistice negotiations. The UN agreed. Two years and 575 sessions later, the armistice was signed. The date was July 27, 1953.

Since then Korea has been trying to recover its strength. It has received assistance from the United Nations and the United States. Peace—though it seems shaky at times—reigns over Korea today. Travelers are beginning to come to see the "Switzerland of Asia," as well as to visit some of the areas made famous by the recent war.

SEOUL

The primary attraction for travelers in Korea is its capital, Seoul, located approximately in the center of the peninsula some 70 miles up the Han River from the western coast. Seoul is partially surrounded by a rugged mountain wall which forms a spectacular backdrop for the sprawling city below. Ancient and venerable, Seoul was the seat of the capital of the Yi dynasty from 1392 until 1910. The city's growth during this era has left it today with many old and magnificent monuments of interest to the traveler, the historian, and the artist alike. Many of its former landmarks have either been torn down to make way for modern buildings or destroyed by war.

Seoul was invaded twice during the Korean War. The Communist North Koreans came first, then the Communist Chinese. They left much of the city in ruins, and although restoration is underway, it will require many years and a tremendous effort to rebuild and restore Seoul to prewar conditions.

However, with the tenacity and determination its people have shown in the past decade, Korea's future promises to be as exciting and as filled with achievement as its impressive past.

Change: corporate life? (continued)

(continued from page 12)

in capital investment (we have several millions of dollars in pollution control equipment in our various plants around the world), but the maintenance of the equipment to keep it operating is a big expense. You might say, "You know that you can't put that stuff out in the atmosphere." Fine, but we have to compete with the semiconductor company down the street and if it doesn't have pollution control as a cost of operation, it would bury us alive at the marketplace. And so the government must recognize the need for pollution control and legislate it. That's exactly what John is saying in terms of the government role—whether it be in relations with our customers, our employees, our shareholders, the community, and pollution control—whatever it is, the government must decide what is required and legislate certain standards that make us comply and then it becomes a fair situation. Then the challenge becomes ingenuity within that framework.

John: Maybe with this energy shortage, the government will realize that its role is broader than just pollution and one by one they'll take the resources that we know are limited and

it will start taxing us. Perhaps, if it had started taxing gold waste five or ten years ago, we could have saved quite a bit of gold. If it looked at silver right now, see who's wasting the most, tax those people who are wasting it—again it could act as a referee and help make the long-term usage more efficient.

HORIZONS: Do you think association with a corporation can change your personal values in any way? Is there such a thing as an organization man or woman?

John: I don't think it can. I hope in my case it doesn't. My grandparents came from Greece when they were young. Mine is a very close, conservative family and in the 18 years that I lived at home, I built up a very strong set of moral and religious beliefs. And I'm glad I have them. Four years of college did not make a significant change in these basic building blocks, and I don't believe a corporation will change me in that respect.

HORIZONS: Dr. Hogan, do you feel that the corporation has changed your values in any way?

Dr. Hogan: I've learned; I've changed. But no, I really don't think that my basic values have changed. As you go through life, you change. When I was

younger, John's age, I felt the same as he does; I still do. But then the world was mostly black and white; now there's more gray in the world. That doesn't mean that I'm willing to compromise in more areas—it just means that I really don't know. I run into questions now in which it is very difficult for me to weigh the alternatives and come up with what is right. **John:** I think things are still black and white to me. I don't think it's the times that have changed. It's just that at my age, it's very easy to see black and white. But maybe as you move up on the ladder, the perspective changes.

Dr. Hogan: Yes, and I don't think it's a matter of compromising. I think that it's a matter of having seen so many examples in your life time of people who were so certain of the black and white world, and you found out that they were wrong.

HORIZONS: Dr. Hogan, what were you looking for when you came out of Lehigh?
Dr. Hogan: Exactly the same things as John. I didn't give a darn what a company's retirement policy was or their fringe benefits. I had some passing interest in my base salary, but beyond that I wanted a challenge and an opportunity to learn and to grow.

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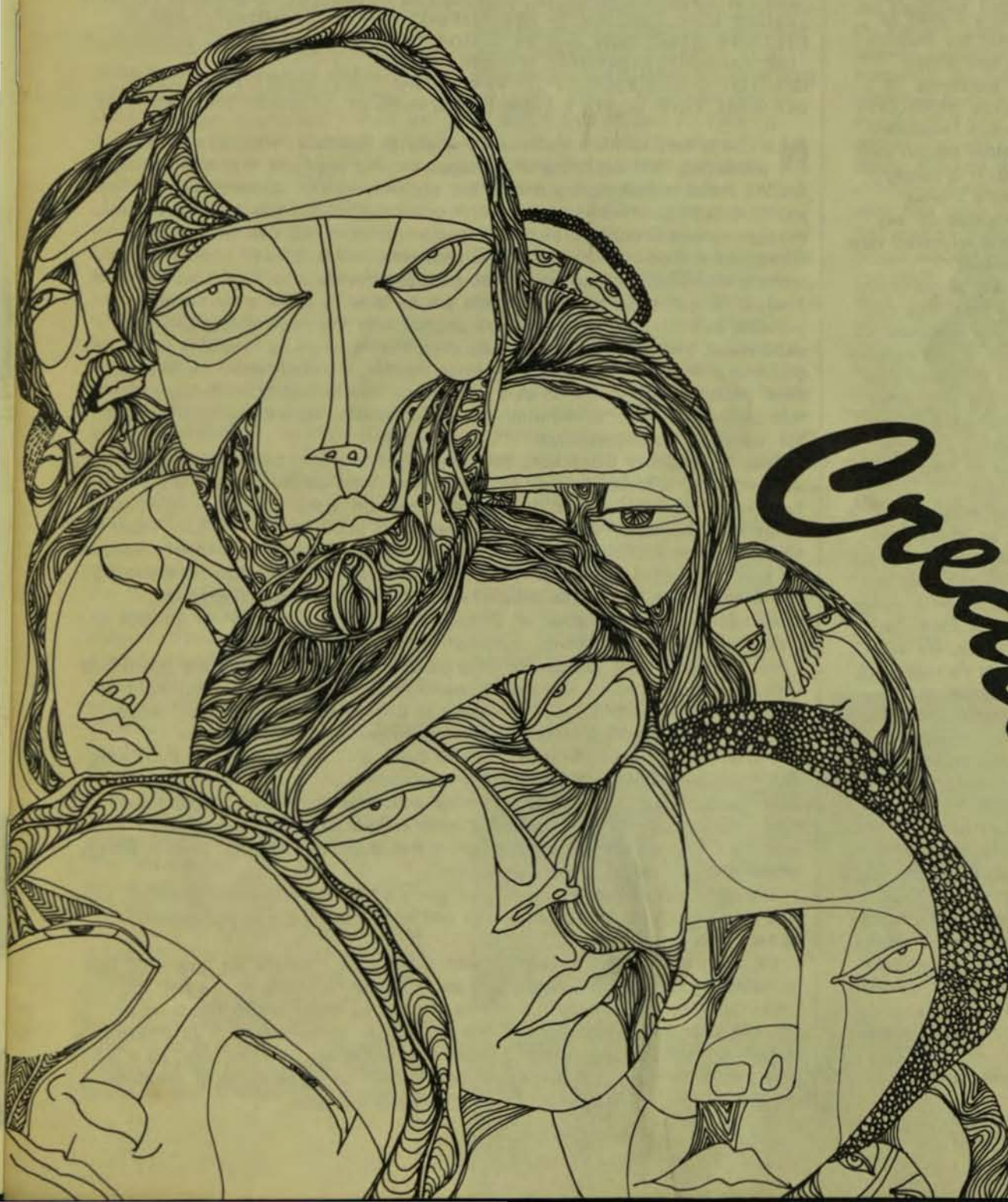
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Creativity

Creativity

an attempt at definition

IN THIS ISSUE:

You can't see it happen. In any group of people, the creative process might be in full flower in one or more individuals, but there is no way as an on-looker to identify its start. On the cover we show a group of people. That is as close as we can come to illustrating the beginnings of creativity.

We judge creativity by the result—the new product, the painting, the written ideas—that comes from looking at what is and seeing it in new perspective. Yet, it is the act itself as much as the result that the creative scientists, engineers and artists among us find most satisfying. In interviews for this issue, HORIZONS has been told that when inspiration arrives, there is no other human experience quite like it. It is totally absorbing. It provides a mental exhilaration not duplicated on any other plane. It brings a refreshed view of the entire environment.

It's not limited to any single group of people nor to any time. You can't plan creativity, but you stimulate its occurrence, we're told, if you maintain an open mind. If you approach your work, your relationships with other people, your total environment, expecting to find discovery and new perspective, it seems to help assure that creativity will occur.

As undefinable and elusive as it is, creativity is viewed as almost commonplace at Fairchild. Hardly a week goes by that the company does not announce some advance on a technical front—advances that have their basis in human creativity. We are assured, however, that Fairchild will never become complacent about creativity. It, according to the people who discuss it on the following pages, is viewed as the cornerstone of the company and is nurtured and afforded the respect it deserves.

In the search for a more concrete definition of creativity, HORIZONS talked with a quartet of the company's major technical contributors; two managers of the Systems Technology Division who are responsible for the weighty task of managing creative efforts for that organization; several employee artists and artisans; and, finally, two of the company's many authors.

Cover art by Yasmine Terry (see page 16).

cre-ation \krē-'ā-shən\ *n* **1**: the act of creating; *esp*: the act of bringing the world into existence from nothing **2**: the act of making, inventing, or producing: as **a**: the act of investing with a new rank or office **b**: the first representation of a dramatic role **3**: something that is created: as **a**: WORLD **b**: creatures singly or in aggregate **c**: an original work of art

cre-ative \krē-'āt-iv\ *adj* **1**: having the power or quality of creating **2**: PRODUCTIVE **3**: having the quality of something created rather than imitated — **cre-ative-ly** *adv* — **cre-ative-ness** *n*

creative evolution *n*: evolution that is a creative rather than a mechanically explicable process

cre-ativ-i-ty \krē-(,)ā-'tiv-ət-ē, ,krē-ə-\ *n*: ability to create

cre-ator \krē-'āt-ər\ *n*: one that creates or produces: MAKER

No one is very far from technical creativity at Fairchild. Whether you're in marketing, manufacturing or management, the products that make us run are the result of technical genius in the engineering and research labs. Unless you're directly involved in the technical creative process, you may have some misconceptions about how technical creativity occurs. We can guess that it requires a mind that likes to puzzle problems, and a drive to make the world a little different than it was. You can't see the creative germ begin to form. There's no guarantee that one person will be able to solve a technical problem in a more creative way than another with the same education and experience. The diffused, undefinable thing that is known as creativity has been puzzling philosophers and thinkers since the 18th century when, for the first time, creativity was identified as a human act. Before that time, it was believed that man simply discovered what was already there, he was given no credit for reshaping his environment.

After 200 years of dissection, the creative process has been defined most succinctly as "a state of mind." That still doesn't tell us much about what happens when man creates. Surely there must be something more concrete. There must be some indication that creativity is about to occur. There must be some qualities that distinguish the creative man or woman from others. Maybe we can't package and market it, but surely we can define it. What is creativity?

For some direction to the answer, we went to four Fairchild engineer/scientists—men with established records of technical creativity—to attempt to shed some light on creativity; specifically, technical creativity.

Participating in the discussion were Dr. Jim Early, who heads the Integrated Circuits Group research and development effort; Wendell Sander, Manager of Memory Research; Will Steffe, Manager of Design and Development, Analog Circuits; and John Moll, Director of Development for Optoelectronics.

The setting is the office of Dr. Early at the R & D headquarters in Palo Alto. The four men gathered here have left their permanent mark on the semiconductor industry through technical advances they have accomplished. If creativity sends off vibrations, this room should be charged, not only with the California winter sun that warms the room, but with the mental energy emitting from such an illustrious quartet.

The only apparent vibes were those given off by the receptive scientists who had agreed with no hesitation to help add what they could to the definition of technical creativity.

Dr. Early opened the discussion with a prologue: "Before we begin, I'd like to establish one thing—as important as technical creativity is, it's not the only important kind of creativity in business. It's just as important to dream up an improvement in a production control system, an improvement in advertising, a better organized data sheet, or a better flow of the work on the floor, as it is to come up with some product improvement. Each of these types of creativity has its role to play. All of us can be creative in our jobs."

HORIZONS: But wouldn't you agree that technical creativity is a starting point for all other Fairchild creativity?

Dr. Early: From a product standpoint, it has to be.

Will Steffe: Well, not necessarily—perhaps in the very beginning it is, but shortly thereafter you run into other necessary forms of creativity. You can't make the product without creating a means for making it effectively and that requires creating organizational skill.

HORIZONS: So, once the organization is underway, it's hard to define the beginning of the creativity cycle?

Dr. Early: Yes, organization must be built—that is a kind of creativity involving large numbers of individuals working to build something in terms of human relationships that did not exist, and it can be done badly or well. This is a bit off your point of technical creativity, but I would not like people to think that those of us whose prime interest or activity is technical creativity, lack a respect for and an understanding of other kinds of creativity a company demands.

HORIZONS: In your positions—and you're probably at the highest point of product creativity—do you work mostly as a result of assignment or inspiration?

Will Steffe: That may vary greatly among the four of us. I would say that certainly in my job, creativity is the smaller fraction of the total. What we have to do is often reasonably well defined, like moving toward the next product needed in a family. That does not mean such an assignment requires no creativity. There is substantial room for creativity, even if the desired product is already well defined, but there is less creativity in a well-defined addition to a product family than there is in the original design of a new type of integrated circuit.

Wendell Sander: Pure inspiration is extremely rare. We, at Fairchild, are answering a need of some sort. Now the need may be very well defined or it may be very fuzzy, but basically necessity is the mother of invention. It's like there is an awareness of a body of problems out there. Even the most "blue sky" kind of researcher is thinking of the problems for which he hopes to find a solution. The better

the knowledge one has of the kinds of problems that exist in a particular field, the greater the opportunity to find solutions. So, invention in many ways is problem solving. But, it can be very indirect. Very often what will happen, you will observe an anomaly which leads to the solution of an entirely different problem. I have found for myself that it's not always obvious exactly where a solution lies. That is, very often there is a problem that I'm aware of and I have an inspiration that there is a solution in a specific direction. It has taken as long as a year to find a solution in that direction with off and on thinking about it. But that's the closest to inspiration the technical creative process ever gets. There is a sort of intuitive feeling that there is a solution in a definite direction.

Dr. Early: Let me talk about a specific case where I thought that we could solve a problem, that is achieve a high-performance product, utilizing a certain technical approach. Roughly a year later, I finally figured out how to do it, subject to all the constraints which I identified. I thought of other schemes in between, but I didn't like them very much because they didn't seem to do a good enough job; and that is another aspect of the whole process of creativity—the better attuned the inventor is to the marketplace and to the real world of what can be achieved with semiconductors and what can be used by the customer, the more likely he is to give most of his ideas an early and quiet burial.

Will Steffe: The scope of a creative person is very important—if he has a broad scope, his inventions will often

be useful; if he has a narrow scope, he may still be extremely creative and come up with many inventions but they will be of more limited value.

HORIZONS: How do you identify a technically creative person? Does someone begin demonstrating leanings in this direction very early in life—in grade school, in high school? Are there any characteristics that can bring you to say, "This person has the basis for creativity"?

Dr. Early: I don't know if you can identify creativity through school performance. On the job, I think you identify it fairly soon—within six months to a year, because normally people who are creative will have a totally different approach to problem solving. Instead of routinely redoing what has been done before, perhaps just making things more complex or bigger without really using a new approach, a truly creative person will tend to pull away from the ways in which things have been done and will try to approach the problem from a different angle. Sometimes this becomes frustrating in that you may be approaching the problem from 13 different angles before you find one that fits. Creativity is not necessarily a lot of education—sufficient education, but not necessarily a lot.

John Moll: You have to have a great deal of common sense and self-discipline, as well as a certain amount of basic intelligence and drive.

Dr. Early: And in a way, a funny kind of humility. The facts are there and

Jim Early



they're not going to make any allowances for you. You've got to be able to accept the idea that you can have bad ideas, too. I think it's worth commenting here that technical creativity has a paradoxical set of constraints in that the inventor must be in close contact with reality, because if he's not, what he invents isn't real; and it's not an invention, it's a conception looking for an invention, which is a different thing. I remember a fellow telling a story of an 18th century man telling a painter friend that he ought to get a little boy and put some blue clothing on him and paint a picture of him. Now that's a conception. Gainsborough's Blue Boy is an invention and the difference is reality. Now that's one side of it, and you have to remember that the laws of nature—of physics, chemistry, engineering—are the most bureaucratic thing in the world. They admit of no exceptions—none at all. They work the way they work. At the same time, the highly inventive types—the broad scope people Will was talking about—characteristically operate by denying some of the assumptions that others have been employing in attacking the problems. Part of the test of the inventor is his ability in examining reality, both existing and future, in seeing which of those assumptions are no more than just that. They're only conventions of the engineering of the time—assumptions rather than ironclad restrictions. And you can even take this into, say, the area of physics, where Yang and Lee, I guess it was, deservedly won the Nobel Prize for having the wit to question whether parity was conserved. I'd never even heard of the question. But all physicists to that point believed that it was and they had the sense to question that and found that it wasn't. What Will was talking about earlier was a question of re-examining the assumptions under which the system or the circuit is designed—the technology is assumed. Take the case of Isoplanar when Doug Peltzer said, "Hey, who says that you have to use junction isolation at the side of bi-polar circuits?" That was denying an assumption which had 10 years of validity in this industry. He created a new technology. It's notable that

other people elsewhere very shortly came to the same point.

Wendell Sander: There seem to be ideas whose time has come. Very often, because the environment and knowledge has reached a certain stage, creative people in many locations in many different industries or many different companies in the same industry, independently come to the same conclusion within a remarkably short time.

HORIZONS: Does this have something to do with communication or is it spontaneous?

Will Steffe: The ability to create a solution depends strongly on properly framing the problem. Communication helps to bring the problem into focus.

HORIZONS: Are creative people fundamentally frustrated, a bit unhappy, a bit dissatisfied with themselves or their lives or their careers?

John Moll: I think at times they are. They almost have to be a bit dissatisfied with life—they're constantly trying to alter it or change it.

Will Steffe: Contentment is certainly not one of their characteristics.

Dr. Early: One form of unhappiness among technical people is the distance they see between themselves and their ideal selves. Of course, that's true of people. But for the most part, I don't see technically creative people as being as unhappy as some of the great literary artists.

HORIZONS: Dr. Early, when you talked about the creative person

Wendell Sander



being aware of reality, that shatters quite a few illusions of the stereotype R&D person. One generally feels he should be isolated, should have a little more freedom, a little more rein; he should be allowed, perhaps, to be kept somewhat away from the day-to-day pressures of the business.

Dr. Early: Well, in the sense of the day-to-day pressures of delivering product—yes. But, he or she should have a grasp of the necessities required for an idea to become a product.

HORIZONS: Should there be a special creative environment? For instance, Will, in your situation where you're a little bit closer to the product in the development stage, perhaps, than Dr. Early is, do you need a little distance from the demands of production and delivery?

Will Steffe: Yes, we definitely do. A creative person, in my opinion, needs time to be creative. He has to have free time, a little bit of extra time in order to exercise his creative skills. If he's constantly loaded down with chores, he will very seldom achieve the creativity of which he's capable. Not only does he need time, he also needs an environment that is conducive to creativity. For example, in contrast to the poet or the artist, the scientific creator—the man or woman in our profession—needs a good many more tools. He has to have access to a computer; he needs laboratory facilities; perhaps even technician support, in order to achieve what he's after. Technical advances don't often crystalize as ideas that can simply be confirmed with paper and pencil. Careful analytical and experimental verification is often required. So you do need to give the inventor time and facilities to do the job, otherwise he will not perform well.

HORIZONS: So the semiconductor industry has definitely gotten beyond the garage stage? People are not going to make too many more advances without laboratories and computers?

Dr. Early: Yes, although there always exists the possibility that a man with a pencil and a piece of paper, or just looking at the data can say, "They've all missed this and it's important."

HORIZONS: How do you feel as a

creative person when a technical breakthrough you have been very close to many times in your career is suddenly obvious?

Dr. Early: I suppose one has a little feeling of humiliation—"why didn't I see that"—coupled with a delight in the beauty of the thing, because such things, if they're important, are really elegant.

Will Steffe: Jim, do you really find that there is the sudden realization that "here we have it, it's been invented"? Or isn't it often a matter of sitting down and looking back and saying, "Gee, a month ago we had it"?

Dr. Early: Sometimes yes, sometimes no. I can remember with respect to probably the most important thing I did at Bell Labs—proposing the thin base transistor—the first time I came across the concept, I was sitting in an auditorium and I said, "Hey, they have it all backward, this is what they should be doing." That was in April of '52, and somehow I didn't record that in my notebook or even think about it. But a month later I was turning over in my mind the whole question of how to advance transistors, and I stayed awake a whole night, literally, thinking about an ideal transistor and came up with the intrinsic barrier transistor as the fastest transistor that could be built. And there was no doubt in my mind that the other stages of thin base transistors were also clear at that point—not in the modern diffused form because I was not dealing in ideal electrode-geometry—but I was dealing in terms of linear electrodes which were obvious, as against the then-existing bonded wire and ring dot, because the advantages of those structures were obvious. So I can't quite agree that there are not times when you say, "Aha, that's the way to do it."

HORIZONS: But how many years of exposure had you before you could see the problem so clearly that you could say, Aha, that's the way to do it"?

Dr. Early: I'd been in the semiconductor industry eight months.

HORIZONS: How far out in the future are the products that you are working on in the lab now or that are still in concept in your mind?

Wendell Sander: That's very hard to answer. I can conceive of what I think will be practical five or ten years out, but I don't know how to build them yet. I can have a conception of how sophisticated things can become, but I don't know how to make them that complex. I have a few ideas as a part of this process—where little pieces will fit in, and by having a long-range framework, ideas you have fit the pattern.

Will Steffe: I think it is much easier to define the minimum time length that it takes, because an implementation time is required for our products. Depending on the type of product and idea, it can range from six months to two or three years from conception to the marketplace.

HORIZONS: When you have a new product concept, are you actually thinking all the way to the end product? Do you know how it's going to be used, whether it's going to appear in toasters or in traffic lights or in computers or whatever?

Dr. Early: When it comes down to a market there is the simple question of who is going to use it for what. That's what markets are about.

HORIZONS: Does "blue sky" creativity ever exist in industry as we've been led to believe?

John Moll: You must be careful with blue sky creativity, because it has to be so important you must be willing, if necessary, to build whole new factories to build the resulting products.

HORIZONS: So all of these practical considerations have to go into it be-

Will Steffe



fore you begin to exploit an idea?

Dr. Early: For really good inventors, the vast majority of their ideas are very quietly, rapidly buried before they start to stink. Because in the very process of examining assumptions, of throwing them away, of opening your mind, you're bound to come up with a lot of junky ideas.

John Moll: But sometimes it's useful to bounce around ideas—some of which sound ridiculous on the surface, but have the effect of at least changing the direction of thinking. Good ideas can evolve from them.

Sometimes these weak ideas are effective in making somebody think about something in a different way.
HORIZONS: What about that? Do you have to have an environment where you can say a few absurd things occasionally? Do you have to work with people who will listen before they laugh?

Wendell Sander: It makes the creative process easier for me. I don't know, that's probably a personal situation. It's much easier for me to be effective if there's someone I can rap with, in a sense, or bounce ideas off.

HORIZONS: As individuals, is there any time or place in which you seem to be more creative than others, such as driving to work, in the shower, mowing your lawn, or pulling weeds, or in the work environment itself?

Will Steffe: Well, Jim mentioned his idea crystallizing during a sleepless night. It is not so untypical at all—for an idea to crystallize in peace and quiet with no disturbance and usually that is not the case at work.

Dr. Early: My experience is that I've been actively thinking about the subject at the time. Now sometimes that can happen the first time the subject comes up—someone will describe a problem and you'll say, "Well, what about this"? It's the obvious, but a fresh approach.

HORIZONS: Personally, is there, in each of your careers, a point that you really feel was a creative peak?

Will Steffe: It happens in cycles it seems. There are periods when you are creative, there are periods when you're not, and exactly what causes them is not obvious; although I do think that when such periods are there you generally know it.

John Moll: Looking back over my professional career, I can see periods or times which clearly I felt was a very creative time, but I have no feeling that it's not going to happen similarly in the future. There were times at Bell and at Stanford where I was doing things with other peoples' help, of course, that were long-term contributions.

HORIZONS: Well, the constraints, then, at Fairchild are much greater than, perhaps, at Stanford, where there's much more pure research?

John Moll: There was a cushion between us and the factory.

HORIZONS: Did you as a researcher, enjoy the distance from the factory; did you feel more creative in that environment?

John Moll: I came from Stanford to Fairchild, at least in part, to get a little closer to the factory.

Dr. Early: Well, it relates to the motivations of many creative people.

Creative engineering people are never really fully satisfied until their ideas are actually in a product.

Will Steffe: Careful with that, Jim. That may be true for people working here—but I'm not sure it's true universally.

Dr. Early: Well, I deliberately emphasized the word "engineering" rather than "research." One I would comment on, in my own experience—the first few years at Bell were pretty creative, but then there was a quite long period when the instances of creativity were relatively rare. This was, I think, significantly associated with a relatively narrow span of technical responsibility and with isolation from the work by being at the top, so to speak, of a pyramid which is highly structured. So you just weren't dealing that closely with the problems, day in, day out. And that same phenomenon continued in the first year or two here at Fairchild, when we had the so-called central R&D. Since this new organization has been set up—the last two and one-half or three years—it's been a very, very satisfying experience for me. I've been as creative as I ever was. In terms of participation and technical contribution to the work—probably the most active period of my life—it has been a totally satisfying situation. It

shows how important it is to have the right organization and the right interactions. This was also significantly influenced by the fact that we were involved in the development of the charged-coupled devices, which is a whole new area of technology.

Will Steffe: There are two different approaches to research and development—one is to examine all concepts, cull out the important ones early and proceed into development to allow a number of ideas to go further into product development before a final selection is made. I believe the correct approach is taking a few important ideas and developing them to their fullest.

John Moll: I don't really know what the right approach is. I once worked for a company that allowed 48 of 50 ideas to actually go into product development.

HORIZONS: Do you ever feel that there just isn't anything more possible—that all your creative energy has been spent?

Will Steffe: There's always something more. If I have time and want to become involved in something, all I have to do is go downstairs into the labs.

HORIZONS: What are your attitudes toward management responsibilities? I'm sure you all have administrative and personnel problems to attend to. Do you regret the time they take?

Will Steffe: No, as Jim pointed out, they can be creative, too.

Wendell Sander: You can get as much satisfaction out of devising a scheduling control method or solving personnel problems, as developing a technical idea. Also, to be creative in an industrial environment, to operate in an industrial environment as a creative individual, you can't really be successful with your creative ideas unless you can deal with people successfully. That is not necessarily true with things like art. The artist, from a personality viewpoint, can be very difficult to deal with and still be able to express his creativity. To operate in an industrial research laboratory, you can't be too difficult to get along with. If you are, it's a lot harder to get your ideas across and accomplish your objectives.

HORIZONS: You're shattering all the

stereotypes. What about stimulating other people to be creative—is that something you enjoy?

Will Steffe: Yes. You don't have to carry an idea through the invention stage yourself to find satisfaction. It's just as much fun to talk it out and see somebody else take off with it.

HORIZONS: So you have to be able to submerge your own ego—your need to get credit for an idea—to manage a creative effort?

Will Steffe: Perhaps, but that's really not important, because your ego would become deflated anyway when the invention is done and you realize that you should have seen it much earlier.

HORIZONS: Do very many really young people right off the campus go into research and development?

Dr. Early: Yes, and the people entering industrial research in the last few years have been, on the whole, very, very fine. Things like beards don't make any difference.

HORIZONS: Another stereotype—we have been led to believe that the creative person is totally absorbed in his creativity to the detriment of his personal life. When you're in a charged creative period, is this true?

Will Steffe: I don't believe that's completely true about the creative person, technical or otherwise. Anyone who is in a responsible job that he truly tries to fill to the best of his ability, will be rather totally involved in it regardless of what it is—whether it's creative or not. I don't think total involvement is unique to technically creative people. Neither do I think it has to be to the detriment of one's personal life.

John Moll



PATENTS: Protecting the fruits of creativity

Technical creativity is a phenomenon which is virtually impossible to define (see story elsewhere in this issue). It appears to be very personal and difficult to predict. The fruits of technical creativity are realized throughout the world by a system of patents which allows the inventor or his or her assignee the exclusive right to manufacture, use or market the products utilizing the invention.

For highly technical companies like Fairchild, patents are the very backbone of its existence. There is a constant technological race underway to get new products to the marketplace ahead of the competition. Fairchild must protect the investment it makes in research and development of these products by applying for patents on any element of a design or process that is novel or unique. This adds a new dimension to the role of an engineer or researcher; not only must he or she keep those creative juices flowing but must also be aware when he has discovered a patentable idea. To assist, Fairchild has a staff of experts in patent law who specialize in seeing that Fairchild and its inventors properly protect the technological advances made within the company.

Helping inventors to resolve the question "patentable or not?" is the Fairchild patent staff headed by Roger Borovoy, Patent Counsel, which examines ideas and concepts presented by Fairchild engineers and scientists for the qualities which the U.S. Patent Office describes as "invention." The Fairchild patent attorneys, using their knowledge of issued patents and publications in any particular field, are trained to search out possible inventions. In most cases, the inventor or inventors have shared their ideas with a member of the Patent staff well before an invention is turned into a product. In addition to ferreting out patentable ideas, the patent attorney also plays another role in the creative process. Using their industry-wide knowledge and their acquaintance with activity within the Fairchild research and development labs, they monitor R&D projects in an attempt

to catch those that would represent re-invention before a great deal of creative time and research effort has been lost.

As the Fairchild inventors elsewhere in this issue have stated, frequently there are similar research projects going on concurrently at more than one company throughout the fiercely competitive semiconductor industry. It's not unusual for two or more companies to harvest the fruit of their research within months of each other. Participating in an inventive race even where the finish might be close still makes economic sense. But to begin reinventing a process or device which is already invented can prove frustrating to the researchers on the project and expensive to the company.

Before filing an application for patent, Fairchild conducts its own search to determine whether the invention described represents a true technical advance. In the world of patents, deciding whether or not to file a patent application frequently involves lengthy conversations between inventor and patent attorney.

A well-prepared patent disclosure—the way in which the invention is presented to the patent department—can be a major factor in the decision whether the concept is considered eligible for a patent application. Rarely in today's technological world do advances stand alone, as did the creation of the incandescent light or the cotton gin. More usually, inventions move technology in any field a little bit ahead of where it was before. Therefore, it requires patent experts to determine if, indeed, any project in the company's research or engineering labs matches the hard definition

of true invention. In determining the patentability of an invention, the subject described must be able to stand the test of not only novelty, but "was this invention obvious to those skilled in the field who are familiar with all existing patents and publications?" Therein lies the role of patent attorney. With his or her legal education and acquaintance with things inventive, he is able to guide the inventor and the company toward the coveted patent.

The benefits of the company's attention to patents can be seen in the 1973 P & L Statement where Fairchild realized more than ten million dollars in royalties and other income, most of which resulted from licensing others to use company patents.

Fairchild established its technological reputation by being in the marketplace ahead of its competition with innovative products and processes made possible through the creativity of the company's inventors. These products and processes are covered by patents throughout the world.

The patent files of the company are really an abstract of the history of the Fairchild Camera and Instrument Corporation. From the first patents issued to Sherman Mills Fairchild on his inventions in aerial cameras, to the latest patent applications on some of the company's newest advances in CCD and Isoplanar technology, the Fairchild patent files tell of human effort and accomplishment.

Considering all the handicaps and qualifiers which judge the creative content of any invention, tucking each new patent into the Fairchild files brings justifiable pride to the inventor, the Patent department, and the company.



The Corporate Patent Staff: (Left to right) Ron Richbough, Norman Reitz, Alan MacPherson, and Roger Borovoy, Patent Department Director.

Marvelously beautiful people, unconcerned with the trivia that troubles the rest of us, glide gaily through life thanks to a snowy white sink cleanser, a spray-on deodorant, or an aspirin.

That's advertising.

A thoughtful description of a new product, its features described in concise terms, its promises spelled out in specification charts.

That's advertising, too.

If the second description is far different than the advertisements you are accustomed to reading, you're obviously not a potential buyer of technical or industrial products. There is a whole world of industrial advertising going on in our society that sets a different tone than ads directed at the underestimated consumer. Industrial ads, on the other hand, respect the intelligence of their audience. "In recent years," states Jim Courtice, Advertising Manager for Semiconductor Components, "ads publicizing highly technical products like those produced by the Semiconductor Components organization, have become a little more conscious of layout, but their messages remain factual and unfrivolous." Gordon Daggy, who manages the advertising efforts of the Systems Technology Division, agrees. "It wasn't many years ago," he remembers, "that ads in trade publications were simply columns of type describing the concrete virtues of a new industrial or scientific product. As competition has mushroomed in the electronics field, industrial advertisers have had to concentrate greater attention on the eye-appeal of their ads to be seen above the competition, but the integrity of the message remains. Our customers and potential customers look to our ads for information;

something you really don't expect from an ad for shampoo or tooth paste."

Yet, the brainstorming sessions that go into the creation of a Fairchild ad are no less intense than a Madison Avenue session on how to equate a south seas sunset with drain cleanser. The Fairchild ad creation sessions center around not how far out you can go and still relate to the product, but how to present the most important information about the product in the least amount of type. Product engineering, marketing, advertising and ad-agency people gather for these sessions and, with some luck, they can "talk through" two ads in an eight-hour day. "It's a completely draining experience," states Jim Courtice, "to bring together those people who are closest to a new product and attempt to arrive at the points that should be featured in an ad. Simply saying 'It's wonderful—use it' won't work unless we have some solid facts to back up that claim and command."

In these sessions, the engineering and marketing people will attempt to establish for the copy writers the key benefits of the product. They'll concentrate on the features that sets Fairchild apart from the competition. The message of the ad will be written and refined until it says the most possible in the amount of space allocated. The message will then be set in a layout with eye-appeal that projects the product image the company hopes to establish in the marketplace. In a series of semiconductor ads run over the past three years, there has been a common signature—"Made in Fairchild." Jim Courtice explains that the Fairchild symbol in semiconductor advertising was created first to provide an immediate

identification of a Fairchild advertisement when it had to be tucked among many others in a trade magazine and second, that the statement, repeated continuously in ads and sales promotion literature, would gain identity as a hallmark for quality and technical achievement.

Systems Technology has, for the past several years, established an annual theme for its advertising program. In 1973, that theme was the people who create the product. In two-page ads which appeared in trade magazines such as ELECTRONICS, ELECTRONIC NEWS and ELECTRONIC DESIGN, an entire page is devoted to photographs of Systems people—assemblymen, engineers, supervisors, managers, involved in the business of developing and producing semiconductor test equipment for highly specialized and demanding users.

Selection of the magazines in which Fairchild ads will appear depends largely on the audience for the book. If a product will have particular appeal to educators, such as the Industrial Products Division's line of audio/visual aids, it will be placed in one or more of the publications that are produced for this specific audience. Systems Technology ads appear in publications aimed at semiconductor manufacturers, and semiconductor advertisements are placed in publications aimed at readers throughout the broad electronics industry.

Advertising in the electronics industry has undergone a rapid evolution in less than a decade, from almost textbook appearance to displays which catch the eye and hold the interest. This rapid evolution has been stimulated by creativity and competition for attention.

The CCD camera, the Industrial Products Cart-Reel-07 Projector, Inland's new press for the semiconductor industry, the Analog Division's 7800 Series of one-amp regulators, the charge-coupled device, the Ranger Series of Testers . . . dozens of advances in technology and product design . . .

it was just another year at Fairchild.

Managing Technical Creativity

how one division does it

In the highly charged creative atmosphere at Fairchild, technical advances are so frequent that they have become expected.

Within the lab or research center where the inspiration and perspiration to create new concepts that represent advances in technology occur, creativity is the energy that makes the organization move.

At Systems Technology Division in Palo Alto, California, for example, creative response to market needs is the name of the engineering game. This division prides itself on sophisticated test systems for semiconductor devices that out-pace the competition by several years. Developing the atmosphere for such creativity, managing innovation and encouraging technical expression that will pay off is the assignment handed Bill Howe, Manager for Advanced Development and Harold Vitale, Manager of Sentry Systems Engineering, for Systems Technology.

Creativity has to be managed in a corporation. This is a heavy assignment. When you start on the path toward solution to a technical problem, you cannot schedule creative engineers to produce an innovative

concept in a given period of time. You can only, according to Bill and Hal, select the person most suited to attack the problem, give him or her the support needed to analyze all approaches and steer them back on the right path if they begin to go astray.

"We're operating in a very real, competitive world," states Bill Howe. "From our constant contact with our customers we know what is needed in the next generation of Systems Technology products to keep ahead of competition. In the Ranger Series," he continued, "the newest line to go on the market, our objective was greatly increased processing speed—not simply to keep pace with competition, but to establish a processing

rate that would keep us ahead of the pack for several years into the future.

"We set the parameters for our projects before we begin thinking of hardware and technical problems. In the case of what was to become the Ranger Series, increased test speed was our prime objective; next came flexibility and we wanted all this performance packed in a single, small, inexpensive product. That's a very tall order for a single design.

"As in any program aimed at moving product technology ahead," he continued, "you begin with the ideal, will make some compromises along the way, and hopefully end up with a product that almost matches your original objectives.

"In the selection of the person who

Bill Howe



will be responsible for developing a design concept, eagerness is the prime deciding factor when experience is equal among two or more potential project engineers. If someone really wants to tackle a problem that drive will carry him or her to a solution much faster than someone who looks at the project as just another assignment.

"Bert Graeve of our staff was enthusiastic about the engineering design challenges that the Ranger concept represented and he has the experience and innovative drive that made him a natural to develop that technical concept that would respond to the outlined needs.

"Within 30 days, Bert had a proposal for the way in which we should approach the project. In this case, Bert presented a single, well-structured concept. More usually, the project engineer will offer three or four approaches which appear to be feasible. After much technical examination the three or four will narrow to one or the final program will be a combination of the original proposals. This is the inspiration portion of the creative process. The perspiration comes next to determine whether or not the concept is 'real.' Will it solve the problem with the efficiency and economy we originally envisioned? Bringing the Ranger from concept to reality took more than a year—and that was a relatively smooth birth. Bert's original concept centered around a pipeline processing method, a theory long talked about but never reduced to reality."

When the Ranger Series bowed last August, it combined speed (twice that of its nearest competitor); flexibility (the capability of performing numerous tests simultaneously) and economy in a single table-top tester.

No sooner was the Ranger program moved into assembly than Bill and his staff began work on the next generation of systems for the division.

"Technical creativity," Bill Howe believes, "is basically a learning process. You build on what is known, you move it a little bit ahead. In the process you learn and are better prepared to tackle the next, more complex, problem. Creativity is an individual thing. For some, there are a thousand ideas a month, 99 percent of which are mentally scrapped before they are uttered. Another person, who is equally creative, will have that one,

great idea a year.

"Managing a creative effort is largely culling through ideas and deciding the ones or one that will bear the greatest fruit in line with the organization's long-term goals."

You can take the engineer out of the laboratory, but you can't totally take the laboratory out of the engineer even if you make him or her a manager; at least, that's the impression you receive from Harold Vitale of Systems Technology. It's his style to slip into the lab once in a while to run a test or two on the latest evolution in the Sentry series of semiconductor device testers. Obviously, this is a relatively commonplace occurrence because Harold doesn't command a second look from other engineers as he sits at the Sentry keyboard to run the tester through its paces. However, Harold, like his counterpart Bill Howe, finds that managing creativity—that seemingly impossible task—is best done directing the action from a distance rather than sticking his fingers and nose into projects in the laboratory.

Harold has followed the Systems Tech line of test systems from their creation in a research laboratory in 1966 to the present. He has served as an engineer and a project engineer on programs related to improving the performance of the company's test equipment. Eighteen months ago, he

was named to manage the Sentry development effort. The Sentry family of systems is a constantly evolving project with no end in sight. Using a basic modular approach, improve-

ments are continually being added to the systems to upgrade their capability beyond where they were last month or last year.

"Carlos Silva is really the current father of Sentry," Harold states. "But, everytime we have an enhancement project, we give the problem to the engineering designer who is best prepared to take it on. The most recent advance for Sentry is a significant increase in handling speed and improved resolution. Bert Graeve and Ed Chan were the key designers on the innovations which made this improvement possible.

"The ideal person to handle any creative design project," Harold reveals, "is usually very obvious. You'll rarely find competition among the engineering staff for any single project. Sentry is the result of the creativity of numerous engineers and technicians and each can identify the contribution they have made to the system's design. I think that it is very important in maintaining the level of innovation in a design engineering activity to assure that each person involved in the creation of a product can identify the results of their efforts. We don't work by committee; every member of the staff has distinct responsibilities and is given as much freedom as is possible in developing the way in which he addresses those responsibilities.

"You can't schedule creativity," Harold concludes, "but you can provide the direction and the support which will lead to a solution—many times a very innovative solution—to a technical design problem within an acceptable time period."

Harold Vitale



Employee Artists

The Act of Creation Is More Important Than Admiration

You don't have to live in a garret and starve to qualify as a creative artist, no matter what biographers of famous artists lead you to believe. You don't have to forsake home and family to find expression in painting, sculpture, writing and other arts and crafts that fit under the definition of creativity.

Biographies of artists lead us to believe that a life in art is just that—nothing more than art. But, then less struggle and more contentment wouldn't make for very dramatic reading, would it?

Many, many employees at Fairchild are artists and artisans in their spare time. It's not necessary that their creations ever be shown in the Louvre or their words ever be identified among the great writings of the world. They have a creative drive that can only be satisfied through personal expression in paints, through words, or through the creation of objects to enhance their environment. The satisfaction, most agree, that they receive from creativity is not the admiration their painting, or short story, or craft project draws when complete, but comes from the act of creating itself.

"I become so completely absorbed in a painting that I forget the time and frequently don't stop to eat," says **Carl Palkovich**, full-time Avionics Engineer at the Industrial Products Division and part-time painter. Color fascinates Carl. A new idea for painting will often be stimulated by a photograph or other painting in which the colors are unusual. A few years ago, Carl bought some oil paints and a canvas, and without formal instruction, began to experiment with color. Many hours and a great many prob-

lems later, he had a painting which was pleasing enough to be framed and hung in his home. "You see something that is very beautiful," he explains, "and you'd like to be able to preserve the scene forever. Even if it is already in a painting, you make it your own by recreating it in your own way. It will be different than the original, because your method and your eye are different than any other." For Carl, oil painting was a natural evolution of a creative drive. As a child and young adult, he sketched continuously, perfecting his skill. Then he became interested in creating things for his home and turned to carpentry. "Painting commands your entire attention and taps all of your resources," he believes. "There are many things to think through when you paint. You must analyze the



light and shadow in a painting, and experiment with mixing colors. I find," he adds, "that any creative project leaves me very relaxed and in a very good mood. When I'm involved in painting, I feel my physical best. I don't think about my problems or aches and pains. I believe that the act of creativity brings a person to one of the high points in life. When I'm painting, all other areas of my life seem to be heightened. I'm a more creative engineer, a better father and husband. It has also increased my appreciation of art generally. I now know the basic problems painters must confront, but I also know the satisfaction they receive when they achieve the result they want."

S. H. Suh, of the Fairchild K-2 plant in Korea, has the eye of an artist. He sees works of art in nature. For the past six years, he has been collecting stones that he gathers from throughout the Korean nation. Nature has shaped these rocks and stones in the forms of animals, plants, landscapes or simply freeform, interesting designs. At times nature requires a little help, so Suh uses sculptor's tools to shape the stone to its aesthetic potential.

A showing of Suh's collection of stones was displayed at an exhibition held in connection with Semikor's seventh anniversary on October 25. In his home, he displays more than 50 pieces of stone which have been oiled and mounted to show off their finest features. Stone collecting combines Suh's eye for the aesthetic with his love of hiking and mountain climbing.

Pictured:

Carl Palkovich with one of his works

A portion of the S. H. Suh stone collection

Eve West at her easel

Sophie Nation with a sampling of her ceramics

Suzie Roofner, whose creativity extends from the canvas to designing and embroidering mod clothes such as the jacket she wears



For **Eve West** of the San Rafael, California, plant, painting in oils is a totally absorbing hobby that consumes most of her free hours. Many other employees of the plant enjoy Eve's hobby almost as much as she does. The subjects of most of Eve's paintings are people and many of the portraits which have graced her canvases are of fellow employees.

Eve cannot remember a time of her life she did not paint. "I think I was about nine years old when I began sketching. I can't really remember a time when the smell of oil paints didn't permeate my home."

Eve studied commercial and fine arts after being discharged from the women's armed services in 1945, but never pursued art as a career. "Somehow, painting to make a living never appealed to me." However, Eve sells everything she paints, so her interest in art is more than a hobby. "The only works that I've kept for myself are those that carry an American Indian theme. One day, after retirement, my husband and I will move to Wyoming, where I'll spend every day painting studies of the people of that beautiful area of the country." In the meanwhile, Eve devotes many hours each week

to her canvases with the encouragement of her husband. "He's my greatest critic," Eve confesses. "Nothing leaves the easel until he confirms that it is right and finished."

Sophie Nation, Technician in the Materials Department, obviously believes that idleness is not meant to be part of the human equation. She doesn't fulfill her need to be doing something with a full-time job and care of her home. The energy that is left is channelled toward creativity; the product of which she generously shares



Matt Custer

with friends and co-workers. Virtually everyone who has known Sophie for any length of time is finding pleasure in ceramic decorative and useful objects which she creates in her home during what could be idle hours evenings and weekends. Ashtrays, figurines, cookie jars and virtually anything else that can be fashioned out of ceramic material are poured in Sophie's kitchen, baked in a kiln in her garage, then lovingly painted or glazed. Before the Christmas holiday, her kitchen took on the characteristics of a production line as she prepared ceramic pieces for everyone on her gift list. Sophie, who is constantly experimenting with ceramic paints and glazes, finds her creative hobby relaxing and allows her to give gifts that are more special than anything she could purchase in a store.

"Whenever I paint or draw anything, I'm making a statement of some sort, states **Matt**

Custer, General Supervisor of Production in Materials. "My mood at the time will be reflected in whatever I do." Most recently what Matt does during most of his free hours are pen and ink or brush and ink abstracts and portraits. If he's in a particularly happy mood, his result may be an abstract painting in vibrant colors.

Matt, like so many highly trained artists, has deserted representational art for abstracts. "I realize that many people do not like abstract paintings; they believe that they do not require the skill that more conventional painting demands. To me, however, they represent true creativity—really seeing the world or a portion of it in a way no one has seen it before."

Matt has been documenting parts of his world on canvas and drawing paper since he was eight years old and entered a second grade poster contest. The result of his artistic output sometimes never sees a frame. "Most of my work has never even been seen by anyone but myself. That's not important, however. It's the creative act that is satisfying, not the result. Painting and drawing offer me a release that I can't find in any other way. I like to use my hands and my mind in a different way than I do in my job. When you paint or draw, you're never bored or lonely—there's that next sketch or painting you want to do."

Suzie Roofner says that it is difficult to describe what happens when a creative mood overtakes her. "I just have to draw or paint," she says. These periods may go on for months when she works on art projects every weekend and evening. Then, as suddenly, she won't touch a paint brush for months. Suzie has learned to live with and enjoy her creative drive since she was a grade school student. Her natural talent (which was encouraged by her grandfather who, at 84 years of age, is according to Suzie, "A fantastic artist") found her in art study programs throughout high school.

Suzie has found that her own painting has stimulated increased appreciation of the work of other artists. "When I visited Chicago, I could have wandered through the Art Institute for days." Suzie describes her painting style as "representational," but adds that when she creates ceramic pieces, they are usually "far out."

Our Scientists, The Authors

"It's really a responsibility to publish if you have ideas or the results of research which would benefit the technical community at large," state two of Fairchild's many technical authors, Irving Doyle, Technical Director for Space and Defense, and David Wen, Senior Research Engineer for R&D. Irving is a seasoned author having published his first technical



Irving Doyle

David Wen



article 35 years ago while at Fairchild. David Wen is making his first venture into publication with an article on floating gate amplifiers which is scheduled for publication in the IEEE Journal of Solid State Circuits. Though their experience with authorship differs, their views on the benefits and problems of publishing are similar.

Irving, with more than a dozen major articles to his credit over his career with Fairchild, feels that authorship brings with it increased personal stature in the technical community as well as enhancing the image of the company for which the writer works. With his lengthy experience in technical and business writing, Irving has become a counselor for other engineers and scientists who believe that they have ideas of importance that should be published, but don't know where to begin. Many articles have crossed his desk with requests for his editorial comments, for opinions on the value of the subject covered, and for suggestions for the journal or other publication that is most likely to use the kind of material covered in the article.

Both men admit that they search periodical publications in their fields for news of technical achievements related to their own jobs. "Publishing descriptions of significant technical advances is a reciprocal arrangement among members of worldwide engineering and scientific circles," states David Wen. "When the results of a project would be of widespread interest, and unless publication of the material would jeopardize the company's competitive position, it should be shared. The best way in which to share it is through presentation of a paper at a technical conference or through publication in a technical journal."

"I have grown to know and respect scientists and engineers without ever having met them," states Irving, "through their articles which have appeared in print over the years. At

the same time, I have gained respect for many companies' research efforts as the result of the quality and quantity of their engineering efforts with which I have become acquainted after reading reports in industry and technical publications."

Both agree that it takes some self-discipline to prepare an article for publication or a paper for presentation. Irving remembers his first article more than 35 years ago. He embarked on this first writing project at the request of his supervisor. That first article underwent re-write several times before Irving was satisfied that it was ready for publication. "Writing does become easier with experience," he assures. "After that first article or paper, you're familiar with the mechanics of publication and presentation." Irving advises that would-be authors discuss their ideas with the managers of their department before investing the time in preparing a first draft. Then, if it's agreed that the idea has merit and the subject is within the company's best interests to appear in print, first-time authors can obtain guidance from the corporate public relations office on the West Coast in placing their material with the most suitable publication.

To be sure that publication of any paper is in the company's best interest, it must be passed through technical and legal clearance. Again Public Relations can arrange the pre-publication clearance for the articles. The author's program is supervised by Bill Callahan, public relations manager for Semiconductor Components, and Roger Borovoy, corporate patent attorney.

Offering encouragement to other engineers and scientists who are reluctant to make that first move toward publication, David Wen declares that he is not a "natural" writer. "Completing an article for publication," he explains, "is more the result of discipline than inspiration."



CREATIVITY IN COMMUNICATIONS: Students enrolled in an art program at San Jose State University in California participated in an art contest sponsored by the Corporate Safety Department. The objective of the contest was to develop an art theme for a proposed safety manual to enhance the booklet's appeal to readers. At right, Industrial Relations Vice President Warren Bowles admires the entries which claimed the top prizes in the competition. Artists responsible for the works they display are (left to right) Ardis Matthews, third place; Yasmine Terry, second place; and William Lawson, who, as first place winner, will be commissioned to complete illustrations for the entire booklet. Yasmine is also responsible for the cover of this issue of HORIZONS.

CORPORATE PRODUCTIVITY ISN'T RESTRICTED to product engineers. For that matter, it isn't restricted to technical people alone. Creativity can be found in every phase of corporate life, from a filing system that represents a new approach to a long-established method of records keeping, to a manufacturing method that makes the assembly process more productive or less costly. Among the many people at Fairchild who apply creativity to approaching each task in their job is Joo Hueng Chun of the Fairchild plant in Korea. Joo Heung's design for a change in the gold ball bonding equipment used on the epoxy transistor line at that plant has increased efficiency by almost 30 percent—a true example of the pay-off a creative approach on an assignment can bring.



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Retrospective - 1973



In this issue

How do you describe a year? Depending on the events it contained, an evaluation of a single year might be great, just so-so, or a dozen months you hope will never be repeated. A personal evaluation of a year is usually colored by a promotion, a great vacation, a child's outstanding achievement, a new house . . . Two people living under the same roof might have different opinions of the same 12 months. Corporations, however, have more concrete terms in which they can evaluate a year. The figure on the bottom line on the financial statement is a good solid assessment. A profitable year clearly states that a company is producing products or services that are needed, and that it is managing its operations effectively in order to realize a profit. The amount of that profit reflects the ingenuity and effectiveness of the company's product development, manufacturing, marketing and administration

efforts.

In 1973, Fairchild realized records in sales and net income—an absolute measurement of the company's performance during the year. This success meant many things to the people who made it happen. For many it meant jobs with Fairchild as company employment rose to more than 25,000. For everyone, it meant unprecedented opportunities for promotion. A highly profitable year allowed a greater concentration on research and development efforts, creating advances in the company's technological base. New technologies, in themselves, opened up new opportunities for employees. The demand for Fairchild products created a need for additional facilities to house a growing employee population and expanding manufacturing. The highly successful year also brought about the creation of new employee programs and benefits designed to provide opportunity for career growth

and direct participation in Fairchild's future successes.

With the advantage of some perspective on 1973, the events of that year have been summed up for stockholders in the annual report which was published in late March, and 1973 will formally slip into Fairchild history after the annual stockholder's meeting in May where, after a brief recap of 1973 highlights, all thoughts will focus on the present and the future.

Looking over the numerous achievements of the year, HORIZONS selected those that affected employees most directly. We looked at the year in adjectives (see below) and in events (on the following pages), then went on to talk with Richard de J. Osborne, Executive Vice President—Finance and Business Development, to discover what changes we may expect in our company in the months and years ahead.

The way in which eight employees viewed the company operations in 1973.

(The statements below relate to the photos on the cover)

Jeanne Farnan

Controller
Industrial Products
Division

Commack, New York

"The 1973 results can only be described in superlatives, but of particular significance is the fact they showed what Fairchild can accomplish with teamwork and close coordination between corporate and operating management."

Jay Quinn

Audio-Video
Manufacturing Manager
Industrial Products
Division

Commack, New York

"Fairchild met the economic uncertainties of 1973 with vigorous, decisive and innovative management objectives that were successfully carried out by exceptional Fairchild personnel throughout the world."

Guy Simoes

Supervisor
Bi-Polar Memory
Mountain View

"The relationship between management and employees grew closer in 1973. This provided additional motivation for most people and, I believe, help to account for our record year in profits."

Cecelia Thatcher

Lab Technician
LIC Product Engineering
Mountain View

"I remember 1973 as the year of promotions—particularly for long-time employees. Promotions provide an incentive for everyone. To me, that's what Fairchild's successful year in 1973 brought—new opportunity for everyone."

Clay Wilson

General Foreman
MOS Wafer Fab
Diffusion
Mountain View

"I look back upon 1973 as the year of professional development. I believe that we achieved new heights of professional management. Solid, cooperative, well-directed management in manufacturing, engineering and all the support functions made record profits possible"

Frieda Leissler

Secretary
Space & Defense
Systems Division
Syosset, New York

"For Fairchild, the year 1973 can only be described as outstanding . . . remarkable . . . great."

Myrtle Jackson

Secretary
Linear Integrated Circuits
Mountain View

"1973 was a year of fantastic activity and enthusiasm. It reflected itself in the best financial year ever for the company."

Joe Lanak

Incoming Inspector
Space and Defense
Systems Division
Syosset, New York

"1973 was up all the way."

1973 brought programs to encourage advancement

Dale Cristensen eagerly left the classroom when the final session was complete that led to his Master's Degree in Systems Management. Now, less than a year later, he's as eager to return to the classroom. In between, Dale became a Senior Material Planner in the Transistor Division, and he was also among the first employees to participate in the Career Planning Pro-



gram developed in 1973 as part of the Management and Career Development program.

Dale knows where he wants to go. He has his eye on a general management slot and he knows that it's going to take a combination of a series of on-the-job experiences and formal training to achieve that ambition. Between obtaining a degree in Industrial Engineering and returning to school for his Master's, Dale served a six-year stint as an electronic warfare navigator with duty in Vietnam. He concluded that experience believing that the lure of a service career was not strong enough to compensate for his need to have some control over his own destiny. "Most service assignments," he believes, "are tightly regimented. It takes a specified amount of service before you can advance to the next higher assignment and even there your responsibilities are always clearly defined with restricting parameters. Service careers are fine for some, but I wanted something that would allow me to expand my responsibilities as my experience and talents allow that would give me a sense of personal achievement."

Dale tried a brief employment with one of the country's most established industries, but there he found a similar system. "It became quickly evident that you had to put in a certain number of years before you would be given anything meaningful to do. It was evident that progress was closely tied to age. It wasn't for me." Discouraged by this experience, Dale remembered a Fairchild interviewer's disappointment when he chose this job over a Fairchild offer. That interview closed with the advice: "If it doesn't work out—and you should be able to tell if it is working out within a week or two—call us, we're still interested." Dale called.

That was 14 months ago. Since that time, he has been deeply involved in attempting to match the demand for transistor products with the production capabilities in Mountain View. The goal of this job is to predict what market demand will be for every product in the Transistor line, and schedule an adequate number of each in production over a year to ensure that sufficient product will be available to fill customer orders. In today's market where demand far outstrips production capacity, this is no small task. But it's one in which Dale has had the opportunity to stretch—to use his full capabilities—and that's what he wanted when he came to Fairchild. With production control understood, Dale was ready for the next step on his career path—an assignment as Production Control Manager. After that, perhaps production management, then some exposure to financial management . . . At the same time, he'll follow the carefully plotted series of seminars and classes that have been outlined for him by Career Planning. That's where the classroom comes in again.

Dale believes that individual development is imperative to organizational development and feels that a company that identifies this has a greater opportunity for success than those which rely on simply haphazard on-the-job exposure to develop their employees. "But individual development is definitely not the company's task alone," Dale adds. "You have to make your desires known and be willing to match those personal aspirations to the possibilities the company can offer and be prepared to accumulate the necessary experience and education to carry you toward your goal."

Dale didn't leave the classroom behind when he entered corporate life.

1973 brought a record number of promotions

Sometime in the past three years, Starr Coyne's impression of her relationship with Fairchild changed. She no longer viewed her work as a job, but began thinking of it as a career.

Starr, who is now a production supervisor with the South Portland, Maine, Plant, states, "Fairchild was the right place to be when that change began to occur.

"I joined Fairchild," she continues, "in October 1964 planning to work until Christmas simply to earn some money for holiday expenses." Christmas, 1964, came and went and Starr decided to extend her employment a little more because, "I really enjoyed the work and the people.

"I had not worked for five years before joining Fairchild," she states. "At best, my total previous employment was brief, just a few years of office work for another company. When I was offered the job as an assembler at Fairchild, I took it rather than returning to office work because the hours suited my home schedule. At the time my daughter was three years old and my husband worked nights. While I worked the day shift at Fairchild, my husband was home with my daughter."

Starr was perfectly content with her assembler's assignment for more than six years. The first seeds of ambition were planted by an encouraging supervisor. "He," she explains, "encouraged me to think of my potential—where I



would like to go with Fairchild." Soon after, Starr was promoted to work leader in the Materials Department. In this assignment, she received a close-up view of what a supervisor's responsibilities could involve. In April, 1973, her supervisor encouraged her to enroll in a supervisor's training course at nearby Southern Maine Vocational and Technical Institute. This formal training solidified her ambitions to become a supervisor and, when in December, 1973, three super-

visory openings occurred in production, she applied. Starr was one of a number of other employees who bid on the supervisory jobs. The selection of the employees to fill the openings was made after lengthy interviews with members of management who had no previous professional contact with the candidates. "Everyone attempted to be as objective as possible in deciding who would receive the promotions. Since that time," she adds, "there have been other supervisory openings within the plant and applicants who were disappointed during the time I was interviewing, have had opportunities to try again.

"Fairchild has been a great place for people who want to advance in the past few years," Starr believes. "Opportunities that occur here don't happen everywhere. My husband has not had the same advancement benefits I've had," she explains. "He works for a small company that isn't growing. To have the kind of growth opportunities we've experienced in the South Portland plant, you have to be part of a profitable and growing company. The growth creates the opportunities. What's really great, is that promotions are first offered to employees before the company looks outside for some one to fill the job."

The difference between a job and a career for Starr Coyne was opportunity.

1973 brought new technology

To hear Vir Dhaka tell it, moving technology ahead isn't all the grueling work that we've been led to believe it might be. Under the shield of humility, Vir describes Isoplanar II, one of the company's most significant technical advances in 1973, as simply reducing the device area on an integrated circuit to 50 percent of its previous size. He makes it sound as simple as slicing off a bit here and there, much like you whittle away at a piece of wood. But, don't be misled. In discussion with other technical types involved in advanced development, it has been confirmed that Isoplanar II is the result of an imaginative mind and will advance semiconductor product development significantly.

For those who don't even understand Isoplanar I, the introduction of Isoplanar II is reason to seek a quick education before the world of Fairchild's technology becomes completely out of mental grasp. Vir, in a patient and humorous lesson, told HORIZONS that Isoplanar I was developed out of the need to devise a method through which transistors on a single chip could be separated from one another yet placed closer together than possible with then available technology. Fairchild's Doug Peltzer came up with Isoplanar I, which used oxide to separate the transistors in a single circuit with such efficiency that up to 50 percent more devices could be packed in the same space previously possible.

Isoplanar II, Vir explains, was born out of the unrelenting desire to contain an increasing number of devices in still smaller areas.

Vir joined Fairchild in April 1972 at the Integrated Circuit Group's R & D facility in Palo Alto. His first assignment was to head the project which was to become Isoplanar II. "The concept for Isoplanar II was born," he remembers, "in just a few days. I took a look at what was being done and decided the approach would be to eliminate as much of the non-functional area on the circuit as possible while reducing the size of the transistors themselves." That look he took was a very educated glance. Vir has worked in semiconductor tech-

nology advanced development since receiving his doctorate degree from Ohio State University in 1962. He was manager of a research team at IBM for six years and then managed a similar group at Cogar for three years.

It was almost a year after Vir's original design concept was complete, however, before Fairchild was pre-



pared to announce production devices using this new technology. That year was spent bringing the product concept to reality—the less glamorous portion of research efforts, but, according to Vir, the most personally rewarding. Constructing devices, testing and retesting, modifying and finally setting up a pilot production line using the Isoplanar II process, was accomplished before Fairchild announced its latest advance to the world. Today, Isoplanar II production is an integral part of the fabric of Fairchild. Vir escorted the first Isoplanar II line from R & D into production in Mountain View where he remains as its manager. Vir is convinced that Isoplanar III is already taking shape in the fertile imagination of some other engineer, but he knows that he won't be part of that development. He's decided to stay with Isoplanar II, to guide this new technology to its full potential in the marketplace.

Again considering a lay audience, Vir explained some of the applications of devices using the new Isoplanar II process; applications not previously possible. "Isoplanar II will greatly expand the use of the higher frequency ranges in communications systems," he explains. "Today," he continued, "the lower frequencies are

virtually consumed by telephone systems and television. To expand communications possibilities to land mobile, sea and air systems, we have to move to higher frequencies. For the first time, Isoplanar II will make possible electronic push button tuning for UHF television; tuning of signals at this frequency now have to be accomplished by mechanical means. Using devices constructed with the Isoplanar II process will enable computers to accept larger amounts of data and release that information at least three times faster than previously possible."

The vast product possibilities opened with the development of Isoplanar II are what drew Vir out of the R & D laboratory into production management. With justifiable interest, he's anxious to bring the production of Isoplanar II devices to their most cost effective state, and he's equally anxious to see Iso II expanded to every Fairchild product line in which it would provide benefits.

1973 brought new jobs through new technology

"We were repeatedly warned by professors in college that we shouldn't have great expectations for our first years in industry," Scott Keller reveals. "We were told that we could expect supportive assignments and only through repeated outstanding performance could we be expected to arrive in a position where we could make significant contributions."

If they could see him now, those same professors might soften their admonitions to future students. Little more than a year after graduation with a BSEE in Computer Science, Scott is managing the Computer Aided Design Section of the CCD Department in Palo Alto, California. His is a new job created in 1973 as the result of the company's development of an entirely new technology, the Charged Coupled Device.

In his role in the CCD Department, Scott supervises four employees who make up the Computer Aided Design section. CAD in itself applies a relatively new technology to enhance the efficiency of transforming semiconductor circuit designs into masks. It has only been since the late sixties

that the computer has been harnessed in semiconductor circuit design. A job combining advanced computer technology with advanced semiconductor technology was a blend that appeared made for Scott. He would, he believed, be content in such a work environment to be patient as his professors cautioned, until opportunities to make real contributions arose. His patience was not strained. From the first day he arrived at Fairchild he was not only allowed, but expected, to contribute. He was instrumental in establishing the CAD capability for CCD and in less than six months he was named to head the newly formed activity.

"CAD," he explains, "allows the design engineer to obtain a more rapid turnaround from his design concept to the mask." Scott equates the Computer Aided Design equipment to an automated drafting board that readily accepts alterations as the design engineer's ideas change. Use of CAD shortens the time between concept and completed mask to 25 percent of the time needed using conventional drafting methods." With the complexity of circuits increasing, this use of the computer in design is becoming more and more vital," he adds.

Scott describes his 18 months with Fairchild "as providing management experience far in excess of anything I'd hope for in this time. Fairchild expects a great deal. I don't hit the mark every time, but I can't imagine where—except in a growing, happening company like Fairchild—that I'd be given the opportunity to become an involved and, I hope, contributing member of an organization like CCD.

CCD combined with advanced camera development at the Electro Optics Systems Department at the Space & Defense Systems Division in Syosset, New York, has created a number of new jobs as that activity develops a line of closed circuit television cameras with capabilities never before possible. An employee who entered one of these new CCD Camera assignments is Frank Moy, a

June graduate from City College of New York. "I had no true concept of what an engineer would do in industry at the time I was ready for graduation. I was full of theoretical knowledge but had never really envisioned what would be expected of me as a working engineer. I felt that I would like to work in systems development. In attempting to bring that goal into better focus, I interviewed with the representatives of more than a dozen companies who visited the CCNY campus." A tour of the Space & Defense operation decided Frank that his future lay with Fairchild. "I liked what I saw happening in the CCD Camera section and I liked the people with whom I would work. After I started work, I found I liked the job I was given as a staff engineer. In the way in which this operation is managed," Frank reveals, "every staff member has the opportunity to work on a project which he can feel is his own. I learn things every day. I find my work very satisfying and personally rewarding. Why else would I drive 2½ hours a day to and from my home in Manhattan?"



1973 brought thousands of new jobs

Almost every plant and office throughout the corporation added new people as the flow of product orders continue to rise throughout 1973. At year's end, employment at Fairchild reached more than 25,000 persons worldwide. Some of these new Fairchild employees entered jobs created by new technology and new product efforts. Others were additions to traditional operations. Many made



Priscilla Johnson

Fairchild employment a family affair as husbands, wives, and children joined the growing Fairchild ranks.

Priscilla Johnson, who works in the Transistor Division in Mountain View, became a Fairchild employee in March, 1973, at the recommendation of her mother who works in the same building. Priscilla, who was a college freshman before joining Fairchild, found that she was having difficulty settling on a career goal and elected to drop school, at least temporarily, and go to work.

She joined the company as a header inspector and was promoted to bonder in July, 1973. The training plan that she has mapped out for herself is to get to know all of the jobs in her area—some eight assignments—in order to qualify for promotion to the Quality Control section.

Recently married, Priscilla plans to work for the next three to four years until her husband completes his studies in theology and receives his first missionary assignment. Priscilla will accompany him on his missions which will probably be to the South American countries. In the meantime, Priscilla is taking full advantage of her first job in industry gaining all the knowledge she can about the manufacture of transistors.

On the other side of the Pacific in April, 1973, Ku Jin Kim joined the Fairchild plant in Seoul, Korea. Ku Jin had left her home some 100 miles outside of Seoul early in April to seek employment in the city. She was hired as a Transistor Line Load Bonder (a job similar to Priscilla's) after completing the necessary applications and tests at Fairchild.

Today, Ku Jin shares a small apartment with two other Fairchild employees. They manage in the small space by working different shifts so that no more than two of the girls are home at any one time except Sundays. Ku Jin plans to work for about five years until she is married. She saves a portion of her earnings each month so that she will have a nest egg with which to begin married life. Ku Jin looks forward to returning to the country where she was raised after her marriage and sets being "a wise mother and a good wife" as her prime goal in life. Meanwhile, she states that "like most young girls away from



Ku Jin Kim

home for the first time, I am happy and enjoy life with my Fairchild friends." On their one day off each week—Sunday—the three girls are together and spend the day reading or listening to the radio.

Priscilla and Ku Jin—two of the newest, and among the youngest, employees to have joined Fairchild in jobs that were created by growth during 1973.



1973 brought more and more

If the Semiconductor Operations Facilities and Engineering Department was your only view of Fairchild, you would believe that the company was in the construction business. During any given month of late 1973 and early 1974, more than 400 assignments would be in various stages of work within the organization with the assignments ranging from the start of a new facility to a simple office rearrangement. "Just after the beginning of the year," Bill Evans, Manager of Facilities and Engineering Services, reveals, "we had to put our construction reports on a computer system because there was no way to manually keep track of the hundreds of facilities construction and rearrangement projects that were being requested simultaneously."

Ground was turned at five sites during 1973 and early 1974 marking new building starts for facilities to house Semiconductor and Commercial Operations.

Major construction and renovation took place or continues in Indonesia, Healdsburg, Korea, San Jose and Brazil as Fairchild prepares facilities to house needed operations expansion. Before the final nail was driven on one construction project, ground-breaking was occurring elsewhere in the world throughout 1973.

Managing Expansion

In each step of this expansion-renovation program there are a myriad of decisions to be made, schedules to be met and problems to be confronted. Bill Evans manages most of the Semiconductor and Commercial Operations world-wide construction projects. Bill's neat Mountain View office is surrounded by a huge open room that contains dozens of lay-out tables which are covered with blueprints representing plans for the renovation of an office area, the construction of a new fabrication line, and in some cases, a complete new facility. The pulse of growth is first

felt here where construction schedules are created, equipment design completed and where weekly progress reports reflect the expansion of facilities which will soon mean additional products flowing to customer.

It appears that Facilities could be easily dazzled by the major assignments this department receives—the new construction in Indonesia, in Mountain View, San Jose . . . —but Bill speaks of the less evident projects with the same respect he accords the major efforts. In recounting the accomplishments of 1973 and early 1974, he lists new effluent control equipment installed in many Fairchild facilities equally with the completion of the Korean plant expansion. "We're not just looking to add a space," he states, "we're concerned with the quality, esthetics, functional characteristics and impact on the environment of our buildings."

A Move Toward Facilities Flexibility

Throughout 1973, walls went up and walls came down as the Facilities group attempted to gain the most efficiencies from the company's existing buildings. New fabrication areas were carved out of buildings in Mountain View in space that was formerly occupied by offices and storage areas. This constant rearrangement prompted the decision to "landscape" a newly leased building in Mountain View rather than construct traditional walls and partitions to divide offices. The occupants of this building have individual territories defined by easily moveable screens, plants and indoor trees. Asked if this was an indication of the Fairchild style in future buildings, Bill responded, "The open office arrangement is suitable for some of our activities, completely unfunctional for others. Building layouts must be tailored to the operations of the activities they house. Standardization is a major goal of our department, but at the same

re new facilities

time we are obligated to seek sensible solutions to problems which in some cases would indicate exceptions to any rule including standardization.

"We're attempting to develop functional and esthetically pleasing facilities. However, if standardization can be interpreted as taking knowledge developed through experience and applying it to improving the efficiency of a facility, standardization does occur frequently within the semiconductor fabrication areas.

"Work is constantly underway in the equipment engineering section of the department to develop machinery that will enhance the production of semiconductor devices. At the same time, facilities engineers strive to improve the physical setting for fabrication operations," he adds. "As advances are made, they are incorporated into all new fabrication operations and into the renovation of existing facilities. The way in which services and chemicals are piped into an area, the placement of equipment, the ease with which

equipment can be serviced, the proximity to support operations are all factors that determine the efficiency of a facility," Bill explains.

Over his career, Bill has worked in virtually every phase of facilities construction and management in industry. While attending college, he worked as a member of a maintenance crew. Ten years ago, he became a facilities engineer for IBM. Before joining Fairchild, he was Facilities Manager for Memorex Corporation. In between, he faced the problems of planning lay-out for laboratories, production areas and offices, served as a project supervisor for construction at IBM, managed a major expansion program at Memorex and many other big and small projects too numerous to mention. Yet, when he sits back to reflect on 1973, he says, "I have never witnessed the level of construction activity anywhere else that we have experienced at Fairchild in the past year and the pace shows virtually no signs of slowing."

Bill Evans—the man charged with managing the facilities expansion.



In the squeeze for additional space, ground was broken by Dr. Hogan (center) on April 16 to mark the start of construction on a new Mountain View warehouse. Attending the traditional ceremony were (left to right) Chuck Smith, Consumer End Products Program General Manager; Claire Enstad, from the contracting firm, Inland-Ryerson Company, and Bill Evans.



1973 brought closer community involvement

In measuring the achievements of a year, there is some progress that is assessed in absolute terms—the amount of earnings the company realized, the number of promotions employees experienced, the new jobs created by growth and new technology, the square feet of space added as the result of facilities expansion. But, there are other achievements that do not lend themselves easily to absolute measurements. Within this category are the efforts the company and individual employees have made in the community—volunteer efforts directed at enhancing the quality of life in the towns and cities in which Fairchild operates plants and offices.

We could add up the hours employees devoted to their communities as representatives of the company or through independent community service, but these numbers cannot truly measure the result of this work. How do you attach a value to a young life that has been given direction because a Fairchild employee expressed his or her concern by helping to plan and conduct constructive youth-oriented activities? How do you measure the value of the time several employees spend with aged and lonely people who, without these visits, would find no respite in their loneliness? What's the value placed on the efforts of volunteer hospital aides who willingly take on some of the non-medical chores at hospitals and clinics in order to allow the professional staff to devote their full attention to health care? How do you measure the worth of the hundreds of hours Fairchild people spend advising community agencies on organization and financial management?

Fairchild personnel serve their community in one-to-one relationships such as acting as a Big Brother for a fatherless boy; and as unpaid civic officials in their communities making decisions that affect the lives of many. But achievements in community service defy concrete measurement.

An Individual Assessment

The motivations for and results of volunteer service to a community can only be assessed in very individual terms, so HORIZONS talked with a single community contributor—Mel Jackson, Program Manager at the Space and Defense Systems Division—and asked that he look back on the year from his point of view to assess progress he has made as an individual and Fairchild has made as a company in community involvement. Mel, who has been active in civic affairs since an undergraduate student in college more than 16 years ago, is founder and President of the Leadership Training Institute, a non-profit educational organization associated with Hofstra University in New York, the University of Southern California, Los Angeles; and New York State University at Stonybrook, New York.

After ten years of leadership involvement with Boy Scouts and local and national organizations directed at improving opportunities for minorities, Mel identifies as one of the single greatest deficiencies confronting the minority community the lack of training which would prepare Black and Hispanic persons for assumption of leadership roles in business, industrial, civic, church, educational and other community affairs. To resolve this deficiency, Mel created the proposal for an educational program for members of minority groups with leadership potential. And so the Leadership Training Institute was born. Today, six years later, the Institute offers a broad program tailored to the needs of the minority communities. LTI offerings range from human relations training for PTA and church leaders, to an extensive and strenuous 16-week course for young Black and Spanish men which includes management courses, human relations studies, U.S. economics and climaxes with an internship assignment on a community project that allows the young men to put their newly gained leadership

theories into practice. The men enrolled in this lengthy LTI program are selected on the basis of recommendations from established civic and church leaders. They are men who have demonstrated the potential for influencing positive action in their community. The LTI program gives them the training with which to realize this potential.

Education Continues

"Most of the young men who enter this program," Mel explains, "are high school graduates who have expressed little or no desire to continue on to college. At the end of the 16-week program, though the education they receive is equivalent to much of the management and economic material they would cover in four years of college studies, almost 90 percent of the LTI graduates do go on to college. For years, members of minority groups have been encouraged to take some responsibility for their own destiny," Mel states. "They've been told to become involved with the institutions and organizations that influence employment, housing and education. But, until LTI and other organizations like it were formed, there was no way in which individuals could prepare effectively to assume the responsibility for helping to shape the destiny of their communities.

"In the beginning," Mel admits, "the results of our efforts at LTI were not immediately evident. We trained and encouraged. Our students went into the community or into college. We could not identify the impact we were having. Today, LTI graduates are making their presence felt throughout local government, educational and other community affairs. Several of our students," Mel continued, "have joined the faculties of colleges and universities to act as counsellors to other minority students, others have opened their own businesses becoming vital and integral members of their communities, still



others have assumed leadership positions in social and church affairs confident that they have the management abilities to carry out these vital efforts."

Objectives Met

As Mel assesses the past year for LTI, he believes that it has accomplished and continues to achieve its original objectives. "A better life for members of minority groups is going to come about through the efforts of educated and intelligent members of the communities who are willing to take a leadership role in influencing positive change. LTI was created to provide these potential leaders with the training they need."

Mel states that LTI could not exist without the efforts of volunteer instructors and financial support from business, industry and individuals. "Many members of our teaching staff," he explains, "are among the most respected in their fields and could not be hired for any amount of money; yet they volunteer as unpaid instructors because they identify with the aims of LTI. Many companies, Fairchild in-

cluded, have offered financial support with the belief that an organization like LTI makes a vital contribution to its community. And the LTI community has continually expanded from the original Institute established on Long Island in 1968. Today, the organization has grown to include nine Institutes in different geographic locations.

Companies & Communities Closer

Speaking from long experience in community service, Mel states that he sees a definite and positive change in the community-industrial relationship. "Companies have realized," he states, "that they are influenced by what is happening outside their doors. Poverty, lack of educational opportunities, inadequate housing—all of the elements which create social dissatisfaction directly and often indirectly influence a company's operations in its communities. Business and industry have realized this and major corporations have added community involvement and responsibility to the list of traditional company objectives, because without

this involvement other business objectives cannot be fully realized."

Looking back over the past year, Mel believes that Fairchild and its people have become more deeply involved in resolving the problems and meeting the needs of its communities. "At Space and Defense Division," he states, "we have the example of Lou Pighi, Group Vice President, who devotes a great deal of time to community service. Top management support of community efforts is a great stimulation to other members of the corporation to lend their efforts to their community. In my personal experience," he continues, "I know that I have Fairchild encouragement in my work with the Leadership Training Institute. Though most of my LTI work is accomplished outside of the regular work day, the interest Fairchild management has shown in LTI and the occasional financial contributions that have been made by Fairchild for its support, are positive reflections of the company's concern with its communities."

1973 - Ten men who helped make the out

Every employee at Fairchild can find pride in the company's performance during 1973, because they made the outstanding year happen. But no accounting and credits would be complete without some mention of the people who help guide Fairchild to success. They are the members of the Corporate board of directors. Among these men, who are elected by the company stockholders, are experts in business, science, finance and general industrial management.

Not many of the company's 10,000 stockholders could be expected to be involved in active participation in the overall direction of Fairchild operations. The owners of Fairchild—the stockholders—entrust their interests to their elected representatives—members of the Fairchild Board of Directors.

The Fairchild Board members are

delegated a great responsibility by stockholders. These 10 men are responsible for establishing corporate policy and basic objectives for company operations. Their moral obligation as corporate directors extends to considering the interests of everyone influenced by corporate actions—employees, customers and other publics.

At a meeting of the Fairchild Board, most employees would probably recognize three of the men; they are: Dr. C. Lester Hogan, Fairchild President and Chief Executive Officer; Wilf Corrigan, Executive Vice President-Commercial and Component Operations; and Richard de J. Osborne, Executive Vice President-Finance and Business Development. The other seven men on the Fairchild Board might not be familiar to many employees as they are men from

outside the corporation who serve Fairchild as directors.

Decisions made at meetings of the Board affect Fairchild's future. The purchase of a new facility or building site; the approval of operating budgets for the year; the appointment of corporate officers; all decisions on basic corporate policy and the broad operations of the company are exposed to the Board for consideration and guidance.

Naturally, the Board as a whole relies on Dr. Hogan and other members of corporate management for policy planning and for originating recommendations for action. In a survey of corporate directors and their functions conducted by the Harvard School of Business, all directors interviewed agreed that their greatest responsibility to a corporation and its stockholders is the selection and



Walter Burke

Board Chairman of Fairchild since 1971; a director of the company for 14 years.

He serves on the boards of Conrac Corp., and the Bank of New York.

Financial advisor to the late Sherman M. Fairchild (1952-1971).

Director of the Union Theological Seminary, the Boys' Club of New York, the Brunswick School, Greenwich, Conn.; and president of the Fairchild Foundation, Inc.



C. Lester Hogan

Fairchild director since 1968.

Fairchild president and chief executive officer since 1968. Formerly corporate vice president and general manager of the Motorola Semiconductor Products division (1958-1968); Gordon McKay Professor of Applied Physics—Harvard University (1953-1958); member of the Bell Laboratories research staff (1950-1953).

Director of the United California Bank, member of the Board of Trustees of Lehigh University, co-chairman of the Stanford Mid-Peninsula Urban Coalition, and executive board member, Boy Scouts of America, Stanford Council.



Wilfred J. Corrigan

Fairchild director since September 1973.

Executive Vice President-Commercial and Components Operations of Fairchild.

Elected Fairchild Vice President in March 1970. Joined Fairchild in 1968 as group director of discrete devices.

Formerly, director of various product and operations groups at Motorola Semiconductor divisions (1960-1968).



William C. Franklin

Fairchild director since 1936.

Business consultant to numerous other companies.

Formerly, president and director of the Royal Crown Bottling Company of Baltimore and Washington, D.C.; prior to that time, partner in the New York Stock Exchange firm of Biggs-Mohrman and Company.

He has also served as a director of a number of other companies.



Roswell L. Gilpatric

Director of Fairchild since March 1967.

Presiding partner in the New York law firm, Cravath, Swaine & Moore.

Deputy Secretary of Defense (1961-1964); Assistant Secretary of the Air Force (1951); and Under Secretary of the Air Force (1951-1953).

Member of the New York State Bar and the U.S. Supreme Court and Association of the Bar of the City of New York.

standing year happen

support of the corporation's top executives, particularly the president.

In a large, diversified company such as Fairchild, there is a need for a diversity of talent to make the decisions required of the corporation's Board, so outside directors are sought to serve the company. To construct a well-balanced board, persons are recruited who are knowledgeable in business management, in finance, in science; directors who can lend their experience to shaping Fairchild's future.

The men from outside the corporation who are on the Fairchild Board are actively involved in other interests in addition to their Fairchild duties. Several are executives of other corporations; all have a solid record of success in their careers. Time they offer to Fairchild is more than that devoted to attending Board meetings.

They must keep up with the progress of the company operations through written reports and must investigate matters which cannot be successfully understood without some direct involvement.

The time directors devote to their Fairchild duties cannot be measured in terms of hours a week or a month. When a director accepts election as a member of a company Board, he or she agrees to be available when needed. When all is quiet on the corporate front, a few hours may be all that is required of their time. When corporate activity is at a peak, time spent in directors' duties can take a healthy portion of a month.

For services to a company and its stockholders, outside directors are paid a token honorarium—far less than they could command for their talents if they were to switch roles from

directors to management consultants. Financial gain is obviously not the reason these men accept the responsibilities of corporate directors. Many, many thousands of industrial, educational and social leaders are offering their knowledge, experience and resourcefulness to the management of U.S. corporations for the benefit of more than 20 million stockholders. Within Fairchild, several of our corporate executives have been sought out by stockholders of other companies to take posts as directors. Dr. Hogan, for instance, serves as a director of a business, a civic and an educational organization.

A photo and a brief biographical sketch of the men who perform directorial responsibilities for Fairchild appear on these pages.



Lt. Gen. James B. Lampert
(U.S. Army-retired)
Fairchild director since
January 1973.

Vice President for resource development for the Massachusetts Institute of Technology.

Retired from the U.S. Army in 1972. During his military career, he served as high commissioner of the Ryukyu Islands, head of the Nuclear Power Program for the Corps of Engineers, Superintendent of the U.S. Military Academy at West Point, and Deputy Assistant Secretary of Defense for Manpower and Reserve Affairs.

A fellow of the American Society of Civil Engineers, and a member of the Council on Foreign Relations and the Society of Military Engineers.



Richard de J. Osborne
Fairchild director since
October 1973.

Executive Vice President-Finance and Business Development, Fairchild.

Joined Fairchild in August of 1970 as Vice President-Finance. Previously associated with the late Sherman M. Fairchild and, prior to that time, with IBM Corp. where he held executive posts in finance, market planning and administration for nine years.



Louis F. Polk, Jr.
Director since 1968.

Chairman, president and chief executive officer of Leisure Dynamics, Inc.

Chairman of Northstar Industries, Inc.

Formerly, president and chief executive officer of MGM. Before that, top officer of General Mills and Bendix.

Founder and member of the Board of Trustees of Minnesota Outward Bound Schools, member of the Harvard Business School Association Executive Committee. Yale Development Board, Project Broadjump, the President's Council of the Museum of the City of New York, the New York Committee for the U.S. Ski Team Fund, the New York City Theatre Study Committee, and he was a member of the President's Commission on Civil Disorders and Free Enterprise Task Force, and numerous memberships on other business and philanthropic boards.



William A. Stenson
Director since December
1967.

Partner in the firm, Spiegel and Stenson.

Formerly executive vice president and chief investment officer of The Bank of New York; vice president and trust officer of the First National Bank of Arizona, Phoenix; and vice president of the Northern Trust Company, Chicago.

He is director of Hanover Insurance Company and Surveyor Fund, Inc.



J. Bradford Wharton
Fairchild director since
1956.

Management consultant and president of the Wealdon Co., Wilmington, Delaware.

Director of Oak Industries, Inc., American Satellite Corp., Swearington Aviation Corp., Fairchild Industries, Burns Aero Seat Co., S. J. Industries, Inc., De Lo Inc., Radio Station KLIF, Dallas. Former director of Oliver Farm Equipment Inc., Glenn L. Martin Co., Duplan, Inc. and Magic Chef, Inc.

New directions for 1974 and beyond

Fairchild's history reflects that it has never allowed itself the luxury of dwelling on past accomplishments. Always anxious to get on with the future, many members of management spend a good portion of their lives planning where Fairchild will be two, five and even ten years into the future. But there is no one at Fairchild who has a more developed relationship with the future than Richard Osborne, Executive Vice President, who, in addition to overseeing the company's financial management, is charged with the responsibility for new business development.

There's an assignment in which the quality of one's decision far outweighs the quantity. Recommendations based on Osborne's familiarity with the future will influence the dimensions the company will gain in the years ahead.

Why New Business?

But, let's back up a bit. Why new business development? The company recently completed a year in which it realized unprecedented market and economic gains in its prime product area—semiconductors. Why not be content with product areas in which we have a track record of success. Why look to other areas in which to grow?

"If you'll look closely at what happened in our semiconductor business since 1968," Osborne explains, "you will find that we have concentrated heavily on new business development in that industry itself. We have expanded our market base of semiconductor customers moving from heavy reliance on the computer and aerospace industry in 1968 to today's diversified customers. In 1973 our markets included television, appliance, calculator, automobile and process control manufacturers. This pattern will continue. This expanding market base is desirable because it successfully relieves Fairchild's dependence on a few markets. A temporary downturn in any one or two markets can now be weathered without significant impact on company profit and growth. Extending this new business development a step further, we are actively looking for new market areas which might mean the creation of entirely new products to add even greater

strength to our product foundation. We're not looking for diversification for the sake of change alone. In new business we seek market opportunities that will complement our existing technical and management knowledge. We have proven that we can manage a high technology company and manage it well. We want to build on our known strengths."

The Search for New Directions

Osborne draws on extensive experience in marketing, production, financial and general business management in his search for new directions for Fairchild. But, even with his broad business knowledge, he does not depend on inspiration in his pursuit of new business opportunities.

New businesses are shaped through careful studies of new markets that are being created by change—changes in marketing, in economics and in technology. A great deal of the task in new business development centers around sifting through volumes of material that provides projections on where major economic or consumer changes are predicted to occur in the near future. "What we're seeking," Osborne states, "is evidence of marketplaces that are undergoing change. As we identify these markets,

we measure them against our criteria for new business possibilities. Is that change being driven by emerging electronics technology? Is the market profitable today? What is its potential for growth? Is it presently dominated by companies which have the capability of carrying it to its full potential?

No Distant Departures

"Again," he continued, "we are not interested in moving away from our strengths. Though new business might not be totally related to our technologies, it can't represent a distant departure from Fairchild's technical talents. We are not interested in entering a product area that is already being well served by companies with a record of innovation.

"Any new business we attempt to develop will require technical, marketing and management knowledge specific to that marketplace. To comfortably address this new opportunity, we must, I believe, have within Fairchild, or acquire from outside, that expertise.

"As you can see," he assures, "we're approaching any new business ventures with caution and lengthy considerations. We're not interested in challenge and change alone.

"The timing is right for our advance into new market areas, but it is not critical that we enter new businesses in the next week or month. Rather, because any area which we will enter will be approached for its long-term benefit to the profitability of the company, care and caution are as important as speed in moving into new businesses.

"I say the time is right to expand our business interests," he explained, "because Fairchild's financial position is sound, and we have proven that we can manage—and manage well—our existing interests. A year or so ago it would have been premature to attempt to stretch our resources to cover new demands that new business will bring. For obvious reasons, I cannot go into detail on specific product areas we're investigating, but I can assure you that the future will bring new products being created under the Fairchild name; products that will add to the company's strength and profitability."



Second Annual HORIZONS Photo Contest

Cameras that have not been out of the drawer or closet since last summer will be pressed into service in the coming months to capture photographic memories of the events of the summer. Somewhere among the photographs that you will take during the coming months may be a winner in the second annual HORIZONS photo contest.

Photo entries in this competition need not be taken during the summer, they can include any photographs you've shot since the close of the last judging, September 1973.

Entries may be snapshots, slides, or large black-and-white or color prints. Prizes will be awarded to the winning photographers in three categories: People, Animals and Scenic, but only one prize will be awarded to a single photographer. Prizes are \$25 for first place, \$15 for second and \$10 for third in each of the categories.

The contest is open to all employees except for professional photographers.

Deadline for entries in the competition is August 15. Fairchild professional photographers and members of the company's graphics department will act as judges for the event.

There are no separate categories for black-and-white and color photographs. Winning photographs will be published, in black-and-white, in the September-October issue of HORIZONS.

Send your entries to the Employee Communications Office, Fairchild Camera and Instrument Corp., mail stop 20-2284, 464 Ellis Street, Mountain View, CA 94040. Include your name, location, mail stop and job title with each of your entries. All photographs will be returned to their owners, unmarked, following the judging.

Second Sherman Fairchild Scholars Named

The Fairchild Foundation, in late April, announced the recipients of the second Sherman M. Fairchild scholarship awards.

Grants which cover the cost of tuition, room and board for up to four years of undergraduate study at the college of the student's choice, will be awarded to:

Theresa A. Cassidy, daughter of Jerome Cassidy of the Space and Defense Systems Division. Theresa will attend Georgetown University.

Peter E. Schleifer, son of Morton Schleifer, Space and Defense Systems Division. Peter will attend SUNY at Purchase.

Linda St. Amand, daughter of Alan St. Amand of the South Portland, Maine, plant. Linda will attend the University of Maine at Orono.

Lita J. Smith, daughter of Seymour Smith, Space and Defense Systems Division. Lita will attend Emerson College.

Debbie Cornish, daughter of Leslie Cornish, Shiprock, New Mexico, plant. Debbie will attend the University of New Mexico.

William F. MacDougall, son of John MacDougall, Mountain View. William will attend University of California at Berkeley or Stanford University.

Ray S. Hoffman, son of Robert Hoffman, Los Angeles Sales office—Semiconductor Operations. Ray will attend University of California at Davis.

Kennon M. Kashima, son of Mickey Kashima, Semiconductor Operations. Kennon will attend Stanford University.

William D. Gerould, son of Lawrence Gerould, Systems Technology Division. William will attend University of California at Berkeley.

Robert Pursel, Jr., son of Robert Pursel of the Industrial Relations staff, Mountain View. Robert will attend University of California at Berkeley.

Articles on each of the 1974 scholarship recipients will appear in the July-August issue of HORIZONS.

How We Did First Quarter, 1974

Consolidated Statement of Income
(Amounts in thousands except
per share data)

	First Quarter Ended	
	March 31, 1974	April 1, 1973
Revenues:		
Net sales	\$103,817	\$75,067
Royalties and other income	4,878	2,078
	<u>108,695</u>	<u>77,145</u>
Costs and expenses:		
Cost of sales	68,380	53,976
Administrative and selling	20,254	14,069
Interest	967	991
	<u>89,601</u>	<u>69,036</u>
Income before income taxes and extra- ordinary credit	19,094	8,109
Provision for income taxes	8,682	3,735
Income before extraordinary credit	10,412	4,374
Extraordinary credit—Income tax reduction from carryfor- ward of prior years' operating losses	—	2,786
Net Income	<u>\$ 10,412</u>	<u>\$ 7,160</u>
Per share of com- mon stock:		
Income before extraordinary credit	\$ 1.97	\$.84
Extraordinary credit	—	.53
Net Income	<u>\$ 1.97</u>	<u>\$ 1.37</u>
Average number of common and common equiva- lent shares out- standing	<u>5,286,475</u>	<u>5,222,302</u>
Per share of com- mon stock as- suming full dilution:		
Income before extraordinary credit	\$ 1.89	—
Extraordinary credit	—	—
Net Income	<u>\$ 1.89</u>	<u>—</u>

Systems Tech to Produce Semiconductor Testers For User Market

The Systems Technology Division in April announced formation of a semi-autonomous organization to manufacture and market a line of low-cost semiconductor test systems designed for incoming inspection.

James D. Bowen, Systems Technology Division General Manager, said, "The new organization, QA Products, has its own administrative, development and marketing functions. J. K. Delano is director of QA Products."

First product line of the new operations consists of existing Fairchild PATT programmable automatic transistor and diode testers. Subsequent products will include high-speed functional and parametric testers for DTL, TTL, ECL and CMOS device families; LED test equipment; and linear test equipment.

The new operation will market its products both domestically and internationally through manufacturers' representatives, 11 of which are now signed up. The representatives are being selected on the basis of experience and knowledgeability in this market area.

A. Matthew Lord Named Business Development V.P.

A. Matthew Lord has been named to the new post of Vice President—Business Development.

Richard de J. Osborne, Executive Vice President—Finance and Business Development, said Lord will be responsible for planning new business activities for the corporation as well as evaluating potential acquisitions. (See story on new business development on page 14.)

Since 1968, Lord had been Vice President—Corporate Development for Ducommun Incorporated, Los Angeles. Earlier he held various executive positions in planning and business development with Litton Industries, International Telephone & Telegraph Corp. and the Autonetics Division of Rockwell International Corp.

Nadine Henderson, Herb Perry Earn 1974 Sherman Mills Fairchild Sales Awards

Singled out for special recognition at the Semiconductor Components sales conference in Hawaii during April were Nadine Henderson of Inside Sales, who received the Sherman Mills Fairchild award for Product Marketing Support and Herb Perry of the Santa Ana office, who was named Fairchild Sales Professional for 1974.

The awards, established in 1969 by Sherman Fairchild, company founder, recognize individuals who have demonstrated outstanding performance in sales and in sales support. In addition to a cash award, Nadine and Herb received a miniature gold and silver replica of King Arthur's legendary sword, Excaliber, set in a block of Steuben crystal.

Bi-Polar SBU Becomes A Division

Dr. Tom Longo, Vice President-General Manager—Integrated Circuits Group, announced at the 1974 Semiconductor Components sales conference that the Bi-Polar Memory organization has been elevated from Strategic Business Unit status to that of a division. He noted that Bi-Polar Memory is the first SBU to be created into a division.

Managed by Bill Baker, the Bi-Polar Memory Division will have full profit and loss responsibility and direct control over all aspects of its business.

The official announcement of the new division came when Dr. Longo presented Bill with a trophy which commended the Memory organization on its outstanding performance since it was created in July, 1973.

Strategic Business Units have all the characteristics of a division, but are not ready to take on full divisional responsibilities.

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Fairchild Camera and Instrument Corporation
464 Ellis Street
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Fairchild **HORIZONS**

published bi-monthly for the employees of the Fairchild Camera and Instrument Corporation.

Editor: Veronica Kane

Correspondents: Marilyn Schwartz, Federal Systems; Peg Shinnerer, IPD; Ruth Miller, SDS; Rhoda Tennis, World Magnetics; Caryl Gates, Systems Technology; Clifford Prodder, Inland Mfg. Co.; Bob Feld, San Rafael; Nancy Bohnet, Wiesbaden; John Houston, Australia; M. Kimura, Tokyo; M. K. Choi, Korea; S. K. Sze, Hong Kong; Miss Jamilah Bet. Razak, Singapore; John Gundershaug, Shiprock; and George Weaver, So. Portland.

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FAIRCHILD
HORIZONS



Don Quixote Continues
To Live As Long
As People Aspire

In this issue . . .

We went in search of the qualities of a Quixote this month and found them in abundance in employees throughout the corporation. The cover of this issue is a photograph of a sculpture of the legendary Don Quixote, supplied from a collection of Quixote paintings and art works belonging to Fairchild's Warren Bowles, Vice President of Industrial Relations.

—For stories on some of the employees we found who could be described as a bit quixotic, read pages 3 through 5.

—Others who possess the quality of Quixote—the willingness to work toward the realization of a dream—are the 1974 Sherman Mills Fairchild scholarship winners. Pages 6-7.

—The development of an International Division and the appointment of a technical director within that Division give some clues as to where the search for new semiconductor markets will lead Fairchild. Pages 8-9.

—Manufacturers of large equipment and appliances have found a way to bring their products to their customers. See pages 10 and 11.

—A new Fairchild organization is working on resolving some of the insecurities in the world. Pages 12 and 13.

—The flavor of Fairchild Mexicana came to corporate headquarters in the person of Rocio Sardenato, page 14.

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Daring to Dream Daring to Do

Don Quixote has held a deserved and esteemed place in literature since his creation by Cervantes more than 350 years ago. We even have an adjective in our language—quixotic—that describes a person with the characteristics of the aged, but lasting, Don. In recent years, Don Quixote's exploits have been staged and set to music exposing them to a growing and appreciative audience.

His lofty ideals, extravagantly chivalrous actions and his desire for a higher purpose in life, even if he had to squint a little at reality in order to live his vision, have made him a hero to virtually every high school student who has followed his adventures in literature classes.

Most of us harbor a bit of Quixote. Fantasies of what we could have been, what we could have done, and what we could be doing to lift life to a higher plane or to pursue a dream are allowed to run through our minds. But the practical and protective mechanisms that shield our egos, frequently reduce our Quixotism to simply thoughts.

To the very down-to-earth person, Quixote is sometimes viewed as a bit ludicrous. To those with even a bit of romance in their souls, he is seen as a symbol of the tenacity of man; the willingness to devote energy and expose ego to the achievement of an idealistic goal. For the quixotic person, security and comfort are frequently pushed aside to bring a dream to reality.

We devote this and the following pages to a tribute to the courage and persistence of Fairchilders who have demonstrated the qualities that create a Quixote.

Anselmo Chavez retired after 21 years of service in the U.S. armed forces in 1972 to pursue a dream. After years of thought and preparation, he had reached the conviction that he had a great deal to offer New Mexico. Proud of the history and committed to the future of his home state, he, with the agreement of his family, left a secure career to announce his candidacy for the U.S. Senate. A change in the New Mexico political process blocked his way toward that post, however. Until 1972, New Mexico had demanded that each candidate for the Senate pay a filing fee of \$2,540 as a demonstration of the seriousness of their intent. The filing fee was declared unconstitutional in 1972 and was eliminated, which encouraged virtually anyone who ever harbored even a passing political ambition to declare himself as a candidate for the office. The result was chaos, Anselmo remembers vividly. "More than 25 persons declared themselves candidates for the office, making it difficult for voters to even know

Anselmo Chavez sacrificed career and ego for a dream

all the names, let alone become acquainted with the issues each supported."

The result was that the person whose name appeared most frequently in the press, on billboards, and on radio and television claimed the Democratic nomination in the primary and was ultimately defeated by the Republican candidate in the general election.

This was a bitter experience for Anselmo who had juggled his work and family responsibilities for years in order to find the time to complete his college education and go on to graduate studies in political science in preparation for his entry into politics. But, the experience was not devastating. He recouped quickly the energy and interest that originally drew him into the political arena. Throughout his adult life, Anselmo, fiercely proud and protective of the natural beauty and

resources of New Mexico, and exasperated that such riches could not provide a good life for all residents of the state, had prepared himself to assume some responsibility for the state's future. Politics seemed to offer the area in which he could have the greatest positive influence. So, his ambitions were not easily extinguished.

However, his financial resources, accumulated over years of savings, were fast being exhausted. In April, 1973, Anselmo joined Fairchild as a Production Supervisor. In January, 1974, he announced his candidacy for the Democratic nomination for the state senate, representing San Juan County. With \$1,000 in personal funds, he conducted an inexpensive campaign with the help of Fairchild supporters. Evenings and weekends he toured San Juan County passing out his weekly newsletter which outlined his position on the issues which he believes to be the major challenges confronting the county. "We must attract more clean industry to San Juan County," he stated, "and we must manage our natural energy resources more effectively." In addition, the quality of education in the county is a major concern to Anselmo. His goal is to reduce property taxes while increasing teachers' pay; an objective that appears impossible to achieve, but which Anselmo believes can be accomplished through more realistic taxation on the extraction of natural resources.

Anselmo also believes, coming from a minority group himself, he can iden-

Anselmo Chavez



tify with the particular problems of the Navajos in San Juan County. He does not view a homogenized culture in the county as an admirable objective. Retention of culture, whether it be Indian, Spanish or Anglo Saxon, is strengthening to a community, he states. But he sees no reason why Navajos and Chicanos cannot maintain their cultural values while still partaking fully of the benefits of community life—quality education, opportunity for employment, and benefit from the natural advantages San Juan County has to offer.

Anselmo put a career of two decades and his ego on the line to pursue what he believes to be right. Anselmo lost the primary election in April, but you'll see his name on a ballot in the future, because Anselmo has a vision of a more perfect New Mexico and he'll continue to attempt to convince voters of the validity of that vision.

Fairchild's Geraldine Bercovici is an electronics engineer at the European headquarters plant in Wiesbaden, Germany. She is supervisor for the failure analysis lab, earns a good salary, owns a car, and shares a pleasant apartment with her mother in the Frankfurt area. But her life was not always this way.

Geraldine-Tulida Bercovici was born in Romania in 1948 of Jewish parents. Her father was a highly respected engineer, professor and member of the Romanian Academy. He was the country's top authority on electric power systems. Because of his religion, at the beginning of World War II he, together with thousands of other Jews, was out of a job. During the war years, he organized a technical high school for Jewish students. For those Jews lucky enough not to be deported to concentration camps, food, decent housing and clothing were almost nonexistent. Only the wealthy were able to obtain more than the barest necessities of life.

At the close of the war, Romania needed highly trained people for reconstruction and Geraldine's father was returned to his position of eminence. Hopes were high that Communism would turn Romania into a paradise. It didn't. The Bercovici's optimism at the end of the war gradually

(continued)

turned to a state of extreme depression coupled with a strong desire to emigrate from Romania to the West.

Following in her father's footsteps, Geraldine studied electronics and applied physics for five years at the Polytechnic Institute in Bucharest. She received her diploma-engineering degree (equivalent to B.S.E.E.) in 1970. Geraldine had been able to accompany her father on various business trips outside of the Iron Curtain countries but the family was not allowed to emigrate. (Emigration was practically impossible, particularly for scientists.) Geraldine's desire to leave Romania was strong. She corresponded with a professor at the University of Darmstadt in West Germany and was invited to continue her studies toward a doctorate there. "I thought it was my chance of a lifetime to leave Romania." After interviewing with numerous government officials, she was finally promised a passport.

Then her father died. The hope of a

Geraldine Bercovici had to leave her homeland to find a full life

passport faded and the subject was closed. The few privileges which Geraldine and her mother had enjoyed as the family of an eminent scientist were withdrawn. "Our 'friends' fell away; we were totally alone; we were nothing." Geraldine and her mother made a difficult decision. They had to leave their homeland, their lifetime of memories, their only ties to their dead father and husband. They had to find a way to leave Romania.

Geraldine's incentive to emigrate grew. She worked in a research lab earning approximately \$70 per month. Three years later her salary (because she was Jewish) topped out at \$100 per month. "I would have to save my entire salary for three years to buy a used car. In Romania, a car was like gold." From that point on she could receive maximum raises of \$7 per month every three years, as long as she remained in the good favor of the Communists. "I think that my father died believing that his whole life had



Geraldine Bercovici

been wasted." Geraldine did not want to feel the same way at the end of her own life.

Finally, in late 1973, Geraldine and her mother were granted emigration papers and allowed to leave Romania.

How does she feel about living in the West and working for Fairchild? "I am very glad to be out of Romania. I like my work at Fairchild very much. I am very busy and have many interesting problems to solve. Right now, I am in an engineering training program where I will change jobs periodically within Fairchild so that I can learn many phases of the operation. I want to know as much as possible." For Geraldine, who taught herself English by reading American technical literature (she speaks fluent English, French, Russian, German and Romanian), learning new things seems to come easily.

Her long-range goal? "I would like to go to either the United States or Israel. As a Jew, Israel holds a very special meaning for me. I would like to somehow make a contribution to it. In any case, I would like to spend my old age there."

—Nancy Bohnet

Frank Ellis



"I wanted Frank Ellis for the job, but, truthfully, I doubted that anyone would want to come anywhere near it," says Bill Elder, Manufacturing Manager of the Diode Division. "We knew that we had to increase production significantly to meet the demand for diode products. And we knew that the only way in which we could accomplish this and deliver the product to the customer at a competitive cost was to design and build a new generation of production and test equipment that would give us more product and fast, accurate testing.

"Our production demands and the time in which the project had to be accomplished, I'll admit now, were unrealistic. No one but a Don Quixote would have touched the assignment. But, to my amazement, I didn't even have to ask Frank . . . he volunteered.

Frank Ellis took on an "impossible" task

He actually wanted the job."

Six months and a great deal of activity later, Frank, who is now Electronic Design Manager for Discrete Products Division, was airborne to Hong Kong to install new test and finish equipment at that Fairchild plant; equipment that resulted from a crash design program he managed and which included members of his section and engineers from the System's Technology Division.

The equipment which performed beautifully in California wouldn't behave at all in Hong Kong. Frank had fleeting thoughts that maybe others were right—a project of this sort did require more time, more gradual build-up. Days stretched into nights as Frank attempted to debug the systems. When he would get to use the other half of his round-trip ticket depended on his ability to expand the Hong Kong plant's diode production capability. "It was obvious," he explains, "that I wouldn't go home until I did."

Frank's effort paid off. He exorcised the demons from the electro-mechanical gear and allowed the Hong Kong plant to greatly increase diode production. Before returning home, he trained local technicians in operation and maintenance of the equipment and de-

(continued)

parted to the sounds of humming production.

Still, Frank's challenge was not over. Similar equipment had to be constructed for the Division's newly established plant in Brazil. Back in San Rafael he and his crew designed and constructed or adapted existing equipment for newer, even more ambitious, product finishing and testing plans. Watching the clock with one eye, he and members of his section created and delivered enough high-speed production equipment to satisfy the Division's "impossible" six-month goal.

Frank cites the accomplishment as strictly a team effort: "You think that I'm ready to tackle the impossible? You should talk to the people in my department; they don't acknowledge the word."

Carol Latch



Carol Latch plans 15,000 miles on a motorcycle

Possible illness and theft of their vehicle, inability to obtain repairs and the constant threat of running out of money are the hazards that Carol and Alan Latch face on a planned year-long trip around the world.

The rewards are the assurance that they'll meet wonderful people, experience life in different cultures, view magnificent scenery and historical sites, and have the thrill of maneuvering their motorcycles at full speed across the desert and very cautiously through mountain passes.

Carol (a secretary in Fairchild's Australia office for two years) and Alan weighed the difficulties and the benefits of this, their dream, and decided to go next month; to go more than 15,000 miles on motorcycles across the desert from Melbourne to Perth, put their motorcycles aboard a ship bound for Singapore, then on through Asia to Europe, through the United Kingdom and, hopefully, aboard ship to the U.S.

Their mode of transportation offers very specific dangers. The ease of theft of the Suzuki bikes will keep

the Latches constantly looking over their shoulders even though they've equipped the bikes with special alarms. The threat of being stranded in foreign and perhaps uncomfortable situations because of unobtainable repairs also hangs over their heads. And their budget demands that they live frugally as well as work when they reach England.

But their dream is so attractive, that next month they will head into some of the most primitive and also some of the most civilized areas of the world. The possibility of illness (they've been warned that there is little hope of escaping some physical discomfort along the route) is one of the problems they have had to think about. "Dysentery and bike riding don't mix well," Carol says.

But the thought of swimming and skin diving in the Mediterranean, walking in Nepal, camping in Europe and a visit to Fairchild in Mountain View is so overwhelming that the discomforts that might lay in their lengthy path are outweighed by the delights they envision.

Hayward Findley gets a second chance at sports

A pulled muscle came between Hayward Findley and his dream of playing big league football in 1972. Just out of New Mexico State, Hayward was signed by the San Francisco 49ers, but never saw league play because of a damaged thigh muscle sustained in an exhibition game. The 49ers' loss was Fairchild's gain.

For one year, all of Hayward's blocking and tackling was performed as a member of the Industrial Relations staff of the Diode Division, and the only sports action he saw was as a stellar player on the Division's basketball and soccer teams.

"Business was my ultimate goal," Hayward reports, "but I entered the business world earlier than I had expected; I had hoped to see a few seasons of play as a professional. This was something I had been preparing for since I was in high school. Playing football is a sensation that can't be duplicated anywhere. There's an excitement in the play, a fantastic joy in

victory, and an unequalled satisfaction in a game that has been played well. There's an absolutely total involvement that can't be found elsewhere."

Hayward was willing to accept the whims of fate when he was released by the 49ers following his injury. He became deeply involved in his job with Fairchild where he states he found tremendous business experience in a short time. "Fairchild gave me every opportunity to progress to new experiences as soon as I was ready."

So, the phone call from the newly formed World Football League telling Hayward that he was being recruited for play on the new Detroit team received a mixed reaction. "I thought I was settled in my career," he states. The contact rekindled the dream. It took him perhaps as long as a second to make his decision. After all, the rules of the Don Quixote game are to pursue the dream. Against the admonitions of his family, Hayward signed with the Detroit Wheels for the team's



Hayward Findley

first season of play. By the time this issue is out, Hayward will be on a gridiron somewhere in the United States playing tight end for the Wheels.

As he pulled out of the Diode Division parking lot to begin the first leg of his journey toward Detroit, he looked back over his shoulder and called to his now ex-boss, Bob Feld, "Keep a spot open for me. Football careers are notoriously short-lived."

Fairchild lost a great employee, at least temporarily, while the Detroit Wheels gained hundreds of Fairchild fans.

In a search for the Don Quixote quality in man, look no further than the 1974 Sherman Fairchild scholarship winners. The 10 young people, between the ages of 16 and 18, have different interests, they're planning to attend schools throughout the country, but they share a common trait—each has a dream which they are willing to work hard to pursue.

Linda St. Amand, daughter of Al St. Amand of the South Portland plant, and **Ray Hoffman**, son of Robert Hoffman, of the Los Angeles sales office,



Linda St. Amand

have clung to a goal that most children desert by the time they enter their teens. Both Linda and Ray plan to study veterinary medicine. What child who has ever had an animal didn't daydream about becoming a veterinarian someday? Discouraged by the science studies or encouraged to pursue a career that requires less lengthy preparation, probably more than 95 percent of all would-be veterinarians have pushed their dream aside by the time they are 13. But Linda and Ray held on. Neither remembers when they decided to become vets; it's been something they've dreamed about and worked toward since they were young children. Linda will enter a pre-veterinary program at the University of Maine at Orono in September and Ray will enter his second year of college study at the University of California at Davis in a Wildlife Biology program.

Theresa Cassedy, daughter of Jerome Cassedy of the Space & Defense Systems Division, a brilliant and thoughtful student, has her own special dream, too. She believes that many of the problems plaguing our world

can be solved with understanding, concern and respect for others' points of view. But communication must come first. Using her faculty for languages and motivated by her dream of a more peaceful world, Theresa will enter Georgetown University's Foreign Service school as a Chinese major. She envisions putting her training into practice someday in the diplomatic service or as a member of the Peace Corps.

through reading and learning more about himself and his capability through his work in high school and the community has whetted Peter's mental appetite for even greater understanding of the way in which people relate emotionally to their environment. Peter will enter the New York State College at Purchase in the fall; a school he selected because of its experimental and progressive programs.

1974 Scholarship Winners



Left to right, William Gerould, Kennon Kashima and Robert Pursel, Jr.



Ray Hoffman



Theresa Cassedy



Peter Schleifer



Lita Smith



William MacDougall



Debbie Cornish

Though an outstanding math scholar who has claimed several awards for his work in computer programming, **Peter Schleifer's** desire to know more about what motivates man will lead him to an ultimate career in research psychology. Peter is the son of Morton Schleifer of the Space & Defense Systems Division. Discovering ideas

Kennon Kashima is driven by his own abilities and his grandfather's dream that he would attend and graduate from Stanford. Kennon is the son of Mitsugi (Mickey) Kashima, an engineer with the Semiconductor Operations in Mountain View. Though Kennon claims that he is not exceptional in any area, his academic achievements (four offered scholarships, nu-

merous awards) and his accomplishments in creative engineering deny this claim. Kennon cannot pinpoint from where his interest in technology and his desire to contribute to the advancement of electrical engineering sprang, but he has sustained and nurtured this interest throughout high school. As a member of local Explorer Scout Posts which concentrate on electronics, Kennon has built several electronic devices, the latest of which is a digital clock. But a solitary scientist he is not. One of his main extracurricular activities while in high school has been counselling other students who are experiencing academic difficulties because of emotional problems or the lack of encouragement from others. "Emphasizing positive accomplishments," Kennon states, "is one of the greatest motivators to achievement. However," he adds, "criticism seems more prevalent than praise."

For **Lita Smith**, a love of sports and a desire to turn that interest into a career in broadcasting, underlies the outstanding accomplishments that she has realized in high school. A behind-the-scenes crew member at Suffolk Cablevision through her senior year in high school, Lita's knowledge of sports stimulated the station manager to propose, somewhat jokingly, that she become a sportscaster for the station. Lita jumped at the offer. She has since been covering local high school basketball games with play-by-play descriptions of the action. A true *Donna Quixote*, Lita, knowing that many people believed a female voice describing sports sounded a bit ludicrous, did her homework in order to be as knowledgeable about the sports she covered as any other announcer. "Listeners expect me to make mistakes and, when I do, I believe that they are more critical of me than they would be of my male counterparts." But this doesn't discourage Lita, it stimulates her. Lita, the daughter of Seymour Smith of the Space & Defense Systems Division, will attend Emerson College in Boston, to major in Communications. She expects that she will spend her career apprenticeship at a small station in a small town, but dreams of one day covering major league sports for television.

Finding in her work with crippled children that cerebral palsy need not be totally debilitating, **Debbie Cornish**,

one of the West Coast scholarship winners and daughter of Leslie Cornish of the Shiprock Machine Shop, will study health sciences in college to prepare for a career as a physical therapist. A desire to help handicapped children and work with youngsters afflicted with cerebral palsy solidified Debbie's career ambitions. "It is gratifying personally to know that I am being useful in helping children to learn to walk and perform everyday functions that I have always taken for granted."

William Gerould sums up the qualities of all of the other scholarship winners when he describes his reaction to the book, *Jonathan Livingston Seagull*. He states that the seagull who did not believe in limitations demonstrated how one should seek challenge and not follow the crowd. Through the bird's unrelenting desire to find freedom and expression, he states, the author was able to make the reader fly with the seagull. William, who describes himself as "not particularly studious," obviously doesn't see that as a limitation as he sets out on more than nine years of study and internship to become a physician. William is one of three sons of Lawrence Gerould of the Systems Technology Division. All three of the young men have appeared in the Sherman Fairchild scholarship finals. Stuart claimed one of the West Coast grants last year; and the eldest Gerould son, Richard, was named an alternate.

Robert Pursel, Jr., son of Robert Pursel, of the Mountain View Industrial Relations staff, typifies the maturity and selectivity all of the 1974 scholarship recipients demonstrate. "I believe that the qualities you see in graduating high school seniors today," he states, "are the result of a lessening interest in materialism and a greater concern for more lasting values." This broader view of life he attributes to the general level of affluence he and his fellow students have known. "Our parents," he states, "provided us with all of our material needs and encouraged us to realize our full potential. It's not that we're brighter or more sensitive to human needs than the graduates of 10, 20 or 30 years ago; it is just that we have had more opportunity to explore ideas and to seek personal expression, unrestricted by the chase after ma-

terial things."

Robert, who has maintained a perfect grade record throughout high school, is undecided whether his career will lie in medicine, business or the social sciences. At this point, social science and, ultimately teaching, appears to be winning out as he weighs the personal rewards each of these careers will offer.

William MacDougall, son of John MacDougall of the Analog Products Division, looks toward maintaining the joy of life, the joy of beauty and the search for beauty throughout his life—values he believes we forget on our way to other life goals. Without these, he believes, no one can be a total human being. Bill's objective of developing into a total man is evident in his broad interests in high school and his first year of college. He claimed outstanding recognition for his work in math, history, French, and music; was a member of the student body senate, taught swimming to handicapped children, did precinct work for candidates for national, state and local offices and helped to run a recycling center as a member of an ecology club. Bill will enter his second year of college in September as a transfer student to Stanford University. Evaluating all of his interests to settle on a career which would have the broadest positive influence, he has decided on a double major in history and economics, continuing on to law school or graduate work toward a PhD in economics. He plans to use his education to prepare for a university teaching position.

Dreams and ambitions unrestricted by imagined limitations symbolize the Sherman Fairchild scholars of 1974. Their lofty goals are being brought to reality through very practical means, however. Virtually every one of the Fairchild scholars holds a part-time job—they work as waiters and waitresses, as stock clerks, as tutors. Only Lita claims a particularly glamorous part-time job as a broadcaster.

A sensitive, mature group of young people, they don't claim they have the answers to the world's problems, but with the unwavering idealism the students express, the fields of work they have selected should benefit significantly from their talents and intelligence.

International Market Growth

The creation of an International Division at Fairchild is indicative of the direction the race for semiconductor business will take in world markets in the years to come; the outcome of which will be determined by the resourcefulness of the players.

Until 1974, Fairchild's involvement in markets outside the United States was managed in much the same manner in which the company approached U.S. markets. Greatest concentration was placed on domestic markets, because this was where the major business could be found. But, this year, the game changes. Semiconductor markets outside the U.S. are expected to grow at a rate similar to domestic consumption. Time for new strategy. Time for greater concentration on all the areas of the game board if the company is to maintain its industry position worldwide. Time to train the players to think in new terms.

Technical Competition Abroad

In addition to expanding interna-

tional markets for semiconductors, another element has been factored into the contest for dominance in the industry. Semiconductor fabrication, a U.S. grown technology, is no longer seeing development solely on its home front. Significant advances have been made by Japanese manufacturers. French semiconductor interests are pushing to catch up with U.S. technology and are asking their government to give them special protection and assistance as they do so. Others are countries seeking licensing agreements as they attempt to develop the internal semiconductor manufacturing capability to satisfy emerging markets. So the semiconductor industry game board begins to be covered with new mazes and twists, new challenges and changing rules.

Yesterday's management structure doesn't meet today's demand. Time for a new game plan. And time for a team trained to address the International semiconductor markets that were, un-

til 1974, considered peripheral play. Because, if Fairchild isn't in condition to maintain its position in the international sprint to develop and supply worldwide markets, there are a number of other companies, already flexing their muscles, who will gratefully take its place.

Dave Marriott Directs International Strategy

Developing the strategy that will assure Fairchild's acknowledged presence in every market outside of the United States is Dave Marriott, who was named to head the new International Division at its formation in March. Though still in the throes of initial organization, Dave has named managers to key assignments within the organization: Harry Sello is Director of Technical Development, Tom Popek is Business Planning and Control Manager, Richard Belcher is Manager of Production Operations, Hajime (Bill) Kawamura is Manager of Japanese Affairs, Art Massicott is European Operations Manager, Andy Procassini is Vice President-Marketing of TFC, the TDK-Fairchild joint venture in Japan.

Technology to go Abroad

A most telling title among these new assignments is that of Technical Director—a responsibility that telegraphs the route Fairchild will take in penetrating fully the world's emerging market for semiconductors. Fairchild's basic technological processes have not travelled much to date. All wafer fabrication operations remain within the United States. As they go abroad, semiconductor wafer fab processes need the companionship of people who are attuned to their sensitive nature and who can make them as comfortable in Japan or Europe as they are in

INTERNATIONAL TECHNOLOGISTS (left to right) John Hambidge, Technical Project Manager; Rita Gardiner, Secretary in the new Technical Department of the International Division; Harry Sello, Technical Director; and Bob Orrick, Senior Staff Engineer.



Demands New Game Plan

the United States. Harry Sello was a natural selection to head the new International assignment. He has coddled many a production process in the United States and in Italy for Fairchild, and he has become one of the acknowledged Fairchild ambassadors when diplomatic work is demanded abroad.

As Dave Marriott and his world analysts pinpoint strategic sites abroad in which fabrication processes are required for penetration of local markets, Harry and members of his small team of international technologists will be dispatched to establish the new plant. Whether the new activity will be Fairchild-owned or Fairchild-licensed, a member of the International Technical organization will remain with the new operation until the wafer fabrication process is humming.

"Until the late 1960s," explains Marriott, "U.S. semiconductor development was so far ahead of that in Europe and the Far East, we could comfortably keep most high technology processes in the U.S. knowing that the rest of the world had to come to us. That's no longer the case. We're at a pivotal point in the shaping of the future of the semiconductor industry. Whether or not U.S.-based manufacturers will maintain their world dominance in technology and volume of product will depend largely on the kinds of decisions that are made in the next year. For Fairchild, I envision transfer of technology abroad whenever this move will establish or maintain a position in a vital market."

International Expansion Gains Greater Appeal

International technological expansion has gained increased appeal as a result of the relaxation of hostilities

with Eastern European countries. Trade has greatly increased. There are semiconductor markets emerging within these countries that offer opportunity for U.S. companies . . . or for Japanese companies . . . or for West European companies. A slight edge—a more encouraging trade policy, a more venturesome and enterprising approach to world markets—might establish a foothold for helping to determine future world leaders in the semiconductor industry. Dr. C. Lester Hogan, Fairchild President, in the spring appeared before the U.S. Subcommittee on International Trade of the House Banking and Currency Committee to stress the importance of taking a new look at unnecessarily restrictive trade policies that would handicap U.S. semiconductor manufacturers in developing markets, particularly in Eastern Europe which is the largest emerging marketplace in the world.

Harry Sello describes the people who will assist him in his task of taking basic semiconductor technology abroad as international technologists. "The members of the International Technology Development team," he explains, "are first highly knowledgeable in semiconductor technology and, equally as important, they are communicative, concerned managerial types who appreciate problems abroad and who realize the significance in Fairchild objectives of gradual expansion of wafer fabrication into countries where such operations are necessary for market penetration." The first task handed the technologists is establishment of the wafer fabrication capabilities at TFC in Japan.

In describing how the new International Technical Development organization will work, Harry states that he and members of his staff will plan and implement the installation of new wafer fabrication activities, and train local personnel to carry on the operation before moving on to the next site where Fairchild fabrication activities

will be beneficial in nurturing local markets.

Jobs Abroad Help Secure U.S. Employment

"This world-wide transfer of selected technology will," Marriott states, "be beneficial in securing U.S. jobs and Fairchild's position in the industry. Historically," he explains, "volume increases in semiconductor production such as those offered by the growing markets outside the United States, have increased domestic employment. As business and assembly operations have expanded abroad, new jobs have been created in the U.S. to support that growth. The continued price decreases made possible through expanding production have also opened up new markets for semiconductors for products in which higher priced devices would be prohibitive."

The game plan expands. The contest is heated. Fairchild has collected knowledgeable international marketing strategists, technologists, planning and production experts into a team that is prepared to face all contenders in the fevered race for top position in markets outside of the United States.

Dave Marriott



How to pack an airplane into an attaché case

So your job is selling airplanes, or tractors or a career in the Army.

You could call on your potential customers or recruits and tell them in colorful prose about the merits of your proposal. You might even bring along a few photos of the aircraft, tractor or scenes of what military life is like. You definitely can't fly the airplane to the customer, drive the tractor to the farmer, or take the potential recruit on a tour of Army bases. Or can you?

Thousands of salespersons — even those representing the armed forces — have found that they can bring their products or proposals to the customer via Super 8mm sound films used in Fairchild Industrial Products Division's rear screen projectors.

International Harvester Company uses the lightweight audio/visual sales aides in its dealer's showrooms. There, the farmer or rancher can watch short films of the company's equipment in operation in much the same way it would be put to use on the farm or ranch.

J. C. Penney Company uses Fairchild projectors for point of sale impact in demonstrating the benefits of Penney's appliances, tires and home entertainment systems. The documented increase in sales of items featured in the films has encouraged Pen-

ney to expand its point-of-sale film program to many stores in its chain.

The effectiveness of the IPD projector as a sales tool has been clearly evident in the performance of U.S. Army recruiters who were armed with the projectors as an aid in selling young persons on the benefits of a stint in the Army. "The recruiting sergeants met their requirements for new recruits," states Stephen Blucher, Marketing Manager of IPD's audio-visual line. "I believe that IPD can take part of the credit for this success, because our projector allows the recruiter to let the prospect see as well as hear about the rewards of Army life."

For use in store demonstrations, such as the Penney's application, the division offers a series of console projectors which, in addition to sales tools, can be used for employee, management or sports training. The film cartridges designed for use with the projectors can carry up to 24 minutes of sound film. The simple-to-load cartridges enclose the film so that it is never touched. The equipment automatically rewinds the film and can be adjusted to stop at the end of a single showing or can be programmed to run continuously.

Today, manufacture of the popular 8mm rear screen projector is a major

activity at the Industrial Products Division in Commack, Long Island, New York. In the larger of two buildings at the division headquarters, the rear screen projector assembly lines occupy more than half of the available space. Moving along the lines, you can see a projector take shape under the experienced hands of IPD operators, many of whom have five or more years of service with the division. This service record, in light of the approximate 20-year history of the division, is particularly notable since remaining with the division during its expansion stages on Long Island has presented travel challenges for many employees.

Testing the projectors to establish sound and picture quality offers educational bonuses for the operators. Films available on cartridges cover numerous training subjects from tips on telephone manners to instruction in bicycle care and bowling. After using one of the instruction films to test a number of projectors, the IPD operators have become self-taught experts on a variety of subjects. The 8mm sound rear screen projector could easily, because of the portability and ease of operation, open complete new markets. The library of sound films available on industrial and business subjects have made the projectors an ideal addition

Ray Hennessey, Fairchild Vice President and General Manager of the Industrial Products Division.



Industrial Products Division Super 8mm sound projectors take shape in one of the Division's manufacturing areas in Commack, Long Island, New York.





LEARNING (top) about International Harvester tractors, **(right)** about the care and maintenance of bicycles and how to cook via Fairchild super 8 mm projectors.

The projector models shown at left fold down into carrying cases the size of an attaché case. The console model used in the cooking demonstration, though relatively lightweight, is designed for applications where ease of portability is not a prime consideration.

to any company's training program.

The IPD projector is a direct offspring of Fairchild's involvement in camera development and, in fact, the attaché case projector in the line was created as the result of a proposal from Fairchild Camera & Instrument founder, the late Sherman M. Fairchild. He saw the need for a light-weight, even more portable, audio-visual device which salespersons could easily transport and would fit snugly under the seat of an airplane.

The Industrial Products Division came into existence in the early 1950s. Its first products included medical cameras, high-speed cameras and related instruments. Soon the Division added an 8mm sound camera to its line, the first camera of its kind to be developed. The camera used 8mm film with a sound stripe making sound films practical, for the first time, for amateur and semi-professional photographers. Sales of the revolutionary new camera were brisk in the first few years of its existence, but the lack of availability of certain types of sound film and other contributing factors curtailed the camera's future. The division gradually phased out its 8mm sound camera

line but continued to provide parts for those still in use. Recently, a model of the sound camera found a deserved place in the Museum of Photography at Rochester, New York, as the first such product of its kind.

IPD was already involved in the development of its rear screen projector and that product line was on the market before the 8mm sound camera was phased out of production, allowing a smooth transition from one product to another.

Today, the Industrial Products Division's rear screen projectors are marketed through a chain of dealers located in most major cities throughout the world. A network of service centers

in major population areas are equipped and staffed with trained personnel to respond to maintenance needs. The projector has created a mini-revolution in the sales of large equipment, land, as well as large items in department stores. Many distributors and potential purchasers first viewed new car models on an IPD projector. For large group gatherings some models in the IPD line can be quickly converted to project a large-screen image on any available blank wall or standard movie screen.

So you're trying to sell airplanes or tractors or a career in the armed forces. You've got an unbeatable sales companion in the IPD projector.

Fairchild Industrial Products, which is headquartered in Commack, L.I., New York, has offices in Los Angeles and Chicago. In addition to audio-visual products, it also manufactures weight and balance systems, voice and data recorders, and announcing systems for aircraft as well as pressure sensing switches for industry.

The Fairchild flight data recorder is manufactured at IPD's Los Angeles facility which also serves as a sales and service office for audio-visual products. Magnetic recording heads are manufactured at Fairchild World Magnetics in Traverse City, Michigan, which is a subsidiary of Fairchild Camera and Instrument Corporation and part of IPD.

More on IPD's other exciting products for aviation and industry in future issues of HORIZONS.



Among the Security and Surveillance Systems personnel who worked most closely on the new Galeao airport project are (left to right) Jerry Kleifgen, Product Manager; Ken Yutkowitz, Project Engineer; and Doug Johnson, Engineering Program Manager.

Solutions To Some Insecurities

It's such an insecure world.

But a newly formed organization within the Federal Systems Group is attempting to do something about that.

The members of the new Security and Surveillance Systems Strategic Business Unit, managed by Fred Schmidt, can't do a thing about building personal self-confidence if that's where the insecurity lies, but it can make great strides toward assuring the physical security of facilities.

Using the Group's extensive systems engineering expertise in designing and engineering of aerial reconnaissance cameras and related systems, the Security and Surveillance Systems organization is applying FSG's know-how to making our world, or at least parts of it, a little more secure.

First project of the new operation was the design, development and eventual installation of an airport surveillance system for the new Galeao airport near Rio de Janeiro. The system is designed to make terminal and apron areas of the new airport safer for people and equipment. The system includes 14 closed-circuit television cameras which are remotely controlled from a console in the main terminal. The cameras, mounted atop 120-foot

towers, can pan 360° and are equipped with zoom lenses for close-up looks of activity on the apron. They also can be tilted skyward.

In planning the design and layout of the system, project engineer Ken Yutkowitz appears to have covered every situation in which the cameras and other equipment would operate. Because the system will be expected to function day and night and in any weather condition, the windows covering the camera casings are equipped with a windshield washing/wiping feature that can be activated from the central console. Window washing is accomplished with a push of a button which releases detergent from a container in an enclosed service module at the bottom of the tower, pumps it up 120 feet to the camera window and bathes the glass in a degreasing, defogging wash. All electrical controls are mounted at eye level in the service module at the base of the tower to allow for ease of maintenance. Thinking ahead to the environment in which the system will operate, four high brightness monitors will be included in the installation which will allow for perfect viewing even in the glaring Brazilian sun. In addition, the main

console contains a video tape recorder which can record images from any of the 14 monitors, retaining a visual record of airport activity for later review, evaluation or activity documentation.

When the installation is complete in September of this year, Security and Surveillance Systems members will remain at the Galeao airport to instruct local personnel in the operation of the system and to train a local service representative in the maintenance of the system. Operation of the airport surveillance system, however, requires only brief orientation. Again, the systems engineering crew factored personnel turnover into their design planning and produced a fail-safe system that can be operated by the newly initiated within a matter of hours.

According to Fred Schmidt, an even more extensive airport system is under development for a new terminal for a country on the Persian Gulf. Fairchild personnel will be responsible for the design of baggage handling methods, weapons detection devices, and passenger flow patterns.

In the future, Schmidt envisions comparable security systems for a variety of industrial, business or military installations. In addition to utilizing FSG's newly developed CCD television cameras, these systems will include badge and fingerprint readers, sensors that would detect the approach of persons in a secure area, and electronic sensitive fencing . . . all interfacing at a computer-controlled command center.

The new organization represents a new direction for the Federal Systems Group, to meet the demands of a rapidly growing worldwide market, requiring the use of sophisticated electronic concepts to alleviate security problems.



Ken Yutkowitz demonstrates the high brightness monitors especially developed for use in the Brazilian sunlight.



In the count-down before acceptance of the system by Galeao airport officials, the airport surveillance system is put through its paces by Federal Systems Group personnel (left to right) Ken Marcus, Q&R Test Technician; Shelly Weingust, Development Technician; Jacques Nalbantian, Senior Staff Engineer; and Dick Mancuso, Associate Engineer.



Doug Johnson with one of the Galeao airport cameras which are marvels of engineering. Note the windshield wipers that can be operated from the terminal console.

South of the border charm spreads throughout the U.S.

Some of the charm of Mexico was apparent in Mountain View during the second week in June. Exuding this charm was Rocio Sardenato, who is secretary to the Manufacturing Manager of Fairchild Mexicana, S.A., the Fairchild plant in Mexico City. Rocio visited the Fairchild headquarters on the first leg of a month-long vacation that would take her throughout the United States and into parts of Canada.

Throughout her visit to Mountain View facilities, Rocio left a trail of Fairchilders who were captivated by the young woman's exuberance and her delight with the opportunity to meet people with whom she had corresponded since joining Fairchild five years ago.

Rocio made the obvious comparisons between Fairchild activities in Mountain View and Mexico. "It's very much like our Mexico plant, only much, much larger," she explains. The most interesting part of her visit to Mountain View, aside from meeting people, was a visit to a wafer fabrication area and an explanation of how wafers are processed. "We do not have wafer fab in Mexico," she explained, "so before now I could only imagine how a wafer was made. The fabrication process is far more complicated than I envisioned."

Rocio, who is bi-lingual, is frequently pressed into service for tasks beyond the normal secretarial responsibilities. She often meets non-Spanish speaking visitors at the airport, assists them with reservations and other needs which might require the services of an interpreter. Rocio, who is single, states that Fairchild is an extremely important part of her life and she enjoys the extra assignments, particularly when they help to make visitors feel welcome in her city. During her years with Fairchild, 22-year-old Rocio has developed into an authoritative sight-seeing guide for first-time visitors to Mexico City. Some of her gracious hospitality was reciprocated during her visit to Northern California, when she and her traveling companion were house guests of Ron Kovaks, Bob

Bogowitz, and Rita Hoffmann of the Transistor Division. At the end of her five-day stay in the Bay Area she was reeling from the pace of activity set by her hosts. In addition to visits to the plants in Mountain View, Rocio had been escorted on a tour of San Francisco, flown to Vacaville aboard a private plane for lunch, went on a motorcycle tour and had dinner with several Fairchild families. She felt that Las Vegas, the next stop on her tour, would have difficulty matching the entertainment and excitement she found in the Bay Area.

Rocio's tour of the U.S., which was made possible through accumulation of vacation days over the past five years, is her first visit north of the border. The similarities between life in Mexico City and that in Northern California, she believes, are greater than the differences . . . particularly within Fairchild.

Rocio, who considers herself a typical young Mexican woman, attended a secretarial school after finishing grade school. She graduated at 16 and immediately went to work with Fairchild. She fully enjoys being part of business life in Mexico City and feels she is totally free to do whatever she wishes.

This is why she is puzzled by the Women's Liberation movement in the United States. "I feel I'm totally liberated," she states. "I continue to live at home with my parents and will probably do so until my marriage, but because of my parents' trust in me, I am able to do anything I wish—travel, escort visitors throughout the city, and devote as much time as needed to my Fairchild work. I can't imagine any more freedom."

Though Rocio has no immediate wedding plans, she accepts the Mexican custom of retirement from the business world after marriage. "My husband and my family will require all of my time," she said. Marriage and its attendant home-oriented life will allow her the time for further self-development. "I've always wanted to play the piano and I want to improve my French. Both will be possible after I leave Fairchild for marriage."

In the meantime, she appears to be savoring every experience her work life and her single life offers. Leaving the Mountain View plant for the next stop on her nationwide tour, Rocio said that her reception at the headquarters plant left her feeling like "Alice in Wonderland."

Rocio pauses before one of the Fairchild buildings in Mountain View before beginning the next leg of her journey which will take her throughout the United States and into Canada.



Cash for Photos In Horizons Contest

Turn your favorite photograph into cash in the second annual HORIZONS photo contest. Nine cash prizes will be awarded to the Fairchild amateur photographers whose entries are determined to be the most outstanding in each of three categories: people, animals and scenic. Prizes are \$25, \$15 and \$10.

The contest is open to all Fairchild employees except for professional photographers. Judges will be Fairchild graphic illustrators and professional photographers.

Deadline for entries is August 15. All photo formats are acceptable, though there are no separate categories for color and black and white prints and slides.

Entries should be addressed to the Fairchild Employee Communications Department, 464 Ellis Street, Mountain View, Calif. 94040, mail stop 20-2284. Winning photographs will be published in the September issue of HORIZONS.

Systems Technology To Move in August

The Systems Technology Division, currently located in Palo Alto, California, will move into its new headquarters building at 1725 Technology Drive, San Jose, in August. The new facility, under construction since February, offers additional space for operations and allows for improved work flow patterns in the development and assembly of the Division's semiconductor test systems.

The new headquarters is approximately 20 miles south of the Division's current facility and approximately eight miles south of Mountain View.

Hahn Communications Equipment Manager

David L. Hahn has been named general manager of Communications Equipment.

He will be responsible for the overall direction of the Communications unit which manufactures and markets teletypewriter terminal buffers for communications systems.

Dave joins Fairchild from the Business Telephone Systems Division of Litton Industries, Inc., where he was vice president, operations.

Product News

MOS Products Division has added a quad 256-bit static shift register to its line of standard MOS integrated circuits produced with the company's Isoplanar processing technique.

The new product, designated the 3356, provides four individually controlled 256-bit shift registers in a single 16-pin dual-in-line package. The 3356 features guaranteed data rates of 2 MHz and a zero data hold time.

Each of the four registers in the 3356 has independent input, output and recirculate lines. Data are loaded into the desired register by an external clock signal. A low signal on the recirculate line loads data from the input terminal, while a high signal on the recirculate line takes existing data from the output and recirculates it through the register for additional storage time.

The 3356 has an on-chip clock generator driven by a single-phase TTL clock input. All inputs, including clock and recirculate, have a special pull-up device to provide TTL compatibility without external components.

Systems Technology Division introduced a semiconductor test system designed for incoming inspection by users. The tester is programmed with optically coded plastic cards.

Designated the Qualifier* 901, the system will be manufactured and marketed by the recently formed QA Products operation of the Division.

The Qualifier 901 is designed to test DTL, TTL and CMOS devices. It is the first in a family of low-cost semiconductor test systems aimed at meeting the incoming inspection needs of the user. Each subsequent model will be dedicated to a major group of semiconductor devices and will utilize identical system architecture and 70 percent common hardware.

The Qualifier 901 is programmed to test a specific device with an optically coded plastic card called a QUAL-CARD*. Competitive testers are programmed with printed circuit boards which are substantially more expensive. In addition, QUAL-CARDS are simple to use and reliable.

*TM Fairchild Camera & Instrument Corp.

The Transistor Division has added a new series of hybrid MIC amplifiers to its line of high-performance broadband microwave amplifiers.

The new amplifiers, ideally suited for microwave communications equipment, cover the frequency range of 5 to 550 MHz. Wider bandwidth amplifiers are available on special request, and Fairchild also offers various combinations of the circuits cascaded and mounted in single dual-in-line packages.

Amplifiers available in the TO-8 package are the FMA 150, FMA 155 and FMA 160.

MOS Products Division has added a 40-word by 9-bit first-in, first-out FIFO memory to its line of standard MOS integrated circuits.

The circuit, designated the 3351, offers users a low-cost solution to many problems associated with interfacing digital systems that have different data rates.

A typical application for a FIFO memory would be as an input or output buffer between a keyboard and a central processing unit or between a CPU and a printer. Information can be entered into the FIFO at keyboard speed, saving valuable computer time. Similarly, data can be fed from the CPU to the FIFO at computer speed and then transferred to a printer at the slower printout speed.

Systems Technology Division has introduced a specialized test system for semiconductor chips used in calculators.

The Sentry 100-C is an enhanced Sentry 100 computer-controlled tester that utilizes universal single-chip calculator circuitry. An interactive programming overlay permits an inexperienced operator to learn and write calculator-chip test programs. The overlay operates in the background mode while devices are being tested in the foreground mode.

The Sentry 100-C retains the general-purpose testing capability of the basic Sentry 100 and will test SSI, MSI chips, and some LSI chips.



The results of a massive renovation which transformed a fruit warehouse to a space-age silicon plant were viewed by Healdsburg city officials, employees and members of their families, when Fairchild officers and managers greeted visitors during an open house June 15. At left, Dr. C. Lester Hogan addresses the group of visitors and employees in front of the completely refurbished 84,000-square-foot facility which houses an extension of the Mountain View silicon growing and polishing capabilities. Plant Manager Jack Callahan, host for the opening, escorted Fairchild and community visitors on a tour of the plant following the talk by Dr. Hogan, in which he said, "The silicon material produced here will be processed in virtually all of our plant locations around the world, including facilities in nine foreign nations as well as our domestic plants in four states. We expect this plant to become the most modern and productive silicon materials facility in the world."



Bruce Gray, Senior Electronics Systems Manager at the South Portland, Maine plant, was recently named Outstanding Airman for 1973 for the state of Maine. Bruce is a member of the 243rd Electronics Installation Squadron, Maine Air National Guard of South Portland. He is shown receiving a citation and an engraved silver bowl from Col. Louis Johnson, Chief of Staff for Air, Maine Air National Guard.

The honor was awarded Bruce for his outstanding performance as a Team Chief in the Electronics Section of his squadron, and other contributions he has made in supporting the unit's programs and missions. Bruce has devoted much of his spare time to instructing special courses on integrated circuits and solid state devices for his squadron, serving as advisor for the Explorer Scout Post sponsored by the South Portland Air National Guard station, and in creating and supporting the local MARS radio station.

FAIRCHILD
HORIZONS
Summer 1975



Time moves ahead at Fairchild
(see page 2)

The beginning of time

Time is life. Now Fairchild is putting some life into time with digital wristwatches and clocks produced by the Consumer Products Group. Among the company's initial offering are LCD (below) and LED products of the newly acquired Exetron Division.



Time is in the hands of the newest members of the Fairchild family, the recently formed Consumer Products Group.

In May, the Optoelectronics Division and newly acquired Exetron and Princeton Materials Sciences were combined to form the Consumer Products Group which will be responsible for producing watches and developing other end products which have a high concentration of semiconductor technology.

Exetron, an independent company before the Fairchild acquisition, is involved in the precise measurement of time through one of the most widely accepted methods—the wristwatch. However, Exetron approaches the traditional measurement of time in a new way. The division claims the distinction of being one of the first manufacturers of a single chip solid-state digital wristwatch. The programmed chip faithfully ticks off the seconds, minutes, hours and days being boggled only once every four years when it doesn't stretch its memory to accommodate that extra leap year day. A simple, single adjustment by the wearer overcomes this momentary lapse.

Exetron was founded by former Texas Instruments engineering manager Don Brown in July, 1971, to manufacture calculator circuits. The company rapidly established itself in this highly competitive market with the versatile devices. However, the com-

pany's limited capital and market exposure did not offer adequate protection when the calculator market went into a tailspin in mid-1973. Looking for a substitute product, Exetron in that year developed a single chip digital watch module and by the fall of 1973 was marketing the Exetron Model 6001 watch with liquid crystal display. Today, the Exetron Division of Fairchild manufactures calculator devices, digital clocks, LCD and LED watch chips and LCD and LED watches.

In trim, bright quarters in Santa Clara, California, minutes away from Fairchild's corporate headquarters, the Exetron facility is a small-scale duplicate of the Semiconductor Group's sprawling device manufacturing operations with one very obvious exception. Much of the activity in the Exetron plant funnels through wafer fabrication toward the final assembly and test areas where wristwatches in a wide variety of styles are packed into display boxes for delivery to Exetron distributors. Through the distributors, the watches reach retailers throughout the world. The top of the Exetron line is a watch encased in a trim, gold case with a light-emitting diode display and woven gold mesh band. Available in men's or women's models, the watch

is elegant enough to hold its own at the finest jewelry stores.

Exetron products are aimed at the mid-range of the watch market, with retail prices of from \$89 to \$175. In addition to finished watches, Exetron provides quantities of 6103 watch circuits to one of the world's major manufacturers of low-cost watches.

"The time is right," says Greg Reyes, vice president and general manager of the Consumer Products Group, "for Fairchild's aggressive entry into the watch business. Much of the initial confusion surrounding the development and marketing of solid-state watches has settled and the market is clearly defining itself. Sales of solid-state watches," he says, "are expected to follow the pattern of the traditional analog watch business with digital watches finding customers throughout the wide spectrum of price ranges. Initially, Fairchild will concentrate on the mid-range."

In its brief history, the technology and marketing strategy of solid-state watches has altered drastically. The first commercially available digital watch introduced in 1968 carried a price tag of \$3,000 and contained some 23 chips to control its operation. This status symbol timepiece was virtually the only generally available

(Continued page 7)



Scenes familiar to employees in the semiconductor operations can be seen throughout the company's new Exetron Division. At left, top to bottom, the ubiquitous microscope assembly stations, ion implantation equipment and glowing diffusion furnaces. Above, at the end of the process, trays full of finished wristwatches are the result of all the effort.

What do salesmen talk about when they get together?

If you're looking for punch lines to carry you through the year's round of parties, you would be disappointed eavesdropping at the Fairchild National Sales conference in April. There were a few jokes swapped, but most of the conversation centered around sales; problems encountered in pursuit of sales; techniques employed which lead toward sales; factory support required to realize sales; and elbowing out the competition on the way toward sales.

Though the conference was not without its moments of humor, the

of a year in which "no order today . . . or this week . . . or this month" was the response to much of their efforts. They left the conference three days later buoyed by the potential the future holds. They were shown increased advertising and sales promotion support to pave the way for sales. Part of this commitment was fulfilled during the conference in reprints of new advertisements to appear in trade publications and copies of newly produced product catalogues.

The sales staff listened to marketing strategies outlined by division management that are aimed at capturing a greater share of current markets and

surface in response to challenges and programs presented by Wilf Corrigan; John Duffy, vice president-marketing; Fred Hoar, vice president-communications; Greg Reyes, then vice president - Discrete Products Group; and Dr. Tom Longo, vice president, Integrated Circuits Group. Each of the Fairchild managers who made presentations concluded their talks by placing the task of carrying the Fairchild message to the world squarely in the hands of the field sales personnel.

The conference also provided the setting for an awards banquet. The two key presentations, the Sherman Fairchild Awards for Sales Professionalism, went to field sales representative Richard Parker of the Minneapolis, Minnesota, office, and Bill Walton of the Mountain View Linear Marketing staff. The awards, a reproduction in precious metals of King Arthur's legendary sword, Excalibur, encased in Steuben crystal, are presented annually to a field sales engineer and a member of the headquarters marketing staff. The field recipient is selected by a committee made up of members of the corporate management staff based on the recommendations of regional sales managers. The headquarters marketing staff recipient is named through the votes of field sales engineers.

The first statements of qualified optimism to be heard in months were voiced by meeting speakers at the National Sales Conference. The message was: the marketplace is reviving and Fairchild is poised to respond. We're moving.

GET MOVING WITH FAIRCHILD



overriding atmosphere was that created by a group of professionals seriously in search of information that would improve their sales performance. The theme of the conference, "Get moving with Fairchild," was supported by racing flags, a competition car and motion pictures of race horses running a track. Both the thoroughbreds on the screen and the salesmen in the room were straining at the bit to get moving forward on their respective tracks.

The conference was opened by Wilf Corrigan, Fairchild president, who traced the past five years in the semiconductor industry and compared Fairchild's position in 1975 with the company's status in the previous four years.

"Today," he said, "Fairchild is in the most solid position in its history with the resources and plant capacity to respond to virtually any demands made upon us. And the demands are coming."

The 1975 semiconductor sales conference came at the end of one of the most sluggish sales periods in industry history. Fairchild marketing personnel filed into the conference room at Rickey's Hyatt House in Palo Alto, California, carrying the burden

successfully launching numerous new products.

The Fairchild technical story was told in a non-stop series of seminars led by product division managers and group general managers. The seminars revealed product developments which will maintain Fairchild's leadership edge in all of its prime fields of interest and lead the company into entire new product areas.

The abundance of energy contained in the sales staff was brought to the



A little help along the way



Lorraine Doyle, Thomas Hastings and Thomas Riordan—scholarship winners whose parents are employed at the Space and Defense Systems Division.

One is a sales clerk, another is a horseback riding instructor, another worked as a newspaper delivery person, one holds a job as a shipping clerk, another has an assignment as a research assistant, another is an electronic technician, one is a clerk and one a babysitter. But these are only part-time, temporary jobs. Some day, the sales clerk will be a chemist; the riding instructor a veterinarian, the newspaper girl a physician, the shipping clerk a lawyer, the research assistant a physicist, the technician an electrical engineer, the clerk may become a legislator and the babysitter a physician.

All of these young people will be helped along the way toward their ultimate career goals by scholarship awards from the Fairchild Foundation. They are the 1975 Sherman M. Fairchild scholars who will receive grants to cover tuition, room, board and fees for undergraduate study at the college or university of their choice.

They are the children of Fairchild employees. The 1975 scholarship winners are:

Michael Deal, son of Bruce Deal of the Integrated Circuit Group's R&D Laboratory. Michael will enter Occidental College in California in September to work toward a degree in Chemistry.

Lorraine Doyle, daughter of Irving Doyle, technical director, Space and Defense Systems Division. Lorraine plans to go to Cornell University where she will enter a program to prepare her for veterinary school.

Roxanne Guilhamet, daughter of Richard Guilhamet, operations man-



Thomas Legere Roxanne Guilhamet

ager, Transistor Division. Roxanne will enter Stanford with the intent of going on to medical school.

Thomas Hastings, son of Harry Hastings, engineering section manager, Photographic Systems Department, Space and Defense Systems Division. Thomas will enter Princeton University to begin studies in political science with law school in mind.

Roger Howe, son of William Howe, director of engineering, Systems Technology Division. Roger will attend Harvey Mudd College in California to major in physics.

James Johnson, son of Margaret Fisher Tunisen, executive secretary, Systems Technology Division. James will begin his junior year of study at Stanford University toward a degree in electrical engineering.

Thomas Legere, son of Gerard Legere, supervisor of Test and Finish at the Fairchild plant in South Portland, Maine. Thomas will enter Amherst College to study for a degree in political science.

Thomas Riordan, son of Thomas Riordan, engineering program manager, Space and Defense Systems. Thomas will enter Yale University to



Five of the west coast winners in the 1975 Sherman Fairchild Scholarship competition are (bottom to top): Russell Smith, Michael Deal, Roger Howe, John Wyatt, III; and James Johnson.

study political science.

Russell Smith, son of James Smith, Beta operations manager, Integrated Circuits Group. Russ will enter Santa Clara University to begin a pre-medicine program.

John Wyatt III, son of John Wyatt, Jr., corporate manager of equal opportunity programs. John will return to the University of Southern California to begin his second year of study in a program aimed at a degree in civil engineering.

The 1975 scholars are going in different directions and to different schools but share the same hopes for a bright and enriching future.

Six of the 1975 scholarship winners are the children of employees working in Fairchild operations on the West Coast and four are the sons and daughter of employees working in plants and offices on the East Coast of the United States.

Annually, ten grants are made by the Fairchild Foundation to the sons and daughters of employees. Applicants for the grants should be in their final year of high school or enrolled in college. The competition is conducted by the Educational Testing Service of Princeton, New Jersey, where a board of educators evaluate the applications based on the student's performance in high school, results of the Scholastic Aptitude Test, and involvement in extra-curricular and community activities.

Educational Testing Service will begin accepting applications for the 1976 awards in September, 1975. All industrial relations managers will have a supply of the 1976 application forms by September 1, 1975.

Ten Years of Test Leadership

In early 1965, Fairchild came to the pleasant realization that it had a new business in its midst. The company had watched its interests in semiconductor test systems spread well beyond its doors. When Fairchild went into the semiconductor device business in 1957, it confronted the problems its followers in the industry were to greet.

When you are building a brand new industry from the silicon up, you don't look in the telephone book for suppliers of equipment to support your operations. Until you prove that you have a profitable, permanent endeavor underway, no one is going to be particularly interested in designing and building equipment to serve your specific needs.

So, semiconductor test equipment design and development grew in step with the development of devices. So good was Fairchild's test equipment that soon competing manufacturers and users of large quantities of devices came knocking at Fairchild's door with orders. This unsolicited interest in the company's test systems prompted some market research which confirmed the fact that Fairchild had a new business, if it wanted to pursue it. So, in 1965, the Instrumentation Division was formed with the prime purpose of developing, manufacturing and marketing semiconductor test systems. The Division went through the traditional startup traumas of any new endeavor. Rich Remmers, George Lao, Betty Barton and the many other employees involved in the formation and establishment of the new division remember the time when an order for a system was known by the entire division before the ink was dry on the contract.

They remember outgrowing their first facility, moving to another, experiencing a name change to Systems Technology Division which was designed to reflect more nearly the interests of the organization, moving to still another building and finally in 1974 to a

custom-designed, permanent home in San Jose, California, which offers enough surrounding land for considerable expansion.

They remember their desirable, circa 1959, testers that were sought by Fairchild competitors and customers, because they out-paced curve tracers, then the most widely used equipment for testing semiconductor devices. They remember the custom testers designed for the Fairchild diode plant; the first equipment tailored to this task.

They remember the company's first production units of transistor testers, the Models 100 and 200. They remember when the cost of testing a semiconductor product exceeded the cost of manufacture. They remember the Series 5000 transistor tester, an efficient electro-mechanical work horse that is still performing its duties in many electronics plants today. They remember when computer programming was added to testers in the 5000 series of units. They remember when everything that was to be known about semiconductor test systems was contained in the minds of a few of the pioneers in the business. They remember when they could count their competitors on three fingers. They have watched the evolution of large multi-function, multi-application systems such as the Sentry Series. They've seen sophisticated test techniques packaged in benchtop systems priced within the range of most semiconductor users.

But, most impressive, they have participated in the fusion of ideas, energy and enthusiasm which has created an organization that offers the most capable test equipment in industry today.

Systems Technology has become very sophisticated in its decade of existence; but its members have never lost their excitement at welcoming a new customer to their fold.

Happy tenth anniversary, Systems Technology.

A group of Systems Technology Division employees who were on hand at the formation of the organization toasted Systems' tenth anniversary—appropriately enough with coffee in cafeteria-issue plastic cups.



PROGRESS progresses

The early '70s were definitely not the period for magazines. A very staple of Americana, LIFE, made its final appearance on newsstands. THE SATURDAY EVENING POST had become fodder for nostalgia. People were looking toward more easily digestible television news and features for their information.

Yet, it was in 1973 that Fairchild launched a new magazine, PROGRESS. It is not that Fairchild had ignored the fate of other periodicals, it was simply that the company believed it had a message to convey that would draw readership.

Since its debut in June, 1973, the circulation of PROGRESS has almost doubled as its audience was attracted by such articles as "S Data II," "Cyclic Redundancy Check Circuit . . . on a single chip," "Signal Quality Estimation for Coaxial Cables," and "Fully Compensated Emitter-Coupled Logic." True, the material carried in PROGRESS might be hard-pressed to compete with the contents of PLAYBOY, but while Hugh Hefner's publishing empire teeters, the Marketing Services Department's flourishes.

By-lined articles in the publication carry names such as Peter Alfke, Moise Hamoui, Kris Rallapalli,

Ken True and Rob Walker to mention a few. No, you haven't seen those names on the latest best-selling paperbacks. You recognize them because you work with these authors. Peter is manager of Digital Systems and Applications; Kris is a staff engineer with the Advanced Products Group, Moise is a test equipment designer at Systems Tech, Ken is manager of Engineering Systems Services; and Rob is manager, New Product Planning, DIC. The popular publication is written and edited by Fairchilders.

PROGRESS provides a medium in which the latest design ideas, applications and Fairchild products are discussed, subjects which engross the system or logic designer. Editor Harriet Crewell says that most PROGRESS readers are members of the engineering staffs of Fairchild's major customers. Each issue, new names are added to the growing distribution list as engineers and scientists become aware of PROGRESS' existence through a copy passed on by a friend or an issue left by a Fairchild sales representative.

Though obviously designed as a sales promotion aid for Fairchild semiconductor products, material must pass a critical test before inclusion in PROGRESS' pages. "An article has to be of value to an engineering audience," Harriet says, "it can't be simply a sales pitch for a new Fairchild device. In fact," she adds, "we have carried material that did not contain a single Fairchild reference, because we believed the information would be of value to engineers in performing their logic or system design tasks."

The authors who appear regularly in PROGRESS' pages write about subjects with which they are familiar. New products, such as the CCD memory or the MACROLOGIC™ are obvious feature material for

PROGRESS. "However," Harriet says, "almost every engineer who is involved in product development or applications has something to say that would be of interest to PROGRESS readers." She also assures that material submitted for consideration, need not be in print ready form.



A MEETING OF MINDS—One of PROGRESS' most prolific contributors, Peter Alfke (left), goes over the final layout of one of his articles with editor Harriet Crewell and art director Marty Lindquist.

"Fairchild engineers and scientists provide the ideas," she says. "I provide the polishing which prepares them for publication."

Though established authors are treasured as the source of a constant flow of usable material, Harriet states she is anxious to cultivate new contributors to the magazine. Peter Alfke, the publication's most prolific author, cites among the many benefits of writing for PROGRESS, the speed with which material appears in print. "When you prepare an article for an outside technical publication, it may be six months before it is published," he says. "Usually, material submitted to PROGRESS is in the reader's hands within two months." He adds that PROGRESS is an excellent way in which to take the first plunge into publication.

The design of PROGRESS, usually an imaginative cover photograph relating to the content of the issue and equally creative inside illustration, is handled by Marty Lindquist, art director, and Steve Allen, photographer.

Watching PROGRESS progress has been rewarding for its editorial staff, its contributors and, obviously, its readers.





New Addresses for Fairchild

Tracking Fairchild's construction is similar to a lesson in geography. As the company's international business has expanded, so have its worldwide locations. The finishing touches are being placed on the company's new assembly plant in Jakarta, Indonesia, this month (above, left). A new test and finish facility went into full operation in Singapore in May (above, center). The Campinas, Brazil, plant is in full operation and poised to expand as product demand increases. A formal dedication ceremony for the Jakarta, Indonesia, plant which will support the Integrated Circuits Group, is scheduled for August.

In early June, construction began on a 265,000-square-foot facility in San Jose, California, which will house the Linear Integrated Circuits Division headquarters and fabrication operations which are now located at corporate headquarters in Mountain View. Several members of the LIC Division (above, right) were on hand for the ground-breaking ceremony along with (foreground) Janet Gray Hayes, mayor of San Jose, who handled the symbolic gesture which marked the beginning of construction and (left to right) Clifford Swenson, of Carl N. Swenson Co., Inc. general contractor for the project; Bill Evans, Fairchild facilities director; and Chuck Smith, vice president - Central Operations.

Time (continued)

solid-state watch for almost four years. In 1971, a semiconductor company was successful in introducing a watch device that contained a greatly scaled-down number of circuits. This development stimulated interest in the product because the simplified design would bring the contemporary timepieces within the price range of a much broader market. Even so, as recently as three years ago, the cost of solid-state watches maintained their position as a luxury item. Continuing technological advances, such as the further reduction of circuits, the development of batteries which offer a year or more of life, and the growing competitiveness within the awakening solid-state watch business, continued to drive prices down. Lowered costs, in turn, encouraged broader customer interest.

Solid-state watch manufacturers—mostly semiconductor companies—began to concentrate on styling, aware that they were offering a piece of jewelry as well as a functional product. Reduction in module and battery size allowed for slimmer cases and more fashionable designs.

The growth in the digital watch business greatly increased the production of light emitting diode modules at Fairchild's Optoelectronics Division. By the end of 1974, Fairchild had established itself as the world's leading supplier of LED modules to the watch industry. This position, coupled with the acquisition of Exetron and Princeton Materials Sciences, a manufacturer of liquid crystal displays, gives Fairchild broad capabilities in serving the solid-state watch market.

Today, watch manufacturers are divided on display technology. Some favor liquid crystal displays which, because of their constant "on"

characteristics, do not have to be activated for the wearer to read the time. However, the LCDs are difficult to read in dim lighting. Light emitting diode displays are brilliant enough to overcome the dim light problem, but must be activated and can be difficult to read in bright sunlight. With Fairchild's capability in LCD and LED, the company is prepared to produce watches and modules in both display types.

Within the Consumer Products Group is the greatest concentration of technological know-how in solid-state watch circuit development and manufacture to be found anywhere in the industry.

Solid-state digital watches developed over the past year at Fairchild will be introduced by the Consumer Products Division in time for the peak Christmas buying season. HORIZONS will carry photographs of the complete Fairchild line of watches in the next issue.

a giant step for MOS

Fairchild set an admirable and ambitious goal for itself in the MOS business—to become the leading developer and supplier of MOS circuits to worldwide markets. Considering that many other companies harbor exactly the same objective, Fairchild's MOS personnel realized that they would have to run a little faster and work a little smarter than the rest of the competitive pack in order to attain and sustain this position in the fastest growing segment of the semiconductor industry.

The pace in the MOS development labs demonstrates the company's commitment to this objective. Fairchild entered 1975 with the broadest line of MOS devices in its history, having, just two years before, turned its attention away from custom designs to concentrate on standard circuits that could be used in numerous applications.

Along with this zealous commitment to being the top came the evident need for a production facility scaled to the specialized demands of MOS production. And so it was in 1973, Fairchild began a search for an appropriate site and facility to house what was to become the most efficient and modern MOS manufacturing facility in the industry. The search led to a building in Wappingers Falls in New York's Hudson Valley. The facility had formerly housed semiconductor manufacturing, and an abundance of space surrounding the building allowed for future expansion

as needed. The site met the Division's needs in its location in a technical community (IBM is the largest employer in the area); the facility could be converted to accept an MOS production operation; and it was located near a major metropolitan area so that supplies could be obtained easily and shipments sent quickly on their way.

In September, 1973, the MOS Division began the project of transforming an empty building into an MOS manufacturing operation capable of volume production of the highly critical circuits. By April 1974, the first semiconductor wafers were being shipped from the Wappingers Falls facility. In the intervening seven months, a staff had been assembled, the shell of a building became an operational plant and Fairchild had made a giant step toward the realization of its goal in the MOS business.

The Hudson Valley offers reasonable proximity to all the benefits of New York City (1½ hours by excellent highways) and the appeal of life in a rural setting. Persons asked to join the Fairchild staff in Wappingers Falls were told of the abundance of natural recreational facilities in the area—lakes and rivers for fishing, swimming and boating; mountains for skiing. They were told of the excellent school system that makes Wappingers Falls and surrounding communities ideal areas in which to rear children. The Fairchild interviewers also projected

Located in the beautiful Hudson Valley, Fairchilders in Wappingers Falls have the benefit of the natural recreational facilities of the area yet a reasonable drive on well-maintained highways brings them into the heart of Manhattan.

The familiar Fairchild logo identifies the Wappingers Falls facility.





FACES OF MOS — Wappingers Falls: Top to bottom, left to right: Nino Penncenzo and Pete Olsen in the bunny suits required in the ultra-clean manufacturing areas; Mary Anne Potter, engineering manager; Fern Sunday and Olga Gallante; Harry Bridge, Karl Boling and Tom Lewis and Padma Soma. At right, in an early tour of the building, Fairchild president Will Corrigan demonstrated his thoroughness by inspecting the building from top to bottom.



the excitement that would come from joining a team involved in one of the most exciting challenges in the semiconductor industry.

The attractions of the Hudson Valley and the benefits of working on projects on the leading edge of technology, drew a management and engineering staff made up of veteran Fairchild employees from other plant locations and new personnel who had gained their semiconductor industry experience elsewhere.

Renovating a building and starting production at a facility 3,000 miles from the MOS Division headquarters drew on all of the talent of the small group of persons which was responsible for establishing the satellite plant. They learned more about construction and its specialized demands than they probably ever wanted to know as walls came down and new ones were erected to redesign the facility to accept the "tunnel" system of semiconductor manufacture. In this concept, each photo masking level is contained in a separate production module or tunnel. The semiconductor

wafer moves from one process step to the next until all processes are completed for a particular photo level without leaving its tunnel. Jerry Schoonhoven, MOS Division operations manager, explained that this fabrication system allows process and equipment optimization for each photo level and develops operator-specialists for each photo masking step.

In September 1974, Doug McBurnie moved from Mountain View to Wappingers Falls to manage the new MOS operation. Doug brought to the task several years of experience in MOS production management, production control, quality assurance and finance management. During the past six months, the Wappingers Falls team has increased die output by more than tenfold, aided by the fact that fab yields and die sort yields have exceeded expectations. Today the plant is demonstrating that it is capable of the kind of performance required to manufacture N-Channel Isoplanor MOS, the most advanced technology in volume production within the semiconductor industry.

The Wappingers Falls plant represents a very significant accomplishment for Fairchild. This is the first time a wafer fabrication facility has been established remote from the Semiconductor Operations headquarters. The San Rafael, California and South Portland, Maine plants were originally assembly operations with wafer fabrication added later.

Late in 1974, Wappingers Falls plant began production of the MOS Division's new F8 Microprocessor chips and is currently producing the new N-Channel 4K RAM. Wappingers Falls will be the primary fabrication facility for both of these industry leadership products.

To achieve the expected production volumes these exciting products will require, significant capital and people investment has continued in Wappingers Falls throughout the economic downturn. Even though current performance is outstanding, the continuing requirement for greater volume and cost improvements should challenge the Wappingers Falls MOS team for many months to come.

Corrigan advises electronics industry to be prepared for "Future" shock

Wilfred J. Corrigan, Fairchild president, drew a record crowd to the April meeting of the Western Electronics Manufacturers' Association in Orange County, California. His talk was titled "Future Shock: The impact of semiconductor components on the electronics industry."

Flexibility and adaptability to change brought about by rapidly advancing technology, he said, will largely determine manufacturers' ability to hold their market positions in the future. Growth and increased market share will go to those companies which maintain a close relationship with semiconductor manufacturers and gain the benefit of more rapid reaction to a changing technical environment.

Semiconductor devices have quadrupled in complexity in a single year, he said, demanding that manufacturers address this added capability or relinquish their markets to companies that will. Greatly speeded technological advances coupled with almost equally as rapid price reductions for solid states devices have created products envisioned only in science fiction as recently as 10 years ago, he said.

The electronics industry will see the birth of many new companies, he said, led by managers who thrive on change; who anticipate and welcome the possibilities created by advancing technology. Other companies, however, will fall victim to future shock brought about by the speed at which products will change because of the increasing capability of semiconductors, Mr. Corrigan said.

Marketing develops 'regional business center' organization

John Duffy, vice president - Marketing, described a new marketing organization at the national sales conference in April that is aimed at providing full scope coverage for Fairchild customers throughout the United States and Canada.

Based on a Regional Business Center concept with the regional sales managers responsible for directing all activity within their geographic areas, the organization has added a new dimension to Fairchild's sales efforts. In addition to the traditional methods of reaching customers through Fairchild field sales engineers and distributors, a network of manufacturers' representatives has been structured to extend existing sales efforts.

In explaining the new organization, Mr. Duffy said, "Because we are one of the largest semiconductor manufacturers in the world, we supposed that we had to have direct field sales personnel to call on all of our OEM customers. That is the way the big companies do business. Forgetting all organizational tradition, we set out to develop a marketing organization that would best serve Fairchild's interests. We came up with a three-pronged approach: factory direct sales made through Fairchild field engineers, direct sales made through manufacturers' representatives, and sales through distributors who warehouse our product.

"The most significant change in this organization," he said, "is the addition of manufacturers' representatives, independent companies located in all of our key market areas which were selected to represent Fairchild because of their knowledge of their markets. The addition of the representatives allows us to cover economically a portion of our marketplace that has never been adequately reached in the past—the small-to-medium sized customer. Because our major customers demand, justifiably, so much of the attention of our field sales representatives, this group of cus-

tomers has never received the service it deserves.

"Developing the organization of representatives required many months of interviews and negotiations," Mr. Duffy said. "Some of our representatives are long-established companies with many years of experience in the regions they cover; others have been formed recently with the Fairchild account providing the foundation of their business. In each region, we attempted to match the characteristics of the local markets to the representatives best suited to respond to the specific needs of that area. Though each of the marketing sections have clearly delineated sales responsibilities, there will be continuing dialogue and support exchanged between the three marketing functions with each assuming those assignments which match its capabilities.

"I believe that the new organization will offer all of our customers more efficient service and I am confident that our new manufacturers' representatives will resolve the deficiencies we have previously experienced in providing continuing, supportive attention to smaller companies which are semiconductor users.

The manufacturers' representatives named over the past six months to market the Fairchild line of semiconductor products in their respective areas are:

Cartwright & Bean, Inc.
Celtec Company
Magna Sales
Simpson Associates, Inc.
Lorac Sales, Inc.
WMM Associates, Inc.
Leslie M. Devoe Company
B. C. Electronic Sales, Inc.
L. D. Lowery
Spectrum Associates, Inc.
Rathsburg Associates
PSI Company
Components, Inc.
BGR Associates
Technical Marketing
Quadra Corporation
Votronics Limited (Canada)

Names in the news



Bowen



Wells

James D. Bowen and **George D. Wells** have been elected vice presidents of Fairchild Camera & Instrument Corporation, it was announced June 4 by Wilfred J. Corrigan, president and chief executive officer.

Jim Bowen is general manager of the Systems Technology Division, which manufactures test equipment for semiconductor components. George is general manager of the Discrete Products Group, which includes the Diode and Transistor Divisions.

Before joining Fairchild in 1974, Jim was vice president and general manager of the Electronics Division of Data Technology Corporation. Prior to that he was a division general manager for Dana Laboratories, Inc. He is a graduate of the University of Connecticut and holds an MSEE degree from the University of Delaware.

George has been with Fairchild since 1969. He has served as general manager of the Transistor Division and before that as general manager of the Diode Division. He holds an MS in nuclear physics from Glasgow University (Scotland).

George Urbani was named marketing manager for the Linear Products Division in April. Mr. Urbani was formerly with National Semiconductor Corporation where he held a similar post.

Barry Cox, formerly Digital Products Sales Manager with Texas Instruments Corporation, replaces Mr. Turriff as Digital Products Division Marketing Manager.

Lowell Turriff, formerly Digital Products Marketing Manager, was named marketing manager for the Bipolar Memory-ECL Products Division in April.

Richard Ribas has been named manager of product sales for the Systems Technology Division. Mr.

Ribas was formerly western area sales manager for that division.

Daniel Barbato joined Fairchild in March as manager of the South Portland, Maine, facility of the Digital Integrated Circuits Group. Mr. Barbato was formerly operations manager for all TTL wafer fabrication at Texas Instrument Corporation's Houston, Texas, bipolar facility.

Mercer Curtis, former manager of the Shiprock, New Mexico, plant has been named product planning director for the Marketing Division, reporting to John Duffy, vice president - general manager, Marketing Division.

On April 30, Mr. Corrigan announced the promotion of several company managers to the position of division vice presidents. Receiving the new Fairchild titles were: **William Baker**, general manager, Bipolar Memory Division; **Donald Brettner**, general manager, European Operations; **James Early**, director, Research and Development Laboratory; **E. C. (Bud) Frye**, general manager, Optoelectronics Division; **James Hazle**, general manager, Automotive Products Unit; **Richard Martin**, general manager, Diode Division; **Andrew Procassini**, marketing manager, Asia-Pacific Area; **Paul Reagan**, general manager, Digital Products Division; and **Douglas Sullivan**, general manager, Linear Integrated Circuits Division.

Carl Schleicher joined the Space and Defense Systems Division as marketing manager, RF Systems, reporting to Frank Ernandes, director of engineering for RF Systems. Mr. Schleicher was formerly business development manager of AIL Division of Cutler-Hammer.

Marvin Richman has been named advanced plans manager for Photo Systems, SDS, reporting to Ed Muehleck, director of engineering for that organization. Mr. Richman joins Fairchild after retiring from the U.S. Air Force as a lieutenant colonel. His most recent armed services assignment was as deputy director, exploitation and photography division for defense intelligence.

Rudy Underwood has been named plant services manager for Space and Defense Systems, reporting to John Berczuk, director of manufacturing and plant and engineering systems. Mr. Underwood was formerly facilities

engineering manager with Litcom Division of Litton Industries.

Reubin Feinberg joins the Electro-Optical Systems Unit of the Federal Systems Group as engineering director - electronic timing and control systems. He reports to Tom Palamenghi, director of Electro-Optical Systems. Mr. Feinberg was director of engineering for the former Fairchild Defense Products Division.

Arthur Heckler has been named Product Marketing Manager for RF Systems, reporting to Carl Schleicher, marketing manager of the organization. Mr. Heckler was formerly marketing manager, RF engineering, for the AIL Division of Cutler-Hammer.

Gerald A. Sweeney has been named director of security and safety for the Space and Defense Systems Division, reporting to Chris A. Lay, divisional vice president and division manager. Formerly manager of security for SDS, Mr. Sweeney is retired from the U.S. government where he served as special agent for the office of special investigations.

John Holmer has been named director of special programs, RF Systems International Marketing, reporting to Fred Schmidt, International Marketing Director, Federal Systems Group. Mr. Holmer was formerly director of marketing for Space and Defense Systems Division. Prior to that, he was director of contracts for the Kollsman Instrument Corporation.

Fairchild Awarded \$5.2 million U.S. Army contract

A \$5.2 million contract to supply electronic countermeasures equipment to the United States Army Electronics Command at Fort Monmouth, New Jersey, was awarded in May to the Space & Defense Systems Division.

The contract will have an immediate funding of \$2.5 million and will run for 23 months. Under the agreement, Fairchild is to provide eight all solid-state special purpose countermeasures sets. Included in each system is a solid-state, 1,500 watt transmitter.

Fairchild previously built 50 countermeasures sets for the Army under a contract awarded in 1966.

School's out

The sighs of relief as summer arrived could be heard in households throughout the world as students were unshackled from the routine of classroom and homework. This audible expression was echoed by Cliff Mohwinkel in early June as he accepted his Ph.D. in electrical engineering at ceremonies at the Polytechnic Institute of New York. Cliff juggled a full-time job as senior consulting engineer for the Space and Defense Systems Division with the demanding doctoral program. He was the only one of eight Ph.D. candidates working with his advisor to attempt this energy-sapping feat.

Though aided by Fairchild's program

which reimburses the costs of tuition, books and fees, and supported by fellow employees with typing, photography and graphics for his thesis, Cliff had only himself to depend upon for the unrelenting dedication and stamina which were demanded to accomplish his doctoral work within two years. Cliff's graduate studies, which centered around computer image processing, have a direct relationship to SDS's work in the development of CCD imaging products.

An after-hours student since he joined Fairchild in 1969, Cliff decided to pursue a Ph.D. in earnest in 1973. Looking back over the experience, he advises other potential Ph.D. candidates to consider a more manageable schedule than he set for himself. "I



Cliff Mohwinkel

couldn't take a leave of absence from my Fairchild projects to complete work toward my degree, so I attempted to manage both," he said. "Many times, I sacrificed sleep to meet my obligations."

As seen through your eyes

You'll be able to share the world as you see it with other Fairchild employees through **Horizons'** annual photo contest. Favorite photographs can earn cash prizes in the contest. Nine awards will be made. Photographs and slides clearly marked with your name and Fairchild location, may be entered in three categories: People, Scenic and Animals. Cash prizes of \$25, \$15, and \$10 will go to the photographers who submit the entries which are judged, by a panel of Fairchild professional artists and photographers, to be the most outstanding in each of the categories.

The contest is open to all employees except professional photographers. Send your entries to the Fairchild Employee Communications Office, 464 Ellis Street, Mountain View, Ca. 94040, mail station 20-2260. Deadline is August 15. Winners will be published in the September issue of HORIZONS.

All photographs will be returned following the judging.

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Fairchild HORIZONS

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Editor: Veronica Kane

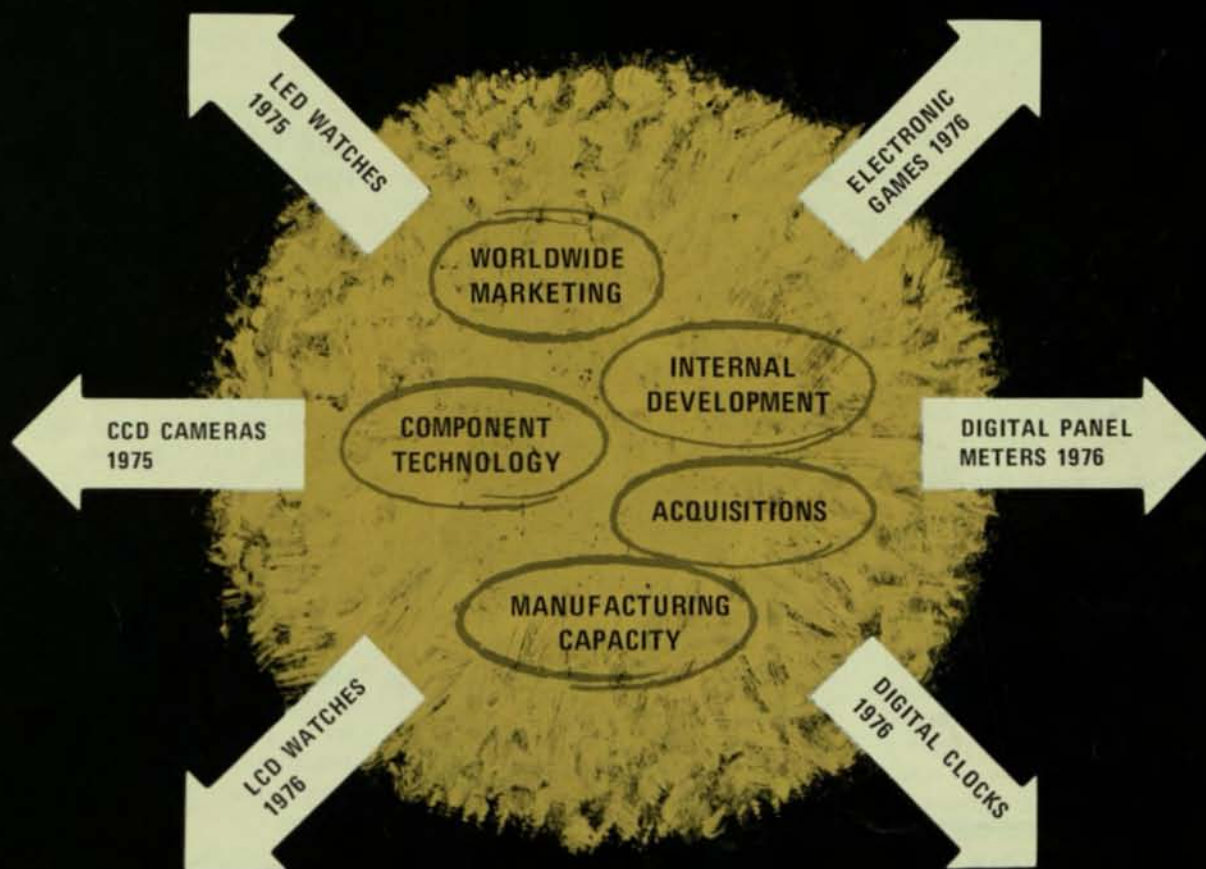


PRIZE-WINNING PROMOTION: Fairchild's sales promotion efforts were very apparent in the Industrial Graphics International 11th Annual Exhibit held in San Jose, California, in June. Brochures, promotion packets, and magazines designed by the Semiconductor graphics department claimed six awards, three firsts, one second and two fourths, in the four categories judged in the competition. Above, Marty Lindquist (left), art director; Roger LeJeunesse (center), graphics supervisor; and Al Neves, technical illustrator, visited their work during its exhibit at Eastridge Mall.

HORIZONS

FAIRCHILD CAMERA AND INSTRUMENT CORPORATION

MAY/JUNE, 1976



NEW DIRECTIONS FOR FAIRCHILD

Dear Editor:

Yes, Horizons is back and we'd like to hear what you have to say about it. What's your reaction to this issue and why? What regular departments and special features would you enjoy seeing? If response is sufficient, a regular "Letters to the Editor" column will appear beginning in our July/August issue. Sound off to the Editor, Horizons, Corporate Communications Department, 464 Ellis St., Mountain View, Ca. 94042.



On The Cover: Midway through 1976, Fairchild is changing. Depicted on the cover as sparks from a sunburst are six major new product lines introduced by the company within the past year. These exemplify Fairchild's transition from primarily a components supplier to a balanced electronics company. Essential to entry into some of these new markets has been Fairchild's corporate acquisitions program. For a look at this important corporate program and how it is changing our company, see page 6.

HORIZONS

Lyn Christenson
Editor

Horizons is published six times a year for the employees of Fairchild Camera and Instrument Corporation. Address all correspondence to Horizons, Corporate Communications Department, Fairchild Camera and Instrument Corporation, 464 Ellis St., Mountain View, Ca. 94042.

DR. HOGAN RECEIVES IEEE AWARD

The Institute of Electrical and Electronics Engineers (IEEE) awarded its 1975 Frederick Phillips Award earlier this month to Dr. C. Lester Hogan, Fairchild's Vice-Chairman of the Board. The award, one of the highest honors presented by the professional engineering society, was given to Dr. Hogan at Electro '76, the international IEEE convention in Boston.

Dr. Hogan received a gold medal, certificate and \$2000. The Phillips Award is presented annually in recognition of outstanding achievement in the electronics industry. The citation accompanying the award states Dr. Hogan's selection was based on his "outstanding accomplishments in the management of research and development resulting in important innovation in the semiconductor industry."

CONSUMER PRODUCTS INTRODUCE TWO DIGITAL WATCH LINES

The Timeband™ series of 16 LED (light-emitting diode) digital watches and an expanded Fairchild series of 18 watch models were introduced earlier this year by the Consumer Products Group.

Consumer acceptance of the new Timeband series has been excellent, with production quantities of the watches being shipped during the first quarter. Introduction of Timeband and Fairchild watches in the Japanese and European markets produced similar enthusiasm. Both lines were shown in late April at the Basel Trade Fair in Switzerland.

The Timeband series of men's and ladies' watches, priced from \$29.95 to \$54.95, feature five-function single button operation. Greg Reyes, vice president and general manager, Consumer Products, said, "We feel that the digital watch has been accepted as a reliable and accurate timekeeper and has created for itself a permanent and growing market. Our new Timeband series expands that market by offering an alternative to the mechanical watch at a new price level."

Also announced in early 1976 was an expanded Fairchild series of men's and ladies' electronic watches. The 1976 collection, priced from \$70 to \$195, has more than twice the number offered in 1975. The new models include watch styles ranging from classic to contemporary.

Both new watch lines feature single-button operation for hours, minutes, seconds, the month and date, and are capable of accuracy to within 60 seconds a year.

NEW POLYSILICON PLANT IN ARIZONA

Construction is underway at Chandler, Ariz. on a new industrial facility that will manufacture semiconductor-grade polycrystalline silicon (polysilicon), the basic building block for semiconductor products. The new plant will be operated by Great Western Silicon Corporation, a joint venture of Fairchild and Applied Materials, Inc., Santa Clara, Ca.

The facility, scheduled to begin operation next year, will occupy nine acres of a 38-acre site. Plant capacity is 330,000 pounds of polysilicon annually.

Polysilicon is the basic starting material from which semiconductor products - such as integrated circuits, transistors and diodes - are made. A single processed wafer (or slice) three inches in diameter and the thickness of a few sheets of paper can provide more than 1,000 semiconductor devices.

\$6.1 MILLION CONTRACT TO SPACE AND DEFENSE

The U.S. Army has awarded a \$6.1 million contract for production of electronic equipment to Fairchild's Space and Defense Systems Divisions, Syosset, N. Y.

Under the 36-month contract, Space and Defense will provide the Army with all-solid-state special purpose electronic systems. These products are insensitive to climatic changes and may be operated continuously at remote locations.

Fairchild Reports First Quarter Earnings

On April 27, Fairchild reported first quarter earnings of \$197,000, or 4 cents per share, compared to year-earlier earnings of \$3,255,000, or 62 cents per share, before the cumulative effect of an accounting change.

Total sales for the quarter rose 36 percent to \$94,624,000, from volume of \$69,757,000 the year before.

President Wilf Corrigan noted that "demand in major product and geographic area improved during the quarter. The growth was spurred by a stronger world economy, as well as Fairchild's increased penetration of consumer and industrial markets."

"As forecast earlier, profit margins came under severe pressure from low pricing on component orders received for delivery in the current period," he said. "We have addressed the problems which reduced profitability in the last two quarters, and anticipate improved earnings in the second quarter."

Wilf reported that pricing on component orders is firming, which should lead to higher profit margins for the balance of the year. "Our production problem in solid-state memories, previously reported, has been fully resolved. Memory shipments will reach new highs in the second quarter."

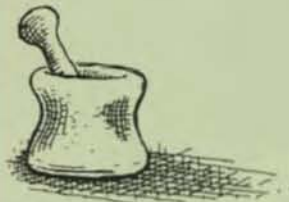
"Order backlog grew substantially in the first quarter after two years of recession," he said. "Significant gains took place in the components segment, with March bookings at their highest level in 24 months."

Fairchild's digital watch business continued to expand during the first quarter, and growth was also seen in the LSI (large-scale-integration) products, both bipolar and MOS (metal-oxide semiconductor). Sales of instrument systems declined slightly. The federal systems business also declined from the fourth quarter of last year, due to seasonal government procurement patterns.

"We believe 1976 will be a strong year for the solid-state electronics industry," Wilf said. "Fairchild's investment in new plant facilities during the past several

years has given the company the needed manufacturing capacity to respond to this upturn.

"Our technology strengths in such areas as solid-state memories and logic devices - combined with new ventures in digital timepieces and home video games - represent a major opportunity for corporate growth."



Prescription Drug Plan Begins June 1

Fairchild employees will benefit from savings on prescription drugs as the company introduces a new Prescription Drug Plan June 1. The Plan - which will provide benefits for any covered medicines prescribed by a licensed physician, chiropractor or dentist - is being administered by PAID Prescriptions, Inc., Burlingame, Ca.

All eligible employees will receive a plastic PAID Prescriptions Identification Card. To have a prescription filled for yourself or your covered dependents, present your card to any PAID participating pharmacy, complete the prescription benefit form the pharmacist gives you and pay the \$2.00 deductible fee. Regardless of the total cost, you pay only \$2.00 per prescription. The PAID Prescriptions Plan pays the rest to the participating pharmacist. This coverage also applies to refills.

Two out of every three pharmacies in the United States participate in the PAID program. If you are unable to find a participating pharmacy, see your Industrial Relations Manager for a complete listing of those in your area.

The Prescription Drug Plan covers most drugs requiring a prescription including insulin. It does not cover oral contraceptives, items such as aspirins or vitamins which may be sold without a prescription or non-prescription merchandise such as hypodermic syringes. Items refilled more than one year after the issuance of a prescription or in excess of the number of refills ordered by a doctor are not covered, nor are drugs included in a hospital bill. (Drugs administered as part of hospital treatment are covered under Fairchild's Comprehensive Medical/Dental Plan.)

All full and part-time employees not subject to collective bargaining agreements are eligible for the Prescription Drug Plan after one month of continuous service. If you are disabled and away from work, coverage will begin when you return.

If you have elected the Comprehensive Medical/Dental Dependents coverage, benefits also begin after one month if the dependent has been free of medical confinement for that entire period. All eligible Fairchild employees are automatically enrolled after a month of employment. To enroll your dependents, complete an Employee Benefit Authorization form within a month of their eligibility date. If you enroll your dependents in the Plan after the month's grace period has elapsed, you will be required to furnish proof of their good health at your expense.

The entire cost of the Prescription Drug Plan coverage, except the \$2.00 per prescription deductible, is paid by Fairchild. The company also pays most of the cost of your dependents' coverage as part of the Comprehensive Medical/Dental Plan.

Prescription benefits stop the day your service at Fairchild ends. If you are laid off, your coverage may be continued for a limited time in accordance with company policy.



Wilf Corrigan, Fairchild president, shares news of improved business prospects for 1976 with shareholders at the Annual Meeting in early May. Approximately 100 shareholders and guests attended the event at New York City's Pace University.

Fairchild President Wilfred J. Corrigan told the annual meeting of shareholders May 7 that company sales this year will exceed the previous record of \$385 million set in 1974.

Held at Pace University in New York City, the session covered corporate results for 1975 and provided a look at current directions of the corporation and the business outlook ahead.

Shareholders were told the deep recession in the semiconductor industry, which lasted for seven consecutive quarters, has now ended and Fairchild's business is continuing to gain strength on a worldwide basis.

"We anticipate higher earnings and sales in the second quarter," the Fairchild president said, "Although the fierce price competition last year caused earnings to fall, the sales momentum generated should produce record volume in 1976. It is probable that the current period will exceed the previous quarterly peak of \$105.8 million, achieved in the second quarter of 1974."

Wilf noted that our components business today is "shifting towards the high technology end of the product spectrum," and cited as examples our LSI (large scale integration) products -- including 4K MOS memories, PROMs, and our recently announced bipolar memory using injection logic."

Other advanced component thrusts are taking place in high-speed ECL devices and in the microprocessor field, in which "we at Fairchild intend to invest very heavily," he said.

Fairchild's entry into the consumer products business last year with a broad family of digital watches has been highly successful, he said. Since its first shipments last fall, Fairchild has become a major factor in this new field.

ADDRESS TO SHAREHOLDERS:



"Within the next month the company will bring to market a new line of watches utilizing continuous liquid crystal displays, to complement the Fairchild and Time-band™ series of light-emitting diode timepieces," he said.

"These moves into the consumer marketplace are part of our multi-pronged approach to building end-product businesses on the technology hub of our basic component expertise. We are already a major factor in components and we intend now to capitalize more fully on the end-product businesses which are less intensive in fixed assets."

Wilf discussed other areas of growing importance to Fairchild -- including semiconductor test systems, digital panel meters, audio visual projectors, and solid-state TV and electronic systems for the military market.

Reviewing the company's strong financial position, he noted that Fairchild has "come out of this recession a stronger and different company than when we went in. Our growth will now proceed on multiple fronts -- diversified by market and product, unified by the common thread of a solid-state technology."

"The short term problems we have experienced are diminishing. During the first quarter, component prices bottomed and are expected to improve steadily through the current period. Our manufacturing problems in solid-state memories have been fully resolved and our memory shipments will reach new highs in the second quarter."

Concluding his remarks, Wilf stated that "1975 was a year which tested our company. The hard work of Fairchild employees around the world enabled us to meet this test."

"Our investments over the past several years have given us the capacity to respond to the upturn now in progress. Our technology leadership in memories, logic and advanced analog circuitry -- combined with our efforts in consumer and industrial end-products -- give us an excellent platform for progress."



LCD Watches Among Major Introductions Planned, Fairchild President Tells Annual Meeting

1976 Annual Meeting
May 7, 1976
Pace University
New York, N.Y.

RECORD SALES EXPECTED IN 1976

Fairchild's Acquisitions: Toward Corporate Growth and Stability

an interview with Jim Unruh, Vice President,
Treasury and Corporate Planning

Until last year, few of us had ever heard of Exetron Corporation, Princeton Materials Sciences Inc., or Xincom Corporation. Today, they are integral parts of Fairchild, their assets having been purchased by the company in an effort to broaden Fairchild's product range and spur future growth. Other acquisitions are likely to occur in coming years.

To learn more about Fairchild's acquisitions programs, HORIZONS talked to James A. Unruh, vice president - treasury and corporate planning.

What would you say is the objective of our acquisitions program?

To understand that, we first have to go back and define what the objective of the company is. Fairchild's objective is to move from being primarily a components company to a balanced electronics company. This move will encourage growth while at the same time improving company stability.

The components business is extremely cyclical because you're at the end of the whip. You rarely sell semiconductor components at the rate they are consumed. When a customer's business declines, components orders are the first to be cut so that the customer can reduce his inventory. Conversely, when business is booming, a customer is usually building up inventories, so we'll actually sell him more than he's consuming. These extremes are difficult to manage, and we feel this situation has to be changed.

Our basic goal is to maximize the returns we realize from our investments in developing Fairchild technology and products. Remember that we're one of the largest suppliers of semiconductors in the world and one of the leaders in semiconductor technology. To achieve this, we've had to make a tremendous investment in dollars and expertise, and we need to take advantage of the results of this effort. We can do that with the right acquisitions.

What do you consider the right acquisitions?

Well, those that relate to our overall plan, which is to increase our capability of producing and marketing end products and systems.

The right acquisitions are those which are consistent with this overall company plan. In other words, those that move us along our predetermined path. They must provide a logical integration with our existing businesses since we don't want to become a conglomerate of individual unrelated activities, which could spell disaster. Some of our acquisitions of the early sixties were unsuccessful for this reason.

Does Fairchild expect to improve the return on the investments made in components development by getting more involved in the manufacture and sale of end-use products, such as watches?

That's exactly the point and there are two reasons for it. First, by selling the finished product, we can realize the full value inherent in our components. Fairchild's technology has made it possible for other companies to build and sell hundreds of products used for data processing, testing and measuring and many other applications. To some extent, we give away some of the value of our components when we sell them. After we've sold a component, there may be a lot of financial value left in it because the solid-state



"There is a revolution in the consumer marketplace . . . Fairchild plans to be part of it."

technology is helping to create the primary value of the customer's end product. He can mark up the product containing our component and realize a profit that perhaps we should have been realizing. By supplying more end products, we should be in a better position to realize the full value represented by our technology.



Secondly, getting into more end products can help even out and even reduce the impact of drops in demand for our components. Changes in the economy don't affect every business at the same time or to the same degree. One sector may be down while another is up. Down-turns in the consumer products market, for instance, average around 10 percent, versus 25 percent to 35 percent that we've experienced in components. Besides this, as we begin to build more and more end products of our own, we will create a built-in market for our components. All these factors should significantly dampen the effect of the semiconductor industry's up-and-down cycles.

Does that mean we're going to become a less important factor in the components industry?

Not at all. In fact, we are committed to the idea of Fairchild playing an even more important role in the semiconductor business in the future. After all, our semiconductor technology provides the basis for our strength. An important benefit of getting involved in the end-use markets is

that it generates resources to continue building on our base of components technology. In effect, the two businesses complement each other.

Why do we plan to acquire other companies to increase our development in systems or end-use markets? Couldn't we develop the resources we need internally to enter these businesses?

There's no simple answer to that because it depends on the kind of business we're talking about. First, we determine what is needed to get into a market we're interested in. Then, we determine what capabilities and resources we have, and what we need in that area. The final step is to decide how to obtain what we need, whether it's production capability, product technology, a marketing organization or a service structure. In many cases it may be necessary to acquire from the outside, because acquisitions can provide us the elements of timing and immediate critical size.

Could you explain those concepts?

It goes back to our original objective. If our major goal is to balance the company's business from a product line standpoint by adding end products to the components business, then acquisitions make sense in a number of cases. First, if you've selected a target market and have a particular gap either in technology or marketing, it might make sense to acquire a company that can bring those strengths to you immediately.

Sometimes, you make an acquisition just because of the timing requirements in the marketplace. Our purchase of Exetron is a good example of that. The digital watch market was moving so fast that had we not gone outside Fairchild for the assets we needed to go to market, we would have only been capable of limited Christmas season volume and would still be preparing for market.

The Exetron acquisition also illustrates the importance of critical size. Since they already had a volume components and module assembly capability, we had immediate cost and response advantages over our competition, which contributed significantly to our ability to gain market share.

Isn't there a danger of trying to make too many acquisitions too quickly?

Of course there is, and that's why a number of companies had trouble in the sixties. But their biggest problem was that they approached acquisitions as investments, rather than being concerned with the logical integration of the various businesses.

The difference is that our acquisition program is designed to lead us into areas that are a logical extension of our current business, with our semiconductor technology providing the common thread. While we're looking for end-product applications as a major way to balance the company, we don't want to go into businesses that have no relationship to semiconductor technology at all. Many companies have ignored this and become known as conglomerates. As I mentioned before, we don't want to become a conglomerate. We just want to broaden our product line, and by doing so increase stability and maximize growth in sales and earnings.



"Fairchild will be a more stable, more rewarding place to be . . ."

The other danger in making acquisitions too quickly is that management becomes over-extended and the process of assimilation is unsuccessful. We are very aware of this and make our plans accordingly.

Could you give us some idea of the kinds of markets we want to serve with systems and end products?

One of the major markets is consumer products, of course. We're already building a presence in the consumer market with our watches. People are becoming aware of the Fairchild name and associating it with high-quality products. And this is just the beginning. Electronic games for home television use are on the near horizon, and other products will follow.



Many consumer products are going to be changed drastically to incorporate the advantages offered by solid-state technology. It isn't an overstatement to say that there is an electronics revolution in the consumer marketplace, and Fairchild plans to be part of it. Many of the products of the future will require semiconductors to handle the technology requirements. The revolution we've seen in the design of watches and calculators is only a hint of things to come.

What kinds of sophisticated electronic products requiring semiconductor technology could become commonplace in homes in the next 20 years?

That is a difficult question because the possibilities seem endless. One area certainly will be the demand for very sophisticated home security-fire detection systems which will require semiconductor technology to provide the function well at low cost. I think the use of the home television set as a home entertainment and management vehicle will greatly increase in the near future. Except for a few hours a day, the TV sits largely unused in the majority of homes. It has great potential for use with electronic games, educational applications, home video-tape and, farther down the line, even as a shopping tool.

What other markets are we planning to enter?

Through Instrumentation Systems, we are already participating in the semiconductor testing business, and we expect to offer other kinds of test equipment and instruments, such as the already-introduced digital panel meters for use in industrial markets. In addition, we are analyzing the possibility of providing memories and terminal equipment for use in data processing applications. The uses and the markets for our technology are unlimited.

It's easy to envision tremendous market potential in the areas you're talking about, but other companies probably see the potentials as well as we do. Don't you think there's a danger in competing with companies that have a long history of serving the consumer market?

Not at all. What I'm referring to are specific kinds of products; products whose major content is, or could be, high technology electronics. The companies that will be successful in these markets will be the ones with the capability of designing and producing the displays, the memory

and the logic components at costs which make it possible to sell at the most attractive prices.

The watch industry is a good example of what can be done when you enter a market against old, entrenched companies. Often, these companies are committed to a traditional approach and form of technology, both financially and in their whole mental attitude, and they just can't make changes quickly. So a company like Fairchild, that isn't committed to the tradition, comes in with a new approach and takes market position away from the former leaders.

You're talking about changes that will make Fairchild a different kind of company, aren't you?

To some extent, yes. Again, it all starts with our components technology, and we will continue to grow and to profit from the areas in which we've been traditionally involved. But we also plan to generate growth in some new directions so that we can capitalize to an even greater extent on the value represented by Fairchild's current line of products.

What will this mean to Fairchild employees?

The factor that is really most important for employees and for everyone who is involved with Fairchild goes back to the earlier point about improving the return on our investments by expanding our business into the right areas. Every move we can make to increase the profit from our technology base translates directly into better and more stable job opportunities, increased return to shareholders and better products for our customers. Fairchild is going to be a more stable, more rewarding place to be because of the new directions we have taken.



Add-on ignition upgrades pre '75 car performance

Whether you're making the daily commute run or taking the family on a ski trip to the mountains, a growing concern to motorists these days is the performance, reliability and economy of the family car.

One key element is the ignition system. In 1975, all new cars were equipped with electronic ignitions to improve engine efficiency. Until recently, however, there was no simple, inexpensive way to upgrade the performance of pre-1975 cars.

The Automotive Unit of Fairchild's Products Division in Mountain View is now providing a selection of add-on electronic ignition systems that make it simple and economical to upgrade cars that have a lot of mileage left to go before trade-in, but which still are equipped with conventional ignitions.

Faced with rising maintenance costs, more and more car owners are doing their own tune-ups and minor repairs. The new add-on electronic ignitions are ideally suited for the weekend mechanic. If you're all thumbs, the add-on ignition can

be easily installed by any reliable service outlet, such as your corner gas station. Installation typically would cost \$10 to \$20. For the do-it-yourselfer, an electronic ignition conversion is no more difficult than a routine tune-up job.

The conversion to electronic ignition has several benefits. Primarily, electronic ignition provides a higher spark voltage and a longer "burn-time" for more complete combustion of the air-fuel mixture in the engine. Because the engine stays in tune longer, gas mileage is maintained at an optimum level and emissions are reduced. In addition, the higher voltage means easier starting and better engine performance at the low speeds encountered in city driving or in rush-hour traffic on the freeways.

Fairchild currently is marketing two types of add-on systems nationwide, according to Phil Pasho, Automotive Unit marketing manager. "We have been supplying complete ignition system modules to major automobile manufacturers for several years and customer reaction has been

very favorable. Since we introduced the first add-on system early in 1975, sales here in the San Francisco Bay Area have increased rapidly, indicating a favorable consumer reaction as well to this product concept.

That first system still uses conventional breaker points, but controls spark voltage and spark firing through a rugged, high-capacity solid-state module mounted inside the engine compartment. At the end of 1975, Fairchild introduced another type of system which completely eliminates the moving breaker points. The breakerless system further extends the maintenance interval and allows more precise control of engine performance since mechanical wear factors are removed from the system.

Fairchild shipped its first breakerless add-on systems to Krage Auto Supply, a San Jose-based chain of auto parts and accessories stores, in December, and has more than doubled production volume since the beginning of this year.

Both the first system and the new breakerless type are moving fast in retail outlets here according to Dana Marsh, buyer for Krage Auto Supply.

"Fairchild has a nearly universal ignition system," Marsh said. "The breaker point system fits virtually all cars, and only three models of the Fairchild breakerless system fit all 4, 6 and 8-cylinder cars. As a leader in the semiconductor industry, Fairchild also has an established reputation, and its products are priced very competitively."

"The add-on electronic systems can fit most 12-volt installations, and customers are buying them for trucks and boats, as well as cars and recreational vehicles," Marsh added.



Better gas mileage and less pollution are attracting car owners to Fairchild's add-on electronic ignition system. Automotive Unit marketing manager Phil Pasho, left, inspects a shipment of the systems with Jim Kelly, supervisor of test operations.



The F8™ FORMULATOR™ support system, shown above in a configuration including teletype equipment and a high-speed paper tape reader, is a design tool used in development of microcomputer-based systems from initial design through prototype development and testing. The FORMULATOR (inset below) is the system's central processing unit.

"The F/8 Is The Microprocessor To Beat In The Industry"

It's a big charter—develop customer acceptance for the F8™ microprocessor family in a highly competitive market, and build a base from which Fairchild can grow into a major supplier in the microprocessor business.

Facing this responsibility is the newly-formed Micro Systems Division. If customer interest is a valid indication, the new unit is starting on its way toward achieving those objectives.

"Potential customers expect continued improvement in their business this year. They are sorting out their microprocessor sources and starting to make technical and business decisions about which system to use," says Dave Hahn, general manager of the division.

"I think they're beginning to recognize what we've known for a long time. The F8 is the microprocessor to beat in the industry."

A major advantage of the F8 lies in its efficiency. The microprocessor itself consists of a large-scale integration (LSI) circuit that can be customized with a control program to solve a particular applications problem. "With it," according to Dave, "we have been able to accomplish with a two-chip set what other products

are using several chips to do. Therefore we've been able to open up markets not previously available because of our reduced system cost and size."

But market interest doesn't translate into immediate sales. "We have to begin selling now, in order to realize a return in six to nine months. There's a long incubation period. The most time consuming job is to get users to select and design the F8 microprocessor into their systems, before volume production starts.

"To make that sale," Dave says, "we have to convey a concept of total support—applications, documentation, software and hardware."

A key element of that concept is Fairchild's F8 FORMULATOR™ support system, the system that allows the customer to generate his software and operate his system directly.

"The total system approach gives us the opportunity to offer the market a superior product along with the tools needed to develop the software for use in a customer's system."

"With this approach, we go to market with a great deal of flexibility. We can offer a microprocessor along with its developmental system or we can sell the FORMULATOR support system as a powerful microcomputer, available either in an assembled form or an unbundled

*Dave Hahn,
general manager,
Micro Systems Division*



form with separate printed circuit cards that can go directly into the customer's end system. This saves the customer the printed circuit design step for small quantity production runs."

Dave notes that in the near future the FORMULATOR also can be sold for use as an instrument controller, compatible with the IEEE Standard Instrument Bus (a definition of the electronic characteristics of a set of 16 wires), in a wide range of applications.

"Our ultimate objective is to carve out a substantial place for Fairchild in the total market for microprocessors and related end products and systems. We've tried to prepare for that kind of a future by the way we have structured the division."

"We want to be in a position to accomplish a number of tasks. One of those jobs is to continue developing microprocessor technology so we can become a leader in the industry and maintain that position. We also need to continue uncovering ways in which that microprocessor technology can be used. And there's a big job that goes on in between; taking the technology and making it apply to those uses.

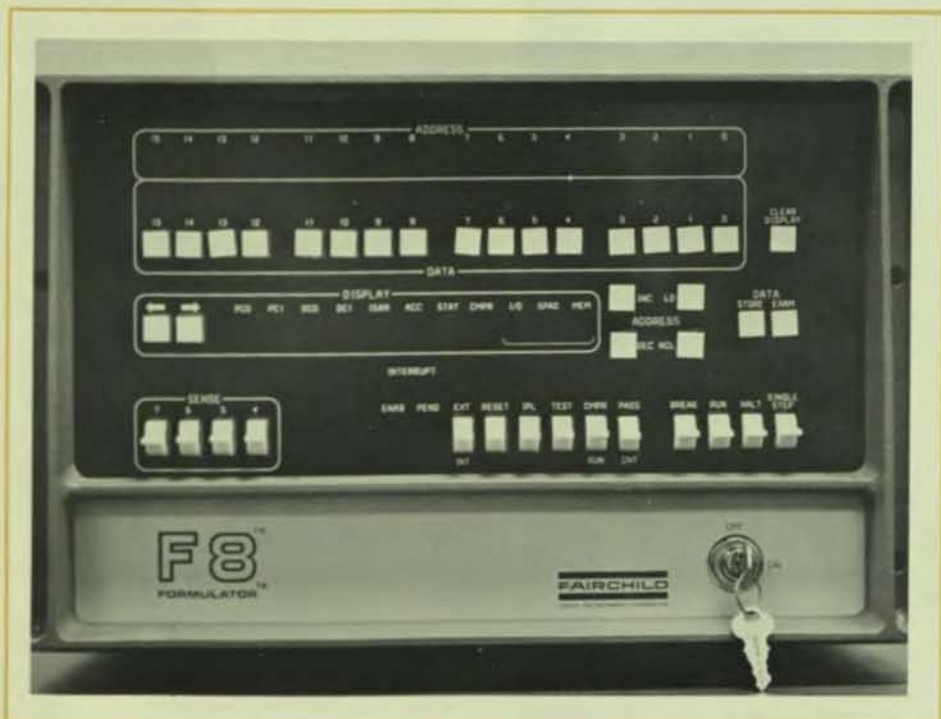
"In essence, this calls for organizational capabilities that cover not only components but products and systems as well in the areas of design, development, marketing, sales, manufacturing and field support; two separate businesses that complement each other in order to be successful."

"An important feature of our organization," Dave says, "is that systems engineering and components engineering are set up to work with marketing on the job of developing new uses for our component and systems technology."

"Our intent is to go beyond the most obvious customers and into new markets made possible by the F8 chip set. The semiconductor sales organization can help us uncover areas of market potential, then Micro Systems people can add the design support tools and applications know-how required by the sales force to make the ultimate sale."

"Right now we're seeing the beginning of a trend toward adoption of microprocessors and related products and systems to perform a multiplicity of tasks throughout industry, not to mention the consumer area."

"Our job is to make an important place in that business for Fairchild."



Opening Doors To The Handicapped



fairchild's

Climbing a stairway. Hardly given a thought by most of us. Just put one foot in front of the other. But to a person whose legs are the wheels on a wheelchair, a stairway can be a very real barrier to getting a job.

Last year, in cooperation with new federal and state plans, Fairchild launched a Handicapped Employment Program designed to both ease access to jobs for current company employees with handicaps and actively recruit qualified new employees who happen to be physically or mentally disabled. The program is designed to assist people who have not been part of the work force because physical or mental limitations interfere with their ability to be employed.

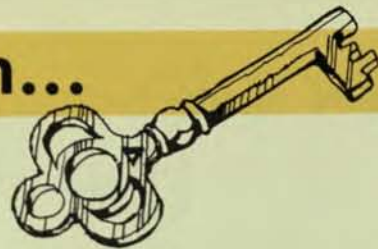
Coordinator of the program is John Wyatt, corporate manager of equal opportunity programs. He is assisted by equal employment opportunity program specialist Tat Blesch.

"A person with no restrictions on his ability to move around doesn't often think about what kind of a barrier a step is to someone with an immobilized leg," John says. "Probably the closest we can come to that frustrated feeling is if we must try to negotiate stairs with a broken leg."

Programs specifically identifying employees with physical and mental handicaps are a fairly new addition to the equal employment opportunity spectrum. Until very recently, industry had not considered handicapped employees as a separate group with specific problems barring them from equal access to employment opportunities. Jobs had been limited by physical building features, such as lack of elevators, lack of special training programs for the mentally disabled, lack of necessary lighting and braille equipment for those blind or partially sighted. If, because of a disability, an otherwise qualified applicant couldn't climb stairs, read instructions or even squeeze through a narrow front door, he was often disqualified.

Coordinating the company's Handicapped Employment Program are Tat Blesch, left, equal employment opportunity program specialist and John Wyatt, corporate manager of equal opportunity programs.

handicapped employment program...



"In 1975," John recalls, "new federal and state laws were enacted in an effort to persuade employers, especially those holding government contracts, to make accommodations for the handicapped. This is a very reasonable approach, I think, because our tax dollars are being spent to pay for products produced through these government contracts. If these efforts weren't made to provide employment opportunities for the handicapped, some might end up on the welfare rolls, costing us a lot more. These people want to be productive employees, so it makes good financial sense to help them."

Even before enactment of laws encouraging assistance to the handicapped, and establishment of a formal program, Fairchild was active in the employment of rehabilitated mentally handicapped people. "Fairchild has done a tremendous job in helping handicapped people become part of our work force," John says. "In 1971 and 1974 we received national awards from President's Committee on Employment of the Handicapped and the Mental Health Association in recognition for our work in employing and promoting people with mental disabilities. On the basis of our continuing efforts with the mentally handicapped, we have also been progressive in accommodating employees with physical disabilities.

"For instance, at our Palo Alto, Ca. facility, an employee who became disabled was confined to a wheelchair and needed access to a building not designed for wheelchairs. So we put in a ramp at an entrance so he could continue to work. It was a small thing, but it meant he could continue to perform his job.

"In one of our East Coast plants, a blind worker was brought in through the Institute for the Blind for an initial three-week training period to see if she could adapt to an open job. With a little training and some special equipment, she adjusted quickly and was brought in as a full-time employee. Over the years I've seen a number of people with disabilities ranging from minor to severe able to begin or continue in their jobs with reasonable accommodations provided by Fairchild."

The Handicapped Employment Program directly affects construction of new Fairchild facilities, according to John. "In addition to our own routine accommodations, there are building codes and standards built right into federal guidelines on equal employment opportunities for the handicapped. Our Instrumentation Systems building is a good example of new building regulations. It has wheelchair ramps at one entrance, as well as elevators, wide doors and specially-equipped restrooms to accommodate wheelchairs."

"As necessary, we're modifying existing buildings. These modifications are almost always simple things, like adding handicapped parking spaces near the building, but they can be crucial to a disabled person. For instance, since a person confined to a wheelchair isn't able to use a drinking fountain at normal height, we provide a cup dispenser within reach."

Both internal communication and external advertising are being used to inform current and potential employees about the Fairchild Handicapped Employees Program. Internally, a company policy statement signed by Wilf Corrigan, president, states that handicapped people along with others will be provided reasonable accommodations and that their qualifications for a job will be examined as would those of a nondisabled person. "If a person can be expected to do a job successfully, that person should not be denied the job because of a handicap," Tat says. Statements and posters explaining this policy have been circulated to all Fairchild facilities.

Tat and John will soon be surveying all Fairchild facilities to determine the percentage of Fairchild employees who do suffer from a disability. "The surveys will be distributed to all of our facilities, and handicapped employees may respond on a voluntary basis," Tat says. "The information we learn from the survey will be kept confidential, and will not be used for determining promotions. It will be strictly for purposes of statistical tracking, so we know what percentage of our work force is handicapped and what the specific handicaps are."

Handicapped employees who feel their disability is interfering with their performance or progress at Fairchild may get assistance from John and Tat at corporate headquarters. "We're interested in hearing from employees who have difficulties of any sort, particularly those who are handicapped. In the past, we have always been able to resolve these problems and we hope this will continue. Our office is a place for people to work out solutions."



people on the move



WAYNE PITTENGER has been promoted to director of manufacturing for the Systems Technology Division of the Instrumentation Systems Group. He joined Fairchild in 1973 as manager of materials for the Systems Technology Division, and has served as division manufacturing manager since 1975 . . . PHILIP PASHO has been named automotive unit marketing manager in the Analog Products Division. Phil has been in consumer and industrial marketing positions with Fairchild since 1970, and was involved in marketing efforts that led to the company's entry into the automotive ignition system market in 1972. Most recently, Phil was marketing manager for the company's Digital Products Division . . . WALLACE THOMAS has joined Fairchild as director of taxes. Wally comes to the company after ten years with Ford Motor Company in a number of tax management positions. Before that he served with the Office of the Chief Counsel, Internal Revenue Service . . . JAMES HEFFERNAN has been promoted to director of components finance. In his new position, he will be responsible for financial control of all the

company's semiconductor component operations. Jim joined Fairchild in 1974 as director of financial planning and analysis. Since May 1975, he has served as controller for the Discrete Group . . . RICHARD SKOWLUND has been named field sales manager for Fairchild's Consumer Products Group. He joined the company in 1975 and most recently was Northeast regional sales manager . . . DEAN FITCH has been appointed special markets sales manager for the company's Consumer Products Group. He comes to Fairchild from International Signal and Control Corporation, where he was director of consumer marketing. He will have responsibility for sale of Fairchild watch lines in such markets as the military, direct mail and college bookstores . . . SIEGFRIED MACK has been named general manager, Central European operations for Fairchild's electronic components business. In his new position, he will be responsible for all activities in West Germany, Switzerland, Benelux countries, Austria, and the East Bloc, Israel and South Africa . . . Space and Defense Systems Division has promoted CARL SCHLEICHER to RF systems marketing director from his previous position as marketing manager. The Division has also named PATRICK MCNELIS director of marketing for Electronic Data Systems. In addition to his new responsibility, he will continue as program manager for the secure communications program . . . DONALD WINSTEAD has been named director for the Micro Systems Division of the Instrumentation Systems Group. Key functions reporting to Don will be product marketing and technical marketing services. Before joining Fairchild in his new position, Don was director of marketing and manager of new business development for the Systems Division of Monolithic Memories.

close



Field personnel at the recent sales meeting heard presentations by marketing managers including Jack Ordway, director of domestic sales (top right) and were entertained by a Bicentennial tribute by some of their own (above), a tiger from Marine World/Africa USA and a Scottish dance presentation by bagpiper Will Alexander and Carol Wells, daughter of Components Group Vice-president and General Manager George Wells (below).

Field Managers' Sales Meeting

"Keep Up That Fairchild Spirit - '76!" That was the message of the 1976 Field Managers' Meeting, held during the first week in April. Semiconductor operations area sales managers, regional sales managers and distributor sales managers from throughout the country gathered at Rickey's Hyatt House in Palo Alto for a review of recent company and industry performance and a preview of upcoming products and business trends.

A Bicentennial theme characterized the meeting, which was highlighted by dinner speakers throughout the week-long session. Jack Ordway, director of domestic sales, characterized the meeting as "the most constructive working session ever between field sales and the divisional and corporate marketing groups. The dialogue between the field and factory was excellent. Everyone went away with a real feeling of accomplishment." Optimism was further encouraged by the improving business outlook which resulted in March bookings that were the highest in two years.

up People in Pictures



Bill Strickland, Industrial Relations Manager for Instrumentation Systems, welcomes visiting high school students to the April Open House (above). The student VIP's saw manufacturing areas, got a little "hands-on" experience (middle below) and wound up the day at a rooftop barbecue and volleyball game.



Systems Open House

Sixty high school students learned about their parents' jobs first-hand in April at a new kind of open house at Fairchild's Instrumentation Systems facility in San Jose. Organized by the System's Industrial Relations department, the open house featured a brief orientation on Fairchild and the products produced by the Group, followed by plant tours and individual parent/child job orientation sessions. The weatherman scheduled a break in the unseasonably cold weather which had been sending shivers throughout the Bay Area, allowing an outdoor barbecue and volleyball game which successfully concluded the day's events.



When business improves, that's good. But when that improvement translates into a need to ship twice as many units as your department shipped just three months ago, you may have a problem.

That's just where Paul Harrison, production manager for ECL Manufacturing, Bipolar Memory and ECL Products Division, found himself this past March - twice as much business as he'd anticipated and half the staff he needed to meet the goal. He especially needed help in the Test and Finish area, which takes assembled logic circuits and electrically tests and packages them for shipment to the customer.

He solved his problem with Hope-Hope Rehabilitation Services in San Jose, Ca., near Fairchild corporate headquarters. A United Way agency, Hope provides special education for developmentally handicapped children and offers mentally and physically disabled adults vocational guidance and job skills training.



Paul Harrison, Manager of ECL Manufacturing, demonstrates finishing procedures to Cathy Provence, left and Evelyn Marines from Hope Rehabilitation Services.



Mike Hancock, coordinator of the Hope Workshop Without Walls program, inspects a tray of assembled logic circuits with Hope student Sue Bartoschek.

"The business picture had improved dramatically since we made our original forecast of units to be shipped last December," Paul recalls. "When we were asked to double our output in March, we started searching for enough people to move this tremendous volume of parts. Our personnel department had had very good luck with Hope people and recommended we call them.

"I contacted Mike Hancock, coordinator of the Hope Workshop Without Walls program which places Hope people in local industry. He selected four people he thought could do the job for us and they started working right away. We actually shipped more units than targeted for March, and I think this was largely due to their efforts. Without their help, we wouldn't have been able to make it."

The Hope Workshop program teaches job skills and gives vocational guidance to developmentally and physically handicapped adults in five vocational rehabilitation centers. Hope people acquire skills working on jobs sub-contracted to Hope workshops by local companies, and are then temporarily placed with area industries prior to placement in permanent jobs.



Dan Johnson, Test and Finish supervisor, gets a progress report on the day's work from Hope's Linda Winston.

"Our Workshop Without Walls program benefits both local industry and Hope," according to coordinator Mike Hancock. "Hope's temporary hiring service provides local industry with qualified people right when they're needed while at the same time providing a training ground for Hope Workshop people prior to permanent placement." The Workshop Without Walls program has extended into the local business community for the past eight years, annually placing approximately 40 Hope people in temporary and permanent jobs.

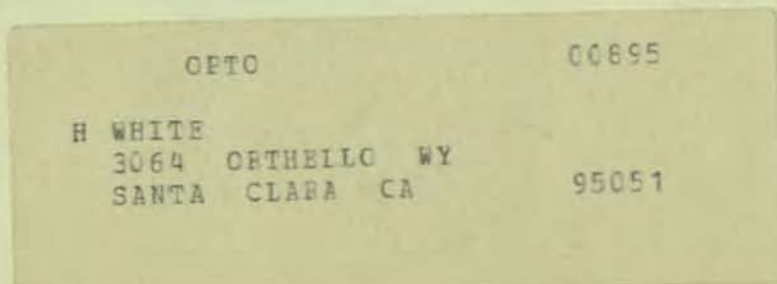
There will be a place for them in Paul's department for some time to come. "We plan to keep them with us for the foreseeable future," he says. "They're really doing a fantastic job!"

ya' gotta have hope

FAIRCHILD
CAMERA AND INSTRUMENT
CORPORATION

Fairchild Camera and
Instrument Corporation
464 Ellis Street
Mountain View, Ca. 94042

HORIZONS MAY/JUNE 1976

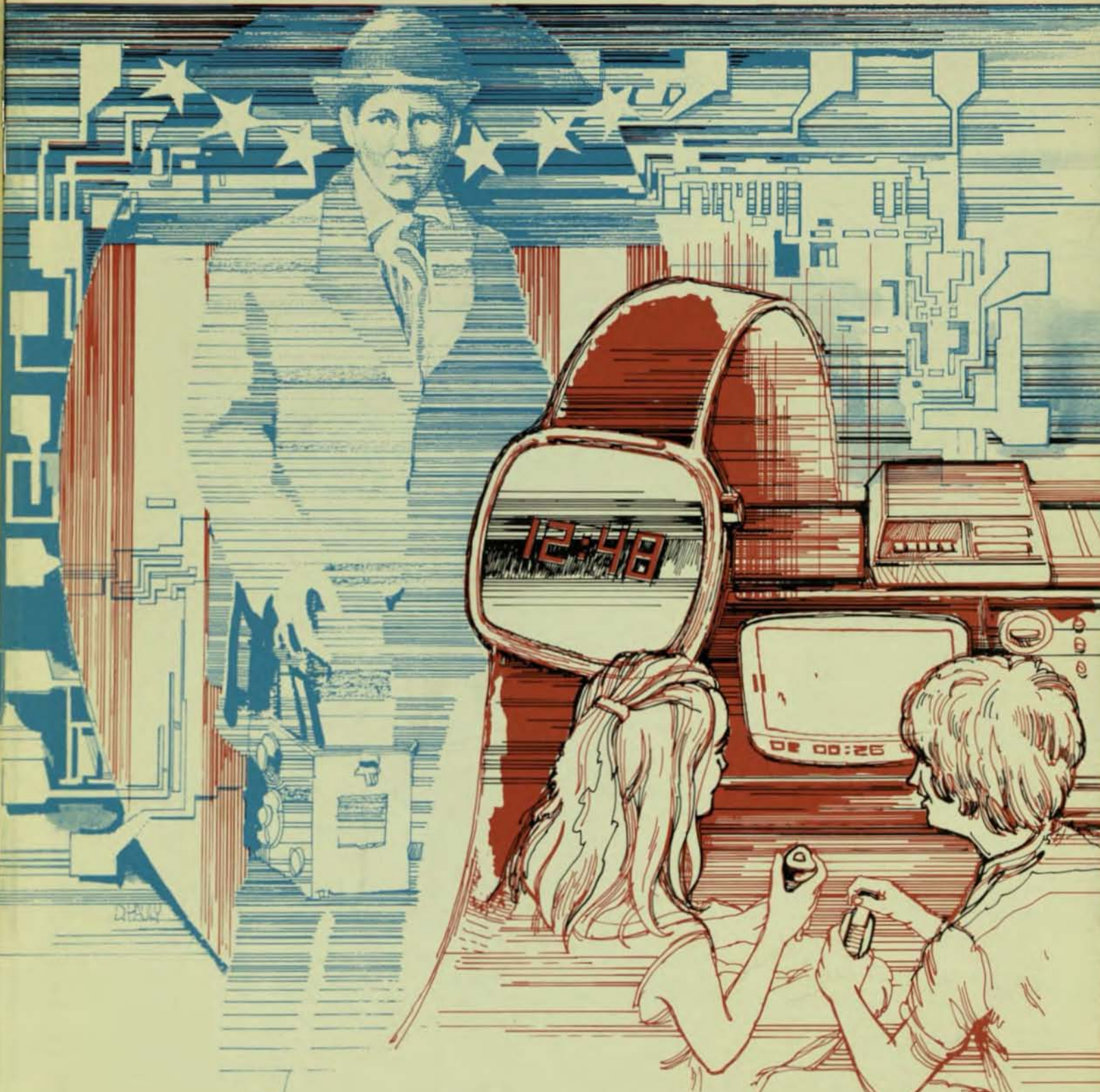


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HORIZONS

FAIRCHILD CAMERA AND INSTRUMENT CORPORATION



JULY/AUGUST, 1976

Winning the Second Revolution

HORIZONS



On The Cover: Fairchild innovations span nearly half a century over a background montage of an integrated circuit chip and the stars and stripes. Centerstage is founder Sherman Mills Fairchild holding one of his earliest cameras. At the right are a 1976 Fairchild watch and the home video game, products of an exploding technological movement electronics industry experts have called the second industrial revolution. This issue of *Horizons* shows Fairchild people at work helping win that revolution.

ABOUT THIS ISSUE . . .

The spirit of our country's 200th birthday isn't really plates of red, white and blue noodles or cement mixers decked out in the stars and stripes—it's the "yes, we can" American spirit that produced the light bulb, the telephone and the first successful airplane—ideas that changed life around the world.

That spirit also shows at Fairchild. Products and ideas that are now helping cause the "second industrial revolution" started right here. And every year, the Fairchild name goes on products that become industry leaders.

In this issue, we're displaying that spirit at work. It's at work in the just-introduced TV game that brought standing-room-only crowds to the Fairchild booth at the recent Consumer Electronics Show. It's at work in the products supplying the exploding market for Citizens Band radios. It's at work in an innovative approach to sales that's taking some of the company to the customer's front door. And it's at work in corporate Research and Development, where today's intangible idea becomes tomorrow's state-of-the-art product introduction.

A revolution is perhaps not the easiest of times to live through, but it offers more opportunities for excellence than any other.

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NEWSCLIPS

FAIRCHILD STEALS THE SHOW

The star attractions at the June Consumer Electronics Show in Chicago came from Fairchild's Consumer Products Group. Unveiling of the Video Entertainment System—the first home television game to use replaceable cartridges—kept constant crowds around the Fairchild booth, as did introductions of digital clocks and the company's first line of LCD watches. For the CES story, see page 10.

SYSTEMS TECH 120-PIN TEST SYSTEM INTRODUCED

Boston's Electro '76 Show was the site for the announcement of Systems Technology Division's computer-controlled 120-pin semiconductor test system. Called the Sentry IV, the system will test high-complexity LSI devices such as microprocessors, calculators and high-density memories. The capabilities of the Sentry IV, which include ability to test up to 120 pins at speeds up to 10 MHz, have never before been combined in a computer-controlled system.

XINCOM III ORDERS TOP \$900,000

Xincom Systems Division announced in late June that it had received more than \$900,000 in initial orders for its recently-announced Xincom III semiconductor memory test system. Unveiled in May at the Semicon West '76 Show in San Mateo, Calif., the Xincom III is a computer-controlled memory and test system for production and engineering. Xincom pioneered the distributed memory test system in 1975 and is now introducing a total system with software and hardware architecture which allows true multi-task operation. Early installations of several testers have been made.

SEMICONDUCTOR AGREEMENT SIGNED WITH HUNGARIAN FIRM

Fairchild has signed an agreement with United Incandescent Lamp and Electrical Company (Tungfram for short), Budapest, Hungary, to supply technological expertise used by Fairchild to assemble semiconductor circuits. Packaged circuits will be assembled from bipolar semiconductor chips supplied by Fairchild. The U. S. Department of Commerce has issued a license for export of the technology and related equipment, and the agreement has been approved by the Hungarian government.

BREAKERLESS IGNITION SYSTEM FOR FOUR CYLINDER ENGINES ANNOUNCED

A new solid-state breakerless electronic ignition system designed for use with four-cylinder engines was announced in June by Automotive Products. The E-400 system replaces conventional breaker-points, thereby improving gas mileage, extending time between ignition system maintenance and offering better starting performance.

SUPPLEMENTAL LIFE INSURANCE COVERAGE INCREASED

Effective July 1, new full-time Fairchild employees may purchase additional life insurance through the company in an amount equal to one and one-half times annual base salary. (Base salary does not include overtime, bonuses, etc.) The coverage of those already enrolled in the Supplemental Life plan was automatically increased.

Cost is 5¢ per week or 11¢ semi-monthly, per \$1000 of insurance. The maximum amount of additional coverage available is \$200,000. Previously, Supplemental Life was available in an amount equal to base salary, at a cost of 7¢ per week or 15¢ semi-monthly. You become eligible for Supplemental Life after one month of service. You may enroll anytime during your first month at Fairchild, or, during a 31-day grace period following completion of one month's service. If you enroll after this grace period has elapsed, you will be required to furnish proof of your good health at your own expense.

Tiny Fairchild Products Play **Big Role**

Pathcom Takes Citizen Band World By The Ears

If you're movin' on the super slab with your hammer down, throwing threes to your good buddies, you probably know all about PACE CB radios. After all, as their ads say, PACE has the world by the ears. And Pathcom, Inc., Harbor City, Ca., the manufacturer of PACE radios, has the CB market by the tail . . . with sales that went from \$14 million in 1974 to \$52 million in 1975.

Pathcom's is a phenomenal success story, one in which some of Fairchild's tiniest products have played a big part. By the time even the most compact PACE radio is assembled, it contains some 600 different elements, many of them supplied by Fairchild. Voltage regulators from the Analog Products Division and a variety of transistors from our Transistor Division insure quality performance to PACE customers. In addition to supplying the domestic manufacturers, Fairchild also supplies components to the large Japanese CB market through TDK-Fairchild, a joint venture company located in Tokyo.

CB radios have become the hottest electronic products since pocket calculators. U.S. and Japanese manufacturers of CB two-way sending and receiving units called transceivers are expecting to add 8 million CB sets this year to the 10 million already in use. Imports alone during the first quarter of this year nearly equaled imports during all of 1975. Sales between 1973 and 1975 quadrupled to \$600 million and will probably top \$1 billion next year. Consumer demand for the automobile and home-based units is so strong that industry observers foresee a market for more than 100 million units annually over the next decade.

More than 30 models of PACE CB radios have produced a year of dazzling sales figures for manufacturer Pathcom, Inc.



Twenty-three radio channels for CB were opened up in 1958 by the Federal Communications Commission, but until 1973 only a smattering of people had ever heard of Citizens Band radio. That year, television showed truckers blocking highways during the nationwide truckers' strike and warning each other about police traps. CB utility was further emphasized during the 1974 fuel crisis, as truckers traded information about road conditions, available fuel supplies and speed traps set up to enforce the new slower speed limit.

As a major components supplier to the worldwide CB market, Fairchild is responding to this surge in consumer demand with increased components shipments and upcoming state-of-the-art product introductions designed to decrease both the necessary parts and the cost of CB sets.

Fairchild's ability to meet the demands of a growing industry with innovative semiconductor technology is one of the reasons that Pathcom uses over 25 million Fairchild parts a year.

Ray Edwards, Pathcom's chief engineer, said, "We judge components on three things: price, performance and delivery. Fairchild does a great job in all three areas. And, just as importantly, they do their homework. Our products have critical tolerance requirements. Fairchild's products are designed to meet those requirements and our high standards."

Bob Bussard, purchasing manager, added, "Pathcom's success is due to our emphasis on quality, reliability and our warranty. We say that our quality is built-



Ray Edwards, Pathcom's chief engineer, points out one of the 25 million Fairchild parts used annually in PACE CB radios.

in, so I guess much of our reputation can be attributed to Fairchild quality."

Fairchild's Analog Products Division supplies more voltage regulators to the CB market than any other company in the world. These three-terminal regulators, which were invented here at Fairchild, maintain a constant source of voltage through the radio, providing a uniform transmission.

Currently under development in the Bipolar Memory Division is a frequency synthesizer which should reduce the cost of CB systems and boost production capabilities by decreasing the need for hard-to-get quartz radio crystals. Synthesizers can digitally generate frequencies which were previously generated by crystals. Where a normal 23-channel transceiver used to require 14 crystals to generate enough channel frequencies, frequency synthesizers have reduced necessary crystals to three. By year's end, Bipolar plans to introduce a single LSI frequency synthesizer that will require only one crystal. The synthesizer, a fairly new device, will become even more important to CB manufacturers if the Federal Communications Commission, which regulates CB activities, expands the number of CB channels to 50 as it is expected to late this year.

The output signal is processed and controlled by transistors supplied by the Transistor Division. Radio and transmitter outputs are made possible by RF output and driver transistors, while small signal transistors produce, amplify and mix the ultimate signal.

Building in PACE quality takes place in Pathcom's 235,000 sq. ft. Harbor City manufacturing facility near Los Angeles . . . the only complete design and production facility serving the CB radio industry in the United States. Here, over 1,000 employees assemble CB radios from the printed circuit up. With painstaking concentration, operators memorize completed circuit boards, then repeat the intricate patterns on new boards, carefully inserting tiny electronic components that are difficult to see, much less handle.

Finished circuits are then placed in radio cases along with other elements such as crystals, speakers, transformers and switches. Finished radios, complete with microphones, are then thoroughly tested before packing and shipment.

Each PACE radio is put through its paces in a special testing booth where operators go through each channel, checking sensitivity and making sure each crystal is receiving and transmitting properly. This final test comes after three intermediate on-line checks and "the ultimate jiggle." For a few jolting moments, each radio must endure a vibration machine which simulates a car on its way to get new shocks . . . or a semi taking a shortcut through a cow pasture.

After passing all its tests, the new PACE CB is ready to add one more to the country's 10 million CB units. . . to be



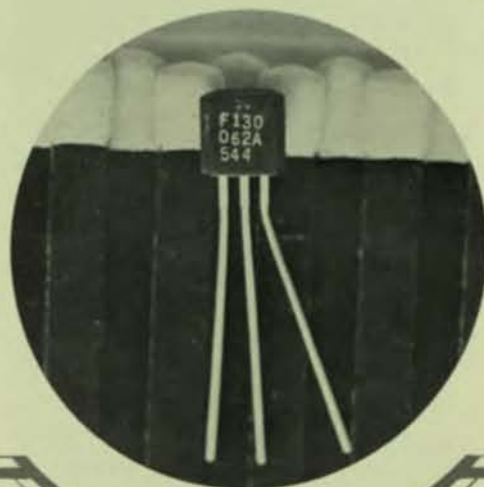
Kathy Bidner, wafer sorter in Analog Products Division, checks a wafer containing integrated circuit chips destined for Fairchild's voltage regulators.

used by a farmer in Iowa, a New York taxi driver, a Smokey Bear in Indiana or maybe Pasadena's famous little old lady.

It seems that everybody is tuned into CB these days. But is it just a craze destined for the obscurity of hula hoops and pet rocks? The Pathcom people say no. They believe CB is here to stay and they'll bet their bottom line on it. And who can dispute them, considering that out of the 100 million passenger vehicles, 30 million trucks and 5 million recreational vehicles in the country, only 5 percent now have CB radios. That leaves a lot of room for growth, without even mentioning the expanding CB markets for boats, planes, farm vehicles and small businesses.

We'll be hearing more from Pathcom. And, while they may not be able to see all those tiny parts, folks all over the world will hear a little bit of Fairchild every time they put their PACE ears on.

And that's a big 10-4.



Tiny Fairchild transistors like this play a big part in Pathcom's reputation for quality and reliability.

Modulating wall to wall and treetop tall behind a pregnant roller skate,
or...what happened when CB came into my life

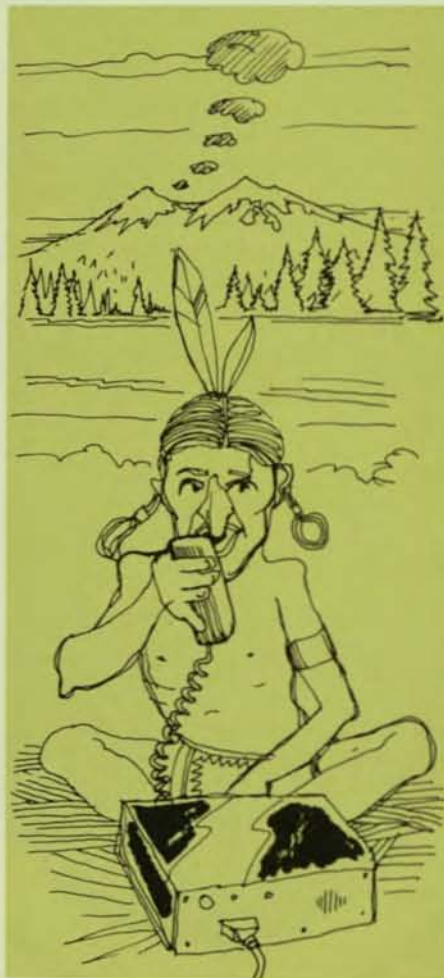
Chicago traffic jams, according to those negotiating them every day, are some of the worst anywhere. On especially bad days it has taken Rich Sobchinsky, Systems Technology Division Central Area sales manager, up to 5 hours to make the trip from his home to his office in suburban Chicago. Under normal conditions it takes over an hour—or at least, it did until Rich began driving by Citizens Band radio. Tuning in to the unofficial traffic reports over the “trucker’s channel” every morning, he plans his route around tie-ups and cuts his commute in half.



Rich Sobchinsky, Central Area sales manager, Systems Technology Division.
Rich's CB handle: Jersey Devil

Rich's experience is probably typical of those of hundreds of Fairchilders now hooked on CB. A quick glance around any company parking lot attests to the CB boom—the tall, trunk-mounted antennas are everywhere. And whether the CBER is a new convert or an old hand (CB's been around for nearly 20 years), most agree on three things: the CB can be a lifesaver in emergencies, the airways are too crowded and it might have saved them a traffic ticket or two.

Fairchild CB Owners Talk About Their New Best Friend



Al Willis, security guard, Palo Alto. Also known as Jive Turkey

CBers will go out of their way to help someone in trouble, says Al Willis, security guard at Fairchild's Palo Alto Facility. Al proved this widespread “unwritten law” himself to two auto accident victims last winter during an extremely rare snowfall in the San Francisco Bay Area. “I had just installed my radio,” Al recalls. “I was driving down an expressway near our plant and two cars skidded on the slippery street and collided, pinning one guy in the car. I put out a call on emergency channel 9, and the police arrived within five minutes.”

Dick Ribas wasn't even driving his car when he called in an accident one night. “I was working in my garage when I heard an accident report come over the radio, so I called the police,” he said. Dick, director of sales for Systems Technology Division, got his CB set as a gift and has found he uses it most on weekend waterskiing trips.

“Copying the mail”—listening to the open CB channel—is a welcome change from deodorant commercials and weak-



Debbie Pettengill, secretary, Bipolar Memory Division, Mountain View. Known to CBers as Sunshine Lady

signal Top 40 songs on long trips. Besides some entertainment and a chance to "modulate" with some new voices, CBers find their radios tip them off to highway conditions and traffic problems ahead and can be verbal road maps in unfamiliar places. Debbie Pettengill, Bipolar Memory secretary, recalls that on one of her first long trips with a new CB set, she faced a bewildering maze of highway signs when she entered Los Angeles. Before she made a wrong turn and ended up in Arizona, she quickly asked local CBers, "Does anybody know the way to Long Beach?" They did, and practically immediately she was headed the right way.

Ed Piller, senior staff engineer for Space and Defense Systems Division in Syosset, a long-time amateur "ham" radio operator, echoes the feeling of a lot of CBers that the airways are incredibly congested around major metropolitan areas. "CB is useful for getting road conditions and traffic reports, but it's hard to converse until you get away from the city."



Dick Ribas, director of national sales, Systems Technology Division, San Jose. Dick's CB Handle: Huggy Bear

HOW THEY SAY IT IN **CSB**

<i>Bear</i>	<i>A police officer (also known as "Smokey")</i>
<i>Break</i>	<i>Request to use a channel</i>
<i>Brush your teeth and comb your hair</i>	<i>Radar unit ahead</i>
<i>Copy the mail</i>	<i>Listen to what's being said over the CB</i>
<i>Ears</i>	<i>A CB radio or antenna</i>
<i>Front door</i>	<i>Lead vehicle of two or more driving together and using CB's</i>
<i>Goody store</i>	<i>CB dealer</i>
<i>Green stamps</i>	<i>Money</i>
<i>Haircut palace</i>	<i>Low-clearance bridge or overpass</i>
<i>Hammer</i>	<i>Accelerator</i>
<i>Modulate</i>	<i>Converse</i>
<i>Nap trap</i>	<i>Rest area or motel</i>
<i>Pregnant roller skate</i>	<i>Volkswagen</i>
<i>Seatcovers</i>	<i>Passengers</i>
<i>Sitting on the top shelf</i>	<i>Everything is great</i>
<i>Super slab</i>	<i>Highway</i>
<i>Wall to wall and treetop tall</i>	<i>Receiving you loud and clear</i>

THE "10" SIGNALS

<i>10-4</i>	<i>OK, message received</i>
<i>10-20</i>	<i>Your location</i>
<i>10-36</i>	<i>Correct time</i>
<i>10-38</i>	<i>Ambulance needed</i>
<i>10-70</i>	<i>Fire at (location)</i>
<i>10-73</i>	<i>A speed trap at (location)</i>
<i>10-99</i>	<i>Mission completed</i>
<i>10-100</i>	<i>We're reliably informed this means ("I need to stop to go to the bathroom")</i>

A controversy has developed over the best use of the CB channels. "The original intention of CB was a good one," Ed says. "It was set up for business, personal communications and to enable citizens to help people in distress. It still serves the emergency purpose through channel 9, the national distress frequency, but the other channels have been taken over to a large extent by hobbyists who use it as entertainment."

In spite of crowded airways, CB sales continue to outpace even the most enthusiastic predictions. Five percent of the cars now on the road are CB-equipped, and high theft rates and rising insurance costs don't seem to be doing much to dampen sales. Whether CBers remain with the basic 23-channel set (soon to be expanded to 50) as a travel aid or graduate to other amateur radio ranks, they're all part of a nationwide movement that has the world "by the ears".



Ed Piller, senior staff engineer, Space and Defense Systems Division, Syosset. Also known as Porcupine

DR. TOM LONGO TALKS ABOUT FAIRCHILD RESEARCH AND

"The biggest successes in this business come from creating technological advances."

Dr. Thomas A. Longo, vice president and chief technical officer, directs Fairchild's Research and Development operations with that idea in mind. R & D, with headquarters in Palo Alto, deals in the future—checking a technological crystal ball for product innovations that will be needed several years from now to meet market needs.

In this interview, Tom discusses the function of R & D and the contribution it has made to Fairchild's position as a technological leader.

What role does R & D have in the products and technologies pioneered by Fairchild?

R & D first develops an overall product approach—how we might develop a new process or a combination of a new process and new product technology with a view toward the potential market. Sometimes, but not always, we establish a pilot line. Once they are ready for large scale production, the product lines are transferred into an appropriate division. Corporate R & D engineers concentrate on the "front end" of the process, transferring projects ready for production into the appropriate division and then concentrating on advancing the overall technology and creating more advanced products.

As an example, we can look at our recently-developed Isoplanar Integrated Injection Logic (I^3L^{TM}), a process that combines high speed, like bipolar, and improved packing density, like MOS, in circuit design. We pioneered this idea in R & D, and today we are an industry leader in high performance injection logic based on the I^3L technology. Pilot product lines now established are being expanded, and the Bipolar Memory Division will assume responsibility for the production phase. Meanwhile, R & D will concentrate on advancing the I^3L technology and discovering new uses for it.

What are some of the other process and product lines started in R & D?

We developed the Planar[®] and Isoplanar methods of manufacturing semiconductor devices, and we've done a lot of work in recent years developing CCD (charge-coupled devices), CMOS (complementary MOS) circuitry that uses significantly less power than other methods and subnanosecond ECL, an emitter coupled logic device that permits extremely high-speed circuit switching. ECL has been a little slow to catch on, but it's going to be the basic technology for high performance large computers by 1980.

We have the technology and products in place, which gives us the best position in the industry with major computer manufacturers. Nobody else is even close.

The time we want to use R & D is to develop a new basic technology. We wouldn't use it to develop a product that fits an existing technology already being used by the company, but only to develop something that doesn't now exist.

You once said in a speech that the easiest thing to do in business is to copy what someone else has done, but the hardest thing is to set a new standard. Is that your philosophy for Research & Development?

That's my philosophy, period. It's important for Fairchild to set industry trends. The best profits can be gotten out of a business if you get in the market at the right time with a good technology, as we did with our bipolar memory products, and are currently doing with I^3L . If you get there too early and the market isn't



"If you want to be a leader, you have to take the risks."

*Dr. Thomas A. Longo
vice president and chief technical officer*

DEVELOPMENT AND THE SECOND INDUSTRIAL REVOLUTION

ready, you spend a lot of time waiting for business to develop. If you arrive too late, the market's probably going to be difficult and expensive to break into.

The biggest successes come from creating a technologically advanced product line which is planned and executed so that the marketplace wants it almost immediately. You must have that combination—the right technology, a leadership position and something the marketplace wants.

Later on, as other people enter the market, profit margins decrease. If you've done your job well, you have a commanding market share position. It isn't a good idea to be a follower in this business too often.

How does Fairchild stack up with the rest of the electronics industry in terms of broad-based R & D investments?

Fairchild is a leader in R & D investment over a broad technological base. However, that is both an asset and a burden. It's a burden because we must support a wide spectrum of products not only in R & D but also in manufacturing and in the marketplace. Since we're marketing over a broader base, we have various technologies competing for production and promotional dollars. In a recession, that gets very difficult. Over the next three years I'm sure our investment policy will be a strength but it's not always an easy policy to maintain.

How do you "crystal ball" in R & D—look ahead several years and determine what technologies and products will be in demand?

It's a gamble—a combination of intuition, examining the facts at hand and spending enough time with key people in the industry to know what's on their

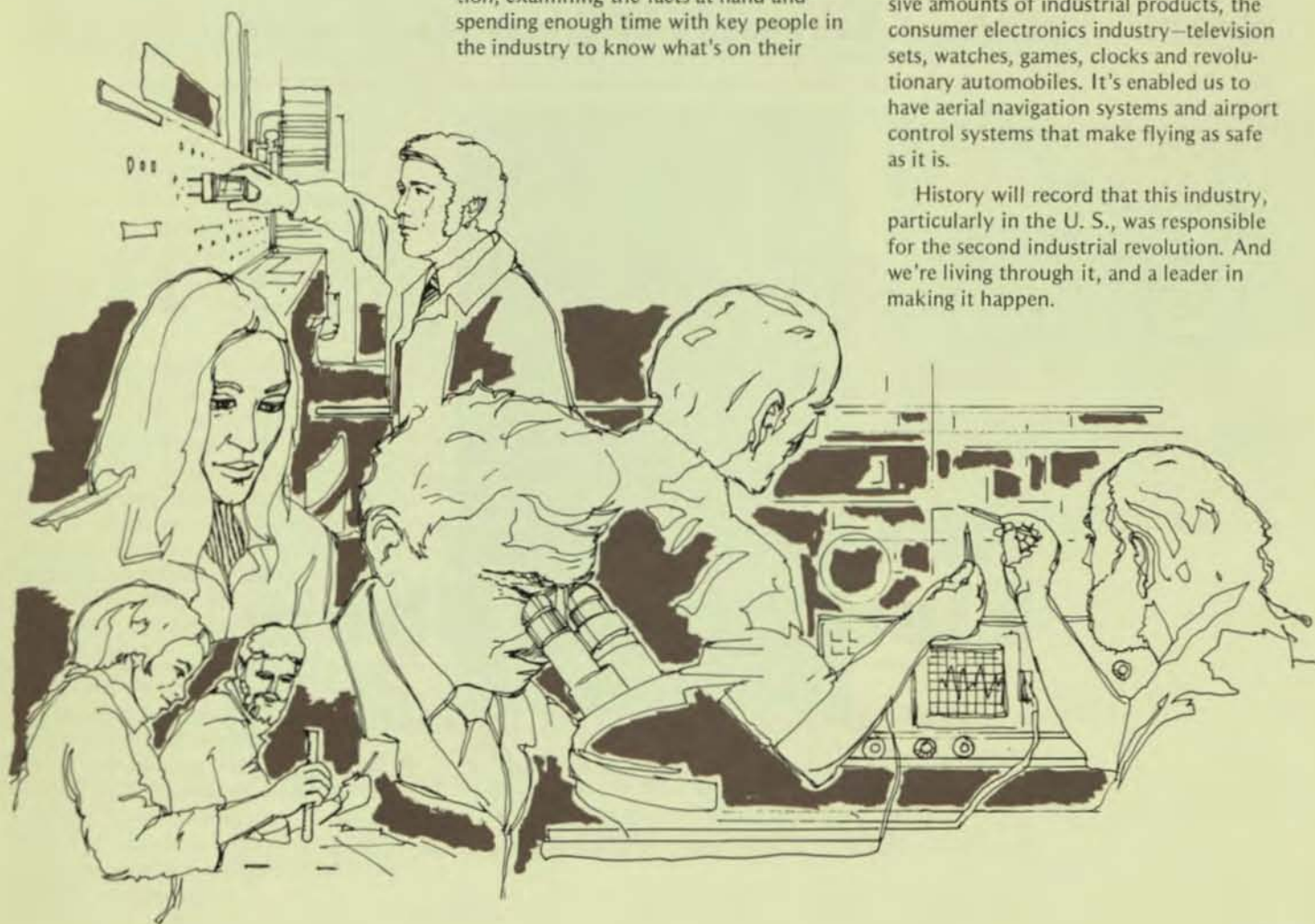
minds. By staying in touch with these people, sometimes it's possible to see trends developing they don't see as individuals.

You can sometimes see a trend developing, but there's always a risk involved in making R & D projections. There's no formula to predict the future. If you want to be a leader, you have to take the risks—there's no way around it. If we aren't willing to try things that haven't been tried before, others will. We have an excellent record on this score—on balance, the risks have been worth it.

What impact will the developing capabilities of Fairchild products have on people's lives?

I think we need to talk instead about the impact of the semiconductor industry. We're in the middle of an electronic revolution that has been going on for 15 years. It's created the computer industry, massive amounts of industrial products, the consumer electronics industry—television sets, watches, games, clocks and revolutionary automobiles. It's enabled us to have aerial navigation systems and airport control systems that make flying as safe as it is.

History will record that this industry, particularly in the U. S., was responsible for the second industrial revolution. And we're living through it, and a leader in making it happen.





The Fairchild booth at the Consumer Electronics Show in Chicago's McCormick Center attracted large crowds throughout the three-day show. Especially popular was the "hands-on" display of the Home Video Entertainment System, produced by Exetron Division. At a press conference preceding the CES opening, Consumer Products Group vice president Greg Reyes predicted a two million unit games market for this year, jumping to five million next year.

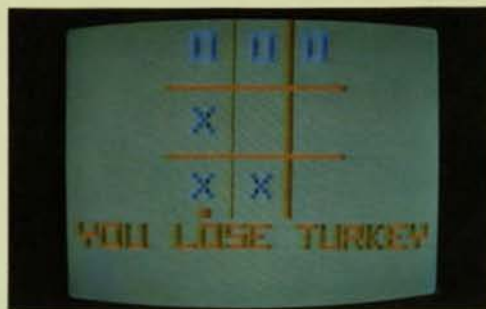
SRO

At Consumer Electronics Show

***Consumer Products Steals
The Show With Video Game,
Clocks, New Watches***



Fairchild's home video electronic game is the first such system to use replaceable cartridges to provide an unlimited number of format selections. Players operate games ranging from hockey to a doodle game with dual controls and a central console which holds the Videocart game cartridge.



You have a fighting chance in Tic-Tac-Toe, but when the machine takes the match, "You Lose, Turkey" leaves no doubt which side won.

Consumer Products Group Announces Unique TV Game System

This year's Summer Consumer Electronics Show in Chicago was the site of Fairchild's highly successful debut in the electronic television game field. With obvious advantages over competitive products, the Fairchild Home Entertainment System drew standing-room-only crowds at the display in McCormick Center.

At a press conference on June 14 to introduce the system and other consumer products, Consumer Products Group vice president Greg Reyes, said, "The home entertainment concept adds a unique dimension to the television set. With our system, which uses replaceable cartridges, the player can expand his video game library as he desires—avoiding the restriction of dedicated approaches and opening a flexible capability for future TV-based applications."

At CES, the company also introduced six men's liquid crystal display (LCD) digital watch models and two Timeband™ men's light-emitting diode (LED) watches, one in polysulfone (plastic) to retail for \$19.95 and the other in metal to sell for \$24.95. In addition, a line of LED digital clocks, ranging in price from \$15.95 to \$29.95, was announced.



Above: This Timeband LCD watch was a popular introduction at CES. Right, A digital alarm clock featuring alarm and doze controls shared the Chicago spotlight.





It was Standing Room Only as showgoers gathered at the Fairchild booth for a try at the new video game. With 16 games available by Christmas, the Fairchild system allows a player to expand his video game library as desired and opens up a flexible capability for future TV-based applications.

“The generally acknowledged hit at the recent Consumer Electronics Show...even competitors admitted the Video Entertainment System was a major attraction.”

...Electronics, July, 1976

The Fairchild Home Entertainment System is the first TV game system to provide an unlimited number of game and other formats. Key to the system's versatility is the Videocart cartridge, which contains a semiconductor memory programmed to reproduce specific games in full color on color TV sets. Game selection is made through a keyboard console with mobile screen elements operated by dual controls or "joy sticks" that can be used up to eight feet from the screen.

At the heart of the system is the game console, which connects easily to the TV set with a control box. The console incorporates an F8™ microprocessor and four solid-state random access memories.

The system provides two resident games, Tennis and Hockey. With the first add-on cartridge, available this month, these can be expanded to include Tic-Tac-

Toe, Shooting Gallery and a Doodle-tracing game. Fairchild will offer one new cartridge each month for the rest of the year, with approximately 12 games and four math quizzes available by Christmas.

The Fairchild Video Entertainment System can be used with any television receiver, and will retail for \$100 to \$150, with the Videocart cartridges selling for \$20. The product will be available at retail outlets following approval by the Federal Communications Commission.

Fairchild's first LCD, or continuous display, digital watches complement our line of LED (light-emitting diode) watches in major price categories. Six men's watches were unveiled, two in the low-priced Timeband series and four in the medium-priced Fairchild™ line.

The LCD watches provide six functions and incorporate backlighting for night



Before the crowd gathered, early comers tried their skill at hockey and tennis. The game scores and elapsed time are continuously displayed at the bottom of the TV screen. Sound effects give the games a sense of realism.



illumination. Operation is possible in two ways—one displaying hours and minutes constantly, with seconds, month and date called up by pressing a button, the other displaying hours and minutes, plus month and date, constantly, in alternating sequence.

A digital clock incorporating a high intensity lamp was one of four LED clock models also announced at CES. One of the Timeband clock series, the lamp pulls up from the clock base and offers a high-low intensity switch. All feature 24-hour alarm and doze controls. Three Timeband models and one Fairchild model comprise the total clock line.

Left and right, above, These continuous-display LCD watches were among the first six offered by Fairchild, two in the low-priced Timeband series and four in the medium-priced Fairchild line. Center, A clock incorporating a high-intensity lamp was one of four digital LED alarm clocks unveiled in Chicago.



Brigg Sherman, left, prepares a product demonstration for a visiting Spectral Dynamics engineer. Stored above them is a projection screen that drops down for instant mini-seminars.

Field Applications Van Brings Fairchild To San Diego's Door

More gambling machines are manufactured in Las Vegas than anywhere else in the world, although surprisingly the city's hotels and casinos use only two percent of the homegrown roulette wheels, "one-armed bandits" and other gaming equipment. When the desert gambling machine manufacturers wanted to "go electronic," an innovative field sales tool helped give Fairchild the marketing edge.

A couple of years ago, Fairchild's Phoenix sales office asked Marshall "Brigg" Sherman, field applications engineer for the Southwestern Region, to do a little "electronics lobbying" in the Nevada city. The gambling machine industry was beginning a conversion from old mechanical machines to electronic products, and the



The Field Applications van arrives at Spectral Dynamics.

market seemed ideal for introduction of Fairchild semiconductor components, particularly the F8™ microprocessor.

It was. Since the introduction of the F8 in 1975, Brigg has made F8 experts out of several of the Las Vegas gaming machine manufacturers. After several trips from his oceanside base in San Diego out to the desert, and numerous orientation sessions on microprocessor programming and system configuration, Brigg's assessment is that "Las Vegas is going to turn into a tremendous market for us."

Fairchild marketing's term for this is "technological pervasiveness." What it means is putting a potential customer

into the electronics business who hasn't been in it before. Brigg gives part of the credit for the establishment of this new market to the Western Region field sales applications van, one of four motor-home type vehicles stationed around the country to "take Fairchild to the customer."

Since 1974, the four Components and Microsystems sales areas centered in California, Texas, Minnesota and Massachusetts have each used these 30-foot gold and white product display vans to spread the word about Fairchild's capabilities through their territories. On a typical call, the van rolls up to a customer's front door and is filled within minutes with engineers gathering up product



Headquarters of Spectral Dynamics in San Diego, manufacturers of vibration analyzing equipment.

"get the engineer out of his environment and into ours - that's the key"

step right up...

Stan Phillips of Celtec, a firm representing Fairchild in the San Diego area, discusses product specs with Spectral engineers waiting to enter the van.



literature, inspecting product displays and picking the brains of the Fairchild field applications engineer, field sales representative and outside rep company staffer on board.

The Western area van currently servicing the Southwestern Region, centered in San Diego, features a breakerless electronic ignition system display, a section on Optoelectronics displays and an F8 Formulator™ system that will challenge you to blackjack. Mini-seminars on applications of several Fairchild products can be conducted for five or six engineers at a moment's notice through an onboard drop-down screen and slide show. The van is also equipped with two air conditioners and a stereo tape player featuring selections that can be changed to fit the part of the country you're in.

"The key to the success of the van program has been getting the engineer out of his own environment and into ours," Brigg says. "The usual visitor to the van is a design or product engineer. If you go to visit him in the lobby you're contending with the telephones, pages, other sales reps and people walking by wondering why the engineer isn't working. Besides that, in a metropolitan area like San Diego, engineers are usually bombarded by sales people, and if they saw everyone who came in that's all they'd do. So, we offer them a little extra to get them out of the plant. By the nature of the van, an engineer will relax, take a break and, many times, give us information or insight on his product needs we wouldn't get any other way."

The sales van program was first developed in 1972 by Jerry Lawson, currently Exetron Division engineering manager, and Bill Bennett, now an independent Fair-

child representative through Magna Sales in Santa Clara, Calif. "We knew there were a lot of customers around who didn't realize Fairchild's full capabilities, so we decided to take the company to them," Jerry recalls. "We started out with one van in the Bay Area, and after monitoring its progress for a year, we discovered that it did make a difference—it was responsible for quite a few sales." Three additional vans were purchased and outfitted and the program expanded to its present size.

The most enthusiastic reception in the Southwestern Region, which covers the San Diego area, Arizona, New Mexico, and parts of Texas and Nevada, has been from companies outside major metropolitan areas. "When I get out of San Diego and into places like Tucson or El Paso, people are very impressed that Fairchild, as opposed to a distributor, has come out to see them. Engineers in these areas are eager for literature and just a chance to rap with us on the capabilities of our components."

The vans are scheduled for a major refurbishing later this summer, which will include installation of some updated product displays and "breadboard" systems that will show the range of products available and a rear-screen projector made by Fairchild's Industrial Products Division in New York. When the vans return to the field, Brigg and Steve Rose, Fairchild San Diego sales engineer, hope to increase the use of their region's van with major San Diego customers.

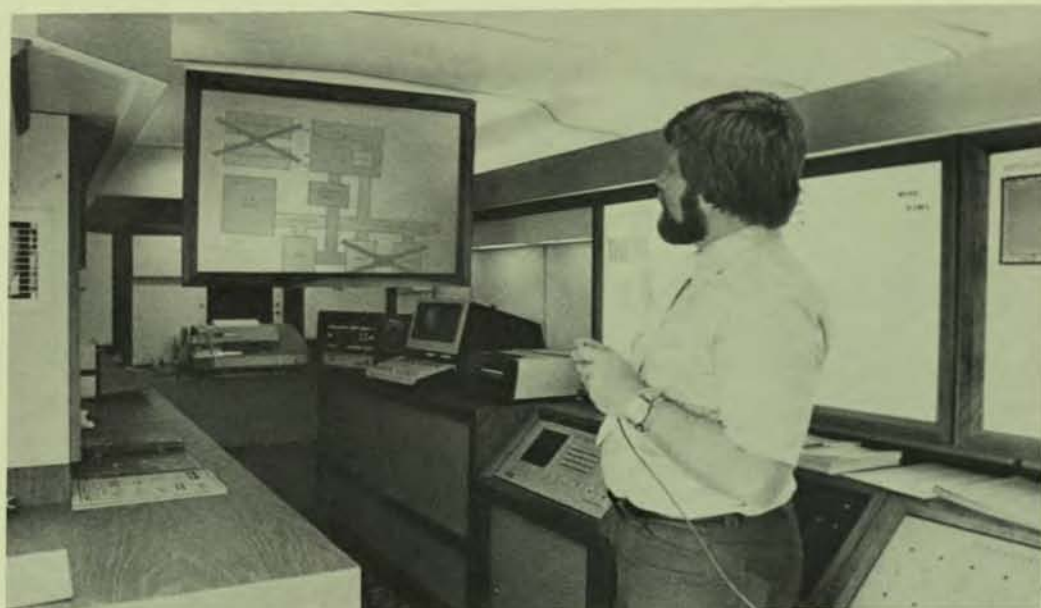
The San Diego market, in Steve's words, is "NCR Corporation, Control Data Corporation and the rest of the world." Steve spends full time representing Fairchild at NCR and CDC, known as

"house accounts," and the "rest of the world" is handled by Celtec, an electronics representative firm marketing Fairchild semiconductor products throughout the San Diego and Los Angeles areas. "Our rep is getting very enthusiastic about using the van," he says, "and I think there's also great potential for it in the two large house accounts. We've been using it to a limited extent in San Diego so far, and plan to get a lot more mileage from it after it's updated."

While a visit from the Fairchild van may be a break for San Diego area engi-



The chance to browse among product displays and a selection of Fairchild technical manuals brings many engineers aboard the applications van.



Brigg sets up the van for a mini-seminar at a customer call. The van's gas tank holds 50 gallons, and Brigg says "You can just make a guy's day when you pull into a gas station."

neers, it's no joy ride for Fairchild and Celtec sales staffers. On a typical visit to a customer, Brigg mans the rear of the van, where the operating F8 system is located. Depending on the customer, either Steve or a rep salesman are stationed at the door to take visitors' names, answer questions and supply needed literature.

"It's impossible to handle this van with just one person," Brigg says. "When I take it out on the road, I always work with the Fairchild sales people and our reps. That way, we can keep pretty good track of who visits us and what jobs they do."

As engineers-turned-salesmen, Brigg and Steve have had to reconcile two very different fields. In fact, when Brigg was hired four years ago in Indiana as one of the first dozen or so field applications engineers, he recalls that the job wasn't too clearly defined. "The man who came to talk to me said 'I have a requisition for a field applications engineer. I don't know what one is but you look like what one would be if I knew what one was.'" An engineer by education, he had had professional experience in both engineering and sales, and decided that being an FAE would let him combine the best of both.

"An FAE is a unique combination of an engineer and a salesman. You have to be extroverted like a salesman but you have to have an engineer's technical knowledge."

When Brigg goes on the road, he may visit a current account to straighten out a

product application problem or call on a potential customer who needs help designing a Fairchild component into his system.

Recently, in El Paso, the Fairchild area salesman told him of a company which manufactures metal detectors but used no Fairchild products. "This guy tried to keep his overhead to a minimum, and he didn't have a staff engineer. So we went in and I offered my services as an engineer. I redesigned a lot of his systems and devices, updated them, and put in Fairchild products. He got some free engineering, but we got a lot of his business."

As Fairchild's representative at San Diego's largest accounts, Steve must not only play the dual role of salesman and engineer but frequently finds himself in the dual role of company and customer. "We're right on the firing line from both directions. When I talk to the customer, I am Fairchild. People don't realize there's a plant in northern California or New York—they see me, and I am Fairchild. When things go right, they pat me on the back and say 'Nice going, Steve, you really did the job this time!' But when things go wrong, it's my fault, not the factory's. And when I call the factory with an NCR order, say, I'm not Fairchild to them, I'm NCR. I must fight for the customer, yet I must represent Fairchild so I'm in the middle. It's a constant mediation job between the customer and the plant."

Both Steve and Brigg agree that, even with all the conflicts of roles, there's

probably nothing else they'd rather be doing. "Doing this kind of job takes a certain personality, there's no doubt about that," Brigg says. "Once, when the first group of FAE's gathered in Mountain View for an annual technical update, we were sitting around and one guy said, 'I'm just trying to figure out how Fairchild cornered the market on all extroverted engineers.'"

Combining engineering and sales helps Brigg and Steve accomplish what they call "creative selling"—"we go out and create sockets for our devices to fit into." Creative selling is also possible through the applications van, although it's usually a mixture of selling and a lot of patience. "We don't make sales directly from the van," Brigg explains, "so the most we can accomplish with a visit is to get our literature out and create initial curiosity. If I make a van call today, a month from now an engineer there will probably think, 'Gee, I remember something I saw in the Fairchild van I might be able to use.' So, he calls us for a data sheet. We send the sheet to him, and in another week or so he'll call back. 'Y'know,' he'll say, 'I've been looking at this, and do you have a sample?' So we send over the sample and don't hear anything more until one day a distributor mentions that the engineer's company has just asked for a quote on 100,000 of those devices."

Keep Those (Referral) Cards and (Resume) Letters Coming In!

As business continues to improve, the need for qualified job applicants steadily increases. In response to this trend, internal and external recruiting programs were launched in late June by the employment and professional staffing departments.

Known within the company as "Fairchild Needs You"—and in external media as "Fairchild Offers You More Of What You Work For"—the campaigns will run through the summer at Fairchild locations in the Mountain View area.

The program was kicked off with an explanatory mailing to employees' homes in mid-June. Each employee was sent a "Fairchild Needs You" button and an outline of the program, which included a rundown of available prizes. For each non-trainee referral made, regardless of whether or not the applicant is hired, the referring employee receives a T-shirt. If the applicant is hired, the company employee wins the regular \$50 referral fee plus a Fairchild watch, clock or video game, depending on the job level involved.

Buttons, T-shirts and bumper stickers proclaiming the recruiting message can be seen throughout the Fairchild facilities. Employment offices report referral rate increases of up to 50 percent since the program kick off.

Electronics industry trade papers and selected daily newspapers and radio stations are carrying the theme "Fairchild Offers You More Of What You Work For" to potential applicants outside the company. Ads feature Fairchild people giving their views on the benefits of Fairchild employment. Hank Miranda, (ad shown below), manufacturing manager for Bipolar Memory Wafer Fab, perhaps summarized what both the internal and external campaigns hope to tell potential Fairchild employees. In stating his views, Hank said, "I've had offers from other companies, but I'm staying right here . . . I can't think of anything another company could offer me that I'm not already getting at Fairchild."



"I've had offers from other companies, but I'm staying right here. I believe in Fairchild because Fairchild believes in me. If you work hard and take advantage of the training they offer, there's no limit to your advancement opportunities here. I did and I've advanced rapidly in 4½ years. Sure my salary has increased significantly, but even more important is the challenge and job satisfaction I've received. I can't think of anything another company could offer me that I'm not already getting at Fairchild."

Hank Miranda
Manufacturing Manager
Bipolar Memory Wafer Fab



Fairchild offers more of what you work for.

For more information about job opportunities at Fairchild, visit, call or write one of our live job centers:

- Fairchild Professional Staffing, 400 National Avenue, MS 23-0100, Mountain View, CA 94042, (415) 962-7701
- Fairchild General Employment, 405 National Avenue, Mountain View, CA 94042, (415) 962-3201
- Fairchild Consumer Products, 4001 Miranda Avenue, Palo Alto, CA 94304, (415) 803-3700
- Fairchild Instrumentation & Systems Group, 1725 Technology Drive, San Jose, CA 95128, (408) 998-0123
- Fairchild Electron Division, 3805 Alfred St, Santa Clara, CA 95050, (408) 247-7000

FAIRCHILD
CAMERA AND INSTRUMENT
CORPORATION

FAIRCHILD NEEDS YOU!

CLOSEUPS

PEOPLE ON THE MOVE

WILLIAM McCARRON has been named corporate director of audit projects . . . **RICHARD RIBAS** has been appointed director of national sales for the Systems Technology Division . . . **RICHARD NOREN** succeeds him as national sales manager for that division . . . **LAURANCE DeLORME** has joined Space & Defense Systems Division as director of operations . . . **THOMAS BRANDT** has been named general manager of Fairchild's Optoelectronics Division . . . **RODNEY SMITH** has been named manager of the Automotive and Hybrid Products unit, Analog Products Division . . . **BARRY MARASSI** has been appointed western area sales manager for that unit . . . **JOHN BERZUK** has been named director of business development for the Federal Systems Group . . . **WALTER DERRINGTON** has been appointed controller for Europe . . . **JAMES ELLICK** has been named marketing manager for the Digital Products Division . . . **W. I. LOO** has been appointed Industrial Relations Manager for Asia Pacific operations . . . **WILLIAM O'MEARA** has been named to the new post of manager of strategic marketing for components marketing operations.



Javier and Naomi Aspuru with four-week-old Alan.

Born On The Fourth Of July

The first citizens of the United States all came from foreign lands—so it was only fitting that the first baby born on July 4th at Stanford (Ca.) University Hospital had parents who had just recently come from another country. At 2:10 a.m. the morning of the Fourth, Javier Aspuru, a Fairchild engineer at the Mexico City Analog Products Division plant, and his wife Naomi became the parents of a five pound, twelve ounce son they named Alan. Javier, who is currently attending a four-month training class in Mountain View, had originally come to the session intending to return to Mexico for the birth of his child. Naomi later decided to join him in California. Shortly after she arrived here, so did Alan.

1976 FAIRCHILD SCHOLARSHIP WINNERS NAMED

Ten winners of 1976 Sherman Fairchild Scholarships were announced in June. Recipients included six San Francisco Bay Area students, two from the Portland, Maine, area and two from Long Island. Each student will receive a scholarship covering tuition, fees, food and lodging for up to four years of undergraduate study at any accredited U. S. college or university.

The scholarship program was established in 1973 by the Fairchild Foundation, Inc., for the children of Fairchild Camera and Instrument Corporation employees. Twenty-six students are currently attending school under the program.

The scholarships are in honor of the late Sherman Mills Fairchild, founder of the company.

Winners are selected on the basis of scholastic achievement, community and school involvement and scores on the College Entrance Examination Board's Scholastic Aptitude Test. Selection was made by a committee of educators chosen by the Educational Testing Service, administrator of the scholarship fund.



Bay Area Winners: (L to R) Teresa Flanigan, Lisa Moore, Pete Oliver, Chris Lambert, Erika Steffe and Jeff Harding.

BAY AREA WINNERS

Teresa Flanigan, 22. Teresa is the daughter of John Flanigan, manager of special projects for manufacturing services, Mountain View. This fall she plans to enter the University of California at Berkeley.

Jeff Harding, 17. Jeff is the son of John Harding, a production control manager for the Exetron Division, Santa Clara. Jeff will attend the University of California at Santa Barbara this fall.

Christopher Lambert, 17. Chris is the son of Brian Lambert, controller at Fairchild's Microsystems Division, San Jose. He is currently attending the University of Santa Clara (Ca.).

Lisa Moore, 19. Lisa is the daughter of Elvet Moore, microprocessor components operations director at the Microsystems Division. Lisa is currently attending the University of California at Davis.

Peter Oliver, 18. Pete is the son of Floyd (Bud) Oliver, an engineering manager in the Analog Products Division, Mountain View. This September, Pete will enter the University of the Pacific.

Erika Steffe, 18. Erika is the daughter of Will Steffe, an engineer at the Research and Development Laboratory in Palo Alto. Erika plans to attend the University of California at Davis.



Joe Beecher accepts congratulations from Dan Barbato, Plant Manager, South Portland.



Dan greets Bill Collins.

PORTLAND AREA WINNERS

Joseph Beecher, 17. Joe is the son of Robert Beecher, a material control manager at the Fairchild plant in South Portland. This fall he will enter Rensselaer Polytechnic Institute.

William Collins, 18. He is the son of William Collins, manufacturing manager at South Portland. This September, he plans to enter Cornell University.

LONG ISLAND AREA WINNERS

Ricky Ratowsky, 18. Ricky is the son of Frederick Ratowsky, an engineering program director at the Fairchild Imaging Systems Division, Syosset. This fall, he will attend Princeton University.

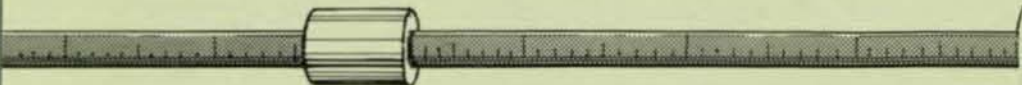
Marc Rosenberg, 17. Marc is the son of Marvin Rosenberg, manager of aerospace testing at the Space & Defense Systems Division, Syosset. Marc will enroll at Princeton University in September.

Introducing the "So you always wanted to be one" reporter's course.

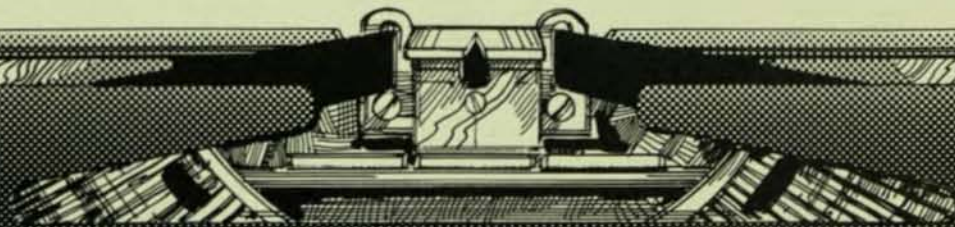
It's safe to assume that just under 93% of the adult population at one time or another seriously pondered a career in journalism. But somewhere along the way about 98% of that 93% opted for careers of slightly higher order and legitimacy, such as used car sales, bootlegging or electronics. Still, for reasons not quite understood by psychologists, many retain secret desires to become reporters. This possibly could be a carry-over from childhood when a good portion of each day was spent "telling on" friends or siblings. Upon close examination reporting isn't that much different from "telling on." Take Watergate for instance.

Which brings us to the purpose of this ad. The monarch of the bimonthlies (your very own Horizons Magazine) is a bit short-handed when it comes to a reporting staff. And, as you can well imagine, no one benefits from a magazine suffering from short-handedness. Especially you the readers. More reporters working for Horizons should result in better coverage of happenings at Fairchild. We don't need the full 93% — something less would be fine. After all we would like to maintain a ratio of more readers than reporters.

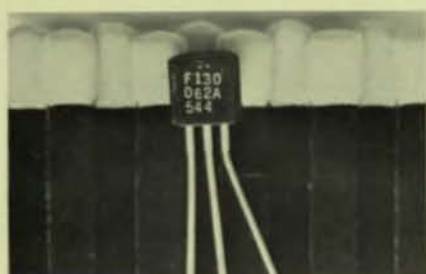
Now, contrary to the opinions of some politicians, a good reporter is not a dead reporter. A good reporter should know certain basics before he or she begins the first assignment. What's an assignment? The answers to this and other important questions will be answered in the "So you always wanted to be one" reporter's course which will appear in future issues of Horizons.



In the meantime, however, if you can't wait to don your green eyeshade, warm up your pencil and shout "stop the presses," you can start working on your first scoop. Just read the brief instructions on the back of this page. And watch the next issue for the "So you always wanted to be one" reporter's course lesson # 1.



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Some of Fairchild's tiniest products are supplying the mushrooming market for Citizens Band radios. CB antennas, or "ears" now equip 5 percent of all U. S. cars and trucks.

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Fairchild CB owners talk about faster commutes, helping accident victims and crowded airways—just what happened when CB came into their lives.



8

Dr. Thomas Longo talks about Research and Development's leading role in developing new products.



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Company staffing departments launch recruitment drives to meet increased employment needs. The internal program relies on employee referrals—historically an excellent source of interested applicants.



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Fairchild was a headliner at the recent Consumer Products Show in Chicago—one of the stars was the new TV game that calls you a turkey if it beats you at tic-tac-toe.



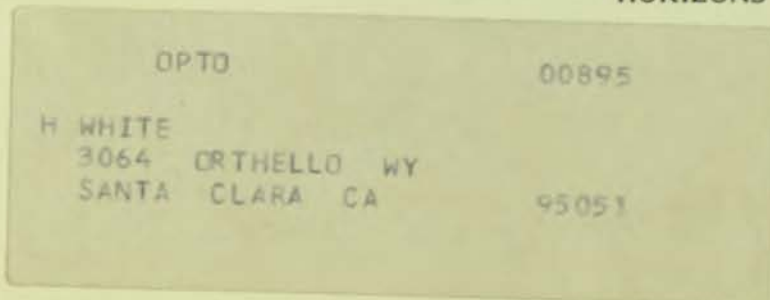
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In San Diego, a mobile approach to field marketing brings a little bit of Fairchild right to the customer's door.

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CORPORATION

Fairchild Camera and
Instrument Corporation
464 Ellis Street
Mountain View, Ca. 94042

HORIZONS JULY/AUGUST 1976



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