Lead Wire

VOLUME I MOUNTAIN VIEW - PALO ALTO, OCTOBER 1959, NUMBER 4

DISTRIBUTOR SALES PROGRAM GETS GREEN LIGHT

Fairchild launched a distributor marketing program effective September 28, announced Tom Bay, Marketing Manager.

Until this time, it has been impossible to employ distributors in addition to our own Field Sales Engineers because of frequent changes in specifications and the high degree of technical knowledge necessary to sell our new transistors.

"Now," Dave Beadling, Assistant Market Manager reports, "Our phenomenal growth and the rapid standardization of our transistor specifications make it not only beneficial but imperative that we employ distributors."... "Our product can be sold across the counter like bananas and apples," he continues.

Distributors serve several purposes. They relieve the Company sales force of the paperwork and nuisance of processing small quantity orders of one, ten, a hundred, or up to a thousand pieces. They provide a stockpile of parts all over the country from which small volume customers may draw to satisfy immediate transistor needs. And they free the Company Salesman to call on large military and commercial customers where their engineering knowledge and negotiating abilities are more needed.

A new group is being organized to handle the distributor marketing program. Gene Keyarts will head the group in the capacity of Distributor Sales Manager. This group will initially deal with electronics parts houses in Los Angeles, Chicago, Boston, New York City and Binghamton, New York.

Bill Martin, Sales Liaison Engineer for the Western Region, will take over the management of the Home Sales Office from Gene Keyarts.

George Korpontinos, Sales Liaison Engineer for the Central Region will also cover the Western Region, replacing Bill Martin.

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737 Employees
wish FSC a happy second
birthday

PRODUCTION PEOPLE TAKE NEW JOBS

Charles E. Sporck will join Fairchild Semiconductor Corporation this month in the newly created position of Production Manager. In this capacity he will be in charge of all of Fairchild's production line operations.

The thirty-year-old Sporck has spent the last 10 years with the General Electric Company where he was head of production operations in the Capacitor Division.

Reporting to Sporck will be Bob Robson who moves up to the position of Production Superintendent from his present job as Product Supervisor for the small geometry line.

Robson's new duties will include responsibility for material processing, diffusion and photoresist sections. He will also continue to supervise small geometry until Terry Kilduff has taken over as Product Supervisor on that line.

Also reporting to Sporck will be Lawrence S. Feldman, 34, who is coming from C. B. S. Electronics to work for Fairchild in the capacity of Production Superintendent.

E.R.C. OFFERS "PLAY" INSURANCE

It's all right to drop a bowling ball on your foot now. You're fully insured as long as an accident is incurred in organized Company recreational activities.

At its September meeting the Employee Recreation Council allocated $600 for a Company-wide recreational accident policy. The policy gives complete coverage up to $500. The Council is now processing and will pay claims for accidents occurring before the policy went into effect. New claims are to be channelled through Wanda Chanceller (EX-219).

Instituting this insurance is one of the Council's first official acts since its recent organization.

A policy-making body for the Employee's Association, Chairman Jack Shriber describes the Council as an "arbitrating Board with financial powers."

With an initial $1500 Company donation in the till, the Association will be financed by a monthly Company contributed stipend of 30 cents per employee. It will also receive all revenue from the vending machines.

Any Employee recreational group can apply to the Council for financial assistance.

CRUSADE DRIVE STARTS

To make sure Fairchild tops its goal of $7,500 in this year's United Fund Crusade, the Company will match employee contributions dollar for dollar.

With employee solicitors receiving their indoctrination tomorrow, the drive here will be officially on. The thirty solicitors will contact all day and swing shift employees to ask that they donate by approving a payroll deduction for the Fund.

The goal for each individual has been set by United Fund officials at an hour's pay a month.

Sports

bowling

Four Fairchildren christened winter league bowling with 200 plus scores the hectic first night of the season. Tom Bay, Art Lasch, Jack Shriber and George Reh led the 70 bowlers who turned out for league play.

If you want to bowl part-time as a pacer in the Fairchild League, let Dottie Hollars or Marge Kennedy know so they can keep a list on hand.

If you're not a bowler, the teams invite you come to the Camino Bowl and watch.

***

For swing-shifters there's the "Rock and Rollers" League. So far there are ten four-man teams, and they're asking all you night owls to join them.

Bowling starts at 1 a. m. on Saturday morning in the Camino Bowl.

men's basketball

Basketball season's almost here and so far only 7 people have signed up for the Fairchild team.

Glenn Atkinson urges anyone interested to, "Get on the ball and contact me right away." In addition to players the team is looking for a manager, coach, or player coach.

Practice will start in October and the season opens in December.

golf

Here's one more good reason for living in California - winter golf!

Meeting one weekend a month, the Winter Golf League will play at different courses throughout the area, announced Jack Feineman.

On October 25, four foursomes will play at Hillview Golf Course at 11:30 a. m. Almaden Golf Course will host four foursomes on November 8, at 7:30 a. m.

Anyone interested can call Jack (EX-269) for more information.

At least three men finished the summer golf season happy. Jack Feineman, Jack Shriber and Bob Spencer tied for first place in the last game of the League tournament.

chess

Chess anyone? Contact Lars Lunn at the Palo Alto Plant. Lars wants to enter a Fairchild team in the local league. The only requirement is that you be a member of The Chess Friends Society of Northern California. Lars can give you the application form. Incidentally, the fee is $2 a year.

ATTENTION CARD SHARKS.....

Would you like to play bridge canasta, rummy, old maid, etc., during lunch hour. Anyone interested in forming a card club should contact Virginia Griggs, EX-320, or Dorie Filipponi, EX-316.

PHYSICISTS TEACH COURSES

Teaching University of California Extension Courses this semester are Fairchild research physicists Dr. J. T. Last and Dr. Jean Hoerni, Palo Alto Plant.

"Solid State Electronic Devices" is the title of Dr. Last's course. Dr. Hoerni is lecturing on "Physical Phenomena in Transistors." The classes are being given in Mountainview Union High School.

SUPERVISION CLASS IN PROGRESS

Management personnel and trainees will be going to school announced Jack Yelverton, Director of Personnel.

Already in progress is a "Techniques of Supervision" course under Dr. Thomas Harrall, Professor of Applied Psychology in the Stanford Graduate School of Business. Production management trainees and other line supervisors will attend the class two hours a week for 20 weeks.

Additional study programs in management and in semiconductor technology are now under consideration.

NEW CHEMIST AT R&D

Electrochemist Paul Ignacz joined Fairchild in the Palo Alto Research and Development Laboratory, Dr. Worden Waring, Head of the Chemistry Section, announced last week.

Trained at the University of Budapest, Ignacz had industrial and academic experience in that city. Before coming to Fairchild, he spent two years with American Brass Co., Waterbury, Conn.

IT'S WEDDING BELLS FOR...

Jean Washington, Engineering, who wed Mel Jones, Hiller Air Craft, on September 10, at the Palo Alto Wesley Methodist Church.

***

Pauline Montemayor, Preproduction, and Ben Curiel, U. S. Forestry Service, married in Reno on August 5.

***

Fairchildren Henry Schoger, NPN Diffusion, and L. Jeanne Efimoff, Mask Removal, married September 13 at the First Presbyterian Church in Mountain View.

CONGRATULATIONS TO....

Eugene Kleiner, Manufacturing Engineering, and his wife Rose, on the birth of daughter Lisa. Lisa weighed in at 8 pounds 2 ounces on September 22. The Kleiners have a seven-year-old son Robert.

***

Joe Munoz, Tooling and Mechanization, and wife, Anita, whose first-born, Cynthia Lynn, arrived on September 11, weighing 7 pounds 15 ounces.

FOR SALE

1958 Volkswagon. 21,000 mls. W/W tires, sun roof, heater. Contact Larry Luiz, days. Phone RE 6-8464 after 4:30 p. m.

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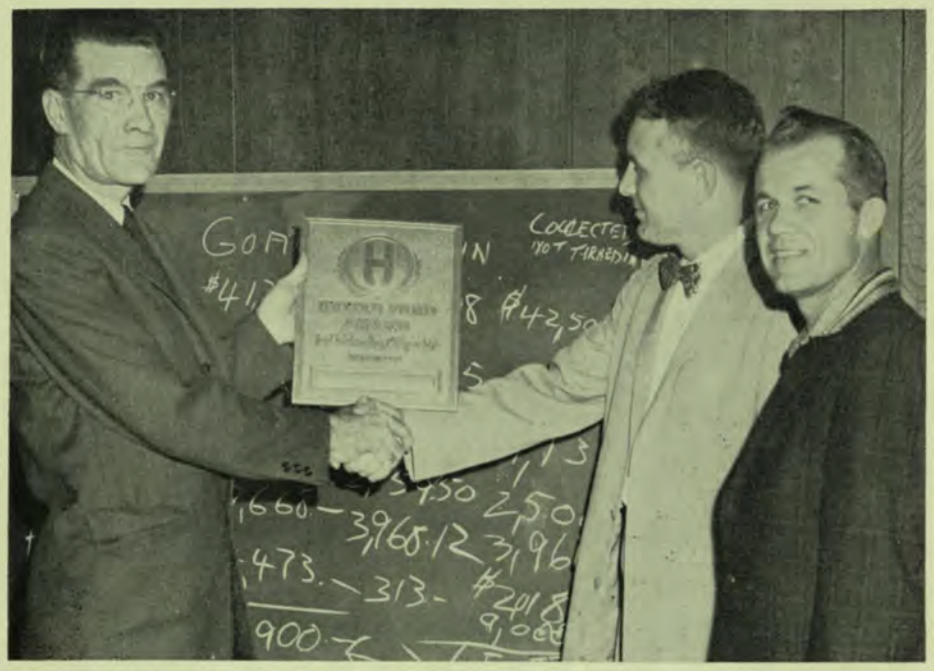

Ed Schnitker (left), president of the Mountain View chapter, United Crusade Fund, presents FSC Fund drive co-chairmen Dick Denzler, personnel assistant, and Jay Cockrum, maintenance leadman, a bronze plaque award. FSC won the award for pledging a Crusade donation of $11,276.34, the biggest contribution to the chapter.

FSC WINS UNITED CRUSADE AWARD

Employees Donate Over $5,000 to Fund

Winning top honors in the Mountain View chapter of the United Crusade Fund drive, FSC will contribute $11,276.34. Moffett Field comes second with a $9,000 donation.

Co-chairmen of Fairchild's Crusade campaign, Jay Cockrum and Dick Denzler, were presented with a bronze plaque award for the highest contribution by Ed Schnitker, president of Mountain View chapter.

Mountain View received $65,387 in donations from residents, schools, merchants and industry, exceeding its overall goal of $63,900.

Give Over $5,000

FSC employees gave a total of $5,638.17 in cash, checks, and pledges, and the Company will match this amount. Co-chairman Denzler reports that the most generous donations per capita here came from the assembler-maintenance groups.

Deductions Start on First

Payroll deductions will be withheld beginning with the first paycheck following January 1, 1960. An employee can make any change in his Fund deduction by submitting a written statement to the Accounting Department. In the event of termination, an employee's pledge is discontinued automatically in the Payroll Section.

FSC Crusade solicitors who donated their time found mixed feelings regarding the payroll deduction plan. For this reason plans are in progress for conducting another in-plant solicitation sometime during the coming year to accommodate those who prefer to donate outright rather than to authorize a payroll deduction.

NUMBER OF EMPLOYEES
1160

LIBRASCOPE COULD BE FSC'S LARGEST ORDER

Fairchild will supply transistors to Librascope Incorporated of Glendale under what is potentially the largest semiconductor contract in the U.S.

Librascope is prime contractor for the ship board computer in the ASROC system, an anti-submarine weapon. Several hundred thousand transistors will be purchased for the computer, making this FSC's largest single order if it is completed as now proposed. An initial shipment of 12,000 units has already been made and the rest will be delivered to Librascope over an 18-month period.

Shipments to the company, a General Precision Equipment subsidiary, will be composed of five types of transistors, mainly in the 4000 series, particularly 696's and 697's, and will include some low-storage and some high-voltage units.

Another company recently announced publicly that they had been awarded the Librascope transistor contract, but it was later secured for FSC by Bob Pack, our Los Angeles sales engineer.

GROUP GOES EAST FOR CONFERENCE

Fairchild will make its final 1959 appearance in a trade show or exhibition at the Ninth Annual Eastern Joint Computer Conference in Boston on December 1, 2, and 3.

It is expected that some 4,000 computer circuit designers and engineers will attend this convention. Fairchild will be represented at the Conference by computer circuit engineers Don Farina, Ray Kikoshima, and Bob Norman; Madhu Desai, customer engineer, and Dick Lewis, advertising and promotion.

Also attending will be FSC's entire Eastern Regional sales force, which has recently been increased to seven persons. They are Walt Andrews, Howard Bobb, Dick Day, Bob Dugan, Tom Murphy, Bill O'Hara and Jim Paris.

This conference is considered a primary interest exhibition for us because

(Continued on Page Three)

Don Farina (left) and Bob Norman share blackboard duties during a computer seminar. The last of five lecture-workshop sessions on Introduction to Digital Computers given by Bob with Don's assistance was held on Thursday. There will be two more computer seminar series, the first to be given by Ray Kikoshima, in a continuing program designed to cover the field of transistor applications. Jerry Milner will co-ordinate the entire program developed primarily for the engineering department with interested sales and development people also attending.

DIODE DIVISION GETS INTO GEAR

FSC's ultra high-speed silicon diodes are rolling off the pilot line in Palo Alto. Results on process development are encouraging, comments Bob Freund, diode plant manager.

Today the exodus of Diode Division personnel to temporarily rented quarters at 27 Jordan St., San Rafael, will begin.

First to move in will be Bud Seyler, production manager, Irv Michaelson, manager of tooling, and Adrian Sahlein, who has been personnel receptionist here.

Administration, Engineering and Production staff members to follow this pioneer group will include John Fisher, who will check in the first of this month to become purchasing agent; Basil Weir, to be head of Process Engineering; process engineer Herb Wong; engineer Owen Hatcher; and production supervisor Niel Dorwood.

By the middle of this month the first production line will be set up in the San Rafael plant and production is tentatively scheduled to begin on January 1, if the remaining equipment has all been installed by that time.

Xmas Party on 24th

On December 24th from 1 to 5 p.m. Fairchilders will converge on the Sunnyview Family Club, 266 Escuela, Mountain View, for the second annual Christmas party. Included in plans to make this a party season highlight are an orchestra, a cold buffet, and entertainment, to be provided by the Company.

All employees are invited and each may bring one guest.

Production Climbs

Production facilities in the Mountain View plant will soon be expanded to fill all available space, announced Frank Grady, operations manager.

Four out of the seven potential production lines were in operation at the beginning of November and the remaining three will go into full production this month.

Production figures continue to rise steadily. August production was doubled in September, September production was doubled in October, and last month saw a 50 percent increase over the October figure.

Tom Murphy is Fairchild's new Washington, D.C., area sales engineer. Tom came to FSC in October from the Hamilton Standard Division of United Aircraft Corp., where he was an installation and test engineer. A 1952 graduate of West Point, he served four years in the Air Force. Tom and wife, Ann Marie, have six youngsters, Daniel, Debra, Douglas, Diane, Dennis and Donna.

DESIGN NEW TEST EQUIPMENT

Three major pieces of test equipment are in design by Bill Hafner's Instrumentation Engineering Section.

For Quality Control an $8,000 environmental chamber and control panel are being built for operational life testing. This equipment will make it possible to test transistors in operation from 250 to 1000 hours to determine theoretically how long they will operate before failing. An outside firm is constructing the chamber, but Instrumentation is designing and building the metering and switching control panel which will monitor the transistors while they are in the chamber.

Compete for Record

Competition is high among Production girls in the main test room to beat the record number of transistors tested per shift on the latest Type 3 Tester designed and built by instrumentation engineers Uli Kaempf and Bob Newlon. Before the tester was installed, it was possible to test a maximum of 1000 transistors per shift. Using the Type 3 Tester, a record of 3965 now stands and this figure will be doubled when mechanization now under design is installed, according to Bill Hafner. Bill stated that equipment of this type will eventually replace all manual equipment in the final test area.

Build Hot Icbo Tester

Dave Glen, mechanization project engineer, and Brian Bell, instrumentation designer, have designed and built a "Hot Icbo" test machine that will rocket the number of transistors tested an hour from 150 to 3600. The completely automatic equipment, actually a double conveyor system, makes the critical test to determine leakage current between collector and base of the transistor with the emitter open.

In describing the equipment, Dave Glen explained that the transistors are first mounted on block carriers, then carried into a forced air oven maintained at 150° centigrade. After 30 seconds the transistor is tested, carried from the oven, pulled from the block carrier and sorted, the carriers returning automatically to the starting point.

Lead Wire

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SPORTS

DOREEN HEMBROW, *Editor* MIKE HANSEN, *Asst. Editor*

Bowling League officers Jay Cockrum (left), president; Marge Kennedy, treasurer; and Bill Busche, vice president, look over the situation at Camino Bowl during Tuesday night play.

Cole, Reh Low in Golf Tournament

Fifteen people took part in the golf tournament at Almaden early in November. Low gross was Dick Cole with an 80, George Reh took low net with 72. Tying for third place were Lowell Ericson, Fred Grass and Gary Tripp with scores of 73.

The next meeting will be held at Spring Valley Golf Course on December 13 at 9:30 a.m. Sign-up sheets for golf are on the bulletin boards in the coffee room.

Organize Ski Club

Plans are under way to rent a lodge in the ski country for a weekend this season. Between 25 and 30 people are needed to get things rolling.

As yet the cost of the outing hasn't been determined, but it will be considerably less than if you were lone-wolfing it.

Anyone interested should contact Doreen Hembrow.

Tripp's Total Tops

Gary Tripp might well be proud of himself—a beginner at bowling and already he's shaping up like a pro. His average to this point has been 122. Last Tuesday he floored everyone by bowling 222, 140, and 144 for a 506 series.

Basketball Team Starts League Play

Basketball at Fairchild is now in full swing. Team members are looking forward to the first league game December 7.

Glen Atkinson is currently acting as coach as well as manager, player, and publicity director. Team members now number fifteen. These include several top prospects who will form the nucleus of the club.

Glen reports that uniforms have arrived and that everyone concerned is optimistic about a very successful basketball season for Fairchild.

Those interested in playing should see Glen, or report for practice Monday or Wednesday evenings at 7:00 p.m. at the Mountain View High School Gym.

Chess Club Competes

FSC's chess club won one in six games last week in competition with Ampex. Chess players are assigned boards depending on their ability, with the best players taking board 1. Lars Lunn, on board 1, was winner in his game. Other FSC competitors were Mark Weissenstern, Gary Tripp, Blaine Bentley, Dave Allison, and Art Lasch.

Lars Lunn asks that any player wishing to enter competition contact him and he stresses the fact that the player need not be experienced.

SOCIAL SECURITY BOOST MADE

Federal retirement benefits will be increased by 7 percent for most workers after the first of the year when the 1958 amendments to the Social Security Act go into effect. This increase in benefits means, of course, that taxes will also be raised. The payroll deduction for this tax, which appears on paycheck stubs as FICA (Federal Insurance Contributions Act), will jump from 2½ percent to 3 percent of all wages up to the first $4800 a year.

This means that the maximum which can be deducted for any employee in a year will be $144 instead of the present $120. An employer must match each employee's deduction, so the contribution which the Company makes per worker will also be increased to 3 percent, making a total of 6 percent of each worker's salary (up to $4800) going into his Social Security account this year.

Specifically what increase in benefits can workers expect for themselves and their dependents on retirement and for their survivors in the event of their death? If an individual retires or is permanently disabled, he will receive from $33 to $127 a month, and additional family benefits can raise the total monthly benefit check to $254. The benefit rate depends on the individual's average monthly earnings covered by Social Security. This is calculated over a certain period by a method specified in the Social Security Law.

Go to Conference

(Continued from Page One)

of the heavy concentration of computer engineers who will attend and the fact that the products we are now stressing find their principal application in computer circuit designs.

Since most of our customers are concentrated in the northeastern part of the U.S., the attendance at the show of our computer circuit design group will allow customers the convenience of bringing problems to the design engineers while they are on the East Coast.

Our display at the Conference will be a 2N 706 transistor resistor logic circuit. Operating at a 2-mc clock rate, it is three times faster than any other silicon logic circuit of this type and uses considerably less electrical power. The core memory circuits, which are integrated with the 2-mc logic circuitry, operate with a 1-microsecond read-write cycle time.

This circuit is capable of adding two six-digit numbers in one-half of one millionth of a second, or in the time it takes light to travel one city block.

Around the Plant

by **m & m**

Oh, day is day, and night is night, and ever the twain do meet! Have you ever witnessed the Battle of the Bulges at 3:30 p.m. with the day shift clocking out and the night shift clocking in? It's even cozier than El Camino at 7:45 a.m.

Diffusion area has lost one of its family jewels: Cozy Swan transferred over to R & D. And some counterspy unlocked Pat King's squirrel cage in Production Control and let her out for a week's vacation. So what did Pat do? Went up to State Line and watched the roulette balls spin around in *their* squirrel cages.

One of our new sales engineers, working out of Washington, D.C., is a young Irishman, Thomas J. Murphy by name. It's a cinch bet that he's going to sell Fairchild transistors like hotcakes because Tom's a real go-getter, a man of achievement with six kids to his credit.

Here's a goodie for all us forget-me-nots who leave our Fairchild badges at home! Gene Spencer had to check in with a temporary badge the other day. Sure you know who "Spence" is—the guy what signed the bulletin telling you what and when and how to wear 'em.

Sidney Finkleman is our pretty new PBX relief operator. Some UFO called up and asked for Dr. Shockley. "Oh," says Sidney, "I don't think there's anyone here by that name." But she couldn't convince the Unidentified Flying Object. Just as Sidney started to page, "Dr. Shockley, please," someone gave her the straight scoop. Nevertheless, the UFO hung up protesting, "But I thought Dr. Shockley was the one who started Fairchild Semiconductor!"

Lab Notes

by **Mike Julian**

Things were quiet in the old R&D Lab this month. There were only a couple of exhibitions of electrical fireworks by Tom "Sparks" Shillinburg. Not one diffusion furnace was blown up even after David Reid was sent back to "help us out."

Jolly Stan Chapman was down in Mexico and Bob "Blackie Carbon" Bauer was busy in a corner playing with several small pieces of graphite.

Our wonderful Chemistry Group disappointed us a little this month by producing only one smell that was just slightly nauseating. Ah, for the good old days when Jack Clifton could clear the entire lab of every man, woman, and technician in less than thirty-four seconds with his Gallium-Arsenide Furnace. Those were the days.

Bill Merklinger, R & D Shipping and Receiving, examines rare book on a British railroad running from Liverpool to Manchester. The book, published in Boston in 1833, is from Bill's transportation and communication collection.

COLLECTOR WILL LIMIT LIBRARY

When Bill Merklinger, R & D Shipping and Receiving, sold his 2500 rare book collection in 1956, he thought he was through haunting second-hand book stores and auctions. Now he's at it again. This time though he's going to limit his collection to rare, old, and unusual books on transportation and communication, so that his avocation will complement his field of professional interest.

Bill got the book bug early. His Dad collected a fair-sized library and left it to Bill. Bill was always interested in books, but he didn't start collecting in earnest until 1944. Though he spent most of his spare time hunting, buying, repairing, and binding books in his growing collection, Bill insists he never was a bibliomaniac. "If you let your interest in books take all your time and thought, you soon find that the books are running you," he mused.

From Soap to South America

At the time Bill sold his collection, he had books on subjects from theatre to theology, from a 100-year-old volume on how to make soap, to a book titled "Queen Moo" by French archaeologist Augustus Plongeon, who believed that the ancient Egyptian culture was an offshoot of the South American Mayach society.

Bill found this book, an A.S.L. (author's signed letter) and an 800-year-old Mayach ceremonial urn in a box of books he bought sight unseen. It's common practice for collectors to buy books blind. Declared Bill, "I once bought a ton of books from a private library. That shows how crazy you can get. I found out of the whole bunch only 70 that were worth collecting; the rest I gave away."

Of course there's always the hope that a "worthless" book bought for a few cents might prove to be valuable. Bill's best "sleeper" was a book on the history of Nevada County, Calif., that he bought in a second-hand book store for 75 cents and later sold for $75.

In addition to books, Bill's library contained old maps, letters, handbills, diaries, and other miscellania.

The prize of Bill's new transportation and communication library so far is a book on the description of the railroad from Liverpool to Manchester, England, by a French engineer, P. Moreau. Bill's copy is a first American edition, translated by an American civil engineer, J. C. Stocker, Jr., and published in Boston in 1833.

Bill came to work for Fairchild nine months ago. He, his wife, Pauline, and daughter, Bonnie Sue, 13 months, live on Dixon Drive in Santa Clara.

OFF THE LEADWIRE

Harry Sello's seminar series on Transistor Manufacturing Technology is in full swing. The talks are directed at present to supervisory factory personnel not specifically trained in this area; however, Harry plans to extend this program over an indefinite period to meet the needs of other personnel as well. . . . Personnel men Jack Sheets and Bill Horton have traded duties. Jack now will be concerned mainly with employment and Bill will be wage and salary administrator. . . . New top man in Shipping and Receiving is Cecil Harris, who came from Railway Express to FSC last month. . . . Jay Last and Jean Hoerni, R & D research physicists, have acquired secretaries. Verona Troland will be Jay's girl Friday and Alice Paulina will work for Jean Hoerni. . . . FSC rovers now have a travel reservations clerk to smooth the way for them. Marilyn Ciszewski, temporarily located in the Purchasing Section area, will handle travel and hotel reservations, auto rentals, delivery of travel tickets to employees, and preliminary audit of carriers' invoices. . . . Ran Johnston, applications engineering, is local membership representative for Institute of Radio Engineers. Employees wishing to become members or to have membership changed may get necessary forms from him. . . . Chih-Tang Sah, senior member of the technical staff at R & D, was married on Sunday, November 29, to Linda Chang, currently working on a graduate degree in nuclear chemistry at University of California. The ceremony was held at 3:00 p.m. in the Trinity Methodist Church in Berkeley. . . . Gordon Moore, Director of R & D, his wife, Betty, and son, Kenny, 5, welcomed Steven Earle to the Moore household on October 28. Steven weighed 7 pounds 9 ounces at birth. . . . Anita Olivas wasn't the only one surprised at a going away party held for her last week. Girls on the 1140 line and a group from the 4500 line both chose the same time to give her a send-off and neither group was aware of the other's intentions until time for the festivities. Anita is off to Hawaii to work for a year.

MARIN DIODE PLANT

Lead Wire

Vol. 2, No. 1 | Fairchild Semiconductor Corp., Mountain View, California | January 1960

STANFORD JOINS INDUSTRY IN NEW PROGRAM

Stanford University is co-operating with FSC and 16 other major organizations in the electronics field in a project aimed at enlarging Stanford's solid-state electronics program and increasing liaison with industry.

The 17 are known as "Industrial Affiliates of Stanford University in Solid State Electronics." Each affiliate will contribute $5,000 a year for five years, and the funds will be used primarily to enlarge the electrical engineering faculty engaged in the new program.

A yearly "annual review" conference of affiliates and faculty is scheduled to be held on the campus to insure that industry is kept up to date on the nature of the curriculum and research programs that will lead to graduates trained in the semiconductor field.

The first conference, held in September, was attended by Drs. Harry Sello, Jay Last, Jean Hoerni, and Vic Grinich from FSC.

Stanford, one of the few schools in the country with a graduate program in semiconductor devices, began work in solid state electronics more than five years ago when research and graduate courses on transistor circuits were introduced. Since then research on semiconductor phenomena and devices—including solid-state masers and parametric amplifiers—has been undertaken.

Student interest in the program is keen, according to Prof. John G. Linvill, director of the program. About 40 electrical engineering graduate students are

(Continued on Page 5)

Going into a huddle for some serious discussion at a reception held in San Rafael for FSC officials are Bob Noyce, vice president and general manager (left); Fred P. Enemark, president of the Marin Industrial Development Foundation; and Bob Freund, diode plant manager.

FOUNDATION WELCOMES FSC TO MARIN

Sketches for New Plant Revealed at Reception

Preliminary sketches for the Marin diode plant were revealed at a reception given for Fairchild officials and 100 Marin County community leaders at the San Rafael home of Fred P. Enemark, president of the Marin Industrial Development Foundation.

Sketches were made by the firm of Simpson and Stratta, San Francisco consulting engineers, who will design the 50,000-square-foot building. It will be erected on a 10-acre site at approximately a 45-degree angle to a service road beside Highway 101 opposite Terra Linda, 2 miles north of San Rafael.

In explaining the choice of location to the group, Bob Noyce declared, "We believe our new location in Marin County is a happy choice. It is recognized that in highly specialized fields such as ours, stress must be placed on plant location and community environment in order to attract scientists, research specialists and production personnel.

"We found almost exactly what we wanted in the way of an industrial site, convenient and excellent housing, and

(Continued on Page 5)

NUMBER OF EMPLOYEES
1260

Don Shank (left), Betty McFadden, Lee Focht, and Dick Van Leer aren't a bit intimidated by the formidable looking machines that surround them.

IBM MACHINES DO TEDIOUS TASKS

When an IBM data-processing installation goes into a Section, employees are apt to wonder just what part they'll play in the new setup.

What actually happens is that the machines take the monotonous and repetitive jobs and the people are free to do more creative work, declares Don Shank, IBM Department supervisor.

The full IBM installation here has been in operation for a month now. Just to process the payroll, the machines and two operators are doing the work of six people, and the same machines and operators also process other accounting data, such as accounts payable and labor distribution.

So far there are nine machines in the IBM room: collator, sorter, reproducing punch, accounting machine, calculating punch, interpreter, two key or "card" punches and a card verifier.

To give you an idea of what these machines actually do, we'll take a time-card through the works from the time Joe (or Josephine) Fairchild puts his card in the rack on Friday until his check is ready for him to turn over to his wife.

Time Card Routine

The card is picked up and edited for correct hours by the timekeeper; the card punch operator converts the hours into punched holes; the card is put into the verifier to make sure there are no errors; the calculator machine adds up the holes that are punched for the hours and multiplies the hours by Joe's base rate, applying shift differentials, and simultaneously deducts withholding taxes, then actually punches out the net amount payable to him; the collating machine merges this card with Joe's name card and voluntary deductions which are maintained on other cards, and this combined file goes to the accounting machine. Blank payroll check stock is put into the carriage of the accounting machine and this file of cards is fed through the machine; simultaneously the reproducing machine, which is hooked up to the accounting machine, takes the earnings to date and the taxes withheld to date and transfers the information to a new summary card to be used for the next period. Now the check is ready for Joe.

Remember that payroll is only one of the functions these machines perform. "In fact," comments Don, "these machines have so much flexibility built into them that as soon as you have them, you begin to do all sorts of new things that you could never do before."

Expansion Plans

Are there plans for expanding the installation? "By all means," says Don. "Of course expansion plans are tied up with the expansion of this building and construction of the new plant in San Rafael because all of the accounting functions will be centralized here. But eventually we will double the machine capacity we now have."

Accounting doesn't have a corner on IBM equipment here. It's also being put to more esoteric use in our quality control and research functions. In quality control, for instance, on any given problem a great deal of parameter data must be recorded. So a key punch is attached to a piece of test equipment. When test is made, we not only have visual observations but the card punch records data permanently for each transistor tested. Then, when the cards are processed through the computers, statistical variances can be evaluated. Eventually, as part of our reliability program, the cards will be processed through computers that can make logical decisions on the data contained on the cards.

REFLECTIONS ON THE HOLY SEASON

Tinsel and trees, artificial snow and sleighs, glistening balls and tinkling bells, parties and packages—these are the manifestations of Christmas. But in the midst of our gala activities we pause to ponder on family and friends, and to remember those whose paths have crossed ours, whose total impact has set the course of our lives. With this in mind our exchanges of "Merry Christmas" and "Happy New Year" are no longer ritualistic repetitions of an old phrase, but are heartfelt wishes for joy in this season.

At this holiday we may take hope from history's lesson that one event, or one man, can substantially change the course of history, and resolve that we, individually, will strive to work toward those things in which we may believe. In this way, our fervent hopes for peace on earth, good will to men, may be realized for our families and friends all over the world.

R. N. Noyce

Charles Sporck, our production manager, joined Fairchild in October. Previously he was head of production operations at General Electric's Capacitor Division in Hudson Falls, N.Y. Sporck received a mechanical engineering degree from Cornell University in 1952. He and wife, Jeanine, have two sons, Charles Henry and Richard Jonathan.

Lead Wire

NEWS STAFF

Publisher ..... Dick Lewis
Editor ..... Rosemary Daley Hensel
Sports Editor ..... Doreen Hembrow
Art ..... Alex Karuzin
Reporter ..... Mike Julian, *R & D*

Christmas Party 1959

Happy New Year

Our winter golfers were out in force last week. Winning prizes of golf balls were Dick Shafner, low net; Jules Santoro, second low net; Dick Cole and Jack Schriber, closest to the cup. Golfers pictured above are (first row, left) George Reh, Bill Simonsen, Jack Shriber, Fred Grass, John Ronald; (second row, left) Howard Kagel, Paul King, Jules Santoro, Dick Shafner, John Leermacker, Charles Woodward, Dick Cole, Dick Goodman and Lowell Erickson. Dick Cole is Golf League president, George Reh is secretary and Paul King, handicapper.

SAFETY PROGRAM IS DEVELOPED

Industrial accidents not only bring grief to the individuals involved, but cause American industry and government fantastic sums yearly in work lost and in compensation payments.

The accident rate in a manufacturing facility is a measure of the effectiveness of its safety program. Despite Fairchild's unprecedented growth in the past year, our accident rate has been steadily decreasing.

FSC's safety committee is developing an integrated program of safety education in an attempt to reduce the accident rate still further. A new employee's first safety information is given to him at orientation. Basic safety rules are again emphasized during his training period, and re-emphasized by his supervisor when he starts on the job.

"We have tangible evidence of the practicality of such a program," declared Dick Denzler, safety supervisor. "The wearing of safety glasses in certain areas is required. During the Fall months, three people would have sustained serious eye injuries had they not been wearing their glasses."

As part of the program, two series of fire-fighting classes have been held for all maintenance men and foremen. The two-hour classes were conducted by Harry Wilder, Ansul Chemical Co., Oakland, and included a chalk talk, a movie on fire control, and a practical demonstration during which each participant extinguished a mockup fire.

ATTEND CONFAB

FSC was the only semiconductor device manufacturer to be represented at the Ninth Annual Eastern Joint Computer Conference held December 1 to 3 in Boston's Statler Hilton.

Approximately 4000 computer engineers attended the convention at which Fairchild's displays were enthusiastically received.

Madhu Desai, Don Farina, and Bob Norman of our engineering staff were in attendance at the exhibit to answer technical questions, and were kept busy handling queries. Curtis Judd of applications made sure the dynamic display circuits showing our transistors were kept in top working order. The entire sales force from the Eastern Region attended and customer talks were constantly in progress in Fairchild's hospitality suite.

"The Conference was the most fruitful I have attended since joining Fairchild," commented applications engineer Don Farina. "Not only was there a high level of technical interest among the engineers we contacted, but we were relatively free from the bother of curiosity seekers so frequently found at these meetings."

Safety Committee members are Julie Blank, chief of engineering services, chairman; Bob Hall, preproduction; Keith Leonard, plant engineering; Murray Siegel, applications; Jeff Wilson, plant engineering; Bernie Yurash, research and development; Paul Hinchcliffe, manufacturing, and Dick Denzler, personnel.

PLAN SKI TRIP AFTER OLYMPICS

FSC's intrepid skiers will journey deep into snow country next Monday. There's no danger of frost bite or broken legs, though. They'll take this trip vicariously through Warren Miller's annual ski film at the Belmont Theatre.

A ski trip is being planned for after the Olympics in March when accommodations are less expensive and easier to get. The group will travel to Donner Lake, right in the heart of Northern California ski country. From this point Squaw Valley, Sugar Bowl, Donner Ski Ranch, Reno Ski Bowl, and other ski areas can be reached in one-half hour.

Says Sports Editor Doreen Hembrow, "I know of at least one person who's so raw at the game she can't tell the blunt end of a ski from the sharp, but she's game to try."

Anyone wanting to take the ski trip should contact Doreen on extension 389. Tickets for the Warren Miller ski film can be obtained from Don Kobrin.

Greeted at Reception

(Continued from Page 1)

an adequate and available working force here in Marin."

Also at the official welcoming were Tom Bay, marketing manager; Frank Grady, operations manager; Jack Yelverton, head of personnel here in Mountain View, who will be administration manager for the diode division; Julie Blank, chief of engineering services; and members of the executive staff of the new plant.

Julie Blank represented the Company in negotiations for the site, which is being purchased from the Freitas estate, and he will supervise the construction work.

Associated Construction and Engineering Co. of South San Francisco and Barrett Construction Co. of San Francisco are joint contractors.

The 250 to 300 employees who will be hired by the end of this year in Marin for the new plant will swell Fairchild's total number of employees to over 2000.

FSC in Stanford Plan

(Continued from Page 1)

now working on solid-state projects.

In addition to Fairchild, affiliates are Ampex Corp., Hewlett-Packard Co., Hughes Aircraft Co., International Business Machines Corp., Lenkurt Electric Co., Lockheed Aircraft Corp., Marquardt Aircraft Co., Motorola Inc., Pacific Semiconductor Co., Stanford Research Institute, Sylvania Products Inc., Tektronix Inc., Texas Instruments Co., and Varian Associates.

OFF THE LEADWIRE

Fairchilders will now be able to view the exhibit booth used at Technical shows and conventions. The ten-foot booth, on permanent display in the employees' lunch room, is being retired because it does not have sufficient flexibility to show our rapidly expanding product line. A new eye-catching 20-foot unit that is being designed will make its first appearance at the IRE show in March. Also on display in the lunch room is a glass case containing all of the display boards exhibited since Fairchild was first represented at a show. . . . Bob Norman will read a paper at the Solid State Circuits Conference at Philadelphia in February. The paper, *Solid State Micrologic Elements*, was written by Bob, Jay Last and Isy Haas. . . . Our literary scientists have submitted another paper for possible publication in the IRE Proceedings. Titled *Thermal Response of Transistors in the Avalanche Mode*, the paper, written by Bob Beeson, Isy Haas and Vic Grinich, was given in October at the National Electronics Conference. . . . Don Farina is off to the East on a customer-service tour. He'll talk with IBM people in Kingston, N.Y., and will visit customers in the Poughkeepsie and Long Island Areas. . . . FSC's newest distributor is Valley Electronics in Towson, Maryland. This makes eight electronic parts houses in strategic areas throughout the country stocking our semiconductors. . . . Those interested in banding together to buy quantities of meat at reduced prices should contact Bob Hall, Ext. 382. . . . One of our brother companies, Fairchild Graphic Equipment Division of FCI, won this year's Design Achievement Award, given by *Design News* magazine for pioneering an outstanding new approach to a common design problem. The winning idea was for an electronic printing rectifier which reconstitutes an oblique aerial photograph as a vertical one, permitting accurate measurement of distances on the photo. . . . It was wedding bells on December 12 for Marjorie B. Shinar, material processing, and Roger Carr, who exchanged vows in Carson City, Nevada. . . . Dick Lewis, *Leadwire* publisher, and wife, Barbara, named their 8-pound 7-ounce first-born Suzanne Aprile. Little Miss Lewis arrived on November 25. . . . William O'Hara, Upstate New York district sales manager, added another femme to his harem. His wife, Ann, gave birth to 8-pound 4-ounce Caryn on December 17. Other daughters are Dianne, 1 year, Dorene, 2½ years.

Recently arrived from Holland is Anna, the wife of R & D technician Charles Vorst. The Vorsts are now making their home in Palo Alto. Anna's first project is to learn to cook American food. She arrived here on December 4, and is already picking up the language and customs. Charles has been in America since September 14.

Two lovely pictures—Marilyn Jacobs, engineering, and the mosaic she's straightening. The mosaic, Two Sisters, is one of a group of objects d'art seen hanging in the lobby and in the executive offices. They are here on a rental basis from Gallery House, Palo Alto, an artists and craftsmen co-operative. In addition to adding aesthetic interest to plant surroundings, FSC has inaugurated the practice of hanging a new group of paintings every three months in an effort to encourage and support creative artists in the community. Several of the paintings have already been purchased by Fairchilders.

SELLO TOYS ON TV

Harry Sello, our head of preproduction, appeared on a Bay Area TV show in a through-the-looking-glass adventure back to the wonderful world of childhood.

The KQED show, "Toyland Revisited," broadcast on December 18 and 24, presented area professional people playing with toys associated with their respective fields. Harry, a research chemist, naturally drew the chemistry set; architect Henry Schubart; interior designer Virginia Taylor; ceramicist Joan Pearson; construction men Reg Robinson and M. Conway, Yuba Consolidated Industries; musicians John Coppala and P. Patiris from the Vince Gonzales sextet, likewise demonstrated their professional talents on the small-fry level.

"The toys were challenging and taxed us to the utmost, particularly the chemistry set, but it was a lot of fun," Sello explained.

Madi Bacon and the San Francisco Boys' Choir rounded out the program, directed by Jan Mason and hosted by Tro Harper.

The show itself might very easily have been as sticky as treacle, but it proved to be as light and whimsical as Christmas morning. It left viewers certain that the "big people" should have gone back to Toyland much sooner.

Lab Notes

By Mike Julian

R & D has had a terrible loss. Bob Bower, boy machinist, was taken away from his R & D lathe and put behind a desk at the new plant in San Rafael. All he does is write illegible numbers in mystic books.

Now that Charles Vorst's wife has arrived from Holland, Charles won't be eating peanut butter and jam sandwiches for breakfast.

Stan Chapman gave R & D the shock of its life. He appeared (as if by magic) in a black suit, white shirt and tie. This is a great change from his normal gray uniform. Seems he sold out R & D transistors and went over to diode as leadman.

I'm sure that everybody working at Fairchild has at one time or another read part of a technical or progress report. Without a doubt, the ordinary man (or woman, as the case may be) has been confused as to some of the terms used in these reports. I shall try to explain the meaning of a few of the phrases:

We will look into it. By the time the wheel has made a full turn, we assume you will have forgotten about it too.

A program. Any assignment that can't be completed by one telephone call.

Consultant. Any ordinary guy more than 50 miles from home.

Under consideration. Never heard of it.

Under active consideration. We're looking in the files for it.

A clarification. To fill in the background with so many details that the foreground goes underground.

We are making a survey. We need more time to think of an answer.

With modifications. Will be shipped to you in kit form—put together (if you can) yourself. Glue optional.

Around the Plant

by m & m

Clear days, cool nights and a fond farewell to that Christmas anti-freeze.

I wonder why someone of the 1140 line tried to bake transistors in plastic dishes. Did they think that sealing them in plastic would water-proof the transistors and raise the H_2O parameter to a more imposing level?

Paul Hinchcliffe was really one surprised foreman when he walked into the cafeteria and was greeted by the strains of happy birthday, a cake and gifts from all his girls—"Blushed a little, didn't you Paul?"

Lead Wire

Vol. 2, No. 2 | Fairchild Semiconductor Corp., Mountain View, California | February 1960

CARTER CHOSEN BOARD CHAIRMAN

Mr. John Carter was elected chairman of the Board of Directors of Fairchild Semiconductor Corporation at a stockholders meeting on January 18.

Other officers elected were Richard Hodgson, president; Robert Noyce, vice President; E. S. Hill, vice president; J. Walter English, treasurer; Philip Haas, Jr., secretary; and Alan H. Joyce, assistant secretary and assistant treasurer.

Semiconductor stockholders also gave a vote of thanks to the original Board of Directors for their successful efforts during the early years of the corporation's existence, in recognition of the fact that the present success of FSC is due in part to the early guidance of the Board of Directors.

Conferring with Vic Grinich (left) and Bob Noyce (extreme right) are Japanese visitors to FSC Dr. E. Goto (left), Mr. M. Mori, Mr. M. Hirai and Mr. Y. Hata. Dr. Goto is one of Japan's leading computer experts.

C. S. ROBERTS AUTHORS BOOK ON MAGNESIUM

C. Sheldon Roberts' book, *Magnesium and Its Alloys*, will be released by Publisher John Wiley & Sons, Inc., in March.

Sheldon, FSC's materials section head, has been working on the book for the past three years. In describing the work, Sheldon explained, "It's not a textbook. Basically it's a reference book. To say it was a textbook would be to suggest that it would be used in course work. Potentially there are two or three courses in the country that might use it as a text. It will be used primarily by people who are interested in light metal technology — missile people for instance."

The book isn't expected to be a big seller, according to Sheldon, because of the very specialized area with which it deals.

In content, the book authoritatively covers both the science and technology of magnesium.

Chapters 1 through 5 of the book deal with the science of the metal and the last 4 with the technology. The chapter titles give a good indication of the broad scope of the work. They are Physical Properties of Magnesium; Alloy Theory and Properties; Magnesium Alloy Systems; The Deformation of Magnesium; Time-Temperature Dependent Alloy Phenomena; Casting Alloys and Technology; Wrought Alloys and Technology; Chemical Properties and Applica-

(Continued on Page Five)

Correcting proof for his new book, "Magnesium and Its Alloys," is Sheldon Roberts, head of materials section.

NUMBER OF EMPLOYEES
1345

TOP SCIENTIST FROM JAPAN VISITS FAIRCHILD

Eminent Japanese scientist Dr. Eiichi Goto, assistant professor of physics at University of Tokyo, recently paid a one-day visit to Fairchild.

With Dr. Goto were Mr. Y. Hata of T.D.K. Electronics, Tokyo; Mr. M. Hirai of Kanematsu, Inc., Los Angeles, an export-import firm; and Mr. Mike Mori of Kanematsu, Tokyo.

Dr. Goto, who first achieved international attention by applying the Esaki tunnel diode to computer circuitry, also is the inventor of the parametron, a semiconductor device similar in its application to a tunnel diode or negative resistance device. He has been in the United States for several months in order to secure a patent for the parametron and to lecture on the Esaki diode.

The Japanese guests spent a major part of their time here at Fairchild conferring with our engineers. During the course of the conference, Dr. Goto commented that he built a computer for the University of Tokyo, for a reason common to academia all over the world—there weren't enough funds to buy one. He explained that no one person is

(Continued on Page Two)

ADD FOUR TO WESTERN STAFF

The addition of four new sales engineers in the Western Region brings the number of Fairchild field representatives to fourteen. Alan Bayley, Bob Graham, Ray Wilhite, and Don Valentine will be calling on customers in the eleven western states from our Los Angeles office.

Al Bayley, a 1955 graduate of Rensselaer Polytechnic Institute, came to FSC from Pacific Semiconductor. He was sales engineer for Northern California, Utah, Colorado, and the Pacific Northwest, the same area he now covers for Fairchild. Al lives on Ensenada Way in Los Altos with wife Barbara, ten-month-old son Joseph, and 4-month-old puppy, Pokomoko.

Al Bayley

Bob Graham has been appointed the FSC sales engineer to service Hughes Aircraft, Litton Industries, Ramo-Wooldridge and several other Southern California electronics firms. Bob, who has a BSEE from UCLA, was a sales engineer for Raytheon before joining Fairchild. He had eleven years' prior experience as an electronics instructor with the U.S. Air Force Airframe and Engine School. Bob and wife Nancy, will continue to reside in Canoga Park, California.

Bob Graham

Ray Wilhite

Ray Wilhite will represent FSC in New Mexico, Arizona, and the San Diego area of California. He is a BSEE graduate of the University of Colorado and was previously associated with the Semiconductor Products Division of Minneapolis-Honeywell as a field engineer. Ray lives in La Habra, California, with wife Shirley and four children.

Don Valentine is the most recent field salesman to join the staff of the Western Regional office. He got his B.S. from Fordham and later received a master's in business administration from UCLA. His most recent industrial affiliation was as a sales engineer with the Raytheon Company. Don is single and lives in Playa Del Rey, California. He will be calling on North American, Nortronics, Space Technology Laboratories, Douglas Aircraft, and other electronics manufacturers.

FSC's new head of applications engineering is Robert Schultz. Bob, who has been in the solid state field since 1951, was previously employed by the Martin Co. in Orlando, Fla., as a design specialist. In this position he was responsible for the group that designed the digital computer hardware and circuitry for the Pershing missile system. A 1951 graduate of Purdue University in electrical engineering, Bob served with the U.S. Signal Corps from 1953 to 1955. He and his wife, Sally, have three children, Kevin, 5½, Karen, 3, and Stephan, 1.

DR. GOTO VISITS

(Continued from Page One)

assigned to operate the computer, but that the students and staff do their own programming and run their own studies. Dr. Goto laughed as he described a sign that hangs above the computer which reads, "Remember What You're Supposed To Be Doing." "It's hard to get any work done on the computer," he elaborated. "The students have made a game of seeing who can program a given problem fastest and most concisely."

Newer innovations to the original computer make the machine similar to the IBM 704.

In an interview later in the day, a *Leadwire* reporter asked Dr. Goto if electronics occupies as major a place in Japan's total industrial complex as it does in the United States. Replied Dr. Goto, "Japanese industry is similar to this country. The scale is smaller but the structure is the same, and electronics is growing in Japan at a great rate as it is everywhere in the world."

Questioned as to when he expected Japanese manufacturers to get into fields like instrumentation and micro-electronics, in addition to the production of electronic devices for the entertainment market, Dr. Goto answered, "We are in the research stage now. The problem is, of course, that financiers are not investing the money in factories which manufacture sophisticated devices. There are many advanced studies made in Japan, but the only plans for manufacturing such devices in the foreseeable future involve setting up a large factory for the Esaki diode."

Recently the Electronics Industry Association petitioned the Office of Civil and Defense Mobilization to investigate the importation of Japanese transistors to the United States, charging that the growing number of imports constituted a threat to our national security. In the petition, they stated, "The increasing Japanese penetration of the American transistor market will have an adverse effect upon the growth of the electronics industry producing transistor products:

(Continued on Page Four)

TO BUILD WING, PARKING LOT IN DRY WEATHER

Construction of an 11,000-sq.-ft. addition to the rear of the plant in Mountain View will begin as soon as a break in the weather permits the ground to dry.

At the same time, the area to the south of the plant (toward Evelyn Rd.) will be paved to make additional parking space for over 200 cars.

FSC has outgrown the present plant so rapidly that space had to be made available before spring when the 50,000-sq.-ft. addition will go up.

William Moran & Co. will construct the first addition, which will house instrumentation and a part of personnel.

Until the addition is completed, applications engineering drafting will occupy the area in the cafeteria which has been sectioned off by temporary partitions. Time clocks will be removed from the rear hall and will be installed in the hall now used as a drafting area, and the rear door will be blocked off. The temporary partitions will be removed and the space returned to the cafeteria as soon as the addition has been constructed.

The Research and Development facility in Palo Alto is mushrooming too. The building at 844 Charleston Rd. has been entirely remodeled, and personnel finished moving into the new offices last week. Device evaluation and the overflow of personnel from Charleston Rd. are now housed in a new 11,000-sq.-ft. building at 4033 Fabian Way.

With the small addition here and the facilities in Palo Alto, Semiconductor now occupies 109,550 sq. ft. on the Peninsula.

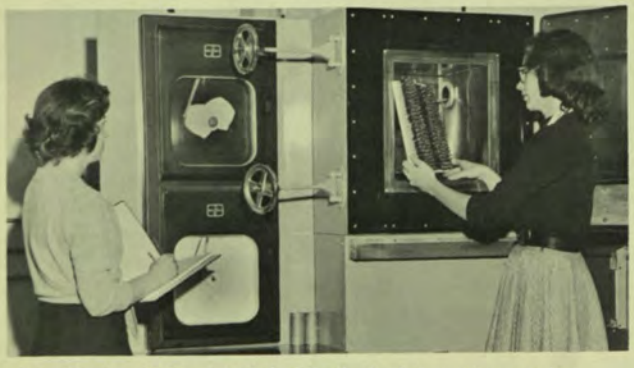
Quality Control . . .

insures the reliability of Fairchild transistors by maintaining a constant check on the device from the incoming material inspection until the finished transistor is ready to be shipped. There are quality control inspection stations throughout the entire production operation. A sample of units from each shipment is tested to insure conformance to the customer's specifications, and samples are drawn from weekly production for life and environmental testing.

Marie Olsen operates an optical comparator, a device for precise measuring of dimensions, in the receiving inspection station where all material to be used in the fabrication of transistors is tested. Recording data is supervisor Ray Wollesen.

Ethel Evans makes an electrical inspection in the pre-diffusion stage of the transistor. She is using a four point probe to measure the resistivity of a lapped wafer.

Quality control Foreman George Cone, Department Head Jay Farley; Engineers Roger Smullen and Ed Carmichal; and Ken Doster, section head of quality engineering.



Julie Slewing (left) and Linda Filseth check transistors coming out of the moisture resistance chamber. The units go into the chamber for a 10 day cycle in one phase of the environmental testing.

In the final testing area Mary Hendrix (left), and Beverly Tighe use a dc tester to check a sample of transistors from each outgoing shipment. Supervisor Ray Micotti is looking over final inspection results.

DR. GOTO VISITS

(Continued from Page Two)

it will impair the efforts of American producers to provide the capacity to meet existing and potential national security requirements; it will create instability in employment, thereby resulting in loss of skills; and, most important, it will result in an eventual reduction in research and development needed to further advance the art—all to the detriment of our national security program and efforts to meet the challenge of Soviet Russia for superiority in military technology in electronics."

In countering this charge during the interview, Dr. Goto declared, "I personally feel that Americans should not be jealous of our exports. The Americans have some advantages and so do the Japanese. The most important American advantage is that it is very rich, and three things support this—the natural resources, hard-working people, and inventiveness.

"We do not have the natural resources. We have to buy petrol, food, and other things from other countries. Now, we have only one thing to export and that is manpower. The Japanese have not been inventive, but this is a quality which is being developed at a rapid pace among our scientists. And so the only way we can raise our standard of living is by using our manpower to best advantage now, and later our inventiveness.

"The best way to think of Japan is as a factory. If the Japanese can make an article cheaper, they should be allowed to sell it. We have to co-operate internationally."

"My company has been importing transistors," interjected Mr. Mori of Kanematsu. "We are keenly interested in this situation and also concerned about it. The Japanese transistors are mainly used for entertainment, not for national defense. By exporting transistors from Japan to you, your engineers in this country will be relieved by not having to spend their time developing devices for the entertainment field and will be able to concentrate on national defense. Therefore, we are co-operating with your defense effort, rather than competing.

"In the future the manufacturers of transistors will be very careful of exporting transistors as separate units so as not to jeopardize industry here. We have learned a lot of lessons already."

Turning their attention back to Fairchild, Dr. Goto and Mr. Mori were in full agreement with Mr. Hata, who concluded, "The thing we were most struck with at Fairchild were the many beautiful women we saw in the halls."

Having a quiet coffee-break chat are Inez Williams (left), Verona Barlow, Mary Lou Chavez, Jean Dreiling and Donna Brown. The girls, who are deaf and cannot speak, do all their talking with their hands.

WORLD IS SILENT FOR FIVE F.S.C.ERS

Jean Dreiling is a pioneer. When she came to work at Fairchild last May, she opened new territory to herself and others like her.

Jean can neither hear nor speak.

Production manager Frank Grady's expressed policy has been to make every effort to hire the handicapped, as long as the disability does not interfere with job performance.

So Jean was on trial. She had to prove that she could master die attaching and make it a part of her soundless world. The deaf and mute girls we now have working at FSC are proof that she succeeded. All five girls have received high praise for their work from both their training and their work supervisors, who agree that they would be happy to hire other deaf people.

Inez Williams, one of the five, has turned her handicap into an advantage. Inez works in quality control on ultrasonic equipment that can cause extreme noise fatigue to a hearing person. She was oblivious to the sound until last week. Ray Wollesen, her supervisor, told of Inez' excitement when she actually heard a noise from the high frequency equipment.

However the situation is not always made to order for the girls and they have difficulties to overcome. Inez, remembering her first few days in quality control, described the wastebaskets overflowing with discarded notes.

At home all the girls lead normal, active lives. Jean, Inez and Donna Brown and Verona Barlow, die attachers, all have deaf and mute husbands and children who can speak and hear. Mary Lou Chavez, Verona's sister, is also a die attacher. The girls have all gone to state deaf and dumb schools and Mary Lou attended the deaf and dumb college in Washington, D.C., the only university for the deaf in the world.

In describing her home life, Donna indicated that there were no particular problems in bringing up normal children. "They become adjusted to the situation very early—about the age of one year and, of course, soon they become experts at sign language."

"Hearing the baby cry, the door bell ring, or the alarm clock in the morning has been taken care of," Verona added. "All of these sounds activate lights in every room in the house which go on and off."

"Aside from attending the state deaf club functions — basketball tournaments, bowling, picnics and conventions —our social life is about the same as any average person," noted Inez.

All five of the girls are happy with their work here at Fairchild and all intend to stay here as long as possible.

Inez was spokesman for the group when she summed up the feeling of responsibility they have, not only to themselves and to the company, but to others like themselves: "I would recommend hiring more deaf people. They try to learn their job quickly and well so that the people who hire them will know other deaf people can do it too."

DIODE NAMES WORKS MANAGER

Donald E. Yost has been named works manager for the San Rafael Diode Plant. In this position he'll be responsible for all manufacturing operations.

Don was formerly manager of central manufacturing engineering at Lockheed, Sunnyvale. He received his B.S. in electrical engineering in 1948 from University of Michigan and a master's degree in 1951 from University of Buffalo, where he became an instructor in electronics. Don, his wife, Patricia, and son, Jeffrey, are living in Saratoga but plan to move to the San Rafael area.

Diode has already outgrown its first plant and an additional 1000 sq. ft. have been rented at 1001 "D" St., San Rafael, to accommodate its 60 employees. Services including sales, accounting, purchasing, personnel, and planning will move into the new building.

Production facilities are now complete, including diffusion, masking, testing, and instrumentation. This month production will be more than doubled over January, according to plant manager Bob Freund, and the plant will begin shipping units within the next few weeks.

Among personnel leaving the Mountain View operation to take positions in San Rafael are Jack Yelverton, personnel manager here, who will be Diode administration manager, George Korpontinos, sales liaison engineer, who will fill the post of sales administration manager; Fred Grass, production control supervisor, taking over the production control manager slot; and Chuck Smith, line foreman, who will take over a similar job at Diode.

Diode's new employment manager is Thomas A. Carwardine, who joined Fairchild two weeks ago. Tom has been personnel supervisor for Continental Can Co. in Sacramento and Oakland since 1954. He received his B.S. degree in personnel relations from Northwestern University in 1950. Tom and his wife, Mary Lynn, have two sons, Robbie, 5, and Jeff, 3.

Start Heart Drive

From February 15th through February 19th there will be 900 volunteer collectors who will visit professional buildings in downtown areas during the Santa Clara County week-long effort to draw funds and attention to the necessity of combating heart disease.

The Heart Fund will officially open its campaign February 1st and climax on "National Heart Sunday" February 28, a one-afternoon residential drive, in an attempt to reach the county's $93,000 goal.

Donald Yost

Tom Carwardine

USE QUINCUNX FOR Q.C. COURSE

Quality Control's quincunx will come in handy in the refresher course the department is holding for all its engineers and supervisors.

The course, which will cover some of the basic techniques involved in quality control, will be taught by members of the department. Jay Farley, department head, will give the introduction to the sessions; Roger Smullen and Ray Micotti are in charge of the meeting on attributes sampling; Ralph Auer and Charles Arkebauer have the session on variables sampling; Walter Schneider and Roy Wollesen are responsible for experimentation; Edward Carmichael will teach the session on tools used in quality control work; Ken Doster will teach cost analysis; and George Cone, government specifications and reliability.

The series possibly will be a forerunner to a training course for foremen and plant engineering personnel.

If you're wondering what a quincunx is, it's a mechanical board used to demonstrate graphically a normal curve.

NORMAN TO TALK AT CONFERENCE

Bob Norman, head of device evaluation, will present a technical paper titled *Solid State Micrologic Elements* at the Seventh Annual Solid State Circuits Conference in Philadelphia on February 12.

The paper, co-authored by Isy Haas, Jay Last, and Norman, describes basic micrologic elements which operate at 20 mc. In conjunction with the paper, Bob will demonstrate the feasibility of using uncased micrologic elements for packaging the logic system of an entire real-time digital computer in a volume of 1.5 cubic inches.

Norman's presentation will be part of a session titled *Microelectronic Considerations*, scheduled for the final morning of the three-day conference. This session will take place at University of Pennsylvania and will be presided over by another Fairchilder, James R. Nall, who recently won a government prize and drew considerable public attention for his work in microcircuitry.

The microcircuitry group at Fairchild which developed the micrologic elements includes Nall, Haas, Last, Norman, Lionel Kattner, Gary Tripp, Bob Martin, and technicians Chet Gunter, Melvin Hoar and Jim Wilkerson.

WRITES BOOK

(Continued from Page One)

tions; The Extraction and Refining of Magnesium.

Sheldon, one of the founders of Fairchild Semiconductor, did much of the original research for the book while he was with The Dow Chemical Company in Midland, Michigan. He served there as research metallurgist and group leader in the plastic deformation of magnesium and its alloys.

Since that time he has worked in the research and development of semiconductor materials and device development, first with Shockley Semiconductor Laboratory in Mountain View and then with Fairchild.

A 1948 graduate of Rensselaer Polytechnic Institute, Sheldon continued his training at Massachusetts Institute of Technology and received an Sc.D. degree in physical metallurgy in 1951.

Although this is Sheldon's first book, he has published many technical papers in the fields of precipitation, plastic deformation, and semiconductor device behavior. One of these papers won the Alfred Noble Prize of the American engineering societies in 1954.

Sheldon, his wife, Patricia, and sons, David, 8, Steven, 7, and Wayne, 1, live in Los Altos.

Coach Leo Lujan gives some pointed instructions to FSC basketball team members Bill Simonson (left), Rich Wills, Dick Cole, Dick MacElroy, Gary Tripp, Jerry Mulligan and Glen Atkinson. The pointers evidently paid off. FSC won its last game with Anderson's Auto Parts 48 to 13.

HUNTS HAUNT

The unqualified success of the chess club has prompted organizer Lars Lunn to look for more comfortable surroundings. What Lars has in mind is something with a congenial atmosphere. Ideally, it should be very peaceful and large. Any suggestions?

Lab Notes

By Mike Julian

With open arms, the old R & D Lab welcomed back two of its lost sheep; Evelyn Miller and Shirley Brosius have just returned from a 21-day vacation in Mexico. The girls said they were able to pick up enough of the language to live quite comfortably. The very first thing they learned to say was "dos cervezas." When they were asked what they thought of Mexico, they replied in unison: "The ocean was warm and the rum was cheap."

The smiling face of George Langevin, old number 25, is back at R & D. George tried working at the Mountain View plant for a couple of months but finally gave it up as a bad thing; too many people there, he said.

And now sports fans, a blow by blow description of a "Basketbrawl" game. Once upon a time, our Gallant Fairchild Five started playing basketball with another team. Things went along fine for about a quarter with our boys leading. The other team got together and said, "We're not doing so well. Let's mix a little boxing, a little wrestling, just a dash of football, and we're bound to win."

But no matter what the Villains did, the Fairchild Five piled up point after point. The game ended rather spectacularly with a villain jumping up and down, with hob-nailed basketball shoes, in the middle of one of our boys.

BOWL AT 1 A.M.

At 1:00 a.m. on Saturday morning, the swing shifters are rolling 'em in the aisles at El Camino Bowl. So for those of you who have nothing too much to do at about 1:00 a.m. next Saturday, they invite you to come down.

A couple of bowling stars who obviously shine brightest at night are Paul Vogel and Jerry Dempsey. Paul really sends 'em flying. His average is 161 and his high game is 243. Following closely, Jerry averages 160, while his high game is 193.

Barbara Simer is a star also, but of the twinkle-occasionally variety, rather than the "glitter-all-the-time" type. Babs has an average of 86 and a high game of 123.

FSC LEAPS INTO '60 WITH DANCE

It's Leap Year. There's no better excuse to have a party, so our Social Committee has planned a Leap Year Dance for Saturday, February 20, at 9 p.m. in the Fiesta Room at Lou's Village, San Jose.

There will be a seven-piece orchestra and refreshments. Ladies can start now getting in training for the Sadie Hawkins race and there will be a snowball dance and a shoe dance. Scouts are out seeking talent for a variety show, but you can save them the trouble and make sure they don't overlook you by calling Marilyn Ciszewski, Ext. 395.

Volunteers are also needed to draw large posters for publicity and decorations.

Informal dress will be right for the evening and dance tickets will be on sale soon at $1.00 per person.

Call Carol Himsworth, Ext. 211, dance chairman, for any further information.

OFF THE LEADWIRE

Sheldon Roberts, head of the materials section at R & D, will speak this week at the American Society of Metals Conference in San Francisco on "The Growth of Compound Semiconductor Crystals" . . . Last week FSCers queued up for free flu shots, on a voluntary basis. . . . Fred Grass has a good thing going for him. The cigarette lighter he won at the Christmas party was the third door prize in a row he's taken home from the Sunnyview Family Club. Dick Goodman, Nell de los Santos, John Sentous, David James, Donna Brown, and C. S. Roberts also won lighters. Howard Lawson won the transistor radio, and coffee makers went to Aimee Anderson and Paul Beneteau . . . Greg Harrison, a production management trainee, has been promoted to general foreman of electrical testing from his masking foreman's job . . . Sixty-two NPN final assembly line girls threw a bash in the cafeteria recently to say goodbye to their foreman, George Compton, who transferred to wafer fabrication. Said George, "No wonder they hate to see me leave. They've got me well trained." . . . Eunice Ann Pickthorn, masking, became the bride of Judson P. Brahmer on January 16, at the Christian Center Chapel in South Palo Alto. . . . It was a son for Gordon Wendlandt, a lab technician at R & D, and wife, Eleanor. Michael Dale was born on January 15. His sister, Nancy Jean, is 3 years old. . . . Samuel Luppo, engineering services, was also presented with a son, Samuel, Jr., by his wife, Jean, on December 21.

Around the Plant

by M & M

For the benefit of all you understanding and everloving spouses at home, us gleaners and authors wish it firmly understood that our only ambition is to write deathless prose, be it fact or fiction. If it makes a good story, we don't bother lousing it up with facts.

Some lucky guy kissed 97 girls at the Christmas party! Ohhh-hhh, such stamina! Must be the reward for clean living and pure thinking. What I want to know, though, is, who kept count?

These things always happen to someone else, but this time it happened to Irene Schuler—the gal who handles all your hospitalization insurance questions. The garage of her new home went up in flames at 5 a.m. Both cars were a total loss, and the family is putting up in one of the local motels for the nonce. Is it your Druid blood, Irene, that prompted you to welcome in the New Year with such a nice warm bonfire?

When the old black magic is running around and your wafer films over because your "mike" won't focus properly, don't give up the ship and go home. Just don't hit your toes when you drop the "mike" on the floor!

Linda Filseth, Q.C., has a new name in the accounting department. It's MUD! Linda decided last Tuesday to fly off on Wednesday for a Wisconsin holiday.

Lead Wire

Vol. 2, No. 4 | Fairchild Semiconductor Corp., Mountain View, California | April 1960

HOLD CEREMONY TO BREAK GROUND FOR DIODE PLANT

The ground was symbolically broken at the site of Fairchild's diode plant in San Rafael on March 18. This was the formal beginning of a project that will end in September when a multi-million-dollar 60,000-square-foot industrial facility will stand where now only brown earth stretches across the flat acres to the foot of the hills.

"In September there will be a busy industrial complex where we're now standing. Its basic purpose will be to produce diodes at a profit—a profit that will not only show on Fairchild's books, but will be reflected in the character and landscape of Marin County."

General Manager Bob Noyce made this statement to over 60 Marin County civic and business leaders and Fairchild officials who had gathered at the building site for a brief ceremony.

"To locate our diode plant, we needed a clean area, because our manufacturing processes demand absolute cleanliness. We needed an area with an expanding high-level labor market, because nearly half of the building will be devoted to administration, sales engineering and development laboratory areas and our production people are, in a sense, well-trained technicians. We needed an area where the physical appearance of our plant would fit in harmoniously with surrounding structures, an area where our employees could find homes in attractive, convenient residential areas. We found all of this here in Marin," he told the group.

In concluding his remarks, Dr. Noyce said, "Fairchild's diode plant in San Rafael is a reality today. This fall it will be a landmark in Marin County's progress—a landmark of which all of us can be justifiably proud."

Fred P. Enemark, president of the Marin Industrial Development Foundation, introduced the speakers to the assembly and Mayor John McInnis of San Rafael and Walter Castro, Sr., chairman of the Marin Board of Supervisors, officially welcomed Fairchild to the new plant site. Preceding his remarks to the

(Continued on Page 4)

Turning the first symbolic shovelful of earth for Fairchild's San Rafael diode plant are the five men who spoke at groundbreaking ceremonies at the building site on March 18. Left to right they are Mayor of San Rafael John McInnis; Fred P. Enemark, president of the Marin Industrial Development Foundation; Robert Freund, general manager of the diode plant; Robert Noyce, vice president and general manager of Fairchild; and Walter Castro, chairman of the Marin Board of Supervisors.

FSC PLANAR BIG NEWS AT IRE SHOW

Fairchild's new planar transistor seemed to be the most talked-about development in the transistor field at this year's IRE show in New York.

Introduced to the public for the first time at the show, the 4200 line of NPN transistors received the lion's share of attention because it is nearly universal in application. It is superior to previous NPN types in power dissipation, gain, reverse leakage, and reliability.

The planar device can be used in many applications that previously required a device with special characteristics, and performs the job better than a unit specifically designed for the required job.

Christened the 2N 1613, the new unit is different from the mesa types in that both the collector-to-base and the base-to-emitter junctions are embedded in the top surface of the planar structure. In the mesa structure the collector-to-base junction is on the side of the device chip. The new structure has greatly reduced surface sensitivity compared to previous devices.

The planar device structure is also used in Fairchild's diode line.

NUMBER OF EMPLOYEES
1390

Charlie Campbell, personnel head (left), explains the workings of the personnel department to a group of manufacturing supervisors. The supervisors are attending a series of discussion sessions designed to acquaint them with the various departments in the company.

SUPERVISORS ATTEND SEMINAR SERIES

All manufacturing supervisors are currently attending a series of seminars under the direction of Charlie Sporck, production manager.

Initiated for the purpose of familiarizing the supervisors with all the departments of the company, the company organization and objectives, the discussion sessions have been led by representatives from various departments and members of the executive staff.

Meeting every Thursday, the group has so far discussed the cost accounting department, had a session with General Manager Bob Noyce and Operations Manager Frank Grady to discuss overall company organization objectives and policy at both the company and the corporate level, and is now investigating the personnel department with the help of Personnel Manager Charlie Campbell.

The program's objective is to help the supervisors function more effectively in their positions and to make them more knowledgeable so that they are better equipped to answer questions for the people who report to them.

Running concurrently with this program is a semiconductor course given for the manufacturing supervisors by Dr. Harry Sello, head of process engineering.

SAVINGS BOND DEDUCTION PLAN TO GO INTO EFFECT HERE IN MAY

A U.S. savings bond payroll deduction plan will be initiated by Fairchild beginning May 1.

Employees who wish to participate will be given an IBM card in the near future. On the card they will check the amount they wish deducted from each pay check and they will sign the card as an authorization to the accounting department to make the deduction.

After an employee has submitted his card to accounting, he may change the amount deducted or stop the deduction entirely at any time by submitting a written request to the accounting department.

Deductions will begin with the first pay check after May 1.

Having money deducted regularly from a pay check provides an easy, sure way to save. United States Savings Bonds now pay 3¾ per cent interest compounded semiannually when held to maturity in 7 years and 9 months. When the bond reaches maturity, the United States Treasury guarantees a 10-year extension. At maturity U.S. Savings Bonds return $4.00 for every $3.00 invested.

Employees will be given further information on the Payroll Savings Plan before it goes into effect by Dick Denzler, who is co-ordinator for the program.

Clifford Lionbarger was recently appointed manager of quality control for the diode facility in San Rafael. Cliff attended the University of Minnesota and University of Iowa, where he majored in business administration. He served with the Eighth Air Force in England during World War II. Cliff was associated with the Quck Set Lock Co. in Anaheim, Calif., as a quality control engineer, leaving to join Hughes Products Co., Semiconductor Division, in 1955. At Hughes Cliff was manager of quality control in charge of the diode manufacturing quality control program.

Build Data Logger To Test Reliability

Going into operation this week will be an automatic testing and data-logging machine that has been in development for seven months.

Built by instrumentation especially for use by Julie Hillman's reliability evaluation group in the Autonetics program, the device will automatically select transistors one at a time, measure the transistor on three parameters, translate the information, and record it on an 028 IBM card punch. Each transistor is numbered and has a corresponding numbered card.

This testing equipment is unique in that it will indicate exactly the measured parameter value. Most other automatic testing machines will only indicate two predetermined points between which the value lies.

Brian Bell, project engineer who developed the data logger, explained, "Take a hypothetical beta (current gain) test. Say the beta of a transistor is 35. The data logger would say 35, but other testers would say that the value is less than 20 and no greater than 80. This is a close enough tolerance for normal applications."

Since there is a card punched for each transistor tested, and the exact value of each test is recorded on the card, it is possible to compare the values of a particular test on one transistor over a period of time, and so indicate the reliability of a unit. The trend of a particular unit is predicted simply by putting a point on a graph for each successive retest, then following the points to determine what direction the transistor is taking.

In pointing out another application for the data logger, Brian said, "If you want to use a transistor in a critical circuit and it is necessary to have a unit of known characteristics, by having units recorded in this manner, you can run through the cards and pick out a unit that has the exact characteristics desired."

This fully automatic data logger can test one transistor every two seconds.

A semi-automatic data logger which tests on eight parameters has been in operation in the final testing area for some time. Here it is necessary to insert a transistor and push a button.

"In the new system," declared Brian, "all you have to do is plug in a board that holds 100 transistors. Once the machine is started, it will select a transistor, test it, record the data and then go to the next transistor."

Mike Purniaya and six technicians have been working with Brian on the project.

PHYSICIST QUIZZES SPACEMEN'S PAL

Dave James, an FSC physicist from R & D, was curious when he heard that Reinhold O. Schmidt was going to be in town.

Reinhold Schmidt is one of America's foremost experts on U.F.O.'s. He should be, he says, because he's ridden in one. For Mr. Schmidt, the mystery of "unidentified flying objects" has been solved. Actually they're space ships from Saturn, he says.

Mr. Schmidt was scheduled to visit a local business firm recently to talk about his adventures with the Saturnians. If there is one person in the world who believes Reinhold Schmidt took a trip to the North Pole in a Saturnian space ship, it's Mr. Schmidt.

Dave wasn't so sure, but being a good scientist, he decided to investigate before making a decision. So he set out for Sunnyvale to talk to Mr. Schmidt.

DAVE: Where did you first see the space ship and meet these Saturnians?

SCHMIDT, handing Dave a copy of "The Kearney Incident": It's all in here. This is my first book all about my meeting with the Saturnians. I was driving along a road near Kearney, Nebraska, on a grain-buying tour, my car stopped, and I saw this cigar-shaped space ship in a field. The people inside waved me to come over, told me who they were; I drove my car inside the ship, and we took a trip to the North Pole.

DAVE: Oh.

SCHMIDT: The Saturnians look just like me or you, and they talked English with kind of a German accent.

DAVE: How did they learn the language?

SCHMIDT: They adapt themselves to any area they are in.

DAVE: I'm British. If they talked to me would they speak with a British accent?

SCHMIDT: Come to think of it, they talked something like you. Maybe they have an English accent, not a German one.

DAVE: Saturn is cold. How does it support life?

SCHMIDT: Any of us could live on Saturn if we could get through the sky barrier.

DAVE: Are there any other forms of animal life and is there vegetable life there?

SCHMIDT: They have dogs; they mentioned that to me, but they are bigger than ours. They raise vegetables and a lot of fruit.

DAVE: Do they have the same minerals there as we have here?

SCHMIDT: Yes. But they have one metal that we don't have. That's what their space ships are built of.

DAVE: Is it an element or an alloy?

SCHMIDT: Yes.

DAVE: What do the space ships look like?

SCHMIDT: The one I've ridden in is about 200 feet long, 40 feet wide and 10 feet high. It tilts when you step into it so it must be a very light metal. The Saturnians told me that's why our missiles are blowing up. We don't have strong enough steel to withstand the pressure and heat.

DAVE: How many times have you ridden in their ship?

SCHMIDT: Three times. I just returned from a trip to Egypt with them on February 11. They took me to Egypt because they wanted to show me a space ship they buried in a secret pyramid over 600 years ago. You see they've been visiting earth for a thousand years. One of the men on the space ship was 2,000 years old.

DAVE: Well, if they're human-type beings, they must have an over-population problem. Do they reproduce in the same way Man does?

SCHMIDT: I don't know, but I'll find out when I get there.

"Would the Saturnians be interested in having a Fairchild transistor?" Dr. Dave James, physicist at R & D, asked Reinhold Schmidt, who assured Dr. James that the Saturnians would be delighted to receive the device and that he would give it to one of them the next time they contacted him.

DAVE: Are the Saturnians interested in earth politics?

SCHMIDT: No. Why they have contacted earth beings is that they don't want us making these atom bomb tests. You see they need the earth for power and light and they just aren't going to let us blow the world up.

DAVE: How will they stop us from using the atomic bomb?

SCHMIDT: They told me, "Maybe we'll have to slap one right back in your face." They did this already to Russia you know. They had contacted a man in Russia just like they contacted me, and they warned him that they weren't going to put up with any more tests. Russia went right ahead, so they just threw the bomb back. This has all been hushed up, of course, but the bomb devastated a vast area in Siberia and killed 17 million people. It destroyed Russia's atom stock pile, too. On one of my trips they took me over that area. It looks terrible.

DAVE: Do you think we can expect to hear from the Saturnians soon via radio signals?

SCHMIDT: Well, I certainly should hope so.

DAVE: When are they going to take you back to their home planet?

SCHMIDT: I don't know exactly when.

DAVE: How long will it take you to get to Saturn?

SCHMIDT: It's 73 million miles, you know, and they told me they made the trip in about 11 hours. I'm collecting little souvenirs to give my friends the next time I see them. The last time I was with them one of them said to me, "If we don't take something from here back home, they'll never believe we've been to earth."

That was all Dave needed to complete his investigation. He's not signing up for the next trip to Saturn.

Hold Groundbreaking

(Continued from Page 1)

group, Bob Noyce introduced Diode's manager Robert Freund to the Marin County audience.

At the close of the ceremony, a bulldozer crossed in front of the group, symbolizing the beginning of the construction, and the traditional shovelful of dirt was turned.

After the ceremony at the site, the guests attended a buffet luncheon at Rickey's Rancho Rafael.

Representing Fairchild at the ground breaking were Noyce, Freund, Julie Blank, chief of engineering services, who will supervise the construction work; Frank Grady, operations manager; Alan Joyce, comptroller; Vic Grinich, head of engineering; Gordon Moore, head of R & D; Jean Hoerni, physicist, who did much of the original development work on Fairchild's diode; and members of the staff from the Diode plant.

Also attending was James Stratta of Simpson & Stratta Construction Engineers, who designed the facility.

Work Around Clock To Keep Plant Clean

Spring is traditional house-cleaning time all over the country. But here at Fairchild it's always house-cleaning season. Our maintenance crews work day and night, all year long, doing their best to keep the plant spotless.

A neat appearance is essential for any place of business because the general impression a visitor gets from looking over a facility is bound to affect his confidence in a company's product. At Fairchild it's doubly important. The production of transistors requires a maximum of cleanliness and for that reason special air-conditioning and filtering equipment keeps the air as free from impurities as possible.

In order to keep the production areas dirt-free, the rest of the plant must be kept clean.

Keeping a production facility this size clean is a giant-size task, declared Plant Engineer Jim Stokes.

"We use enough wax here annually to supply an average housewife for over 2000 years. This much wax would keep all the homes in a city of 96,000 people spotless for one year," he exclaimed.

Every year the housekeeping force sweeps over 53,000,000 square feet of floor area. This is equivalent to sweeping the southbound lane of Highway 101 from San Francisco to San Diego, over 500 miles.

Every day nearly 80 cubic yards of rubbish and paper are removed from our plant, enough in a year to make an uncompacted pile the size of a card table and about eleven miles high.

"To keep up with a job this big is impossible for Fairchild's housekeeping force without co-operation from everybody here," Stokes concluded.

Lead Wire

NEWS STAFF

Publisher ..... Dick Lewis
Editor ..... Rosemarie Daley Hensel
Sports Editor ..... Doreen Hembrow
Art ..... Alex Karuzin
Cartoonist ..... Mike Julian, *R & D*
Reporter ..... Bea Ortu

A LOOK AT THE DIODE FACILITY

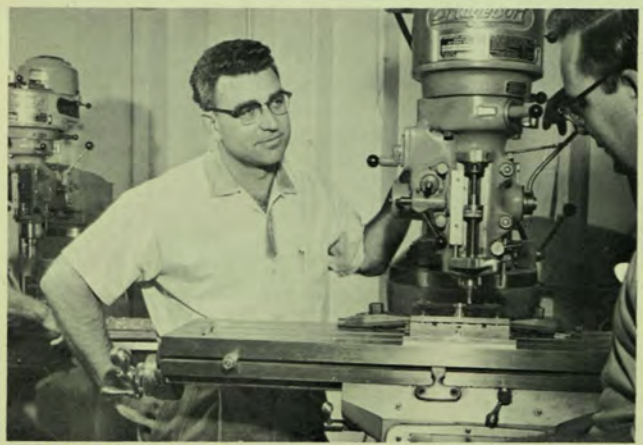
Diode in San Rafael, now producing the FD100 diode in temporary quarters on Jordan Street, will be in its new building by the end of summer.

Several weeks ago the plant began pilot runs of our second device, a general-purpose switching diode, number FD200. During April the FD200 will go into production.

Cliff Lionbarger, quality control manager (left); Don Yost, works manager; Ray Brown, engineering manager; Bob Freund, manager; and Jack Yelverton, administration manager.

John Ciano, head of production engineering (left); Basil Weir, head of development engineering; Niel Dorword, production superintendent.

Fred Grass, production control manager, (left); Stan Vieth, accounting manager; John Fisher, purchasing agent; Elmer Biegel, supervisor, customer applications group; and Jeff Wilson, plant engineer.



Irv Michelson, tooling department manager (left); Stan Chapman, experimental machinist leadman.

George Korpontinos, sales administration manager.

Secretaries, Dorothy Spagnoli (left), Barbara Hock, and Bonnie Martz.

To Answer Questions Asked by Employees

Beginning with this issue of *Leadwire*, each month some of the questions most frequently asked by employees about our company and our product will be answered.

This month we start by answering, "Exactly what is a transistor and what departments does a unit go through from the time it starts in production until it is ready to be shipped to the customer?"

A transistor is an electronic device made from a solid material called a semiconductor such as silicon or germanium. This electronic device is capable of amplifying or switching electrical currents. In this regard, a transistor performs the functions of a vacuum tube but is much more efficient, many times smaller and will last many times longer.

The story of a transistor in production begins in *crystal growing*, where the material from which the dice are formed is made. The crystal is sliced and the wafers go to *lapping*, where they are polished on both sides to a specified thickness.

The wafer is then ready for *diffusion*. Here the wafer is heated to just below the melting point of silicon and an impurity in the form of a gas is deposited on the surface of the wafer. This impurity moves (or diffuses) a specified depth into the wafer.

The wafer then goes to *masking*, back to *diffusion*, to *metalizing*, where the metal needed to stick the wires onto the dice at lead bond are deposited on the surface of the wafer, and into *back lapping*, where the wafer is reduced in thickness.

The wafer is now ready for *dicing*. Here the wafers are etched or cut into individual transistor die. The dice are then electrically sorted, one hundred per cent inspected for electrical and physical characteristics and then sent to *die attach*, where the die is attached to the header.

The next step is *lead bond*, where the leads are attached to the base metal; then to *lead weld*, where leads are attached to the header posts. Now the transistor is ready for *final seal*, where a can is put on the header. The transistors now go to *pre-sort*, where acceptable units are electrically separated from reject units.

The transistor is then aged and baked at high temperatures for 60 hours. The unit then goes into *final testing*. After testing, it is painted and final-tested again. If a unit passes these tests, it is accepted by quality control, re-tested and if it passes again is sent to *finished stores*, where it is marked, packed and shipped to the customer when it is needed.

THREE MEN JOIN FIELD SALES STAFF

Carl Steffens

Joseph Gattuso

Joseph Dimatteo

Fairchild has added three men to its field sales staff.

Carl Steffens has been appointed regional sales liaison engineer for the Central Region, attached to the sales department here in Mountain View. Carl attended Iowa State College and Nebraska State Teachers College, where he graduated in 1956 with a B.A. degree in physics and chemistry. He has done graduate work in physics at San Jose State University. Before joining Fairchild, Carl served with the U.S. Navy as a pilot attached to Moffett Field.

Joseph A. Gattuso and Joseph T. Dimatteo have been assigned to the Eastern Region. Gattuso will be field sales liaison engineer for the Florida area, working out of the Philadelphia sales district. He is a graduate of the United States Naval Academy at Annapolis, Md., receiving his B.S. degree in 1955. Gattuso came to Fairchild from Rheem Semiconductor Corp., Mountain View, where he was district sales manager for the Philadelphia-to-Florida area. He and his wife, Gilda, have two children.

Joe Dimatteo attended the University of Vermont and Purdue University, where he was graduated with distinction in 1950 with a B.S.M.E. He saw service all over the world with the United States Army, and upon his discharge joined the Kearfott Co., Little Falls, N.J., where he was a sales engineer. Dimatteo, who is a bachelor, will serve as sales liaison engineer for the Metropolitan New York area, working out of the Eastern Regional headquarters in Long Island.

REGISTER NOW FOR PRIMARIES IN JUNE

On June 7 Californians will go to the polls to vote in the state primary elections.

This year party presidential candidates will be listed on the ballot as well as party candidates for the United States House of Representatives and for state assemblymen. Senators Thomas H. Kuchel, Rep., and Clair Engle, Dem., have not completed their terms of office, so no United States Senators will be elected this year.

State senator for Santa Clara County is John F. Thompson, whose term continues until 1962. For those who live in San Mateo or Santa Cruz County, however, this will be an election year for state senators.

In order to vote in the primary, you must be registered in California. Our registration and voting procedures differ considerably from those in other states. To vote in any California election, you must have been registered at least 54 days before the election. **This means that April 14 is the registration deadline for voting in the June primaries.** Unless you move, or skip voting in one major election, registration, once completed, is permanent. In order to register, you must be a United States citizen, be a California resident for at least one year, and be a county resident for 90 days. No proof of residency is normally required.

You may register at any time during the year at a city hall or at any fire station (evening and weekend registration may be made at fire stations). Other times and locations are also set up in advance of elections. For specific information about your area, call either the city hall or the local chamber of commerce.

At the national convention of each political party, the delegates from each state will determine who will be that party's candidates for president and vice president. In some 15 states, presidential primaries will be held to determine who the delegates to the national convention will be.

In California convention delegates are chosen by party caucus before the primary, and their names are shown on the ballot only for the information of the voter.

This year the only presidential candidates who have petitioned to run in the California primaries are Vice President Richard M. Nixon and Gov. Edmund G. Brown.

OFF THE LEADWIRE

Harry Sello has been appointed head of a new department to be called process engineering. The department will be made up of two sections — Preproduction to be headed by Charlie Plough, and Sustaining, to be headed by Bill O'Keefe. . . . Members of the IRE Professional Group on Engineering Management will tour Fairchild on April 12. Bob Noyce will speak to the group on, "Planning for an Expanding Organization." . . . Fairchild, along with 11 other Bay Area industries, participated in the Palo Alto Industry Youth Science Show March 18, 19, and 20. Our display demonstrated the manufacture and application of semiconductor devices. . . . The catering service that provides food in the cafeteria has requested that they be notified if people are going to hold parties where food is served in the cafeteria. This will make it easier for them to gauge the amount of food to provide for each day, so there will be a minimum of wastage, and prices can be maintained at their present level. . . . There will be an all-employee dinner dance at Castlewood Country Club (near Pleasanton) on June 25. Johnny Vaughn's orchestra will play for dancing. As yet committee chairmen for the dance have not been chosen by the Fairchild Social Club. For further information contact Carol Himsworth, Ext. 211. . . . Forty girls from the Mountain View plant gave a surprise shower-luncheon for Jean Jones, engineering, on March 25. The girls presented her with a play-pen. . . . It was a September wedding for Anne Ramsey (Stufflebeam) who was married in Reno on September 5 to Kermit B. Stufflebeam, an employee of Anderson's Concrete Service. Anne's an assembler in the preproduction section. . . . Jack and Betsy Ehler's daughter, Robin Lisa, is a Leap Year baby. Robin was born on February 29, weighing 7 pounds, 4 ounces. Jack, process engineering department, and Betsy have another child, 3-year-old Kevin. . . . Lee Swasey, purchasing department, and wife, Mary, named their new daughter Karen Joyce. Karen weighed in on March 8 at 7 pounds, 3 ounces. The Swaseys have two other children, a son, Pat, who is 7, and a daughter, Kathy, who is 4.

Lab Notes

By Mike Julian

Paul "Fearless" King is back at R & D in charge of all diffusion furnaces. Accompanying him were a bottle of furniture polish, a feather duster, Alyce Washburn, several dust cloths, and a gross of white gloves.

One of our R & D girls is celebrating her second anniversary here at Fairchild. She is Tude Holt (good ol' number 41), who was the first girl hired on the production line.

Hats off to our maintenance crew. They are finally getting around to fixing our air-conditioning system. Not that anything was really wrong with it, but every afternoon at 4:02 everyone in the lab would drop whatever they were doing and grab sweaters, coats, blankets, etc., because at that moment a huge continuous blast of cold air was expelled from the air conditioner. It was, however, very considerate of our gallant men in grey to wait 'til the first hot wave of the season struck before they turned off the cooling system.

On their way to a ski weekend at Yosemite are a group from Fairchild's Ski Club. Getting into the car is Mary Grigsby, followed by Mary Eska, Dick Fouquet, and Dale Osburn. The ski club wound up the season with the Yosemite trip on the March 25 weekend. Earlier this month, Fairchilder skiers weekended at Squaw Valley. The ski club will meet during the Summer and Fall to plan for next season. Anyone wanting to join can contact Club President Dick Fouquet or Mary Grigsby, club secretary.

FSC Still in Battle For Bowling Title

Fairchildren from East and West are meeting in bloodless battle for mastery of the ten-pins. East Coast representatives, doing well to date, are Defense Products, Graphic Equipment and Potentiometer (East). Western representatives, who held the early lead, are Aerial Surveys, Semiconductor and Potentiometer (West).

In the second week of battle, Camera holds the No. 1 position, winning six and losing two. Semiconductor, in second place, has won five and lost three. Potentiometer (West) third, won one and lost seven.

Third week of this grueling battle has included schedules with Potentiometer (West) versus Camera and Semiconductor versus Survey.

A traveling trophy will be awarded at the end of the War to the winners and individual trophies for the team members.

On the home front, three cheers for Donna Watland with a high average for the season of 163, high game of 244 and high series of 623. George Reh had the season's high average of 166; high game goes to Dick McElroy with a score of 257 and George for high series with 622.

For team positions at the season's end it's team No. 11 in first place—Gary Tripp, captain; No. 9 in second place—Pat King, captain; and in third place No. 10—George Reh, captain.

Around the Plant

by M & M

Congratulations are in order for the newly elected officers of the manufacturing supervisor's organization, as yet unnamed. They are: Jack Callahan, president; Dick Cole, vice president; and George Compton, secretary-treasurer. The fellas have already scheduled their first "business" meeting for this Saturday night! Speaking of congratulations, we hear that those wedding bells will be ringing in April for Mary Tharp—best wishes to you, Mary.

New Car Department: Wanda Ash seen sporting around in a little Triumph —that's one way to help lick the parking problem at FSC. On the subject of sports, some people have all the luck. Mary Valdez had a great time at the Winter Olympics at Squaw Valley—spectator or participant? And did you hear about the newest organization at FSC? The girls now have their own softball team—pity that they can't find one capable male to coach them!

Ray Reposa turned out to be the proverbial "good sport" when the fellows in Shipping and Receiving pulled a fast one on him. Seems that Ray had ordered a new radio, and when it arrived, the boys took it out of the box and replaced it neatly, shipping order and all, with the gem of a radio that they have out there.

Two gals on swing shift NPN assembly, namely Lou Whitehead and Betty Brahler, decided to move into a different apartment so that they could be closer to work. There is just one small problem; the apartment has a pool, and we have heard that the girls are never on time to work now!

The great wild boar hunter, Charlie Sporck, has had his hunting days temporarily interrupted by the advent of a new addition to the family. On the subject of new fathers, we hear also that a certain 1140 line foreman will not be able to hunt this fall for the same reason. Said foreman had his 26th birthday not long ago, and all the girls got together with a cake and presents to help him celebrate in the cafeteria. Happy birthday, Tom Carey!

Jo Peralta and Merris Leaf had a rather unfortunate accident on the way to work the other day — apparently bumped into the back of another car, and the only reason that they got to work at all was that an anonymous engineer was at the scene, getting a ticket for reckless driving! That's luck?

Notes from PNP (Paul's nutty people): *What's Missing?* Has Paul Hinchcliffe lost something? It seems as if his hairline is getting higher, even around his nose. Paul has lost his distinction, or rather, his mustache.

Lead Wire

Vol. 2, No. 5 | Fairchild Semiconductor Corp., Mountain View, California | May 1960

AUTONETICS ORDER RECEIVED

Fairchild received a $450,258 transistor order from Autonetics this month.

Autonetics, a division of North American Aviation, Inc., is associate prime contractor for the Air Force's Minuteman intercontinental ballistic missile program.

Minuteman is a three-stage solid-fuel propelled ICBM and will be capable of carrying a nuclear warhead. It will represent a major economy in ballistic missiles, according to the Air Force, in that its simplicity will reduce ground support facilities and manpower requirements.

MEET TO DISCUSS CREDIT UNION

Employee representatives from every department in the company met last week with Bill Ryan of the California Credit Union League to discuss the possibility of instituting a credit union here at Fairchild.

Ryan gave the employee representatives pertinent information to help them decide whether or not to institute a credit union here, and, if so, what type. A credit union can be organized under either a state or a federal charter. Ryan explained the costs and the legal restrictions of the two types of charter.

Costs for the federal charter total $83. This includes an investigation fee of $20, a charter fee of $5, a license fee of $10, a recording fee of $2, and an estimated $46 for supplies. Total costs for a state charter are $88—a filing fee of $10, a county filing fee of $2, a franchise tax of $25 and a license fee of $5, with $46 for supplies. Annual costs vary with the size of the credit union. Minimum federal fees are $10 for supervision and a $5 examination fee. Annual costs under a state charter would include a franchise fee of $25, a supervision fee of $20, and a small examination fee.

Legal restrictions on the federal charter specify a maximum loan time limit of 5 years, a maximum loan of $750 unsecured (on the employee's signature),

(Continued on Page 2)

Jack Ehlers (seated), chairman of the reliability improvement committee, checks data with committee members Roger Smullen (left), quality control; Bill Reifschneider, production control; John Haldenwang, industrial engineering; and John Leermakers, sustaining engineering.

BEGIN DUAL RELIABILITY PROGRAM

Evaluation, Improvement Groups To Cooperate

Fairchild has instituted a dual system of reliability testing and correction in order to achieve a failure rate of .001% per thousand transistor hours of use. This is an average of less than one failure in 10,000 years.

For use in missiles and satellites, components with 99% reliability are not adequate. A system made of such components might well have only a reliability of .1%.

As part of an 18-month program, Julian Hilman's reliability evaluation group will have the job of conceiving and executing life testing to determine the reliability of our transistors. Even though Fairchild's transistors have the highest reliability of any on the market, we must make certain that we have a reliability rate of 99.999% (a figure greatly in excess of normal reliability requirements).

In order to make any improvement in reliability that is necessary, the company management has decided to work through the existing manufacturing structure rather than establishing an entirely separate organization. Jack Ehlers has been appointed coordinator for the reliability improvement program, and will be chairman of a reliability committee. John Leermakers from sustaining engineering, Roger Smullen from quality control, John Haldenwang from industrial engineering, and Bill Reifschneider from production control will serve on the committee.

Julian Hilman's group will keep the reliability committee constantly informed of the ways in which the transistors are failing (modes of failure) in life test. Jack Ehlers and his committee will analyze these modes of failure and determine how to improve process steps to prevent the failures from occurring in the future. The members of the committee will then carry out the improvements with the help of the people in their various sections.

(Continued on Page 2)

NUMBER OF EMPLOYEES
1390

Employee representatives meet with Bill Ryan of the California Credit Union League (seated at the head of the table) to discuss the possibility of instituting a credit union here at FSC.

DESCRIBES LAWS ON CREDIT UNIONS

(Continued from Page 1)

and $10,000 secured. There is no legal time limit restriction for loan payment in the state charter, except in the case of a real estate loan, where a 20-year maximum limit is imposed.

Maximum interest rates under both the charters are 1% per month on the outstanding capital. The maximum dividend paid on savings is 6%; however, there is no guaranteed minimum dividend. Ryan noted that under a federal charter a 6% return was not unusual, but that state plans normally pay a maximum of 3% to 4%, primarily because the state has a requirement for reinvesting earnings.

Both the state and the federal charters specify the way in which the credit union organization is to be set up. The unions are managed by a board of directors whose duties are delineated in law. Records must be kept in a legally prescribed way and are audited annually.

Credit unions are employee-run organizations. Management supplies only the office space for the union.

Further meetings between our employee representatives and Ryan have been scheduled. All employees will be notified when final decisions have been made by the representatives as to whether Fairchild will have a credit union, and what type of charter it will approve.

Lead Wire

NEWS STAFF

Publisher ..... Dick Lewis
Editor ..... Rosemarie Daley Hensel
Sports Editor ..... Dick MacElroy
Art ..... Alex Karuzin
Cartoonist ..... Mike Julian, *R & D*
Reporter ..... Bea Ortu

Jack Ehlers (left), chairman of the reliability improvement group, and Julian Hilman, head of reliability evaluation, look over some testing equipment Julian's group will use in their large scale reliability testing. Julian will be working closely with Jack in FSC's reliability program.

Appoint Core Group For New Program

(Continued from Page 1)

"Some of the things we will be doing to achieve the necessary reliability," declared Ehlers, "will be to improve the data collection and report systems, to pin down operating procedures for all process steps, to retrain the operators on the line to insure that they are following procedures precisely."

Julian Hilman will also be reporting modes of failure to Research and Development so that changes in the device itself can be made when necessary.

Ehlers' reliability improvement committee will report monthly to a larger liaison committee composed of department heads and section heads to explain projects that are to be undertaken and to report progress that has been made.

RECEIVE RIDERS TO FSC INSURANCE

Riders to the Company Group Insurance Plan received last week increase the minimum amount of free life insurance from $2,500 to $5,000 or one year's basic salary, whichever is greater, and amend the definition of eligible dependents under the hospital expense insurance.

Every Fairchild employee at the time he is hired becomes eligible for coverage under the Company Group Insurance Plan.

The basic policy provides coverage in four separate areas, which are combined to form the entire Group Insurance Plan. The four areas of coverage are life insurance, unemployment compensation disability, hospital expense insurance, and surgical expense insurance.

The amount of life insurance to which you are entitled depends upon your basic annual salary adjusted to the next lower multiple of $1,000. In addition to the amount of free life insurance given you, an optional provision is made which enables you to extend your coverage at a cost of 10 cents per week per $1,000 of insurance.

Unemployment compensation disability benefits are paid when you are unemployed because of mental or physical illness or injury. This area of insurance applies to disabilities not caused by your job and costs 1 percent of the first $3,600 of your wages in any calendar year.

Hospital expense insurance extends coverage to you and your dependents in the event of confinement in a hospital as a result of non-occupational accident or illness.

Surgical expense insurance benefits are payable if you or one of your eligible dependents undergoes an operation listed in the Schedule of Maximum Surgical Fees as a result of any non-occupational bodily injury or illness. You will find the schedule of fees is a part of your group policy.

To make a claim on any part of this plan, standard forms must be completed and submitted to the insurance desk so that your claim can be processed as quickly as possible. The claim forms for all types of coverage can be obtained at the insurance desk in the Personnel Section. If you need assistance on specific details or explanations as to the extent of coverage, refer to the insurance desk through your supervisor.

A representative of Ansul Chemical Co. looks on while a Fairchild volunteer fire fighter demonstrates the use of one of FSC's mobile fire extinguishers. The extinguisher, which holds 150 pounds of a powdered chemical and has a range of up to 50 feet, will put out a blaze almost instantly.

Some facets of Fairchild's accident-prevention program

Behind that space helmet is Elmo Ramsey, production control. Elmo is protected from the chemicals he's mixing by the safety mask. Since the picture was taken, white coverall suits have been issued to the people in chemical mix for added protection.

Bob Tams, stationery stores, demonstrates how to use the chemical showers located in strategic areas around the plant. The showers are for use in the case of an accident where an individual comes in contact with harmful chemicals.

That's Harry Barnes, engineering services, checking in the tunnel for noxious gas fumes. The Scott air pack he's wearing is a self-contained compressed air breathing apparatus.

Safety engineer Mike Michols uses a "sniffer" to test for combustible gases. These devices are used to test in every area of the plant to insure that no danger spots exist.

Production Number Describes Device

(This is the second in a series of articles which will answer questions most frequently asked by employees about the company and the product.)

Because of the highly technical nature of our product and because it is not always possible to distinguish among our various devices with the naked eye, many of our people have asked, "What are the different transistors which we produce and what is the difference between them?"

One way of identifying a transistor and distinguishing it from our other types of units is by its internal production number. Each digit in the number has a meaning. The first digit indicates the size of the device chip. A "4" means that it is a large geometry (medium power) unit, and a "1" means that it is a small geometry (low power) unit. In the second digit of a production number, a "1" means that it is a low storage unit, a "2" means that it has the planar structure, and a "5" or above means that it is a PNP unit. If the number is below 5 it is an NPN unit. The third digit identifies the type of package or header on the unit. A "0" is a medium power (TO-5) package and a "1" is a small (TO-18) package. If the last digit is a "5," it means that it is a high voltage unit. So we immediately know that a 4015 is a large geometry NPN high voltage unit in a small header.

The digits have the same significance in the small geometry series.

The letter or letters preceding the number series also have a meaning. An "X" means that the unit is in the experimental stage. When the unit is turned over to pre-production by research and development, it acquires an FT before the production number. (FT means Fairchild transistor.)

The FT number of a transistor functions only to identify the unit as it goes through the manufacturing process. When the device is placed in finished goods inventory, it acquires an EIA (Electronic Industries Association) 2N type number by which it is known.

However, before a unit is assigned a sales number, it is tested for its beta range (beta is the D.C. pulse current gain). So a sales 2N type number not only indicates the type of transistor but also its particular beta range. The FT 4000 transistors are divided according to their beta ranges into the registered type numbers 2N 696 and the 2N 697. The 4010 series is similarly divided into the 2N 717 and 2N 718; the 4005 becomes the 2N 698 and 2N 699; the 4015 is the 2N 719 and 2N 720; the 4100 is the 2N 1252 and 2N 1253; the 4500 is the 2N 1131 and the 2N 1132; the FT 1140 becomes the 2N 706 and the 2N 707; and the 4200 is the 2N 1613.

These are all of the transistors currently in production.

A happy group from Diode's bowling league line up behind league secretary Wyman Owens (seated) and Bill Busche, president. Standing are Fred Grass (left), John Diepeveen, Chuck Gunther, Bob Champagne, Dick Dickens, Herb Bartholomew. The league gets whole-hearted support from Diode employees.

TWO NEW DIODES TO ROLL IN MAY

Specifications on Diode's two new products, the FD-200 and FD-300 diode, are now firm. The FD-200 is a high-conductance, high-speed switching diode; the FD-300 is a low-power rectifier for military applications.

Sales samples for both these products will be available during April and Diode will begin production on the two devices in May.

According to Manager Robert Freund, 34 people were added to the production complement during April, and a swing shift was started April 11.

Among recent transfers from Mountain View to San Rafael are George Compton, who was a production management trainee here and is now a diode product supervisor; Al Desmond, a production management trainee here who is serving in the same capacity at Diode; and Tom Burke, R & D technician who has become a production management trainee at Diode.

Fairchild Leases Two New Properties

FSC has leased two new properties to accommodate our growing facility.

Julian Hilman's reliability evaluation group has moved into a 7800-square-foot building at 1062 Linda Vista Ave., Mountain View.

According to Julian, instrumentation for the group should be completed by the middle of July and they expect to start testing transistors at that time. In a year, reliability evaluation will have 100,000 transistors on life test, according to the present schedule.

Bill Hafner's instrumentation group will take over a 7700-square-foot building at 908 Industrial Street, Palo Alto.

Pat Gavitt, metalizing, came up with an idea recently that is under consideration by the sustaining engineering group. Pat suggested that wafers be cleaned by pressing them on filter paper and then swabbing them with a cotton daub dipped in hydrofluoric acid, rather than waxing the wafers to glass slide in order to clean them. This saves the time and labor it takes for the waxing operation.

John Hall has joined Fairchild as manager of the advertising department. John was formerly with Boland Associates, industrial advertising agency, as account executive servicing Fairchild. Prior to joining Boland in late 1959, he was with Marsteller, Rickard, Gebhardt and Reed, New York City advertising agency, as an account executive. He previously was copywriter with McCann Erickson advertising agency, New York, on consumer and industrial accounts. A 1951 graduate of Oglethorpe University, Georgia, with an A.B. in humanities, he also attended Columbia University, where he received an M.A. in philosophy and English. He completed course work toward a Ph.D. at Columbia in 1954.

Display Features Planar & Micrologic

The high spot of Fairchild's display at the recent IRE show in New York was the introduction of a new semiconductor manufacturing process, typified by our 2N 1613 "Planar" transistor.

Competitors immediately realized the significance of the "Planar" structure in that the low Icbo and broad beta range exceed by a wide margin the specifications of transistors produced by any earlier process, either here or elsewhere.

"We have thus served notice that in semiconductor technology we are not just a 'flash in the pan' but undisputed leaders in the field," says Dave Beadling, assistant marketing manager. "Military enthusiasm was evident in the form of requests for evaluation units," he noted.

Fairchild captured the front cover and lead story in the trade magazine *Electronic Daily*, published during the show. A series of four photos shot in the Fairchild booth was a basis for the article.

Fairchild "micrologic" was the big news among computer engineers at the show. Promising 70%-80% reductions in computer cost concurrent with a 95% size reduction, the new concept has received industry note in an article on small components in the April 11 issue of *Aviation Week*.

FSC HOSTS TWO IRE GROUPS

Fairchild was host to two IRE professional groups during April.

General Manager Robert Noyce entertained the Professional Group on Engineering Management here at the Mountain View plant and Julian Hilman, head of FSC's reliability evaluation group, addressed the Professional Group on Reliability and Quality Control at reliability evaluation's new quarters on Linda Vista Ave., Mountain View.

Julian Hilman talked to 80 members of his group on "Transistor Reliability."

He briefly outlined the design, fabrication and screening procedures used for Fairchild transistors, then discussed the goals of our evaluation program, the procedures we will follow, the set-up for data gathering and evaluation and the type of results we hope to obtain.

Over 130 PGEM members toured the facility here and then heard Dr. Noyce and Eugene Kleiner, head of manufacturing engineering, speak on "Planning for an Expanding Operation."

Dr. Noyce concentrated his remarks on product planning. He described how Fairchild was able to enter the transistor market although at its inception it was much smaller than any of the major producers in the field.

"This was done," declared Dr. Noyce, "by concentrating our efforts in product areas which were just beginning to grow, and through this concentration outperforming our larger competitors."

John Ciano, Diode's manager of production engineering, came to Fairchild from Raytheon Co., Newton, Mass., where he was head of the diode process engineering section. John is a 1949 graduate of Franklin Technical Institute in Boston, where he received an associate degree in industrial chemistry. He received his B.S. in engineering management from Suffolk University, Boston, in 1956. He has also taken graduate work at Harvard and at Boston University.

Robert L. Trent has been appointed manager of the newly formed design engineering department. In this capacity Bob will be responsible for industrial engineering, instrumentation, tool design and the machine shop. A graduate of Columbia School of Engineering, Bob received his B.S. and M.S. in electrical engineering (E.E.) in 1941 and 1946, respectively. He was at Bell Telephone Labs as a member of the technical staff from 1941 to 1957 doing systems development, transistor applications and transistor development. He comes to Fairchild from Texas Instruments, where he has been since 1957, most recently as manager, Germanium Development. Bob, and his wife, Dorothy Jeanne, have four children, Susan H., 14; Renee L., 12; Robert F., 10, and Jeffrey C., 7.

Dr. Noyce attributed our success in this area to the proper use of technical manpower. He noted that many companies finance a major part of their research and development efforts by seeking government contracts. Fairchild has sponsored all its own research and development, and so has retained complete control over the extent and direction of research efforts. In this way we achieve a great degree of flexibility in being able to drop unpromising projects and to concentrate on achieving the best possible production yields.

"Fairchild's objective is to develop products for sale at a profit, not to market our research as such," he declared.

Eugene Kleiner spoke to the group on the problems involved in planning the physical facilities for an operation such as ours. He discussed the difficulties in providing the gases and liquids used in the various stages of semiconductor production, the air conditioning and power requirements for the Mountain View plant.

He also noted that the assembly operation has been laid out in such a way that when a change is necessary it is not usually because of a change in the design of a device, but it is due to improvements in the machines that result in increasing production rates.

Around the Plant

By P & M

We may have heard it third or fourth hand, and it may not agree with your version, but we print 'em as we hear 'em, and fact is often stranger than fiction. Along that line, congratulations are in order to Charles Sporck, manager of our Manufacturing department, and his wife, Jeanine, who are the proud parents of a new tax deduction, a son Christian, born on April 8, and weighing nine pounds. He came into the world ready to bite a chunk out of it — equipped with two teeth! "Chris" is the third son for the Sporcks.

George Compton, one-time foreman on the NPN manufacturing line, was given quite a send-off to Diode. They held the doings at the Jamaica Inn and the place was really jumping. What with too many martinis and the like, it would be safe to say that a good time was had by all. George has accepted a new position at Diode as a product supervisor.

Conrad Wai Pac is the name that Irene Wong (1140 line) and her husband have bestowed on their new five-plus-pound bouncing baby boy. In Chinese, "Wai" means magnificent, and the "Pac" stands for Palo Alto, California, where he was born. Congratulations to you both, or all three, shall we say?

Dick Burzycki has deserted the 1140 line. No more of that "small stuff" for him. He's gone after the big game. He is now shepherding the 400 swing shift as NPN foreman.

The boys of the Chemical Mixing crew were just a few days late for Easter this year. Last week the boys appeared in costumes that would put the Easter Bunny to shame. It seems that they are the proud owners of a new set of duds, white nylon coveralls—they all pinned cotton tails on the other day to complete their costumes.

Happy birthday to Margery Felton, secretary to Frank Grady of our Operations department. She celebrated the big day April 21 with lunch at Chez Yvonne followed by dinner with friends.

The Preproduction girls held a big shindig on April 8 that was enough to put "Ming's" to shame. The gals moved many tables together in the cafeteria and had an elegant Chinese dinner brought in. The occasion? They sealed their first 10,000 units in one week! What else?

OFF THE LEADWIRE

KQED is interested in televising a science news series with Harry Sello, head of process engineering, as its guiding hand. If all goes according to plan, the program will run a half hour each week and will take up current developments in the fields of physics, chemistry and electronics. Harry will act as science news editor and, with a panel of experts, many of whom will be chosen from Fairchild's staff, will explain in a down-to-earth way what is happening in the science fields. . . . Liz Elstad is fast becoming a perfect lead welder. Liz is setting the pace for the 4200 line with over 16,000 perfect welds. She hasn't broken a lead in 3 weeks. . . . Congratulations go to Francis McDonough, 4200 masking room. Fran was promoted to the R & D masking room in Palo Alto. . . . Fairchild's golf league is looking for members. The Mountain View plant and R & D will join forces. Paul King and Helen Bonfadini are coordinating the league and anyone interested in joining should contact one of them at R & D. The league will golf one night a week after work at the Sunken Gardens Course in Sunnyvale. . . . Mary Ann Hrynezak, Julian Hilman's secretary, is off to Europe for a three months' vacation. . . . Donis Coutts, Tom Bay's former secretary, left Fairchild this month. A native San Franciscan, she wearied of Peninsula living and decided to go back to the city. Plant friends bade her farewell with three luncheons and a cocktail party. Tom's new secretary is Marilyn Karnatz. She came to Fairchild from Lockheed.

Plan Noontime Swims

Beginning May 4, all FSC'ers can have a noon-time swim once a week, on Wednesday from 12:15 to 12:45.

Anyone interested should contact Mary Lou Weis in Bob Noyce's office, Ext. 301. The price is 75 cents per month in advance or 25 cents per week.

Arrangements have been made to use the new Mountain View pool located at Rengstorff and Crisanto Avenues until the end of June.

From June 22 through September 7, while school is out, Fairchildren will use the Mountain View Union High School pool, also an outdoor pool, located on Castro Street. When school begins in September, swimmers can go back to the Rengstorff pool, while the weather permits.

Lab Notes

By Mike Julian

As a body, the natives of R & D shed a tear for Tom Shillinburg. No longer will the smiling face of "Sparks" Shillinburg be seen above an open neck sport shirt. He is gone forever; gone to Mountain View as a foreman, in, of all things, a white shirt and tie. The passing of "Sparks" is mourned by all.

On a brighter side, we have a new first for the Chemistry Section. Each and every member of that glorious group is now equipped with a white lab coat. Most visitors are impressed when they pass a room and see several white clad people working madly away. The only blemish on the golden illusion is that sometimes a sentence is punctuated by the sound of a bouncing beaker.

Data From Diode

Diode's bowling league started with a bang in February and it's been going strong ever since. Thirty-four out of the 65 employees we had then turned out for the first night of the season.

It seems that Chuck Gunther wants that high game. He came through last week with a 232. Stan Chapman jumped into second spot with a 215 on the same night.

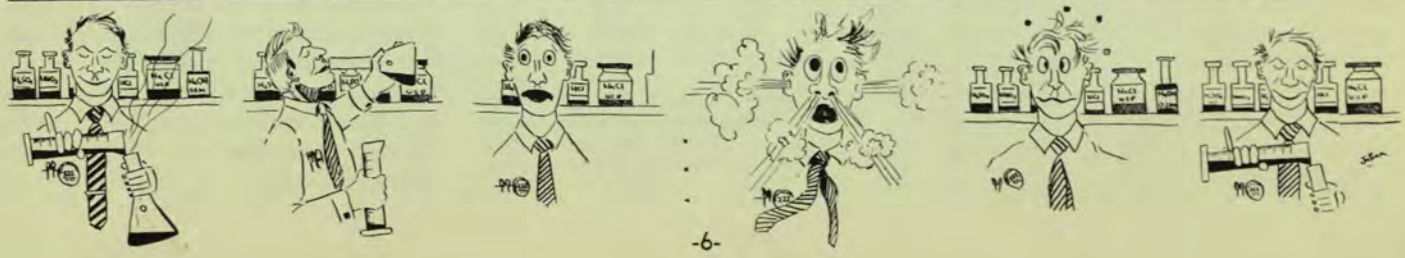
And by the way, what has happened to Bob "Hands" Champagne's great bowling form? Too much dancing, maybe!

Of course bowling isn't all there is to do here. It is said in some circles that Diode is Fairchild's Country Club.

A round of applause for Mary Busolo; she has just been promoted to Leadwoman.

We may be seeing assembler Cynthia Corwin on television one of these days. Cynthia is training for the Roller Derby.

As luck would have it, our Don Rogers' secretary, Jane Slaughter, convinced George Korpontino's secretary, Ruth Shepardson, that they both should enter a local contest. The prize was a 21-inch TV. Who now owns two TVs?—Ruth! And Jane is looking for another contest to enter so that she too can have a TV.



Lead Wire

Vol. 2, No. 7 | Fairchild Semiconductor Corp., Mountain View, California | July 1960

RECEIVE ORDERS FROM AUTONETICS FOR $1.5 MILLION

Orders amounting to over $1.5 million for transistors to be used by Julian Hilman's group in the Autonetics Reliability program were received during June.

These units will be delivered to the Reliability Evaluation Division at the rate of about 2,000 a week over a 12-month period. The transistors will be subjected to intensive life tests to determine how many transistors will fail while operating at conditions simulating actual use in the guidance system. Autonetics Division of North American Aviation is building the system for Minuteman Intercontinental Ballistics Missile.

During the reliability studies, extensive data will be kept on each transistor. The information for each transistor will be punched on the unit's own IBM card. RED will be handling a million IBM punch cards, according to statistician Herb Ginsburg. If you should put these cards in a single file, one on top of the other, they would tower over a 62-story building.

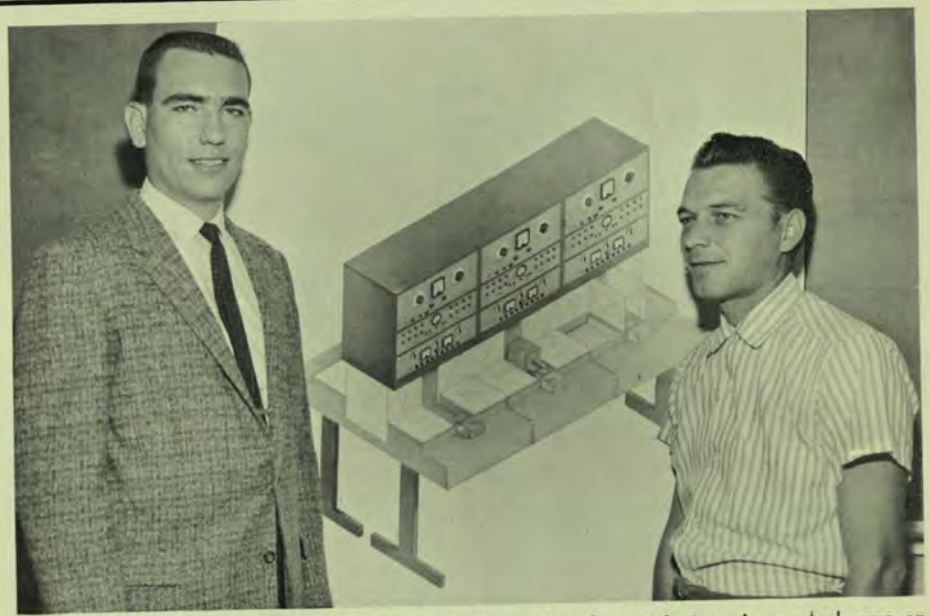
"We're going to punch out data for three and one-half million electrical tests. The IBM equipment will perform 11 million arithmetic operations in the process of our getting the basic statistics," Ginsburg declared.

This number of calculations would take care of FSC's current payroll for 42 years.

Even with FSC's reliability testing program, and the normal production and quality control tests that all of our transistors are subjected to, units purchased by Autonetics for use in the guidance system don't leave the spotlight when they leave FSC. Autonetics has set up special shipping, handling, and testing systems for Minuteman.

Although our units receive great care here, damage can occur by handling during the time after they leave Mountain View and before they are wired into printed circuit boards at Autonetics. To eliminate this possibility by cutting down the amount of handling, a large number of parts (transistors, capacitors, resistors or diodes) are placed into special sandwich-construction component

(Continued on Page 5)



Chuck Bodine (left) and Nevin Engle, mechanization and tooling project engineers, look over an artist's drawing of the mechanized die attach, lead bond and lead weld stations that will be used on the 4000 line. Machinery will be anodized in blue, grey and gold.

Tooling Designs Semiautomatic Stations

MECHANIZED LINE TO OPERATE BY FALL

Anodized Colors Will Liven Assembly Area

Three semiautomatic assembly stations will be installed on the 4000 line by September.

Designed by mechanization and tooling, the high reliability die attach, lead bond and lead weld stations plus a semiautomatic wash, a vacuum bakeout system and an improved dry box will perform on this line. The line will eventually consist of 15 stations.

When the new line is in operation, the transistors will be assembled without operators ever handling a unit. Although the stations will not do away with a single operator, they will greatly improve operator efficiency.

Now the die attach operator loads the header into her jig, places the preform and the die on it, makes the bond, puts the unit back into a storage rack which is hand-carried to load bond. Here the operator again takes each individual transistor out of the rack, bonds lead wires to the die and places the transistor back in the rack which is carried to lead-weld. Here the operator performs her operation, also manually. All during this time, if there is any lag in the production line, individual carriers are loaded into desiccator boxes to keep them clean. After assembly, the transistors are hand-washed and hand-loaded into the vacuum bake system.

With the new units, a preform will be automatically loaded on each header before it reaches the die attach operator. Then to make the die attach, she simply has to put the die on the preform and bond it there. The unit then travels on a conveyor system to lead bond, where a new type of jig will be used. Lead wires will be automatically cut and balled here. The unit will then travel to lead weld, where a new type of electrode which insures higher reliability will be used to make the welds.

The conveyor system which will carry the headers to all of these stations runs down the middle of the table and is completely enclosed. Besides serving as a conveyor, this tunnel also insures that the transistors constantly will be kept in clean, dry air all the way through final assembly.

Immediately upon leaving the assembly line, a transistor will go into a new type washer. After leaving the wash, the transistors will be dried and passed automatically into a storage station. From the storage station they will be loaded into the vacuum bakeout ovens.

(Continued on Page 5)

Chez Yvonne was swinging the night of the 25th when Fairchild held its "Dreamers Ball." Evening started with cocktails, then there was a buffet dinner and dancing. Door prizes were taken by Marie Hill, who won a transistor radio; Howard McLaughlin, who took home a blender; and 12 runners-up, who won Fairchild lighters.

FINAL SEALER WILL SPEED PRODUCTION

Mechanization took another giant step in San Rafael when Irving Michelson, manager of tooling for Diode, announced that the automatic final sealer was ready for operation.

John Ciano, manager of Production Engineering, predicts a five-fold production increase by the successful transfer of this machine to production.

The final sealer will take the diode contact, called the whisker lead assembly, and the glass body casing, called the first seal assembly, and automatically feed them into the final sealer. The sealer then orients the parts, making contact between the cathode, or positive pole, and anode, or negative pole. The contact pressure will be simultaneously compensated.

When proper contact is made, the header elements are then energized to complete the second or final seal. The diodes are then "picked off" the machine and dropped into a synchronized "lazy susan" which automatically segregates the production from each head. This means that quality assurance, the counterpart of quality control in Mountain View, can maintain close surveillance and control of the product.

The addition of the "lazy susan" was John Ciano's idea and the design work was done by John Diepeveen. The tooling department then built this attachment.

Casey Collins, Diode Maintenance mechanic, proudly shows off new automatic final sealer he operates.

Casey Collins, maintenance mechanic, operates this machine.

Diode production output continues to expand at a rapid pace. In order to meet demands for the product, automatic equipment such as this sealer is being integrated into the manufacturing line. Successful operation of this equipment will facilitate the next planned production expansion.

FCI HISTORY IS SUCCESS STORY

(This is the fourth of a series of articles answering frequent employee questions.)

Tell us something about Fairchild Camera and Instrument Corporation, FSC'ers have asked.

Fairchild Camera was founded in 1920 when Sherman M. Fairchild, now chairman of the Board of FCI, invented a fast camera shutter which made accurate photographs from the air possible for the first time. Since there was no one to build a camera to house the shutter, Fairchild began manufacturing aerial cameras as Fairchild Aerial Camera Manufacturing Company.

When it appeared that existing aircraft were inadequate for aerial photography, Mr. Fairchild designed and built the first cabin airplane to house cameras and photographer. Fairchild Airplane Manufacturing Corporation was organized and in 1929 joined with Aerial Surveys to form Fairchild Aviation Corporation. In 1937, Surveys and Airplane Manufacturing were separated and the latter transferred to a new corporation, Fairchild Engine and Airplane Corp.

After World War II, FCI explored the possibilities of producing new non-military products compatible with existing engineering and manufacturing processes. Among the products developed were the Scan-A-Graver, an electronic engraving device, oscillo-record cameras for industry, a line of medical and industrial x-ray cameras and, recently, a movie camera for home use which films and records sound simultaneously.

In addition to developing new products within the company, FCT has acquired other companies. Fairchild Semiconductor became a wholly owned subsidiary in October of 1957. In August of 1958 FCI purchased the assets of Acme Telectronix Division of NEA Service, Inc. In January of 1959 FCI purchased all rights to the digital magnetic tape-handling devices manufactured by Digitronics Corporation of Albertson, N.Y. By the time you receive this issue of *Leadwire*, the stockholders of Allen B. DuMont Laboratories, Inc., Clifton, N.J., and FCI will have voted on a proposal to merge with FCI.

FCI divisions now include the Defense Products Division with home offices in Syosset, Long Island, N.Y.; The Industrial Products Division, Yonkers, N.Y.; Components Division, Hicksville, Long Island, N.Y.; Graphic Equipment Division, Plainview, Long Island, N.Y.; Aerial Surveys, Inc., Los Angeles; and Fairchild Semiconductor, a subsidiary.

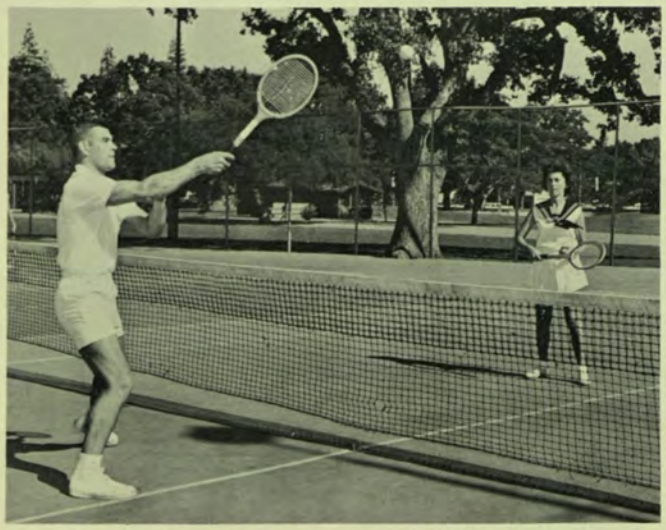
who says california doesn't have seasons!

IT'S SUMMER SPORTS TIME

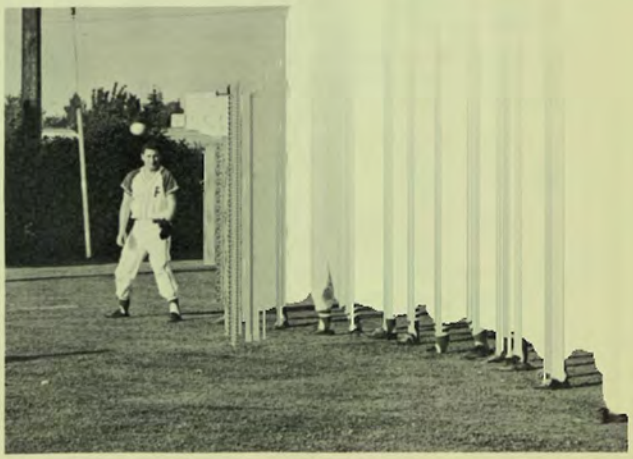
Water polo is not a game for the faint-hearted. Here some FSC'ers rough it up during weekly noontime swim at Mountain View Pool.

Here comes a hole-in-one for Linda Malamphy, shown with fellow winners at a recent session at Sunken Gardens Golf Course. In audience (left to right) are Art Engvall, Willy Mueller, Tim Blackie and Bob Brown.

Concentrating on a fast game of pingpong are Jane Cross and Paul Beneteau. Tables and equipment are in small patio and are available at any time.



Bob Sommers and Maurine Christensen volley before getting down to some serious tennis.



Fairchild's "B" League softball team gets in a little pre-game practice.

EMPLOYEE CREDIT UNION OPENS

With its charter signed, board of directors and committees elected and stock on sale, Fairchild's Credit Union is in full operation.

Final elections were held June 14 in an open employees' meeting. Those previously nominated for board of director slots were elected. They are Myra Landolfi, president; Jay Cockrum, vice president; Marilyn Jacobs, treasurer; Barbara Winding, secretary; Mary Bruce; Walt Siebert; Tony Roder, assistant treasurer; Ed Krueger; and Eileen Colette, assistant treasurer at Diode.

Elected to the credit committee were Maurine Christensen, Gerald Lessard, and Louise Whitehead, with Florence Elijah elected to be an alternate committee member.

James Armstrong, Charles Koontz and Lorraine Piasecki were elected to the supervisory committee.

It is the function of the credit committee to act on each application for a loan made by a member of the Credit Union and to make sure that the credit service of the Credit Union is made readily available to its members.

The supervisory committee is primarily an auditing committee. Its duty is to audit the books and affairs of the Credit Union at frequent intervals in order to be sure the Credit Union is operating in accordance with its by-laws and the credit union law under which it is chartered.

All Fairchild employees are eligible to open a savings account by purchasing shares in the Credit Union. Shares can be purchased outright or, upon the written permission of the individual, a payroll deduction of any amount specified will be made and that amount will be credited to his account in the Credit Union.

There is a 25-cent membership fee for joining the Credit Union. This covers the cost of enrolling the member and issuing his pass book.

Each Credit Union share costs $5. However, savings may be made in amounts as small as $1. Then, each time the member accumulates $5 in his account, he is credited with another share. While the member can withdraw all of the money he has in his account at any time, dividends are paid only upon full shares purchased. For instance, a member having $58 in his account at the time a dividend is paid receives dividends on only 11 shares or $55.

A dividend rate of 3 or 4 percent per year is quite common in a well-established credit union according to the United States Bureau of Federal Credit Unions. Federal credit union by-laws limit dividends to 6 percent per year.

General Manager Robert Noyce (foreground) and Comptroller Alan Joyce were among the first in line to join Fairchild's new Credit Union when "open for business" sign went up last Friday.

Fairchild's Credit Union Treasurer Marilyn Jacobs will enroll members in the Credit Union and sell shares every Tuesday and Friday from 3:30 to 5:30 p.m., in her office, Industrial Engineering area, Room 218.

Loan applications can be obtained from any member of the credit committee or the treasurer. The completed application can then be submitted to any member of the committee or treasurer.

Diode employees will be informed of Assistant Treasurer Eileen Colette's office hours in the near future.

Interest on any loan cannot exceed 1 percent per month on the unpaid balance. Interest decreases directly in proportion to the repayment of loans. Loans will be made for any good reason such as paying off old bills, buying for cash rather than on installments, taxes, medical bills, home repairs, vacations, etc. Loans up to $300 can be made on the borrower's signature and loans in larger amounts can be made if the borrower has the proper collateral or co-signer. Repayments are adjusted as much as possible to the borrower's personal requirements, and usually extend over a period of 10 months or a year. According to federal law, they may not go beyond five years.

In addition to offering a convenient way to save and to borrow at low interest rates, the Credit Union offers, at no cost to its members, several unique services. Every Credit Union member is covered by Loan Protection Insurance. Fairchild's Credit Union is insured by Credit Union National Association Mutual Insurance Society. Should a borrowing member die or become totally and permanently disabled, CUNA Mutual pays to the Credit Union the balance remaining unpaid on his loan. This Protection Insurance not only benefits members borrowing from the union, but it is advantageous to the Credit Union itself because it insures greater security on loans, which in turn gives the credit committee an opportunity to be more liberal in granting loans.

Credit Union members also are covered by CUNA Mutual's Life Savings Insurance. In the event of the death of a member, his family or estate will be awarded an amount of money equal to his savings in the Credit Union up to a maximum of $2,000. If a man had $1,000 in his account in the Credit Union, his estate would get $2,000, the $1,000 in savings and an equal amount provided by the insurance. This applies to all members in good health who are under 55 when they first join the Credit Union.

For members over 55 and up to the age of 70 there is a sliding scale of savings insurance coverage.

SPORTS

By Dick McElroy

Members of FSC's softball "B" League team finally broke a losing streak of four games by beating Rheem in a contest at McKelvey Park in Mountain View. This win should lead to a more successful second half. Maybe the ball team could use a little moral support from the employees at FSC. Anyone wanting any information as to the time and place of their games may contact George Reh.

Women's teams are playing softball at Torden Junior High School, 6:30 on week nights. The girls from FSC have enjoyed their season so far and have even come up with a win by beating the Emporium 15-14. Dick Cole and John Santos are manager and coach, respectively. Come out and watch the girls play.

Tom Regal, manager of the "C" League men's softball team, has informed us that their games are at 6:45 on week nights at Crittenden School in Mountain View. The team seems to be having the same trouble as the "B" team, winning only one of their last four games. The team is looking for players, especially a pitcher.

Bowling

Two teams have been entered in the Hayward Industrial Tournament. The teams will bowl three games in the one-night tournament. Highest total pins plus handicap will win. Trophies will be awarded for high game, high series, and to first-place team members. This tournament includes teams from all over the Bay Area. Good Luck to FSC!

Golf

A number of FSC employees can be seen at Sunken Gardens Golf Course in Sunnyvale on Thursdays between 5:30 and 6:00. This is a short course that can be played rather quickly. Green fees should be collected before Thursday noon. Helen Bonfadini and Paul King can answer questions and will also collect the green fees in Palo Alto. Pat Ackerman can be contacted in the Mountain View plant.

Recreation Equipment

Are there any old horseshoe pitchers in the plant? There are two sets available in the maintenance department by the shipping and receiving door in the rear of the plant and there's an acre of parking lot to pitch in. Don't miss the good weather. There are two ping-pong tables set up in the small patio and the equipment is left there to be used at any time. Checkers and chess sets are also available.

The first in a series of monthly breakfasts in honor of top production people was held in June in the big conference room. People with best on-the-job attendance were entertained. Shown at the table clockwise from Sumiko Kusaba (foreground) are: Marguerite Chappelle, Tom Carey, Maxine Oltrogge, Howard Bobb, Billie Engle, Charlie Sprock, Carol Rasmussen, Dr. Robert Noyce, Lila Langston, Shirley McQuarrie, Thelma Roseborough, Mildred Wilkinson, Charlie Campbell, and Dolores Simoes. July breakfast will honor section with best housekeeping record from June 15 to July 15. Section will select ten people to represent it at breakfast.

FSC and Autonetics Test, Retest Units

(Continued from Page 1)

trays which protect them from shock, dust and dampness.

Although our transistors are mounted together, each one is tested separately when it reaches Autonetics, and results of the tests are recorded on the same IBM card that contains test results obtained here at FSC. Then each tray of transistors is stored under low power for 90 days and re-tested. From the units that pass these tests, one-fifth are selected for more extensive testing. Most of them take 4,000 hours of life tests and from these transistors a small number are subjected to destructive tests of moisture, vibration, shock and temperature extremes.

At the end of Autonetic's testing cycle, transistors are individually removed from their "sandwich" cases and set into printed circuit boards at manufacturing assembly stations.

Lillian Mickey, assembler on the NPN line, demonstrates suggestion she made recently to improve the action on the lead bond machines. Lillian is pointing with pencil to the post where the adjustment was made. This has resulted in a saving of gold wire lead material and it also saves time and so increases the potential output of each lead bonder.

COLOR LINE TO BE INSTALLED IN FALL

(Continued from Page 1)

Then a semiautomatic unload system will be used to move the transistors through pre-assembly and final seal. After the final seal operation, transistors will go to an automatic test machine which will test the transistors, throw out rejects and give immediate information back to the assembly line as to yield and quality.

These new stations will not only greatly increase production and insure higher reliability in our units but they will improve the appearance of the production area. The machines will be built in anodized colors. The base will be blue, the carrier holders gold, all controls will be in two-tone grey.

"One of the most important reasons we went color," explained mechanization chief Chuck Woodward, "was to improve working conditions for the operators by dressing up their machines. We felt that this warranted the small additional costs for anodizing in color rather than in a plain neutral tone."

An additional advantage to the new system is that each basic station is composed of the same parts. By adding accessories, a die attach station, for instance, could be changed to a lead bond station in a matter of minutes. This will eliminate the problem of variations in the productivity of each station and will balance the line.

Actively involved in this project are Chuck Bodine, who has developed the die attach and lead bond station improvements; Nevin Engle and Eugene Shao, who have worked on the lead weld, wash and final seal stations; and Dave Glenn, who is in charge of the electrical controls for all stations.

Data From Diode

By Barbara Hock

Our Employee Recreation Association held its big election last week and came up with the following Recreation Council: Bill Busche, chairman; Bob Champagne, first assistant chairman; Jim Nicholas, second assistant chairman; Adrian Sahlein, secretary; Dick Dickens, secretary-treasurer; Roger Hartgraves, general assistant.

The organization will function as a sponsor of employee social and recreational activities. The funds that the Council will control will be derived from all the profits of the vending machines within the plant, and, in addition, the company contributes an amount equal to thirty cents per employee each month.

The Purchasing Department has also moved to the "D" Street Annex. This "Department" consists of Maxine Mendonsa and John Fisher. They were both happy to make the wonderful move.

We are glad to hear that Dewey Alexander of our Quality Control Group is doing quite well at Stanford Hospital, where he has been for the past several weeks, and hopes to be back with us soon.

The bowling league is still going strong, or at least Fred Grass is still going strong. Fred has had a 588 and a 544 series in the past couple of weeks. The league officers are planning their party which is to be the climax of their very successful year.

Diode is very happy to welcome Ellen Howard into our little family. Ellen is married and lives in Novato with her three children.

Dean Mack recently joined our industrial engineering group. Dean is a graduate of the UCLA school of engineering.

Elmer Biegel's group is also growing. Robert Berryhill, who attended Stanford, has just started in as an electronic tech. A Marin County boy who just graduated from Stanford has also joined this group. Our newest engineer's name is Ben Anixter.

Assembler Irene Joller changed her name to Hansen with her May marriage.

James Dunlap is the newest member of Irv Michelson's tooling section.

Vacation time is here. Leo Sanchez has been up in Reno and Bill Busche just returned from Washington state.

F Lead Wire

NEWS STAFF

Editor.....Rosemarie Daley Hensel
Sports Editor.....Dick MacElroy
Art.....Alex Karuzin
Columnists.....Mike Julian, Barbara Hock, Lindsay Barber

OFF THE LEADWIRE

R & D welcomed back its summer workers during June. Dick Dittman and Otto Leistiko are back working for Jean Hoerni's group, Jean Hagerty is with device evaluation and Tom Thompson, a University of California student, is working for Sheldon Roberts' group. . . . Julian Hilman, RED head, just returned from a trip to Camden, N.J., to view RCA's life testing facility. That group is engaged in a reliability program similar to ours but on a much smaller scale. RCA is testing 20,000 units. Julian will be looking at their operation to compare their testing techniques and procedures with ours. He is returning a visit an RCA group made to FSC several weeks ago.... Bob Norman also was in the East attending the Bumble Bee Missile Conference at FCI in Syosset, Long Island, N.Y. Bob reported on the status of our micrologic program at the conference, which is sponsored by the Johns Hopkins University Applied Physics Laboratory. The conference is essentially a Navy intercommunication effort among various contractors and subcontractors on their missile program. . . . The Reliability Evaluation Division sent Mary Ann Hernzak off to Europe with a rousing farewell party. . . . Mysterious red poles which have appeared hanging on walls around the plant may not be decorative, but they certainly are functional. If you look closely, you'll see a rubber plug at the end of each pole. They're to be used in case one of the overhead sprinklers goes on. The automatic fire sprinklers are sometimes set off accidentally by a jolt or by water pressure or by heat. If this should happen, the nearest pole can be removed from the wall and the plug inserted in the sprinkler. . . . Dave Allison has been named to head R & D's newly formed transistor development section. Dave was formerly in the device development section, which has been divided into two sections, one under Dave and one (called micrologic devices) remaining under Jay Last. Dave has been with FSC since February of 1957. . . . Lunching on June 8 at Chez Yvonne to celebrate their first year at Fairchild were: Beverley Smith, Instrumentation; Betty Barnes, Accounting; Betty McFadden, Accounting; Betty Martin, Nurse; Ben Hjerpe, Personnel; George Spencer, Design Engineering; Bill Cook, Design Engineering; Agnes Driscoll, Manufacturing, and Carol Himsworth, Personnel.

Lab Notes

Well, sports fans, two more of the little people have returned to the R & D Lab for the summer. Richard Dittman (No. 528 and 6'5") and Otto Leistiko (No. 1158 and only 6'3") may be considered big men some places, but they both have a long way to go to beat Gareth Tripp (No. 116 and 6'7") and me (No. 91 and 6'8"). Yes, as I always say, we'll be big men when we grow up.

Tom Burke honored the R & D Lab with a visit and graciously allowed a few to take him to lunch at Ed's Chuck Wagon. Tom started as a technician in Diffusion at R & D and recently won his spurs as a Supervisor at Diode. At R & D Tom is referred to as "Boom Boom Burke."

Around the Plant

By Lindsay Barber

Farewells are in order for two 1140 girls who are leaving us for the East. They are Jerry Mello and Marjorie Warren. Jerry, who has been with FSC for nine months, is going to Boston, and Marjorie will be making her new home in Oceana Beach, Va. Both of them were honored with a pot-luck dinner and gifts. Following on the heels of this farewell is a big welcome to Maggie Banayat of the 4500 line, who became a citizen of our great United States several weeks ago. Also from the 4500 line comes the sad news that Wilma Foster's husband is most unhappy with her these days. It seems that, while trying to beat him out of the driveway coming to work a couple of weeks ago, she didn't see the house!

The NPN girls really have a good system going—whenever they get hungry, what do they do about it? Very simple—they bring T.V. dinners with them and cook them on top of the aging oven! Speaking of ingenious ideas, ask Jim Doherty, technician in Materials, about his latest invention. Very clever, Jim.

Leona Slater of the 4500 line left again last weekend for Reno—we hear that she is Reno's most frequent visitor these days. Better luck this time!!

The manufacturing supervisors thought that they had a good thing going when they got back from a picnic last week. It seems that most of them caught poison oak while looking for firewood, etc., in the bushes. First thing Monday morning we were swamped with insurance claims—too bad it didn't work, fellas. Place was Alum Rock Park in San Jose—corn cooked with poison oak wood! What a swell bunch of Boy Scouts they turned out to be!

There have been a couple of changes in the Manufacturing Department recently. Jack Callahan has taken over the job of foreman of the Mark and Pack section. Dick Burzycki is now supervising the "Autonetics" area.

A group of "Fairchillin," namely Peggy Keith, Nancy Smith, Lena Reed, Thelma Roseborough, Joe Vecey, and Jim Pritchard (to mention a few), showed up at Blackberry Farm a few Sundays ago and set forth on a big day . . . baseball and swimming. Needless to say, there were a lot of sunburned characters squeaking and creaking to work on Monday a.m.

If any of you readers have anything that you would like to have printed in this column, please turn it in to Lindsay Barber in the Manufacturing office. Any little bits of news, etc., would be appreciated.

Lead Wire

Vol 2, No. 8 | Fairchild Semiconductor Corp., Mountain View, California | August 1960

TWO FSC'ERS ON WESCON PROGRAM

Visitors to WESCON 1960 will have the opportunity of hearing two papers by Fairchild Semiconductor scientists. The show convenes in the Los Angeles Memorial Sports Arena from August 23 through the 26th.

"A New Semiconductor Memory Element with Non-Destructive Readout and Electrostatic Storage" is the title of a paper written by Dr. Victor Grinich, associate director of research and development, and Dave Hilbiber, applications engineer. According to Hilbiber, who will read the paper before the assembly, it is off the beaten track as far as Fairchild is concerned, because it has no direct application to anything the company is making right now. He described the paper as a feasibility study of a new idea and noted that if the memory element has any commercial application, it is possible that at some time in the future Fairchild might produce the special type of device required.

The semiconductor memory element is a four-layer device somewhat similar to Fairchild's PNPN transistor. The only unit of this type now commercially available has one significant disadvantage. It lacks speed. The theory behind the device indicates that it should not be speed limited and should have high frequency capabilities. In gathering information about the device, Grinich and Hilbiber, with the help of applications technician Bob Holmes, have taken a 2N706 transistor and a small geometry transistor still in research and development and by using one PNP and one NPN unit have made an equivalent to the four-layer memory element.

"We are getting very good results in making a high frequency device from the two transistors so far, but the project is still in the developmental stage. Our problem now is to find what our practical limits would be in manufacturing the device in a single package," commented Hilbiber.

Should these memory elements become a production number, they would be used in a computer circuit to perform a memory or storage function (a job, for example, that ferrite cores are now

(Continued on Page Two)

This modern 50,000-sq.-ft. factory houses SGS (Societa Generale Semiconduttori), the Italian semiconductor firm in which Fairchild recently acquired a one-third interest. The building is located near Milan, heart of the Italian electronics industrial area.

FAIRCHILD ACQUIRES INTEREST IN SGS

Young Italian Firm To Double Its Facilities

With a quick look at the SGS (Societa Generale Semiconduttori SpA) factory in Milan, Italy, it could be mistaken for FSC's instrumentation building in Palo Alto.

FSC recently acquired a one-third interest in the Italian semiconductor firm, whose factory in Agrate (a suburb northeast of Milan) is housed in a 50,000-sq.-ft. modern three-story building. Engineering offices and laboratories are located on the top floor; production facilities are on the second floor; and supplies of gases, materials and maintenance equipment are on the lowest floor. The company plans to add an additional 50,000 sq. ft. to its facilities in the next year to accommodate its own expansion and the introduction of Fairchild devices.

There's no parking problem at SGS, according to General Manager Robert Noyce, who visited the company during a recent European trip—everyone comes to work on a bicycle. The proportion of men and women who make up SGS's 400 employees is much the same as it is here at Fairchild, with most of the production work being done by women.

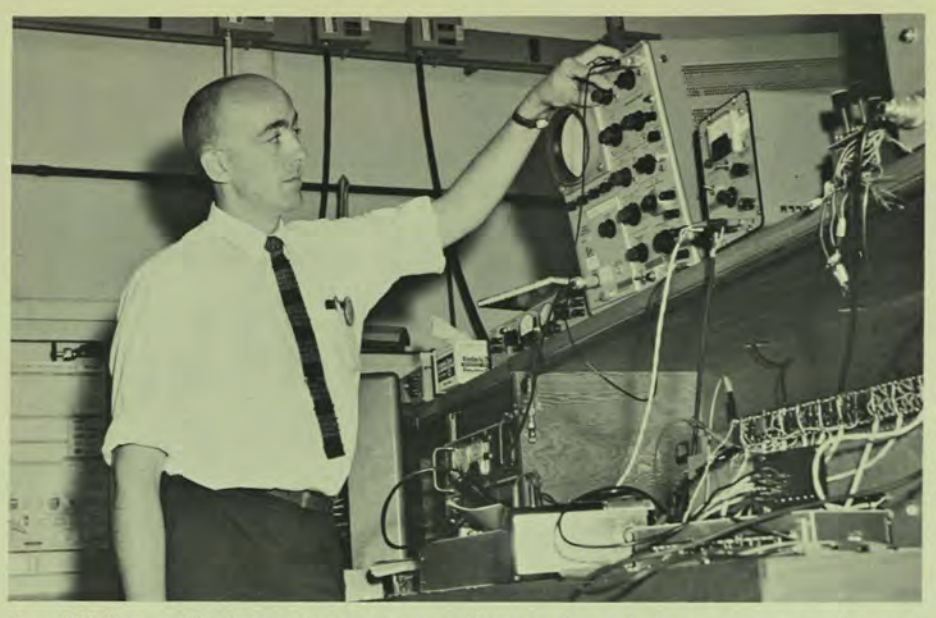
FSC has entertained several visitors from SGS during the past year. In February, Dr. D. Jenny, head of the laboratory at SGS, visited here, along with Dr. V. Floriani, who is owner of Telettra and President of SGS.

Dr. Piero Aria, an engineer from Telettra, spent six weeks in our plant recently and during that time he also took a course at Stanford. According to the FSC engineers with whom he worked during his stay, they greatly benefited by exchanges of technical information and ideas. Later this month three SGS engineers will visit here.

SGS, founded two and one-half years ago by Olivetti and Telettra, will manufacture Fairchild silicon semiconductor devices and market them overseas, using its existing marketing structure. SGS has been producing germanium alloy junction transistors, silicon diodes, gold-bonded diodes and silicon rectifiers for the past year and a half. Olivetti is one of the world's largest producers of business machines. Telettra, started on a very small scale just after the war, has grown to nearly 600 employees and occupies an important position in the microwave industry. Ownership will

(Continued on Page Six)

"MISS FAIRCHILD"
CONTEST BALLOT
PAGE 5—THIS ISSUE



Dave Hilbiber, applications engineer, adjusts oscilloscope during tests on an experimental semiconductor memory element. At WESCON Dave will read a paper on the element written by Dr. Victor Grinich and himself.

FSC TO BE IN ELECTRONIC SHOW

(Continued from Page One)

performing). The semiconductor elements would have the advantage of occupying a much smaller space and using much less power than anything now available. The elements lend themselves to microminiature construction.

Dr. Jay Last, head of Fairchild's micrologic program, will also deliver a paper.

WESCON (Western Electronic Show and Convention) provides a place for scientists, engineers, purchasing agents and sales people from electronic industries in western United States to gather. Here they see and hear of advances in the science of electronics and can observe the newest developments in products and materials available to the whole electronics industry. Practically speaking, it is also a place where a company is judged by people who never will see the actual plant facilities. The impression an exhibitor leaves at the convention is often as strong as that left by a personal visit to its plant.

Fairchild's 20-ft. booth at WESCON will feature a status report on micrologic elements and the complete lines of transistors and diodes. The booth, built of walnut and white acrylic plastic panels, is constructed in a series of modular units, all but two of them having a "K" frame construction.

At WESCON, back-projecting screens inset in walnut panels will occupy the front of the cabinets. Projectors will run color slide strip films of circuits and diagrams using Fairchild devices including the micrologic elements.

Jack Ehlers

EHLERS ELECTED TO AIIE BOARD

Jack Ehlers, reliability engineering manager, was recently elected to the board of directors of the Peninsula Chapter of the American Institute of Industrial Engineers. Jack will be responsible for the membership committee and related activities.

Other members of AIIE from Fairchild are Phil Schirm, preproduction, and Ralph Auer, quality assurance.

One of the newest professional engineering societies, AIIE is also one of the fastest growing. It was founded in 1948 and now has 100 chapters throughout the country with a total professional membership of more than 9,000. It has 44 student chapters at colleges and universities with an additional membership of 1,000.

As one of the 15 member societies of the Engineering Joint Council, it was the first group to reach its goal in a fund-raising campaign for a United Engineering Center. This 20-story, 250,000-sq.-ft. building is under construction at the United Nations Plaza between 47th and 48th streets in New York and will cost $10,000,000. It should be completed in 1961.

Any Fairchild industrial engineer who is interested in AIIE may contact Jack Ehlers for further information.

27 GIRLS ENTER CONTEST TO NAME MISS FAIRCHILD

By Bob Merrick
Contest Chairman

Of all the pretty gals at Fairchild—which one is the prettiest? Whoever she is, she will be named "Miss Fairchild Semiconductor." Following her election by popular vote, she and the two runners-up will be awarded prizes and entered in the final "Miss Fairchild" contest in competition with representatives from all the Fairchild Camera and Instrument companies across the land.

Photos of the "Miss Fairchild" finalists will appear in *Fairchild Views* magazine and all "Fairchilders" will receive ballots to vote on the final winner. "Miss Fairchild" will receive an engraved cup while the second and third choices will receive trophies.

Our "Miss Fairchild Semiconductor" will win a champagne dinner for two at L'Omelette French restaurant on the evening of her choice. There will be prizes for the runners-up at one of the more popular local bistros.

Twenty-seven pretty contestants (and even one male, who was disqualified) were nominated as a result of a company dispatch requesting entrants. The contest is opened to all Fairchild working girls—married or single. Beauties were named from as far away as the Jenkintown, Pa., field sales office. Also represented are San Rafael, Palo Alto and Mountain View. Enthusiastic backers of several contestants have announced plans to campaign for their choices, using posters around the plants.

Please use the pictorial ballot in this *Leadwire* and cast a vote for the girl you think really has IT. Vote for only one girl and include your employee badge number (to insure one vote per employee). Send your ballot as soon as possible to Bob Merrick, Advertising Department, Mountain View Plant.

Winners will be announced as early as possible.

MISS FAIRCHILD SEMICONDUCTOR CONTEST

VOTE FOR YOUR CHOICE — ONE ONLY — USE BALLOT ON PAGE FIVE

27 CONTESTANTS

JOSEPHINE AMARILLAS

KATHY ARMER

LINDSAY BARBER

SUE BELLATI

SHERRY BOYLE

MARILYN CISZEWSKI

MARY GRIGSBY

LORETTA HAYES

ELIZABETH HEIPEL

(ADDITIONAL PICTURES ON NEXT PAGES)

NEYSA HIBBARD

BARBARA HOCK

ANNETTE JACKSON

MARILYN JACOBS

NANCY JOHNSTON

SUE McGUIRE

GINGER MILLER

MARIAN OSWALD

CAROL PAINTER

TO VOTE, use the ballot at the bottom of the next page. Indicate the name of your choice (one girl only). You must include your badge number to have your vote count. Tear off ballot and send to Bob Merrick, Advertising Department, Mountain View Plant, before August 20. All employees of Fairchild Semiconductor Corporation are eligible to vote.

KATHY PONCINI

MARY REIMEL

ADRIAN SAHLEIN

PAT SARANTOPOULOS

IRENE SCHULER

BARBARA SOUZA

BEV TIGHE

NANCY TOBIN

JENNY WILL

WANT EVERYONE IN CREDIT UNION

A concentrated effort to bring all employees into the Fairchild Credit Union is under way. The campaign is being conducted by members of the Credit Union board with Ed Kruger acting as chairman of the membership committee.

Kruger will select Credit Union representatives from every section in the company to be responsible for contacting those in their section who are not yet Credit Union members. Kruger asks that anyone interested in being a representative for his section contact him on Ext. 251. According to Kruger, next year's Credit Union officers will very likely be chosen from these representatives.

As of July 28, 359 credit union members have invested $10,000 in shares and 26 loans have been issued. Shares in the Credit Union can be purchased for $5. Membership costs only 25 cents.

The union is loaning up to $300 unsecured. Loan checks are issued every Tuesday; but in an emergency, a loan can be made and the money obtained on the same day application is filed and approved.

Helen Antonucci (left), Esther Durden, Betty Van de Erue, and Dea Doss show off the trophy their manufacturing masking section won for being production's best housekeepers during June-July. The bronzed whiskbroom and dustpan were presented to the section at the monthly "honors" breakfast attended by all of the masking personnel.

FCI EARNINGS TOP IN 40 YEARS

Semiconductor's parent company, Fairchild Camera and Instrument Corporation, has reported the best six months' earnings in its 40-year history. Net earnings were $1,682,000 or $1.62 per share for the period ending June 30, 1960, up 112 percent as compared to $795,000 or 77 cents per share for the same period in 1959. Second quarter earnings were $882,000 or 85 cents per share, up 115 percent over earnings of $410,000 or 40 cents per share in the second quarter of 1959. All figures are based on 1,039,140 shares outstanding.

John Carter, president of FC&I, reported that the company has increased its net sales and machine rentals during the first six months of 1960 to $30,285,000, up 62 percent when compared to the like period of 1959 when net sales and machine rentals were $18,741,000.

Carter also pointed out that earnings for the first six months of 1960 were more than 22 percent above earnings for the first nine months of 1959. These

FAIRCHILD TEAM STARTS TO CLICK

After an unimpressive first half of play in the Mountain View softball "B" League, Fairchild's team has finally started to hit and field.

An improvement in the pitching has helped the team greatly. Lynn Clark offered his services as a chucker for the team after seeing the results of the first half. Lynn, who has been out of competitive softball for six years, has helped to bring the club up to a high standard of play.

The first game in the second half was against Sylvania, one of the hardest-hitting teams in the league. Lynn held them to one hit for four innings and FSC led going into the fifth 4-0. Lynn began tiring and allowed a few hits and errors, costing FSC the game with the final score, 7-4.

The following week the team had started to jell. Pitcher Clark allowed only one hit and that was a bunt that was fielded too late for a throw to first. Tony Macaluso homered to help the cause and FSC defeated Hiller Helicopter, 7-0.

The next week FSC

FSC Gets Third of SGS

(Continued from Page One)

now be held equally by FSC, Olivetti and Telettra.

The decision for a joint venture with the Italian firm came after more than a year's exploration of the best means to introduce Fairchild products in the European markets. Tom Bay, Fairchild Semiconductor's director of marketing, has just returned from Italy, where he has been working on the final details of the agreement along with Desmond Spittlehouse, who will be coordinator of SGS/Fairchild enterprises.

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given the team has helped to put a winning ball club on the field. There was a good turnout for the Rheem game, and the team hopes that Fairchildren will come out for the remaining game in the season.

On Monday, August 15, at 6:45 FSC played Dymec. The last game will be held August 19 at 6:45 against Hewlett-Packard.

A Load Lifter

Diode's employee recreation association officers happily pose a problem. Are they playing baseball with a tennis racket or tennis with a baseball? Standing (left to right) are Dick Dickens, secretary-treasurer; Bill Busche, chairman; Bob Champagne, first assistant chairman; and Adrian Sahlein, secretary. That's Jim Nicholas, second assistant chairman, holding the ball, and Roger Hartgraves, general assistant, with the baseball glove.

Make Changes In Medical Service

Betty Martin, Mountain View plant's nurse, is visiting our other facilities in Mountain View and Palo Alto every day from 1:00 to 2:15 p.m. Except for this time she is in the plant from 7:30 a.m. to 4:30 p.m.

An emergency kit has been installed on the wall directly outside the nurse' room so that in her absence equipment to treat minor injuries will be available. Any employee may use the kit.

FSC is now using the Glyer Medical Group, 280 Hope Street, Mountain View, for emergency medical service. This clinic, which has facilities for handling all types of emergencies, will be used by the Palo Alto facilities as well as the main plant in Mountain View.

Financial Report Shows Peak Earnings

(Continued from Page Six)

year, had sales of over $18,000,000 last year.

New orders booked totalled $38,994,000 for the first half of 1960, up 91 percent from new orders of $20,444,000 for the like period in 1959. Backlog as of June 30, 1960, was $28,532,000, compared to $19,823,000 at year end, December 31, 1959.

FSC SHARPSHOOTER ALSO TRAINS DOGS

There are two champions in the Bob Hall household. Bob, an engineering supervisor in preproduction, holds a master's rating from the National Rifle Association, and Hallmark Nightengale, affectionately called Pam by the family, who holds a U.D. (utility degree), the Ph.D. of dogdom.

A target shooter for the past fifteen years, Bob has been classified as a master at both the rifle and the pistol for the past six years.

He competed recently in the pistol matches at preliminary trials for the 1960 Olympics.

Asked why he prefers the pistol to the rifle for competition, Bob grinned, "Like most of us Americans, I'm on the lazy side. Side equipment for rifle shooting weighs 50 or 55 pounds, and by the time you lug that much weight all over the place, it is a trying task. Pistols are a lot easier."

Although Bob has over $3,000 in gun equipment, he says he is not a collector. "I have eleven target guns," he explained "both rifles and pistols. The free pistol that I use is unique. I know of only six of them in California, and there are more in California than in any other state. The gun has a two-notch trigger pull and a sighting radius of 11½ inches. When you put your hand into the stock it's like fitting your hand into a glove."

Bob molds his own pistol stocks. He begins with a basic wooden grip and uses wood dough to build them to mold perfectly to his hand.

Since Bob began entering competition in 1951, he has won 20 cups and more than 100 medals. He still holds the Northern Intercollegiate Rifle Conference record with a score of 294 out of a possible 300.

Bob qualified for the Olympic finals several years ago, but was unable to enter. The problem, he remarked, is common to many amateur athletes who could qualify for Olympic competition. Bob explained, "Once you get to the finals, the Olympic committee will pay your way, but you have to bear the cost of travel to and from the competition, and your family has to have something to eat while you are gone. Actually, it's an expensive proposition.

Asked how he first became interested in target practice, Bob told of his early interest in guns, and how he enjoyed using them, not hanging them on the wall to look at. "What can you do with guns?" he continued. "You can either shoot or experiment with them, and it's almost impossible to become highly proficient at both. So I left the experimental work to others and learned how to shoot."

Bob Hall, a target shooting expert, displays an unusual target pistol that he used recently in Olympic target shooting preliminary trials. Pam, his standard French Poodle, makes it known that she's won a few prizes herself by showing off a silver dish award she took for being top utility dog at a recent show. In the background are Bob's gun collection and some of the target trophies he has won.

A busy man, Bob not only is a champion sharpshooter, a collector of rare, old prints of guns, an evening student in the California Extension Program, he's an expert dog trainer, too. Pam, a standard poodle, is a good example of his work. Pam has taken prizes for obedience, has won top utility prizes, and has even picked up a few show points. Says Bob, "Pam is smarter than I am. But my youngest daughter doesn't think so. She's disgusted because Lassie can open doors and Pam can't. I asked my wife if I should teach Pam to open doors, and she said, 'Over my dead body.' "

Bob has trained dogs for the San Mateo Dog Training Club, as well as for private parties.

How did he come to add dog training to his list of accomplishments? "Well, I got my degree from the University of California in agriculture. I used to train horses. But after I got out of school and got married that wasn't very practical. I couldn't train horses, and I didn't have any cows around, so I picked a poor dog and started training her."

Bob's next project is to get ready for the world target shooting championship to be held in Cairo, Egypt in 1962. His wife, Virginia, and three daughters, Cynthia, 6, Colleen, 4, and Carolyn, 2, are all betting on Bob to take top pistol honors.

Data From Diode

By Barbara Hock

Meanwhile, up at Diode—the bowling league ended its season on the 13th with Team No. 4 taking first place. This team includes Nancy Walker, Mary Busolo, and Dutch Diepeveen. Obviously, Dutch's score-keeping improved greatly! High game in the men's competition went to Chuck Gunther with a 232. High game in the women's competition was taken by Mary Busolo with 187. Fred Grass took high series for the men with a 588, and the women's high series went to Mary Busolo with 493. Chuck Gunther also had high average for the men, 158, and Jane Slaughter had the high average for the women's group, 131. All in all, the season was great fun and the climax will come in mid-August when the league has its dinner dance. Forty-two bowlers and their guests will be on board.

Jeff "Trousers" Wilson reports that the walls of the new Diode plant on the Redwood highway are up. We'll be moving in there before too long. It's not that we're crowded where we are—but if you see Dean Mack and Bob Napoli or our Industrial Engineering Department timing each other, it's only because they're sharing the same desk.

Speaking of desks—look under Fred Bialek's some day — sweat shirt, sox, tennis racket, etc. It seems that Fred and Delio Luna have found out about those tennis courts near the Jordan Street plant.

When it comes to real sports, don't forget Bonnie Martz, our production manager's secretary. She and her husband recently attended a glider meet in Reno. Gene has his power license as well, and both belong to a local glider association in Livermore.

Everyone seems to be pretty big on vacations. Chuck Gunther was recently up on the forks of the Salmon River in Mt. Shasta. Flora Shaffer has nothing but good reports on Reno—lucky Flora. Hope Don Yost is that lucky when he hits Las Vegas this month.

"Good Gravy" Korpontinos of the sales department recently returned from a Canadian honeymoon. He and his bride are now living in San Anselmo. Roger Hartgraves, in plant engineering, welcomed his second, a boy, July 8th. Howard Larson in production engineering and his wife, Joan, are also new parents.

Many new faces are to be seen around the plant. Lee Rogers, a recent graduate of San Jose State, has joined the production department. Lee is a supervisor on the swing shift. Our new production control manager's name is Edgar Carlson. Ed is an oldtimer to the Bay Area, and presently lives in Pleasant Hills with his wife and four children. David Ferber, our newest draftsman, is probably the farthest away from home. He and his wife traveled all the way from Lowell, Mass., to join the Fairchildren. A new engineer is Bob Broze, who has just graduated from UC at Berkeley.

Welcome aboard to: Elizabeth Rhodes, Gladys Wilkes, Mary Lou Snyder, Phylis Nolte, Betty Huckabay, Pat Wormuth, Margaret Williams, Jo Watson, Christl McKeever, Laurie Craise, Barbara Capurro, Clara Harvey, Ann Langley, Nancy Gray, Kathleen Harwood, Sharon Finney, Margaret Foster, Pat Friesen, Shirley Bisel and Jean Pedroza. All these girls are in production. Our new storeroom clerk is Don Runge. Don and his wife are the parents of three little girls. Don's making book on what number four will be, come Fall.

Around the Plant

By Lindsay Barber

Paul Hinchcliffe seen playing jump-rope at the PNP picnic; the big event (the picnic, that is) was held at Blackberry Farm on the 16th of July. A good time was had by all with swimming, tree-climbing, beer-drinking, and, of course, rope-jumping for those who go in for that sort of thing!

Lettie Antonelli came in the other day sporting something new and revolutionary in the way of hairdos—ever heard of something called the Brillo Pad look? She blames it on the fact that the other 20 girls who usually help her run the final seal machine were on vacation, and she had to run it by herself for a week!

There is more than transistor business going on between R&D and M.V. Linda Filseth, Q.C., and Mike Julian, R&D, were married in Stateline, Nev., June 26, followed by a church ceremony July 7. Another Linda, Linda McKnight, formerly of sales and Issy Haas from R&D were married here July 16. Best wishes to you all.

Mr. and Mrs. Richard Parker are the proud parents of a baby girl born July 18. Dick says he is afraid that she is slightly backward as she hasn't started to talk yet!

Did anyone else notice that it smelled like a florist's hot house around here a couple of weeks ago? Connie Tanaka of our materials department came back from a two-week vacation in Hawaii and brought many beautiful leis with her. Connie is a native of our 50th state, and the rest of her family still lives there.

The NPN final seal section holds a pot luck luncheon every other Friday in the cafeteria. Jo Peralta tells me that they had spaghetti last time, and this time fried chicken was featured. Each gal contributes something to the lunch—sounds like a pretty good idea.

OFF THE LEADWIRE

FSC's story broke into print again recently when a full-page spread on the company appeared in the August 10 issue of the *Palo Alto Times*. Written by the *Times*' Business Editor Don Webster, the articles and pictures profile Fairchild, giving some history, an explanation of our current facilities and production operations, and a lesson in semiconductor theory for the layman. If you haven't seen the spread, it's posted in the glass display case in the hall by the front lobby. . . . Ray Dixon, popular guard sergeant assigned to Fairchild by the West Bay Patrol, has been given a promotional reassignment as acting head of the guard force at Hewlett-Packard Co. Lt. Tom Grewe will temporarily head Fairchild's security guards. . . . Back at work now after recent major surgery, Don Visgar, machine shop foreman, thanks all the Fairchildren who did "so many nice things for me while I was in the hospital." The men in tooling and fabrication and industrial engineering threw a party for Don when he was released from the hospital. . . . Lloyd Walsh is tracking down Fairchild library books that have gone out of circulation. He reminds anyone in possession of books from the Mountain View branch of the FSC library that book loans are now limited to two-week periods. All overdue books should be returned in order to increase the usefulness of the library. Contact Lloyd for further information. . . . We'll have barbecue steak for dinner at Fairchild's family picnic on Saturday, September 10. The outing will begin at 10 a.m. at Adobe Creek Lodge in Los Altos Hills. To amuse the big kids there will be swimming, dancing, games, races and softball. There will be pony rides and a fire engine ride for the little kids. All this is going for only 65 cents, children under six years, free. Tickets are on sale in the Personnel Department. . . . It's a daughter for George Reh, Supply, and wife Pauline. Krista Patrice Reh was born on July 21 at San Jose Hospital. . . . Ben Hjerpe, mail room head, and his wife, Marguerite, celebrated "36 happy years of marriage" on August 4.


Lead Wire
SEPTEMBER 1960

Organizational Changes:

New Plant Manager: SPORCK

Manager of Manufacturing: SELLO

Administration and Research Services: KLEINER

Major organizational changes that took place during September have resulted in the appointment of Charles E. Sporck to the position of transistor plant manager for the Mountain View facility. Dr. Harry Sello, who has been head of process engineering, has taken over Sporck's former post as manager of the manufacturing department; Eugene Kleiner has been appointed manager of administration and research services for Research and Development in Palo Alto.

Charles E. Sporck

Commenting on the reorganization, Dr. Robert Noyce, general manager, explained, "We now have operational heads for the transistor plant, the diode plant in San Rafael and for the Research and Development facility in Palo Alto. Our administrative and sales headquarters remains in Mountain View."

Dr. Harry Sello

In the newly created transistor plant manager position, Sporck will have over-all charge of manufacturing, quality assurance, engineering, production control, purchasing, plant engineering, and personnel for the Mountain View plant.

Kleiner's responsibilities include being in charge of shop operations, design, plant engineering and purchasing at the Palo Alto facility. He was formerly manager of manufacturing engineering at Mountain View.

Eugene Kleiner

Dr. Sello announces the following new assignments in his manufacturing department: Jack Storey, product manager, mesa; Ed Pausa, product manager, NPN Planar; Charley Plough, product manager, small geometry; and Greg Harrison, production superintendent in charge of test, mark and pack, and special processing.

WESCON

The Western Electronics Show and Convention held August 23-26 in Los Angeles was the largest, both in attendance and number of exhibits, in its nine-year history.

Fairchild Semiconductor was one of 670 firms exhibiting. Some 175 prospective exhibitors who paid their fees were turned away due to lack of space. Yet, nearly 1000 booths filled two levels in the Los Angeles Sports Arena and overflowed into a specially constructed annex.

More than 40,000 people registered and attended WESCON during the four-day convention. Some 200 top engineers, scientists and management people participated in 45 technical sessions on theory, systems and applications. It was during these sessions when Fairchild's Bob Norman, Jay Last and Dave Hilbiber presented technical papers and participated in panel discussions.

Two booklets produced by Fairchild scored hits with the many visitors to the Fairchild booth. Most popular was a technical booklet. Prospects visiting the booth picked up the booklet at the rate of 1500 per day during the four-day show.

Also successful was a new corporation brochure, *Fairchild Semiconductor I* which has been recently distributed to all employees.

By week's end, exhibitors reported increased prospects and even sales this year over last. The WESCON show is held every year, alternating between San Francisco and Los Angeles.

COVER PHOTO—*By Melgar*

Alex Karuzin, senior technical illustrator for FSC, puts some finishing touches on a set of micrologic element drawings. A versatile artist, Karuzin does much of the technical art for Application Notes and Technical Papers and assists in preparing them for publication, as well as directing the illustration of internally prepared handbooks and brochures. He did many of the illustrations for technical material that FSC distributed at WESCON. In addition to working out circuit drawings, schematics, isometric and perspective drawings, Alex is the man to see for designing and drawing signs, show cards, and displays.

Lead Wire

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NEWS STAFF

Editor ..... Rosemarie Daley Hensel
Sports Editor ..... Dick MacElroy
Columnists ..... Mike Julian, Barbara Hock, Lindsay Barber

FSC, Controls Develop New Strain Gage

A patent application for a semiconductor strain gage was filed in August by FSCer Wendell M. Lafky.

Lafky is a member of the technical staff in the material section of FSC's Research and Development Laboratories. He is leading a semiconductor group that has been working with an equivalent group from one of our brother companies, the Fairchild Controls Corporation, Los Angeles.

The project was organized to develop an advanced solid state pressure transducer. However, a continuing product development in other transducer types is planned.

FSC's group was responsible for the transducer's active sensing element, a semiconductor strain gage; Controls Corporation has developed the transistor amplifier using our transistors and the calibration unit necessary for a complete pressure transducer package.

The transducer, named the 3S-G, is an aluminum tube about 3″ long containing the three modules, the semiconductor gage, the amplifier and the calibration unit.

A transducer is a device which converts energy and/or information from one form to another. The strain gage is the heart of most transducers. It takes mechanical energy (twisting, stretching, bending, compressing) and converts it to electrical energy or "information."

The Fairchild strain gage is a solid piece of semiconductor material with no movable parts.

The microminiature semiconductor element is coupled to a resilient high-alloy steel diaphragm which looks like a nickel and is about the same size. When the diaphragm is stretched or flexed, the active element stretches.

The element measures the elongation or stretch indirectly by registering a change in resistance. The resistance of the active unit to the flow of electrons changes as the device is mechanically deformed—stretched or squeezed. This phenomenon is called piezoresistance. The piezoresistance may be measured by reading a change in voltage on a calibrated meter.

In order to measure the strain on any material, for instance a large steel I-beam, a conventional type strain gage, usually composed of fine wire embedded in a paper matrix, is cemented directly to the beam.

Hard at work is Wendell Lafky's group, which has been engaged in the combined FSC-Fairchild Controls project to develop a pressure transducer. FSC was responsible for the strain gage sensing element in the transducer. Left to right are Kathleen Muray, Wendell Lafky, Noland Pearson, Mike Dragmire, Dr. Sheldon Roberts and Jim Vinzant. Dr. Roberts was head of FSC's part in the project.

FSC's strain gage works in somewhat the same way, except that most organic cements will not hold it directly to the beam. Therefore, the strain gage element is coupled to the previously described diaphragm. In turn such a unit could be fastened to a structural member, like the I-beam.

The primary advantage to FSC's semiconductor strain gage over any others that have been previously marketed is that for the same amount of deformation in a piece of material, FSC's gage will give up to 100 times as much change in resistance as do the conventional metal wire or foil strain gages. This means that a far more accurate reading can be made.

Also, the extremely small size and compactness of the gage has permitted the Controls group to make a rugged transducer in a small size, with all the parts contained in one unit. The two functions of amplification and calibration of the signal from the sensing element are generally achieved in conventional strain-gage transducers through the addition of outside instrumentation.

At the present time the solid state strain-gage transducer is used mostly for the military market. One of the primary applications for the transducer in this field is as a pressure-measuring device in missile and aircraft testing and telemetering.

Work began on this cooperative Semiconductor-Controls project at the suggestion of Robert Stanaway, manager of Controls' West Coast plant.

Over-all director of FSC's part in the project is Dr. Sheldon Roberts, head of the materials section at R & D.

Assisting Wendell Lafky in the FSC group are Kathleen Muray, research assistant; Nolan Pearson, who joined the group on August 2 as research assistant in evaluation and circuit development; Mike Dragmire, technician; and Janice Emanual, engineering data clerk.

Heading the Fairchild Controls group that has been working at the Palo Alto Laboratories with FSC's scientists is Frank Carlson. In his group are Robert Russell, John Ames, Duke Benson, Harold Conway and Jim Vinzant, a technician who began with the FSC group and subsequently transferred to Controls.

Duke Benson (left), Bob Russell and Frank Carlson check out some equipment. The three are part of a group from Fairchild Controls Corporation that has been working with a similar group from FSC to develop a pressure transducer.

Ralph Ulrich (left) and Jay Cedarleaf survey their handiwork; Ralph adapted and assembled the digital resistivity tester shown and Jay developed the four-point probe with which operator Glee Klein is working.

New Tester Assembled

Ralph Ulrich, engineer in charge of the evaluation section of the materials area, has assembled a unique digital resistivity tester.

The tester is used to measure the resistivity of the silicon wafers after they have been sliced from the crystal ingot. However, it is adaptable to use in the whole evaluation process, according to Ulrich.

Ulrich assembled the tester from units which have been in use at Fairchild at some previous time. The units, with the exception of the digital voltmeter and a voltmeter, have all been developed by FSC engineers.

The heart of the tester is a four-point probe developed by Jay Cedarleaf, of the industrial engineering department. He combined some of his own ideas with the attributes of several probes being used in the silicon products industry.

The probe gives constant reliability that was previously difficult to obtain. Patent possibilities are being investigated.

The new probe has a wider spacing between points than those formerly used; consequently, extensive testing was performed by Ulrich and Cedarleaf before they were confident of the probe's reliability. It proved so successful that six more were ordered and are now being used exclusively in the materials area. The machine shop in the Mountain View plant did an exceptional job of

(Continued on Page Six)

SGS OFFICIAL VISITS

Dr. Ennio V. Tomassini, SGS marketing manager, spent a whirlwind week at Fairchild, visiting our facilities, conferring with officials, and attending FSC's National Sales Conference in Carmel.

SGS is the Italian semiconductor firm in which Fairchild recently acquired an interest. The company is located near Milan, one of the cities that Dr. Tomassini described as "Italy's industrial triangle." "In the north central and northeast part of Italy around Milan, Genoa and Turin is 75 percent of our industry," he explained.

In the past few years Italy's automobile, chemical, iron and steel and electronics industries have been booming.

"We are considered now to be one of the fastest-moving countries in Europe," Dr. Tomassini declared. "This is one reason why many foreign companies have entered into agreements with Italian companies."

Annual production of the electronics industry in Italy is estimated to be approximately $200 million.

SGS is the leading Italian semiconductor manufacturer with an American affiliate. However, other American semiconductor companies have partial ownership in Italian organizations.

Most of the semiconductors that have been produced in Europe to this time have been the germanium type used in "entertainment" products like radios and TVs. Dr. Tomassini estimated that 75 percent of the transistors produced in Europe go for the entertainment market and 25 percent are made for industrial applications (such as computers).

"The industrial market for European transistors is growing rapidly, however," he declared. "The transistors SGS is manufacturing now are excellent for industrial applications."

An indication of the strength of the trend toward producing transistors for industrial applications is that Philips, one of Europe's most powerful electronics companies, is building new factories to produce industrial transistors rather than the entertainment type, Dr. Tomassini explained.

"The affiliation between SGS and FSC will be most helpful to us," commented Dr. Tomassini. "We have a thorough knowledge of germanium transistors. However, we have not researched silicon units. Now that we are working with Fairchild, we can take advantage of the work that has already been done and go into production on the silicon transistors and diodes immediately."

SGS-FSC planar transistors and diodes will be produced in a new plant

(Continued on Page Six)

Marketing Managers Dr. Ennio V. Tomassini of SGS and Tom Bay of FSC take a look at some sales trends during Dr. Tomassini's recent visit to the Mountain View plant.

PICNIC RATED TOPS

Mary Reimel
Miss Fairchild Semiconductor
of 1960-61

General Manager Bob Noyce presents Miss Fairchild Contest trophies to first runner-up Loretta Hayes (left) and second runner-up Carol Painter. Trophy he's holding is for Miss Fairchild Semiconductor Mary Reimel.

By Bob Merrick

Those who attended (nearly everybody) the Fairchild Picnic on September 10 agreed that it was a smashing success. A success from the standpoint of the huge turn-out—over 2200 employees, spouses and offspring—and the good time which everyone enjoyed.

The day was warm, the beer was chilled and the steaks were as rare as five-star cognac. Appetites were sharpened during the afternoon by the many activities. In the softball game the "B" league team shut out the "C" league team by a reported score of "about 4 to 0." Egg-throwing contests were nearly as entertaining as the talented Flamenco dancers. Kiddies were swimming, riding ponies, driving midget racers, watching puppet shows and downing gallons of soda pop. The older folks were content to practice folk dancing and look for lost kiddies.

By the time the dinner gong sounded, everyone crowded the barbecue area where the steaks and hot dogs were sizzling. An hour and a half later 1500 10-oz. steaks and more than 200 pounds of hot dogs had been served up with all the trimmings.

After dinner came the door prizes and the announcement of the winners of the Miss Fairchild Contest. Mary Reimel, secretary at the Jenkintown, Pa., field sales office, was named Miss Fairchild Semiconductor for 1960-61. Two girls from Mountain View plant took second and third places: Loretta Hayes, first runner-up, and Carol Painter, second runner-up. Bob Noyce presented the trophies to Loretta and Carol. while Mary's was sent to her via parcel post.

All three girls will be entered in the big Miss Fairchild contest sponsored by Fairchild Camera and Instrument Corporation.

Inez won the toaster.

Please, Mr. Custer, I don't wanna go.

We all had a steak in this.

The pool's cool.

The party's over.

...e y... was on them.

See, it didn't hurt.

You're a scream, mister.

TO TESTFIRE MINUTEMAN

America's newest intercontinental ballistic missile, the Minuteman, will be testfired about December 1 this year from Cape Canaveral, Fla., and test firings will be frequent after that, according to Warren G. Magnuson.

Fairchild's transistors will play a part in determining the success or failure of the tests. Minuteman is the missile for which FSC's Reliability Program was organized.

Senator Magnuson said the Minuteman-testing program calls for a test firing every three weeks to a month after the first missile is launched.

Boeing Airplane Co., builder of the missile, and the Air Force are now engaged in installing instruments in two block houses at Cape Canaveral; these block houses will be key installations in the testing program. The Senator said there will be two Minuteman complexes at Canaveral, each containing one block house, one 90-foot silo and one launching pad.

The Minuteman is a solid-fuel three-stage missile designed for a range of 6000 miles at 15,000 miles an hour.

The Boeing Co. announced it is building a multimillion dollar test center in Seattle to speed development of the missile.

The Center will be used in testing the complete Minuteman missile system.

Tuition Aid

FSC's liberal education policy for employees began when the company was first organized. The tuition aid program is designed to help employees improve their professional training by minimizing the cost of additional schooling.

It is especially geared to those who wish to further their job knowledge or to acquire additional job-related skills by attending evening classes or home study programs.

The financial assistance is on a refund basis. The individual must pay for the courses himself, and upon successful completion with an average or better grade, he resubmits his approved application for the aid. This will amount to 80 percent of verifiable actual cost for each approved subject.

Refunds will be paid at the end of each training period. The maximum per semester is $100, per quarter $65, less all Federal payroll taxes.

Anyone wishing to participate in the program must submit an application one month before the training period registration date.

If an employee is in doubt as to whether he will take a course, it is best to submit an application anyway a month or more in advance. An approved application can always be cancelled prior to registration, following registration, or while the course is in progress.

All applications require the signatures of the immediate supervisor, department head and personnel manager. Complete information regarding the Tuition Aid Program is contained in Company Bulletin Number 9 (formerly CSP-#9).

Credit Union

All Credit Union members will be receiving membership cards in the near future. Anyone having a question about the cards can contact Tony Roder.

Members of the Credit Union's board of directors can provide additional information on the organization. They are: Myra Landolfi, president, Ex 8; Jay Cockrum, vice president, Ex 329; Marilyn Jacobs, treasurer, Ex 276; Walt Siebert, assistant treasurer, Ex 419; Mary Bruce, membership officer, Ex 317; Ed Kruger, chairman of the education and promotion committee, Ex 232; Tony Roder, assistant education and promotion chairman, Ex 338; and Eileen Colette, assistant treasurer at Diode.

On the credit committee are Gerald Lessard, chairman, Ex 8; Maurine Christensen, Ex 283; and Louise Whitehead, page. James Armstrong, Ex 258, is chairman of the supervisory committee. Members are Charles Koontz, Ex 416, and Lorraine Piasecki, page.

Ulrich, Cedarleaf Build New Tester

(Continued from Page Four)

making the mechanism to the close tolerances required.

Other components in the digital resistivity tester are a voltmeter used as an amplifier, a digital voltmeter to read the results of the test, and a current generator built at FSC by the instrumentation department.

Ulrich has modified the generator so that the resistivity of each wafer can be read directly from the voltmeter.

According to Ulrich, the digital resistivity tester has increased the processing rate 30 percent.

Edgar G. Carlson, Diode's new manager of production control, came to Fairchild from Curtis-Allbrite Lighting, Inc., in South San Francisco, where he established their production control system. Ed is a Bay Area product and lives with his wife and four children in Pleasant Hills. He is also vice president of the American Production and Inventory Control Society.

Tomassini Visits

(Continued from Page Four)

SGS is building near their present facility. The plant should be completed next spring.

Designed by the eminent Roman designer, Edwardo Victorio, who also designed several Olivetti facilities, the 40,000-sq.-ft. building will be constructed along the same lines as the present plant. SGS has 35 acres available for building at the Agrate site, so there will be plenty of room for future expansion.

Although this was Dr. Tomassini's first trip to California, he visited New York two years ago. Intrigued by the contrast between the West and the East Coasts, he described the East as being steady and solid.

"Everything out here is quite new and it all moves fast. Even the houses seem that they are going to just get up and move in a few minutes," he laughed.

Another thing that impressed the visitor was the great number of cars on the road. In fact, he was anxious to spend a day sightseeing in San Francisco because, "When I am traveling, I like to look at the people walking in the street. On the Peninsula nobody is walking in the streets; they are all riding in cars."

Dr. Tomassini's best word was for Carmel. "It is the most beautiful place I have ever seen." Coming from a man whose country boasts "see Naples and die," that is the highest praise.

GOLF TEAM

Fairchild's golf team wound up in a tie for third place with Litton Industries, behind Hewlett-Packard and Admiral, in the first half of competition in the Peninsula Industrial Golf Association play.

Carl Steffens, team captain, stated that for a newly organized team we did okay, but hopes are up for the second half.

Carl, a playing captain, has had ten others on the team with him this season. They are: Bill Geene, Don Campbell, Tom Bay, Al Bayley, Bill Fitch, Lowell Erickson, Frank Parlette, Don Snow, Jerry Craft and Bob Merrick.

SOFTBALL PLAYERS

Where Are You?

The final game of the season in the Class "C" league had to be forfeited because not enough players turned out for the game. In the past, participating members have been able to borrow from other teams in order to fill the vacancies. With such displays of enthusiasm, Fairchild may find it hard even to enter this league next year.

The FSC "B" team wound up in first place in the second half of league play.

For the benefit of those not familiar with the team players here is a brief rundown:

Lynn Clark, pitcher. Lynn has an average of 10 to 12 strikeouts per game and only one opposing man in six games has ever been able to reach third base when he's been pitching. He has a string of 42 consecutive shutout innings.

George Reh, first base. To most people first base may seem to be a routine spot. But a first baseman must be alert and have a knowledge of where each play will be made. George has these qualities, hits well, and, as an auxiliary pitcher, has pitched in our practice games and one league game.

Fred Bialek, second base. Unfortunately, Fred missed the first half of the season because he was working in San Rafael. For the second half, however, he has made the long trip from the north end of the bay for each game. Batting in the leadoff spot, Fred has been of great help. His fielding has rounded out the infield, making it a good strong unit.

Tom Schillenberg, third base. A veteran player from last year, Tom plays one of the more difficult positions. He has the hustle and competitive spirit necessary to crash the fence for pop flies and grab with bare hands for bunts dribbling down the foul line.

Bob Sommers, outfield. Bob in left field displays a talent for judging each batter accurately. On numerous occasions he has made fine running catches of balls that would have been hits had he not played the batter correctly.

Rich Wills, outfield. Here is another new member of the ball club who has managed to get on base in every game. Rich has been second in the entire league with his batting average well over 350. He's also a fast and efficient outfielder.

Bill Hill, outfield. Also a new man on FSC's team, Bill is a well-rounded player who can pitch and hit well, play infield or outfield. Bill has been playing in the outfield this second half, where he seems to be most effective.

Bill Johnson, infield. Bill has not seen much action in the games but looks good in the infield. In his last game, Bill hit two out of three times at bat.

Mfg. Skunks Administration

By Jan Wilson

The brawny Manufacturing nine swamped a spunky but outclassed Administration team in a 31-23 victory in an after-work five-inning challenge game played in August at Crittendon School in Mountain View. The Administrators, led by Alan Joyce, had issued a written invitation to the Production men with the proviso that to the victors would go the spoils of satisfying their thirst after cavorting on a dry diamond.

With this incentive, both teams gave it all they had before an appreciative crowd of fellow workers, wives and enthusiastic offspring.

Soft-throwing pitcher Kit Donnell established an early lead for the Manufacturers by holding the opponents to four runs in three innings. Stellar fashion balls were also hurled by teammates Norm Peterson and Dick Cole, who also doubled as scorekeeper.

One of the high points for the spectators occurred in the first inning, when Accounting's George Lao colorfully stole to second and then, even more dramatically, carried off the second base bag to insure his safety.

With Walt Faleschini hitting a homer with bases loaded,

Walt Faleschini swinging through for that homer with Dick McElroy umping and Accounting's Ken Sievers ready for a low catch.

Charlie Sporck followed suit, bringing in two men, and Bill Simonson hit a ground ball to shortstop for a homer. The onlookers could easily see whose whistles were being whetted for the prize. The score stood at 19-8, Manufacturing's lead at the end of the third.

By the time the fourth inning came up, the Administrators had decided that what they lacked in muscle they would make up for in craftiness, cashing in on stolen bases and pay-off homers. Calypso-shirted Bill Horton batted a homer and brought in two men, not to be outdone by Bob Noyce, who hit a long, long one and brought in three.

Star pitcher for the Accountants was Lloyd Kohn, only allowing Manufacturing two runs in this box. Things were looking up; one energetic rooter yelled, "Sneaky does it," and it did! Administration had pulled up 12 runs and was within sniffing distance of victory, only one run behind Manufacturing, 21-20.

This left Manufacturing nothing to do but fight back in the fifth by bringing Kit Donnell and Charlie Sporck back into the game and pitching and batting their way to a 31-23 score, which insured them the final victory.

ALL AROUND THE PLANT

By Lindsay Barber

A fan letter arrived in Dr. Noyce's office the other day from the executive office of one of the Northwestern Hotels (name to remain anonymous). The salutation read: "Dear Mr. Semiconductor." Can you believe it? Someone apparently thought that there was a person by the name of Fairchild Semiconductor!

The Manufacturing Department, not wishing to rest on its laurels, challenged the four and sixty merry men of Robin Hood Trent, better known as the Design Eng. Dept., to a softball game Aug. 24th at Crittenden School (Sherwood Forest being closed to prevent entry of fire breathing dragons). Manufacturing was victorious in the joust.

Everyone thought that Judy Patterson was getting married on her vacation, but she came back without her rings. It seems that she also forgot them a couple of times on her honeymoon, and had to go back for them.

Anyone interested in taking navigation lessons? Someone whose initials are Ed Carmichael has been giving instruction on the subject in his spare time.

Bob Robson is quite the deer hunter. Since the season opened, he has been hunting several times, and all that he has to show for his efforts is a poor, helpless rabbit!

Any enterprising young men interested in starting something novel should talk to Bob Skurko, who is back from a two-week vacation in Mexico. While he was there, he went to a wedding where the bride and groom stood out in front of the church before the wedding for pictures. About 25 photographers took pictures and developed them during the ceremony. Afterwards, they sold them in front of the church, and Bob says that people who didn't even know the couple were buying the pictures!

Betty Grover, masking assembler, lines up wafers on new large holder she suggested be substituted for small glass slide previously used (shown to the rear of white holder); holder is used to check the alignment of the masked wafer. The new holder allows two to three times as many wafers to be aligned in same amount of time that it took using the glass slide.

SOME DATA FROM DIODE

Our little old Diode Division in San Rafael is growing, growing, growing. As of the middle of September, we had about 290 people on board. Needless to say, everyone is looking forward to the completion of our new building. Tooling will be moving in by the first of October.

Since our last time in print, Diode has had a bowling party for last season's members and guests. There was swimming, dancing, and dinner—all at the Woodacre Country Club. This was also the time when Bill Busche and Jane Slaughter handed out the bowling trophies.

Bowling is back in the limelight. If anyone is interested in this sport, he should contact Herb Bartholomew.

Diode had its first company picnic last month and everyone felt that it was a huge success. An estimated 600 people showed up to swim, eat chicken, drink beer, and do everything that goes with company picnics. All the employees' children seemed to enjoy themselves too. For the youngsters there were pony rides and a big straw pile filled with prizes and money. Roger Hartgraves took charge of the bingo game and you'll never guess who won the grand prize. You're right! His wife, Shirley.

Apparently the real hero of the day was good ole Chuck Clark, the supervisor on swing. Speaking of swing, he has a mighty one. From our top-notch reporters we get the word that just everyone was there: the Don Yost family, Cliff Lionbargers, John Cianos, Ray Browns, and the Tom Carwardines. Overheard: Anonymous: "It's amazing how different everyone looks with their children." Elmer Biegel: "Where's the food?" Jack Yelverton: "It's a gasser." Chuck Clark: "I think I'd better lie down for a while."

A big thanks is due the committee members for their work. A special one to Jenny Jump, husband Bob, and friend Jack, who barbecued the chicken. Natalie DeBeaumont and husband Ron did all the serving.

The softball team has had a pretty good season thus far. They've won three and lost three games. One of the teams they beat was the first-round champ last season. Fred Bialek is leading the crew. Herb Bartholomew is in left field, David Ferber in center field and first base, F. Bialek at shortstop, Bob Napoli on first base; Sid Walker, Nancy's husband, our star pitcher. Ed Schulz is catcher, Cliff Lionbarger slays second base, Dean Mack third base, and Ben Anixter is in right field.

John Nash has moved up this month to grace our fine Purchasing Department. John will be acting as the senior buyer up here as he did in Mountain View.

The biggest change on our graveyard shift is the advent of Paul Driscoll. Paul was formerly with C.B.S. Electronics Semiconductor division. Paul is a graduate of Northeastern University where he majored in business administration. Paul will soon report on day shift but is helping to organize the graveyard shift.

It's going to be time to start organizing a Christmas party pretty soon, so if you have any good ideas or plans, please contact Jack Yelverton.

Welcome, Nadine!

OFF THE LEADWIRE

FSC's National Sales Conference was held in Carmel August 20 and 21. Field salesmen, and members of Mountain View and San Rafael sales staff heard reports on the current sales situation, the Diode plant and the newest refinements of FSC's units. Marketing Manager Tom Bay officiated at the meeting. . . . Safety Engineer Mike Mickels attended a five-day radiation monitoring course recently and graduated at the top of the class with an instructor's credential. The knowledge gained will prove useful to the safety office in monitoring equipment like the X-ray machines in the plant and the Radflo machine used to detect leakage in transistors . . . Gene Keyarts, distributor sales manager, reports that FSC has added three electronic parts houses to its growing list of distributors. They are Almac Electronics Corporation in Seattle, Wash.; Denny-Hamilton Electronics, San Diego; and Ward Terry & Co., in Denver, Colo. . . . Dr. Sheldon Roberts, head of materials section at R & D, finished his vacation abruptly when he suffered a badly fractured ankle. Says it will be quite a while before he's even in a walking cast. . . . Paul Hill, who has been at FSC since July, was appointed head of the newly formed methods and procedures group of the Manufacturing Engineering Section in August. Group's duties will include planning departmental budgets and controls, learning curves, performance records, new product evaluation, cost analysis. . . . Other new faces are those of Earl Gregory, who recently joined Dave Beadlings' Reliability Evaluation Department; Mel Waggoner, who is order processing supervisor in the sales department reporting to Sales Administration Manager Bill Martin; Senior Engineer Hank Rodeen, who came to FSC from Shockley, now a member of Harry Sello's Manufacturing Department; Engineer Dick Anderson, the newest member of Bob Norman's device evaluation group at R & D. . . . Best wishes to Mary Eksa. She wed Ampex's Ed Farnsworth. . . . It was a girl for Paul Hwoschinsky. Born August 20 to Paul and wife, Carol, Suzanne weighed 9 pounds and 11 ounces. Says Paul, "She already plays the bagpipes." . . . Daniel Lloyd and his wife, Cara, also had a daughter, Sibhan Marguerite, born on Bastille Day, July 14. . . . Ray Wallesen of quality assurance and wife, Patricia, are proud parents of David Raymond, born August 5. . . . Randy Scott Parker arrived August 16. Parents are George Parker and wife, Peggy.

Lead Wire

OCTOBER 1960

FSC Raises Funds

In connection with the recent plant-wide United Fund Drive, an employee Contributions Committee has been formed. The committee will act as an advisory employee group to recommend distribution of a percentage of the company's gift, which will meet, dollar for dollar, employee gifts. The percentage will be given to other worthy causes on the recommendation of the committee, which reports to the general manager. All employee donations will go to the United Fund Drive.

Discussing the new group, Acting Chairman Paul Hwoschinsky stated that "the company feels it has a corporate responsibility within the community. This new committee will do much to direct our charitable contributions to those areas where it is felt they will do the most good."

The new committee includes Paul Hwoschinsky, Jean Jones, Ed Pausa, Dick Fouquet, Garnet Keane, Phyllis Flot, Mildred Wilkinson, Lily Coldiron, Jane Roach and Tude Holt. Aiding the committee in soliciting funds for the United Fund Drive are Bob Schaeffer, Virginia Margetts, Helen J. Pepper, Mary Grigsby, Nancy Humpal, Kathy Poncini, Billie Dunwoody, Shirley Nuss, Barbara Winding, Bea Ortu, Norm Nicolson, Chuck Koontz, Ann Harding and Clarence Gilpin. Bob Merrick, assistant advertising manager, handled plant advertising for the drive.

The Santa Clara County United Fund takes in the Central Area Chapter, Los Altos Chapter, Mountain View Chapter, Palo Alto-Stanford Chapter and the Sunnyvale Chapter. The county drive aids more than 90 youth, health and welfare agencies in these areas and is handled by volunteer workers. This enables the organization to work at an overhead of less than 10 percent. It is administered by a professional staff under the direction of a board of trustees elected by the chapters. The amount of money needed by the agencies in our county is well in excess of one million dollars.

In San Rafael, the United Fund Drive at Fairchild was handled by Jack Yelverton, Dick Dickens and Tom Carwardine, who divided the soliciting for the 370 employees "across the bridge."

Mountain View's Contributions Committee looks over United Fund Drive Material. Seated, left to right, are Garnet Keane, Dick Fouquet, Lily Coldiron, Paul Hwoschinsky, Mildred Wilkinson, Jane Roach and Tude Holt. Standing, left to right, are Phyllis Flot, Jean Jones and Ed Pausa.

Tom Carwardine, Nathaline DeBeaumont, Dick Dickens, and Nancy Walker working on United Fund Drive at the San Rafael plant.

Cover by Melgar

. . . the faces behind the voices—Mary Goines and Ruth Anna Rhoden at FSC's main switchboard at the Mountain View plant on Whisman Road. Internal calls, inter-office and plant calls, paging and national calls keep the operators busy eight hours a day.

Thanksgiving Day, November 24, will be a paid holiday. The following day, Friday, November 25, will be the paid "floating holiday" for the year 1960.

The employees required to work on these days will be held to a minimum and employees who are required to work will be notified by their supervisors or foremen.

R. N. Noyce

Vice-President and General Manager

Lead Wire

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NEWS STAFF

Editor ..... Judy Machanik

Sports Editor ..... Dick MacElroy

Columnists ..... Barbara Hock, Lindsay Barber

MEDICAL PLAN MEETS SUCCESS

The new Major Medical Insurance Plan introduced for employees of Fairchild has met with excellent response. As of this writing, 85 percent of all eligible employees have signed cards to participate in the plan. The required percentage to make the plan available was 75 percent. The new plan was added to the current insurance program as of October 1, 1960.

The new program is designed to help reimburse employees and their dependents for expenses incurred as a result of costly non-occupational accidents or sicknesses and provides that the insurance company will pay 80 percent of covered expenses which are in excess of the deductible up to a $10,000 maximum lifetime benefit for each person.

The main features of the plan are summarized briefly as follows:

1. Medical expenses not covered by our present plan are covered by the Major Medical plan with the exception of explicitly listed items not noted on page 2 of the Major Medical Plan.

2. There is an annual deductible amount to be paid which may be accumulated in any consecutive 3-month period. This deductible is 1 percent of your annual base salary and in no case is less than $50 or more than $250.

3. Once this deductible is satisfied for an illness, the insurance then pays 80 percent of all remaining bills subject to a lifetime maximum of $10,000.

Vice-President and General Manager Robert N. Noyce noted that the new plan offers greater security for employees and their families and urges employees to secure the offered coverage.

Mike Mickel and Irene Schuler in the Insurance Section stressed that it is very important for employees to discuss any pertinent questions with them. In the event any problems occur from a medical or insurance standpoint, discuss these problems with their office at your earliest convenience. Name changes or change in dependent status should be given directly to the Insurance Desk in order to keep insurance records up to date and to insure that new dependents are adequately covered.

"We are a service to the employees and as such will be more than happy to discuss these matters thoroughly with any employee," stated Mike.

For employees at the San Rafael plant, refer all inquiries to Barbara Hock.

Election Approaches

While Vice-President Richard M. Nixon and Senator John F. Kennedy continue to hold the spotlight in the forthcoming elections November 8, important contests are being held in the local area.

Candidates for office in San Mateo and Santa Clara County are listed here for your information. The list was given as a public service by the League of Women Voters.

SAN MATEO COUNTY

9th Congressional District

J. Arthur Younger (Inc., Rep.) vs. Dr. John D. Kaster (Dem.).

21st State Senatorial District

Richard J. Dolwig (Inc., Rep.) vs. William F. Gately (Dem.).

25th Assembly District

Louis Francis (Inc., Rep.) vs. Robert H. Hardgrove (Dem.).

26th Assembly District

Carl A. Britschgi (Inc., Rep.) vs. Alan L. Baldwin (Dem.).

Run-off election for County Supervisor, First District.

Thomas Callan (Inc.) vs. James V. Fitzgerald.

Run-off for Superior Court Judge, Office 3.

Louis E. Wexler vs. James T. O'Keefe.

SANTA CLARA COUNTY

10th Congressional District

Charles Gubser (Inc., Rep.) vs. Russell Bryan (Dem.).

28th Assembly District

Clark L. Bradley (Inc., Rep.) vs. Al Alquist (Dem.).

29th Assembly District

Bruce Allen (Rep.) vs. Jack Kennon (Dem.).

For further information regarding your polling place, candidates or the 15 propositions on the ballot, contact your local chamber of commerce, the city hall, Republican or Democratic headquarters or the League of Women Voters.

Virginia Michaels removes lapped wafers prior to cleaning.

Materials Moves To San Rafael

The Materials group will move from the Whisman Road plant into 7500 square feet at the Jordan Street plant in San Rafael during January. The move is being made to facilitate handling of vastly increased production commitments.

The Materials function includes crystal growing, slicing and lapping, and the group also purchases crystals and lapped wafers as required for both the diode and transistor operations. Norm Peterson, head of the group, noted that the new facilities will allow for almost tripling monthly wafer output. The group maintains its own manufacturing, engineering, production control and quality control sections. Materials will rely on the transistor or diode plant for personnel, accounting and purchasing services.

A pilot operation will be set up in December in San Rafael with additional slicing and lapping equipment due to arrive at that time.

Approximately 15 members of the group are directly affected by the move and will be aided in relocating according to established company policy. Production people in the group will be absorbed by Department 41 and the move will be staggered to insure an equitable absorption of personnel.

MARKETING CHANGES

Tom Bay, Marketing manager, has announced some organizational changes in the Marketing department. Bay will have Field sales under his direction. Reporting to him are Howard S. Bobb, Transistor sales manager; John W. Hall, Advertising manager; Don Rogers, Diode sales manager and Bill Hafner, who has been appointed manager of Special Products.

The following changes have taken place in the field:

Bob Graham has been appointed Western regional sales manager replacing Bill Konrad, who has resigned. Don Valentine, formerly sales engineer, has been made a district manager for the Los Angeles area. Bob Major, formerly a sales engineer in Chicago, has been promoted to district manager in Minneapolis-St. Paul. Carl Steffens, formerly Western region liaison engineer, is now sales engineer in the Los Angeles area. Bill Richmond is a new sales engineer, also in the L.A. area. Don Cavallo, formerly with General Electric Heavy Military in Syracuse, is sales engineer for the New York area. Bernard Marren, formerly with Avco in Cincinnati, is sales engineer for the Ohio area.

Administration and order processing for transistors will be supervised by W. E. Martin, sales administration manager, reporting to Howard S. Bobb. Ken Dewey will act as sales liaison supervisor while Mel Waggoner will handle order processing.

Madhu Desai is product manager for Large Geometry NPN-PNP's and Terry Kilduff is product manager for the Small Geometry devices. George Shubin is FSC's new Production Controller liaison supervisor.

RECREATION COMMITTEE

The Recreation Committee of FSC recently held an annual election to fill three vacancies. Elected were Mary Grigsby, George Reh and Joe McCoy. Remaining officers are Jack Schriber, chairman, Chet Gunter, second assistant chairman, and Tom Regal, secretary-treasurer. Mary is secretary, Joe is first assistant chairman, and George is general assistant.

WILLIAM H. RICHMOND

GEORGE SHUBIN

JACK MAGARIAN

NOW ON BOARD

William H. "Bill" Richmond recently spent a week here at FSC for general sales orientation in preparation for his new appointment as field sales engineer in the western region. Bill will work in the Los Angeles area with Bob Graham, western regional sales manager.

Bill, 29, attended Santa Monica City College, where he majored in engineering. He was a manufacturer's representative for the S. L. Spraggins Co. of Beverly Hills and most recently was associated with Texas Instruments in Los Angeles as a field sales engineer for two years.

Bill and his wife, Marcia, and children, David, 15 months, and Craig, 3 weeks, reside in Canoga Park.

George Shubin has joined FSC as production controller liaison supervisor and will function in both the Sales Department and Marketing, and in Production Control.

Shubin, 38, a native of the Los Angeles area, has had a great deal of experience in this area of work. He was with American Electronics in Los Angeles and then joined Fairchild Controls Corp. in Los Angeles for three and a half years in liaison work. He comes to us from Autonetics in Downey, Calif., where he was employed for one and a half years in the area of purchasing and production control. He will be joined in this area by his wife, Vee, sons George Jr., 12, Timothy Gregory, 8, and daughter, Sheryle Vee, 6.

Jack Magarian has joined the Fairchild Semiconductor Corporation as production control manager for the Transistor plant. Magarian comes to us from the General Electric Capacitor Department in Fort Edwards, New York, where he was supervisor for eight years in the Small Industrial Capacitor Department.

A native of Boston, Mass., Magarian, 31, is a 1952 graduate from MIT, where he received a B.S. in business and engineering administration.

Jack and his wife, Shirley, and children, Marti Sue, 5, Andrew Scott, 3, and Joel John, 2, are temporarily in Palo Alto until they find a permanent home in this area.

NEW RESEARCHERS

Three scientists have been added to the R & D staff in Palo Alto.

L. J. (Jack) Kabell now heads a new section on electro-optical devices. Kabell came to Fairchild from Stanford Research Institute in Menlo Park, where he was a senior research engineer in the Graphic Sciences Laboratory. Prior to his association with SRI he served on the technical staff of Sandia Corporation in Albuquerque, New Mexico.

Kabell, 36, received a bachelor of science degree in electrical engineering from University of Colorado in 1944, then served two years in the Pacific as a lieutenant with the U.S. Navy. He is a member of the Institute of Radio Engineers and the Research Society of America.

Jack and his wife, Kathryn, reside in Palo Alto. Their children are Jerald Allen, 14, Gael Glenn, 10, and Carol Ellen, 3.

L. J. KABELL

James F. Campbell, Jr., 28, comes to Fairchild after receiving a Ph.D. in physics from MIT. While working toward his doctorate, Campbell was awarded a teaching assistantship by MIT in 1955 and a research assistantship in 1960. Campbell will work on the R & D technical staff in the Micrologic section under Dr. Jay Last.

Jim holds membership in the American Physical Society and Sigma Xi, a scientific honor society. Unmarried, he lives in Mountain View.

JAMES F. CAMPBELL, JR.

Arjun N. Saxena, 28, joins Fairchild's R & D lab as a member of the Physics Section's technical staff under Dr. Jean Hoerni. Saxena, a native of Lucknow, India, received his B.S. in physics, chemistry and mathematics from Lucknow University in 1950 and an M.S. in physics from the University in 1952. He received a diploma in German from Lucknow in 1954 and was awarded an associateship in nuclear physics at the Institute of Nuclear Physics in Calcutta. Saxena has completed course work for a Ph.D. in physics at Stanford and is now finishing his doctoral thesis. He holds membership in the American Physical Society and Sigma Xi.

Arjun, his wife, Vera, and young daughter, Rashmi, reside in Menlo Park.

ARJUN N. SAXENA

TESTING

(This is the fourth in a series of articles answering questions by employees.)

One of the most frequent questions asked by production personnel is, "What electrical tests are transistors subjected to during the production process?"

Testing starts on FSC devices at the very beginning of the production process. The first electrical test is made on the wafer in the materials section. Here the wafer is measured with a four-point probe to determine the resistivity of the original crystal material which will become the transistor's collector.

The next tests occur in diffusion after the base impurity has been added to the wafer. The impurity causes a change in the resistivity of the wafer. By measuring the resistivity at this stage with a four-point probe, the quantity of the impurity in the wafer can be determined.

After the base diffusion has been measured, a sample of wafers is tested on a two-point probe to determine the base-to-collector breakdown voltage. After the emitter impurity has been added to the wafer, the active portion of the transistor has been formed. Now the transistors on the wafers are tested to determine their primary electrical characteristics.

The first electrical test that is given to *all* of the transistors (not just a sample) is made when the transistors have been diced from the wafer at die sort. Here a rough breakdown voltage test is made.

Rejects from this test are separated into two groups—"EC shorts or softs," which have been culled out because the emitter impurity has been over-diffused or the mesa is contaminated, and the "EB shorts," in which the emitter-base junction behavior falls short of FSC's high standards.

After the transistors have been fully assembled, they are subjected to another group of tests called "presort." These are leakage current meter readings and sort out any transistor that might somehow have been damaged during the assembly process.

Now all transistors enter the final test room where they undergo many extremely exacting tests. The first series of tests measure the DC (direct current) parameters.

(Continued on Page Seven)

TESTERS DEVELOPED

Sally Greco, lead bonder in the NPN Planar Devices Line 1, is shown applying her methods improvement discovery. Sally, while working with the new five-nest bond heater, discovered a method to make the operation faster and considerably less fatiguing. Sally can pick up the transistor and hold it while the machine is bonding rather than making two individual transistor pick-ups. Hand movement is all important in this job and our congratulations to Sally for greatly improving the operation.

Several new items of test equipment have been developed by Instrumentation and put into operation during the past few months. These include the Diode Tester for San Rafael, the Automatic Tester and Data Logger for the Autonetics Program and the Type 4 Automatic Tester and a Vibration Noise Monitor for the Autonetics Reliability Test Program.

The Type 4 tester is an improved version of the Type 3 and was designed largely by Ulrich Kaempf and Don Snow. This machine checks twelve parameters in about 2.4 seconds. It unloads the test sockets, automatically sorts the transistors into 14 categories and keeps a count of all units tested. Two test sockets are provided so that the operator can load one while the other is connected to the test circuits. All the testing is accomplished by pulse techniques and the accept-reject decisions are made automatically. A further improvement on this to take care of such future devices as the 1210 is in the breadboard stage. This is designed to measure extremely low leakage currents.

Lillian Mickey at new Type-4 Tester

Two automatic testers for the Autonetics Program have been in operation for the past three months. These accept the 100-transistor boards, test each transistor for up to 9 parameters and print the test results on punch cards at the rate of approximately 450 per hour. Operation can be set up for a single transistor or single parameter testing, but normally the machine runs through all parameters on each transistor, prints the results and then moves to the next transistor automatically. The production of the machine is limited by the speed of the card punch. Brian Bell is responsible for this equipment.

One of the requirements of the Autonetics Reliability Program is a vibration test on every transistor. The transistor must be operated under specified conditions of collector current and voltage, and must be monitored throughout the test for interruptions in collector current. In order to increase production, eliminate error, and reduce the strain on the operator, a device was developed which allows 15 transistors to be vibrated simultaneously. Test conditions are set automatically and a detector circuit lights a reject lamp on any channel containing a noisy transistor.

New projects in planning and development include work on leakage current measurements, automatic handling, i.e. loading, unloading and sorting of transistors and other devices, and test equipment for new devices such as the solid state chopper and micrologic elements. A new method under investigation promises to be capable of detecting extremely low currents.

"I said; 'Me gottum magic voice in box'— he said; 'How many transistors?' "

Reprinted from THE DIPLOMAT, Travel, Fashion, Society Review.

509 EMPLOYEES IN CREDIT UNION

According to figures based on the financial statement of September 30, 1960, for the Fairchild Semiconductor Federal Credit Union, there are 509 employees belonging to the union out of approximately 1300 total employees.

Officers of the union stress that more members are needed so that increased savings will enable loan demands to be met and higher dividend payments to be paid. Dividends are to be declared by the board of directors at the end of the year.

Total assets to date in the union are $31,360 while loans total $26,400. Loans granted total 115.

An annual meeting and election of officers is scheduled for January, 1961, and present officers noted that interested people are needed to serve on the board and on the various working committees. Assets of the union are increasing at the rate of $18,000 a month and it is hoped that by the end of January the Credit Union will have assets of over $100,000.

For further information contact Ed Kruger or Tony Roder.

SAN RAFAEL SPORTS

The San Rafael plant was represented by a team in the Class B softball league in San Rafael. They had a great season, but lost the last game for the championship by the sad score of only 2-0. Next time, gang.

The team is pictured here.

Newly elected officers for the Bowling League are Stan Chapman, president; Lee Stewart, vice-president, and Herb Bartholomew, secretary-treasurer.

Team captains are Irv Michelson, John Nash, John Diepeveen, Colleen Walker, Wes Fellows, Shirley Hancock, Bob Gallagher and Dean Mack. Bob Gallagher bowled a triplicate on October 11—three games of 122. After only three short weeks of bowling, John Diepeveen has the highest average—155. Mary Busolo, who won all the trophies last season, is leading the girls with a 140 average.

Top row: Herb Bartholomew, Dave Ferber, Dean Mack, "Ozark," Cliff Lionbarger, and Norman Wardman. Bottom row: Ed Schultz, Ben Anixter, Sid Walker and son, Fred Bialek, Bob Napoli, and Bob Runge.

TESTING

(Continued from Page Five)

Each transistor is tested to make sure that the emitter-collector, base-collector, and emitter-base breakdown voltages are within specification.

The next test is for Beta, which measures the power gain of a transistor. Transistors are classified by their Beta range into AA units, which have a very high range, AB units with a high range, and AC units, which have a slightly lower Beta range.

After the tests for Beta, the transistors undergo the V_{ce} sat test, where the collector contact resistance is measured, and the V_{be} test, which measures the base contact resistance. Next there is a room temperature I_{cb} test to measure current leakage.

Then the transistors go into a Hot I_{cb} test, where the current leakage is measured when the units are subjected to a very high temperature. The final test in the series is the C_{ob} test to measure the capacitance of each unit.

At the conclusion of these tests, the transistors leave the final test room and go into the raw stores inventory. Before any of the units are shipped, the tests which were given to the transistors in the final test room are repeated.

In addition to these tests, quality control checks are made on the units in every phase of the manufacturing process.

MOUNTAIN VIEW SPORTS SCENE

By Dick McElroy

BASKETBALL

FSC will attempt to repeat the great success of last season by entering a basketball team in the Palo Alto "B" League. Interested players should contact Dick Cole or Bob Sommers regarding time, place, etc. The team is looking for an experienced coach. There will be a schedule of games posted on the bulletin board for those interested in watching the games. Many thanks to those who followed the team games last season and it is hoped there will be even better support this season.

SOFTBALL

Getting back to softball for a short minute—belated but sincere thanks to Tony Macaluso and Dick Crippen, who helped the team so much last season. If some of the players still have their uniforms, please turn them in to stores in the Mountain View plant.

BOWLING

Setting a high pace for the bowling season, Vern Cady from Machine Shop bowled a whopping 257! That is going to be hard to beat, but it's a good challenge for the team.

New officers of the bowling group are Lloyd Kahn, president; Don Visger, vice-president, and Geo. Lao, secretary-treasurer. Howard McLaughlin and Jay Cockrum are currently leading the men in high averages, while, from the fair sex, Lorraine Scharff leads the gals in high game and high average.

Hoping to start about November 14, Lloyd Kahn will enter FSC in an intercompany tournament composed of three teams from the East Coast and three teams from the West Coast. The teams send their respective scores for the records.

Bowling will be held at the Cherry Chase Bowl Wednesday nights at 9—come and bowl, or just come and watch the teams in action. Anyone interested in bowling regularly or as an alternate should contact league officers.

ALL AROUND THE PLANT

By Lindsay Barber

The three musketeers plus Bill Stansbury decided to give Bob Skurko a lesson in the art of having patience. One morning when Bob was complaining as usual about the lack of dice, he looked up to see the visual tester walking toward him with four beautifully plated plates of dice. As she handed them to him, commenting "Here are the dice you wanted," she committed the unpardonable sin. Four plates of dice were dumped on his desk and lap. It was a surprise to all the girls who saw it except the three who engineered it and Bill Stansbury. The girls looked at Bill, who was playing it straight, and to Bob, who was in a state of shock. Now don't worry, Ed Pausa, it was all a big joke; the dice were rejects.

Virginia Margetts has a device for removing fish hooks from various and sundry places. If any of you is troubled by fish hooks, you might ask her, and I'm sure that she would let you borrow it.

Another little goodie about the infamous NPN foremen: The girls tell me that they have been trying for weeks to figure out a Halloween costume for Bill Stansbury, but finally decided that he really didn't need one after all! Bob Skurko has decided to go as Rudolph the Red Nosed Reindeer or Jimmy Durante—if you saw him several weeks ago, you would understand!

Directed at Jean Jones and overheard by Mike Starr at the Swimming Club picnic: "Oh, you must be Jean Jones; I didn't recognize you with your clothes on!"

SOME DATA FROM DIODE

By Barbara Hock

As of the middle of October, we have about 370 people in the Diode plant. The new building is coming along quite well, Applications being the most recent group to move in. George Korpontinos' daily question is, "Just when ARE we going to move?"

The flu bug has been busy around the plant of late but there seems to be some concern as to the timing since our plant nurse came on about the same time. Patty Murphy will undoubtedly keep that dispensary full. Patty, being from jolly old England, is full of all sorts of grand little expressions. 'Most everyone is referred to as "Ducks."

We have some new production technicians: Gerry DeLaMontanya, Ginny Jump, Minnie O'Donnell, Dolly Rule, Ann Pietsch, Clara Schiavo, Vickie Van Zandt, Nancy Walker, and Margaret Williams.

Several people have been going to the 49er games on the bus leaving from the Dugout, San Rafael's most illustrious pub. They include Roger and Shirley Hartgraves, Herb Bartholomew, Lee Stewart, Hall and Ginny Jump. Paul Driscoll usually manages to liven up these gay affairs.

Everyone is very happy to have Dan Cowan back as assistant foreman on the graveyard shift. Dan left us for about four months.

Dolores Shaffer finally took the big step and is now Mrs. McGinley. Dolores' husband is stationed up at Hamilton. Marlyn Forwood is now Mrs. Wise.

A grand farewell party was given for Gladys Wilkes. All the girls got together and gave her almost everything she needs for her expected baby.

Neil Dorward and his wife Mary welcomed their third, a little girl. Don Runge's dreams came true . . . after three girls, his wife presented him with a baby boy.

What happened to your hair, Ellen?

There are lots of new faces everywhere. Margaret Hobro just joined the Works Department in the office, Noreen Outsen is Ray Brown's secretary, Betty Cowan is Cliff Lionbarger's secretary, Barbara Bredouw is in Jack Yelverton's office, Judy Lawrence in Purchasing and Alice Lewis in Sales. Marilyn Bourland recently moved from the Accounting department to the Sales department. The Accounting department now has Ellie Franklin and Winona Gordon giving away money.

Understand Bram Kool in our Tooling Section just spent a weekend in Australia. How's that for a little week-end jaunt?

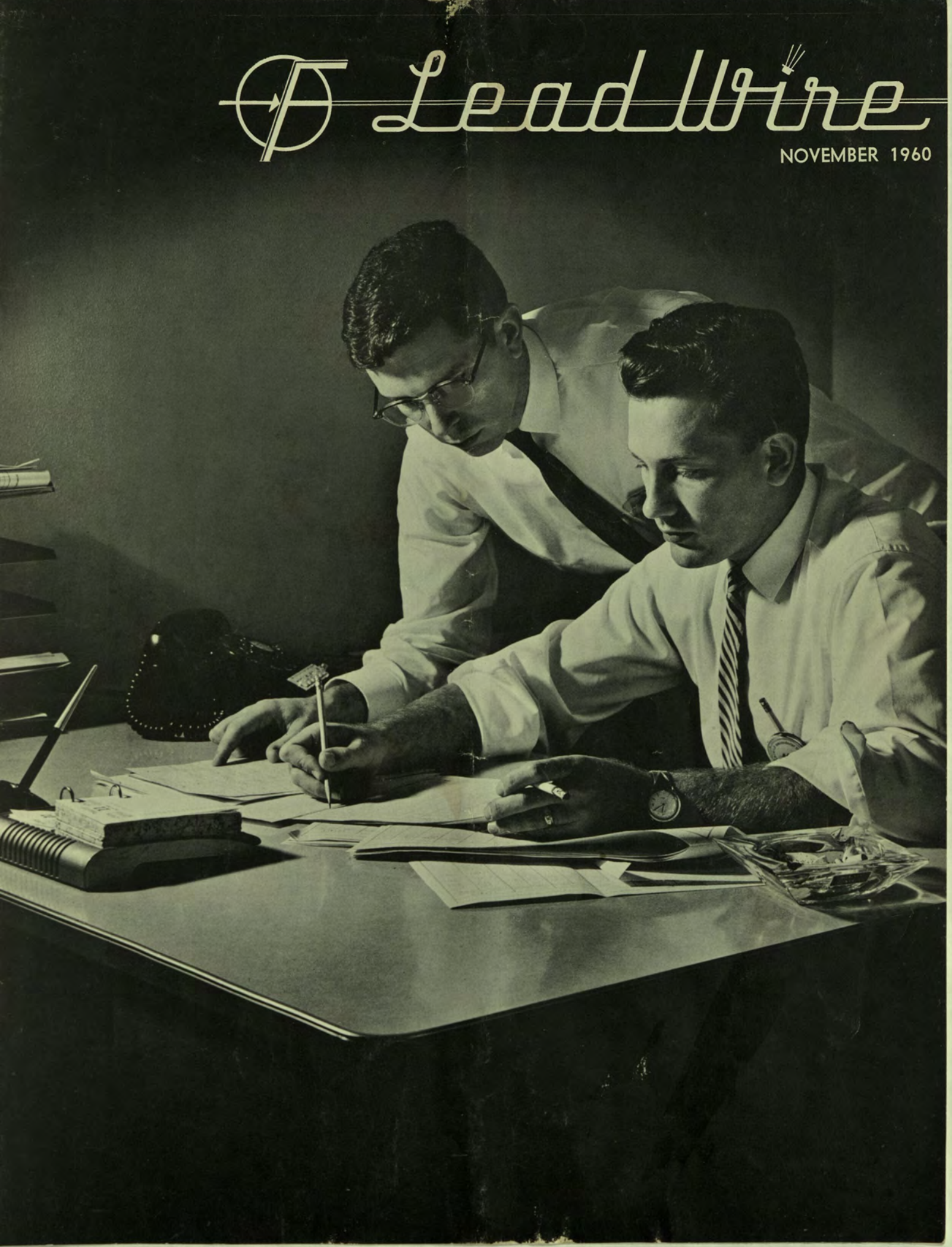
Arjun Saxena's year-old daughter, Rashmi, was named by none other than Madam Pandit of India. Arjun and his wife, Vera, were at a dinner with Madam Pandit, whom they knew in India. Later that night Vera went to the hospital to have the baby. Next day came a package with a silver spoon and cup with a note from Madam Pandit saying that Rashmi (which means a Ray of Moonlight) would be a lovely name . . . so Rashmi it is.

OFF THE LEADWIRE

Looking for a new abode? A current listing of available housing—for rent, sale, trade or investment—is maintained in the Personnel Office. The list covers the area from San Jose to Menlo Park. Anyone interested in housing for themselves or in listing property for rent or sale is welcome to contact Carol Himsworth in Personnel, Ext. 211. . . . The University of Santa Clara is putting seven Fairchilders through their graduate academic paces. Eugene E. Ericson, in the Final Test section of manufacturing, is enrolled in USC's "early bird" graduate engineering program which offers classes from 7-9 a.m. This program leads to a Master's in Double E. Taking courses in the Graduate Business Program, leading to an MBA, are Ed Pausa, Bob Skurko, Bill Stansbury, Don Corbin, and Phil Perry. Good luck fellas. . . . Bob Merrick, assistant advertising manager, attended a recent all-day seminar in public relations sponsored by the University of California Extension Office. Representatives from over 100 organizations and groups were present at the session, which was held at Rickey's in Palo Alto. Bob recently spoke to an employee group of the Pacific Gas and Electric Co., presenting a company presentation on Fairchild as part of PG&E's "Industry Orientation" program for its employees. . . . Taking a trip to Fiji, or Tibet, or just Paris—or anyplace? Give Marilyn Ciszewski a call at DA 1-2270 and she will arrange the whole thing from her desk at Travel Desk, Inc. . . . Congratulations to Ralph Auer, engineer in Quality Engineering, who claimed Rosalie Moore as his bride October 15 in Palo Alto. The very best of luck, Mr. and Mrs. Auer. . . . Best wishes to Esther Belle Tygret, assembler in manufacturing, whose engagement to Gary Lee Wincott was recently announced by Esther's mom. The couple plan a March wedding. . . . Lars V. Lunn, research assistant in the Materials Section on Industrial Way, attended the Second Annual Technical Conference on the Metallurgy of Elemental and Compound Semiconductors in Boston in September. At the first session of the conference, Lars gave a paper to an assemblage of approximately 500 on "Impurity Dopants for Silicon Tunnel Diodes." This boy likes to travel . . . for the next two months Lars will be in Europe seeing the continent, visiting family in Denmark, and visiting SGS in Milan. Bon Voyage! . . . Interesting note: 105 American universities are represented among the Fairchild personnel. Foreign countries represented include Germany, Denmark, Canada, Netherlands, Egypt, China, England, India, British Columbia, Turkey, Formosa, Japan, Burma, Switzerland and Hungary. . . . Mitchell Park was the site of a picnic last Thursday lunchtime for the swimmers of the group. About 60 water-lovers joined forces for a good-time-had-by-all. . . . If you hear "Impala" or "Hello and Goodbye" played on a local radio station, done by the Reveleers, listen carefully. Fred Mikesell, technician on Industrial Way, is promoting the eight-man instrumental group, who are busy cutting more records. . . . A farewell party for Billie Dunwoody, Bill Hafner's secretary, was given by the Instrumentation group Friday night, October 14.

Lead Wire

NOVEMBER 1960



Fairchild Story in Industry Journal

Fairchild Semiconductor Corporation has been featured in the new technical publication, *Solid State Journal*. The four-page illustrated article appeared in the September-October issue of the *Journal* and is one of the most comprehensive articles to be written about the company in any industry publication. It is quoted as follows:

"When some future historian sets out to write the history of the solid state electronics industry there will be more than passing mention of the 'Fairchild Formula and Philosophy.'

"The formula will be the reverse Horatio Alger concept that surrounded the founding of Fairchild Semiconductor Corporation of Mountain View, California, just 36 months ago this September—and the philosophy will be that of the founders who were able to attract so many of the nation's top minds and talents in such a short time.

"Fairchild's original semiconductor device was the double-diffused silicon transistor—now commonly called the silicon mesa transistor—which Fairchild people jumped into at a time when several firms had a lengthy head start on development programs. Fairchild developed the unit and put it into production a full year before any other manufacturer came out with a similar device."

The story then recounts the familiar history of the founding of the company.

HISTORY

"The new Fairchild Semiconductor Corporation started work in about 14,000 square feet of leased space at 844 Charleston Road in Palo Alto. (The same plant today, since expanded to 24,000 square feet, has about 110 employees as the firm's Research and Development laboratories.) In late 1958, Fairchild opened its present headquarters and transistor plant in nearby Mountain View which now has about 740 employees in the 68,000-square-foot building.

"In the fall of 1959, Fairchild created the Diode plant across the Golden Gate Bridge from San Francisco in San Rafael; today it has about 165 employees producing diodes in 8,500 square feet of leased area. Under construction is a modern 50,000-square-foot diode plant at 4300 Redwood Highway, San Rafael. The Reliability Evaluation Division in Mountain View and the Instrumentation Division in Palo Alto add another 15,000 square feet of space and about 100 more employees.

Left to right: Dr. Gordon Moore, Dr. Sheldon Roberts, Eugene Kleiner, Dr. Robert Noyce, Dr. Victor Grinich, Julius Blank, Dr. Jean Hoerni and Dr. Jay Last. Wayne Miller photo for Fortune

View of a transistor assembly line at Fairchild.

"The diode plant at San Rafael now under construction is located in one of the most picturesque and charming areas of California's postcard coastline. It has practically no industry and thus represents a dramatic example of the new philosophy of business which recognizes that in highly specialized fields, stress must be placed on location and environment in order to attract scientists, research specialists and production personnel.

RAPID GROWTH

"In summation: from a handful of employees (including the eight founders) and 14,000 square feet of leased space in the winter of 1957, FSC has grown in three years to five plants (116,000 square feet) with more than 1,100 employees.

"Dr. Robert Noyce and his R & D group under Dr. Gordon Moore list the company's major achievements to date as: the NPN and PNP double-diffused silicon transistor line; the development of the 'planar structure' for diodes and transistors, the ultra-fast silicon diode line and the program of 'micrologic elements.'"

OBJECTIVES

"The executives at Fairchild define their objectives in simple terms: 'To develop semiconductor products for sale at a profit.'

"Dr. Noyce, added, 'We are not in business to sell development as such. Our philosophy has the advantages of production flexibility which permits us to shift away from less promising areas and invest our technical talent where it will do the most good.' FSC believes that new product research programs should be supported out of company funds.

"Regarding the development of future projects, he added, 'Industrial research may look into the future as far as it can look back on a successful history. The longer the history of success, the more money will be available for far-reaching programs. Therefore, in our early history our research was focused on this problem at hand: organization for production.

" 'Since having a brief but successful history behind us, we can now tackle longer range projects. We have broadened our base to include fundamental work on new material and exploratory work on new techniques and operating principles. Our research effort now includes double the personnel and space the entire company utilized two years ago."

COVER

Cover by MELGAR

Ken Doster, section head of Quality Assurance Engineering (1), and George Cone, section head of Quality Assurance Inspection, prepare budgets, a task which has occupied many Fairchilders in the past month.

3rd Quarter Best In Company History

Fairchild President John Carter termed the third quarter of 1960 as "the best in the company's history" and the outlook for the fourth quarter "excellent" in a recent corporate release on the record-breaking third quarter earnings of FCI.

A net profit after taxes of $1.236,000 has been reported for the third quarter, putting the company in a profit position for the first nine months of 1960 of $2,918,000 or $2.39 per share, based on the 1,219,206 outstanding shares. The report compares with a profit of $580,-000 or 48 cents per share for the same quarter in 1959.

New orders booked are up over 100 percent compared to 1959 and the net worth of the corporation has increased to $28,548,000 from $14,376,000 as of December 31, 1959.

FSC Given Award For Fund Donation

For its 1960 contribution of more than $5300, Fairchild has received an honor bar to add to its United Fund plaque. The plaque was received by the company for its outstanding part in the 1959 drive. Jean Jones and Tude Holt received the award at a dinner November 16 at Chez Yvonne, where they represented the company. Both girls worked on the drive with other committee members.

The company will match the employee donation dollar for dollar. The newly formed Contributions Committee will have as its major task recommending the allocation of a percentage of the company's gift to UF and other vital charities. All employee donations go directly to the United Fund.

Handled by volunteers, the county drive aids more than 90 health, youth and welfare agencies in this area. The amount of money needed by the agencies in our county is well in excess of one million dollars. Officially, the plant drive is ended, but contributions are still welcome—and always needed.

Payroll deductions for those who pledged to the fund will be made from the first pay period checks in January.

Chairman Paul Hwoschinsky expressed his appreciation to those who helped make the drive a success.

PLANT PROTECTION SYSTEM BENEFITS EMPLOYEES

A major function of the Plant Engineering Section, administered by Jim Stokes under Julius Blank, is protection of employees and the plant. This security and protection system, maintained and enforced by plant engineering and the West Bay Patrol, includes the identification system, plant patrol and an expanding fire-protection program.

While Fairchild is not directly engaged in government contracts requiring Department of Defense security measures, badges are needed for internal security. This means of positive identification identifies bonafide employees within the plant and prevents any compromise of company confidential material. There are also certain areas in the plant which are termed "company restricted" for purposes of safety, confidential process techniques, etc., and in these areas no visitors are allowed . . . here again the badge is necessary. A new form of badge and ID card is being devised with the new badge including a picture of the employee to insure adequate identification. Female employees may obtain beaded chains from the Plant Engineering Department so badges can be worn around the neck.

An expanded program of fire protection is being established under the guidance of Ralph Fitzgerald, plant engineer, with Sergeant Phil Simpson acting as plant fire protection officer. The program includes expanding fire protection facilities within the plant, the organization of fire brigades from different areas of the plant, fire protection training, a warning system and the enforcement of fire regulations.

Guard Al Arehart checks the papers for an air freight package being delivered to FSC by Dan De Simone of the Airport Drayage Co.

Sergeant Phil Simpson gets ready to "shoot" Betty Huckabay for her new identification badge.

The West Bay Patrol provides the vital plant protection required by any industrial organization. Working on a 24-hour guard service, the 16 guards have many duties besides that most familiar one of seeing if we have our badges on in the morning. Their functions include patrolling the building installations and plant perimeters; guarding restricted areas against unlawful entry; maintaining a control system for locks and keys for company property; controlling the entrance and movement of pedestrian and vehicular traffic—please observe traffic signs, says Phil—enforcing employee and visitor identification systems; escorting visitors; preventing and investigating thefts and damage of company and employee property; policing fire and safety regulations; enforcing company rules; detecting and apprehending individuals guilty of violating any state or federal law on company premises; and carrying out special assignments during periods of emergency.

Jack Sheets, Charles Campbell and Don Palmer (left to right) check over a policy manual.

New Appointments In Personnel Department

A reorganization of the Personnel Department was announced November 4 by Dr. Robert N. Noyce, FSC general manager. Under the reorganization, Charles Campbell, former personnel manager and acting industrial relations manager, has been appointed industrial relations manager for the entire corporation. In his new position, he will be responsible for industrial relations, wage and salary administration, safety, medical facilities, management training and personnel policy guidance throughout Fairchild Semiconductor Corporation. In his policy-making capacity, Campbell will report directly to Dr. Noyce.

William Horton has been appointed wage and salary administrator and Mike Mickel is safety engineer for FSC. In these corporate staff positions they will report to Campbell.

Jack Sheets is the newly appointed personnel manager for the Transistor Plant and will work under the direction of Charles Sporck. Paul Kent is the newly appointed personnel manager for the Diode Plant and will report to Jack Yelverton. Don Palmer is now personnel manager for the Research and Development Lab in Palo Alto and will work under the direction of Eugene Kleiner. R & D will now maintain its own personnel section including employee records.

Discussing the various appointments, Campbell stated that the change was made "to insure that safety practices, wage and salary practices and personnel policies would be administered on an equitable basis. The structure will provide co-ordinated control of industrial relations functions common throughout Fairchild Semiconductor Corporation."

Dr. Noyce stated that the reorganization "will effect co-ordination in hiring practices, give R & D adequate personnel guidance and establish and maintain a direct line to management in the formulation of vital industrial relations policies."

Paul F. Kent (above) is the newly appointed personnel manager for the Diode plant in San Rafael. After receiving a bachelor of arts degree in education from Stanford in 1950, Kent served for three years in the Pacific with the U.S. Navy. He then was with Sylvania Electric Products in Mountain View where he was personnel supervisor for seven years. The Kent family—wife Marily, Carolee, 8, James, 6, John, 4, and David, 1 month—lives in Terra Linda Valley.

MAJOR PAPERS GIVEN IN EAST

Two major papers were presented by Fairchild scientists at the Electron Devices Meeting of the Professional Group on Electron Devices October 27-28. The meeting was held in Washington, D.C. PGED is one of the professional groups sponsored by the Institute of Radio Engineers.

Dr. Jean Hoerni's paper, "Planar Silicon Diodes and Transistors," was the first public discussion of the planar process developed here at Fairchild and described two types of devices made by the process: a planar diode and a planar NPN transistor. Data on unencapsulated units were also presented.

Art Hale and B. David James presented a joint paper titled, "Vacuum Evaporation of Single Crystal Thin Films of Silicon." Physical imperfections, doping and electrical characteristics of the films were discussed, together with devices made from them.

The sessions were attended by Dr. Robert Noyce, Dr. Gordon Moore, Dr. Victor Grinich, Dr. Jay Last, Jim Nall, Dave Allison, Orville Baker and Mark Weissenstern.

Credit Union Receives Plaudits

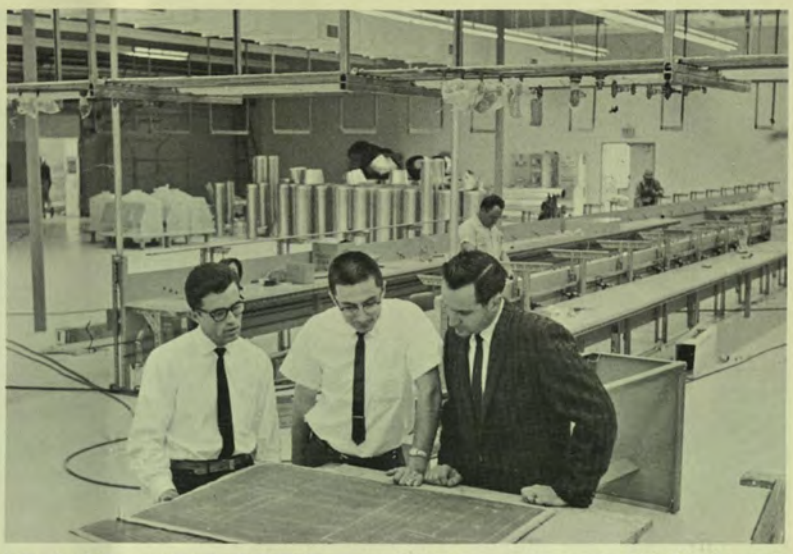
Periodic examinations and visits from Bureau of Federal Credit Union officials indicate that the Fairchild Federal Credit Union has set a record to be proud of both in membership and in share balances. The officials expressed continued satisfaction with the progress being made.

Figures taken from the financial statement for the period ended October 31, 1960, show a total of 545 members owning $42,463 in shares. A total of 153 loans have been granted since the organization of the Credit Union, totalling $39,150.

The group is on the lookout for members who are qualified and interested in running for any one of the many positions on the board of directors and the credit committee which will be open for nomination soon. Interested parties are asked to contact Ed Krueger or Tony Roder.

DIODE GETS A HEAD START

While the "official" opening of the Diode Plant in San Rafael won't be until the first of the year, many sections have moved into their new quarters. Production lines are still operating at the Jordan Street plant but will move over to the new plant at the end of the month.



L-R—Looking over new production area: Louis Roe, engineer in Cliff Lionbarger's Quality Assurance group; Bob Napoli, industrial engineer; and Norman Wardman, industrial engineer.

James Dunlap, experimental machinist in Irv Michelson's Tooling Section—Bridgeport vertical mill.

Drafting Department (Irv Michelson's section). L-R—Herb Bartholomew, draftsman; Bill Busche, designer; and David Ferber, senior draftsman.

L-R—Elmer Biegel's electronic engineering section. Myrtle Milham, tester trainee; Delio Luna, electronic technician; Jessie Davenport, tester trainee. Operating forward voltage tester.

L-R—Sales Department. Ruth Shepardson, secretary to George Korpontinos; Bill Hertzog, senior sales liaison engineer; Ben Anixter, engineer in Electronic Engineering; George Korpontinos, Sales Administration manager: Marilyn Bourland, clerk.

Impressions

By Mary Ann Hrynczak

(Mary Ann, Ed Russell's secretary, recently returned from a three-month tour of Europe. In this article she gives her impressions of Italy.)

Standing on one of the Seven Hills of Rome, a person can view one of the most ancient cities of the world . . . the Colosseum, where the gladiators and martyrs died; the baths of Caracalla, where opera is sung over the heads of thousands; the majestic St. Peter's Cathedral with its large round dome by Michelangelo; and Vatican City. The Spanish steps descend to marble and stone fountains throughout the squares. The subterranean catacombs lead down long, dark paths where lie thousands of recessed tombs.

One hot and humid day I ventured 19 miles out of Rome to the Villa D'Este Gardens overlooking Tivoli. D'Este has one of the most beautiful water works, flowing from the Anio River, that I have seen—exquisite fountains with plumes of water; a long row of monkey heads spouting water and graduating pools that let water fall in great abundance. After trailing the paths of all four levels of the Garden, I came out happy, sopping wet and barefooted. Grabbing an apple from a nearby fruit vendor, I made my way up the road to the ruins of Hadrian's Villa with its Greek and Egyptian architecture. The tall marble columns line the narrow pool housing white swans and pale lilies. As one wanders through the rooms, he finds fragments of marble that once hid the walls and floors. Looking far out to the horizon one sees mounds of ancient olive and cypress trees.

Driving along the Amalfi Drive on the way to Sorrento, I marveled at the beauty of nature. The sheer cliffs and the blue waters play against a rocky coast line. The winding road leads to many delights—small towns with outdoor markets, little dark-eyed children playing tag in the streets, and chickens that scamper in and out of the passing vehicles without so much as rustling a feather. On the steep hills one sees the terrain holding the berry of wine. Actual destination was the Isle of Capri and from Sorrento to Capri the only means of transportation is by boat. My time was spent holding the head of a little Italian boy who couldn't speak English but kept hanging on to his stomach and leaning over the rail. After we docked, he went skipping off happily while I was left to fight the "woozy" feeling!

Mary Ann sits in the garden of her home in Palo Alto with some of the prized possessions from her trip.

On the Isle of Capri, one can gain tremendous satisfaction by not accepting the surface but digging for the delights. If one makes his way to the main square, he can see a cobbler making shoes, fish markets, blacksmiths, fruit vendors and an occasional Italian going down to refill the ever-present bottle of vino. Around the hill, one comes upon the busy square which supports chattering old men, barking dogs, the Italian with his striped tee shirt and girls wearing short skirts and leather sandals. I ventured beyond the square in hopes of finding an unusual luncheon spot. The only way really to enjoy oneself is to attempt the Italian word for eat, "mangiare," to an Italian and he will give you directions. I found a restaurant on top of a high hill that overlooked the Mediterranean. Cool breezes whipped through the trees while the waiter served scrumptious canneloni. Along the Marina Piccola I saw lovely estates, swimmers, and strollers in the sunshine.

To Venice, with her 22 islands, where the only means of transportation is by gondola or speedboat. Looking over the canals, one sees gondoliers shouting at intersections. Sitting at one of the many cafes surrounding San Marco square one can sip wine and listen to a concert from the tower of the cathedral every summer night. Over one of the tiny bridges of Venice one can stop in at a glass blowing factory and watch the workers at their intricate art.

My paradise lies in the small agricultural town of Orvieto, where grapes and wheat are the major produce. As one approaches Orvieto from the flat valley floor, he sees it on a tall plateau, like a cream puff in the middle of a plate. As one drives along the valley, there are solid wheat huts which are made to preserve the hay through rainy weather. Ox-drawn wooden carts carry the farmer and his family. The town has ancient churches, cobblestone streets and small shops. Standing on the ridge of the town looking out as far as the eye carries, one notices that there is not a building or another town in sight—untouched by the rush of civilization, one can understand the sheer contentment of her people.

Dr. Harry Sello (left), FSC manager of Manufacturing, and Dave Perlman, science editor of the San Francisco Chronicle, who are appearing in a new television series on Channel 9, KQED. Titled "This Week in Science," the half-hour program can be seen Thursday evenings at 8. Films, tapes, graphic presentations and coordinated texts will be used to present the current happenings in the fast-moving world of science.

Lead Wire

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26 Trophies For Go-Carters

By Dick MacElroy

According to those who are with it, Go-Carts are "in." And being a with-it group, Fairchild has a Go-Cart team composed of Bob Arnold, team captain, and his wife, Doris; Don Hart, Bill Whittington, Jerry Milligan, Jim Pritchard and Jack Allen, husband of Mary Allen. Each member has his own cart.

A sport that has caught on tremendously in the past year, Go-Cart racing is exciting to watch and a challenge to the drivers. With speed at a minimum, maneuverability is the most important factor. The races are run on an oval ¼- or ½-mile track.

The framework of the carts is tubular and of steel alloy. Approximately 4½ to 5 feet in length and 3 feet in width, the car has a total weight of about 100 pounds. The car is 1 to 2 inches off the ground, giving the illusion of greater speed.

The team runs its carts in two different classes, the "Class A Bushing" and the "Senior A Modified." The "Class A Bushing" is driven by a Clinton engine that develops stock at 2.5 horsepower at 5100 r.p.m. After modifications are made, the single-cylinder two-cycle motor puts out 4 horsepower at 7000 r.p.m. Top speed is approximately 35 m.p.h.

The "Senior A Modified" carts are powered by a McCullough & Power Products Engine that delivers 6.2 horsepower at 11,000 r.p.m. After modifying, the motor develops 7.5 horsepower at 15,000 r.p.m. Speeds go up to 55 m.p.h.

The carts are chain driven direct with no clutch and direct steering. The fuel is gasoline mixed with ether and castor oil as a lubricant.

The team has won 26 trophies and more are expected. In a recent race, the team succeeded in taking the first four places in the main event. The team recently placed third in the Peninsula championships. Both Bob Arnold and Don Hart have come close to beating the time of 25.45 seconds, top time at Berryessa Track in San Jose.

The team races at many of the local area tracks. Anyone interested in going along for the ride should contact team members. Company participation is welcomed.

Go-Carts, trophies and—Bill Whittington, Walt Le Valley, Bob Arnold, Jack Allen and Bob Pritchard, reading left to right.

The FSC basketball team at a practice session. The boys began a series of these practice sessions at Thurman Gym in Palo Alto last week. League play begins in January . . . we wish the team luck and hope they do as well as they did last year. A game schedule will be posted on the bulletin board. Pictured left to right are Rudy Gutierrez, Dick Cole, Dick Goodman, Jerry Milligan, Bob Sommers, Ken Hills, Doug Noyce, Rich Wills and Bob Bauer.

MT. VIEW BOWLING

Rita Braudrick, of Accounting, rolled a sensational 68 pins over her average to a new high game for women with a 207. Recent League standing scores are as follows:

LEAGUE STANDINGS

Team	Won	Lost	High Game
Fab Tools	15	6	625
Rita's Raiders	14	6	634
Cold Turkeys	13	8	601
Late Comers	13	8	566
Cox's Army	11	10	583
The Goofers	9	12	563
Tabfax	8	12	609
Mac's Butchers	8	13	687
Screwballs	8	13	558
#10	5	16	531

High Game		
Men	V. Cady, 10/12	257
Women	R. Braudrick, 11/2	207
High Series		
Men	R. Sansome, 10/25	571
	V. Cady, 10/25	571
Women	R. Braudrick, 11/2	493

SAN RAFAEL BOWLING

In the athletic department, we find our bowlers still at it. John Diepeveen, Tooling, has high game so far of 212 and also high series of 521. Nancy Walker is leading the women with a 185. High series finds a tie with Flo Shaffer and Mary Busolo having 445 each. John Nash's team is in first place. This team consists of Lee Stewart, Art Pearson, and Herb Bartholomew. In second place is Natalie DeBeaumont's team—Harold Clement, Jack Yelverton and Ben Anixter. These results were at the end of six weeks of bowling.

ALL AROUND THE PLANT

By Lindsay Barber

Well, it looks as though Bill Hertzog, San Rafael, will have to keep his Nixon bumper sticker on until inauguration day. He and Bob Merrick of the Advertising Department had a small wager going. Whosever candidate lost the election had to keep his bumper sticker on the car until January 20.

Sylvia Mead, NPN, came running in on Halloween morning with her bathrobe and slippers on, and her hair in curlers announcing that she may not be dressed, but at least she was on time!

New Year's celebration for Fairchild skiers will take place on the sunny slopes of Squaw Valley over the three-day weekend January first, Friday night through Monday. This will be the first trip for the club this year. Lodging will be near Nevada, where we will enjoy private accommodations, the use of a heated swimming pool and fun evening entertainment for everyone. This trip will be limited to 32 people for a first-come, first-served basis. The full price, including three nights' lodging, meals, drinks, and reductions on tows, lifts, and ski instructions, will be a mere $19.50 (not to include transportation, which will be taken care of by car pools). On large trips, friends and relatives are welcome guests.

Along these same lines, all Fairchild skiers are invited to a season kick-off get-together in the form of a potluck spaghetti feed Saturday, December 3 at 7:00 p.m. The program for the evening will include a Warren Miller movie, ski swap, ski instructions by a qualified instructor who will take part on our trips, and a ski fashion show presented by a local ski shop. Qualifications for the club are very simple—just be an avid ski enthusiast and an employee of Fairchild.

For more information and signups on the trip or potluck, please contact Mary Grigsby or Phil Shirm.

SOME DATA FROM DIODE

By Barbara Hock

The Diode Christmas party committee is in full swing. John Nash, chairman, reports that with the help of Jim Nicholas, Plant Engineering, the Bermuda Palms ball room has been acquired for the affair. The party is planned for Friday afternoon, December 23. The committee is lining up a combo and planning a buffet lunch. Ruth Shepardson in Sales is heading up the decorating committee, with the assistance of Patty Murphy, plant nurse; Judy Lawrence, in Purchasing; Norma Dauber, Electronic Engineering, and Flemming Carlsen, Tooling.

The election has been stirring things up considerably around here. The only casualties seem to be Bill Hertzog of the Sales Department and Bill Busche in the Tooling Section. Poor Bill Hertzog draped his desk in black on the Day After. Delio Luna in Electronic Engineering seems to have fared pretty well—for days he's been counting the $15 he won.

Jessie Davenport is the latest gal to move into the Electronic Engineering group as a tester trainee with Norma Dauber and Myrtle Milham. New inspector trainees are Ann Langley, Ella Caffey Florence Elijah, Kathy Phillips, and Helen Corcoran.

David Ferber, draftsman, is the proudest father in Diode right now! On Nov. 8, his wife, Mary, presented him with a 6-lb. 3-oz. baby girl named Kimberly Ann.

The "designer-of-all-designers," Bill Busche, was recently surprised with a stag party at Le Chateau. Joining in the "party" were Herb Bartholomew, David Ferber, Irv Michelson, John Diepeveen, Bram Kool, Stan Chapman, Flemming Carlsen, Fred Vogel, Dick Dickens, Tom Carwardine, Bob Champagne, Dean Mack, Jim Dunlap, and Bob Bush. The poor guys were unsuccessful in recruiting a gal to pop out of the cake!

Bobbie Fox of Sales recently landed three big bass which weighed a total of 94 lbs.—"these finney-bottomed" fellows darn near outweighed our Bobbie. For further information on a Bottle Club for Christmas Relief, check with Jim Wardell in Development Engineering. This fellow is full of ideas. The gals on Grave gave Paul Driscoll a farewell party when he transferred to Swing—complete with transistor radio. Katherine Rudniansky changed her name to Bayliss recently—wedded bliss.

R & D LAB GAB

By Shirlee Munn

Auf wiedersehen to Shirley Brossius and Nancy Johnston, off on a European tour . . . These two fearless femmes left on Nov. 10 by air; destination London. During the course of two months, they will tour the entire continent, being guided by none other than Lars Lunn. This trip was planned about two months ago, entirely on impulse . . . therefore a frantic scrimping and scrapping for the needed funds took place. Resourcefulness and ingenuity have netted these two enough (they hope) for the trip. After cleaning their bank accounts and selling their cars, they held a rummage sale of most of their worldly goods . . . clothes . . . records . . . paintings . . . enameled earrings which they had made themselves. Since there was some question as to whether or not they'd have enough money to come back, the Palo Alto people threw a picnic for them on Nov. 8 at Mitchell Park. Everyone was charged an admission price for the picnic, but brought his own lunch. The money was then donated to Nancy and Shirley for their safe and sane return to the good old USA. A good time was had by all brown-baggers. . . . These two have no scheduled itinerary but hope to cover France, Switzerland, Yugoslavia, Greece, Italy, etc. The only schedule they do have is being in Copenhagen for Christmas. . . . To economize further while on this trip, part of their luggage is going to be two sleeping bags! Hostels are cheap, and if they really get broke, they can always sleep on the ground! (Ah, but they are young and brave.) We all hate to see these two leave, but admire their spirit in taking advantage of this once-in-a-lifetime opportunity . . . lots of luck to both of them.

Laughter in the lab: Paul Ignacz, our Chemistry Department associate from Hungary, was wearing a "Coolidge for President" badge during the election. Paul said, "I am not entitled to a vote, but I *can* have an opinion!"

After-election aftermath: Phil Flint, staunch Nixon backer, as evidenced by large-size badge, signs on doors, walls, verbal proclamations, etc., literally "ate his words" after predicting that Nixon would win. Phil wrote his prediction on paper, and vowed to eat his words if he was wrong. It seems that the word got around, and on the afternoon of the day after Kennedy's triumph, we all gathered in the lab to witness same. Phil, being a good sport, did "eat his words," and announced that they would return in four years!

OFF THE LEADWIRE

Christmas is fast approaching—and with it, among other festivities, the annual Fairchild Christmas party. The date is Friday evening, December 16; the place, Bay Meadows Club House in San Mateo. From 9 till 1, dancing, buffet dinner and entertainment will be the order of the evening with music furnished by Johnny Vaughn's 12-piece orchestra and vocals by Judi Ansell. And all this, courtesy of Fairchild. Chairman for the affair is Carol Himsworth, with Engineering doing decorations, Manufacturing providing entertainment, Quality Control in charge of food, Accounting handling tickets and the publicity being done by Marketing. . . . Are you an undiscovered talented curler? A group at Instrumentation on Industrial Way has formed two curling teams and is looking for interested recruits, male or female. The group uses the Peninsula Curling Rink in Palo Alto and already plays once a week plus practice sessions. Call Frank Parlette at Extension 33 in Palo Alto if you are interested in joining. . . . Best wishes to Beverley Smith of Instrumentation, who weds Don Clausen Saturday, November 26. The wedding will be held in Santa Clara and the couple plan a honeymoon at Tahoe. . . . Dr. Jay Last, director of the Micrologic Section at R & D, is a visiting Ford lecturer at the Massachusetts Institute of Technology for this entire month. Dr. Last is delivering a lecture series on semiconductor technology at MIT's Electrical Engineering Department. . . . Congratulations to Mike Starr (Purchasing) and his wife, Linnell, who are the proud parents of Karen Lynn, born October 29. . . . Edward Roland is the name chosen for their new son by Peter and Irmgard Rippert. Peter is an engineer in Mechanization and Tooling. . . . It's a boy for Bernard Yurash (Chemistry R & D) and his wife, Irene. Stephen Andrew arrived October 24. . . . Don and Diane Elam's new daughter Linda Diane was born October 20. Don works in the Design section of R & D. Joe Dully, Gordon Greenslitt and Bob Arnold, FSC glassblowers, are taking part in the American Scientific Glassblowers Society party for underprivileged children Saturday, December 3. The art of glassblowing will be demonstrated and there will be films and displays. All proceeds from admissions, sales of novelties and donations go to the Community Council of Northern Santa Clara County, Citizens Christmas Committee. The time of the event is 10 a.m. until 5 p.m.—the place, the Glass Engineering Lab in Belmont, on O'Neill Avenue.

Lead Wire

DECEMBER 1960

Christmas Greetings

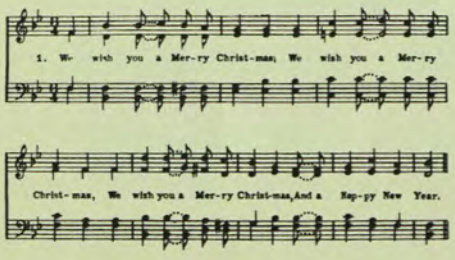
This holiday season is the traditional time to send greetings to our friends, new and old, and to renew acquaintance with those we have not seen for some time. Within our Fairchild community, we see each other more often than we see our other friends; but sometimes we see each other more as co-workers than as people due to the pressures of the moment. These pressures, necessary in order for us to reach our desired goals, have often made time too short to commend someone for a job well done, to give proper thanks for help. That you have done your jobs well is evident from the progress of the past year; that helpfulness has been the rule of the day is evident from the cooperation seen everywhere. Let us take time to appreciate, too, our co-workers as people in the broadest sense, each with personal hopes and needs. This can help make 1961 a joyous and prosperous new year for one and all. It is my sincere wish for you.

Robert D. Hayes

COVER

"To ship is more blessed than to receive."

Melgar's cover photo shows Jacqueline Maly, Jim Gorud and Bert Schmidt at work in shipping and receiving.



San Rafael's Christmas party committee makes final arrangements for their party, to be held December 23 in the Flamingo Room of the Bermuda Palms Motel in San Rafael. Festivities will start at noon and will include a buffet luncheon and dance music by Jim Chesnut's orchestra. The committee includes (l to r) Chairman John Nash, Norma Dauber, Ruth Shepardson, Patty Murphy, Judy Lawrence and Flemming Carlsen.

Holiday Parties

Mountain View and Palo Alto's Christmas fete is scheduled for the evening of Friday, December 16, at Bay Meadows Club House in San Mateo. Buffet dinner, dancing and entertainment will be the order of the evening. Checking last-minute decorations are Lloyd Kohn, Bob Robson, Chairman Carol Himsworth, Johnny Vaughn and Nancy Humpal. Vaughn's 12-piece orchestra will furnish the music at the party, to be held from 9 p.m. to 1 a.m.

Autonetics Contracts: Now Total 8 Million

Contracts and purchase orders for the MINUTEMAN program will total approximately $8,000,000 by December 31, according to Dave Beadling, MINUTEMAN program manager. New purchase orders totaling $1,374,000 were just received by Fairchild from Autonetics, a division of North American Aviation, Inc., which is one of the associate prime contractors for the Air Force MINUTEMAN intercontinental ballistic missile program in which Fairchild is involved.

The new purchase orders are the latest in the series which began in early 1960. In May, Fairchild signed two contracts totaling $1,511,210 which were reliability improvement contracts and coincided with the establishment of the Reliability Datanalysis Group. This group is mainly concerned with conceiving and executing life testing to determine the reliability of our transistors under varying conditions.

The contracts designated sixteen "task" areas including testing, evaluation and reliability improvement. Controlled experiments have been going on since August and have included the testing of moisture and water as deterrents to proper device functioning, lead replating, lead bonding and other processes. Another area explored by RED has been the testing of planar devices. Since the planar significantly reduces I_{CBO} failures and offers high reliability, there has been a proposal submitted to Autonetics that future NPN devices for the MINUTEMAN guidance system be planar devices. Discussing this proposal, and its background, Beadling noted that it was symbolic of Fairchild's philosophy to eliminate a failure mode through device design whenever possible in preference to minimizing the mode through extremely tight controls.

The MINUTEMAN program has offered another great advantage for Fairchild, unique in the entire semiconductor industry. Through all the phases of the program—research, production and evaluation—approximately 150,000,000 transistor hours will be accumulated under controlled conditions. Using time and units as a statistical base for component reliability, the accrued hours give Fairchild experience orders of magnitude higher than those results from previous evaluations in the industry.

Has the program been a success so far?

"Definitely," said Beadling. "Not only has our contribution been a success, but the entire program has been going well. The MINUTEMAN was conceived basically for economic reasons since other missiles had been so costly. The MINUTEMAN program will greatly reduce the cost of dollars-at-target." Eight tethered firings have been carried out at Edwards Air Force Base. The first full flight test is scheduled at Cape Canaveral sometime in December. The projected full range of the missile is more than 6300 miles. The missile is scheduled to become operational sometime in 1962.

"Future military commitments are fairly logical extensions of our experience with the MINUTEMAN program," stated Beadling. "The present program is the most significant step to date in the history of improvement of electronic component reliability. Certainly, the experience we are gaining will be extremely valuable in future programs in which the reliability of semiconductor devices is a critical feature."

Special features of the Air Force B-70 Valkyrie, now under development, are shown in this view of a scale model. The aircraft, which will fly at three times the speed of sound, features small canard control surfaces near the crew compartment and large triangular wing surfaces.

FAIRCHILD DEVICES IN B-70 BOMBER

Fairchild's First Order Reinstated

In February, 1958, Fairchild Semiconductor Corporation received its first order. IBM, Federal Systems Division in Owego, N.Y., ordered 100 transistors to be used in the prototype B-70, the Air Force 2000-mile-per-hour manned bomber. One hundred 2N697's were delivered and this was the order that literally got Fairchild "off the ground." Before the prototype was finished, however, the Defense Department dropped the entire B-70 program for economic reasons. This was early in 1959.

In November of this year, the Defense Department authorized the Air Force to proceed with a substantially augmented program on the B-70. Fairchild has been indicated as a major supplier of transistors for the bombing-navigation system for which IBM, Owego, is the prime contractor.

To Use Planar Transistors

The original order in 1958 was for mesa transistors. Engineers at IBM now say the electrical specifications have been greatly improved by the application of our planar devices and are upgrading the specifications to use the planar transistor. The high reliability of the device offers greater system reliability, of vital importance in the B-70. Goodyear Aircraft and Motorola Military Division are also involved in the bombing-navigation system and will be using our transistors.

Air Force officials say they would like to have 12 of these bombers built equipped with military components to test-prove the B-70's usefulness as a weapon. The plane is expected to fly by December, 1962, and will be equipped to carry air-to-ground missiles as well as bombs. It will fly above 70,000 feet, operating over long distances without refueling. Turbojet engines will propel the plane.

Funds available for the B-70 program now total $256 million for the fiscal year ending June 30, 1961. The funds will enable work on the flying weapon system prototype of the complete bomber as contrasted with the present stripped-down program on airframe test vehicles that carry no combat equipment. Key components of this equipment are the two subsystems whose development was dropped in 1959—one of them the system in which Fairchild is involved.

New Production Standards

Cutting wafers are Billie Engel (l) and Bette Harder

Elaine Wilson (l) and Becky Grisson shown plating

The Industrial Engineering section in cooperation with Manufacturing arrived at new production standards for assembly operators after extensive studies. The new standards are in full swing at Fairchild and all the girls are making rapid strides toward their goals. Pictured are some of the girls who were among the first to attain the new standards. Congratulations on a job well done!

Jane Vellone, lead bonder

Lead welders Bernice Howes, Stella Cook, Loretta Copp

Sköl Salud holom

It's Christmas time; let's all rejoice
And lift a cup to Robert Noyce.
To Carol Painter, lots of treats,
And Happy Yuletide, Joseph Dietz!
Deck the halls (Bob's, Don and John),
Loretta Hayes and Valerie Kann.
To Betty Martin, mistletoe,
And eggnog for Paul Beneteau.
A Christmas wreath for Richard Cole;
For Charlie Sporck, a wassail bowl.
To Ida Price, a sprig of holly;
Another one for Guy M. Golley.
For Nancy Humpal, all that's homey,
And endless cheer, K. Tokutomi.
A turkey 'n' stuffing for Bob Napoli,
With cranberry sauce for Dot Spagnoli.
For Sherry Boyle, a Christmas song,
And second chorus for Herbert Wong.
Let Mary Farnsworth lead the band
For Madhu Desai and Frank Durand.
Happy days to Donald Yost;
To Bobbie Fox, the Season's toast.
Sköl, Salud to Jerry Farrell;
Himsworth is our Christmas Carol.
To Mary Goines, a day of sharing
Christmas cheer with Worden Waring.
A Tom & Jerry (Bay, Levine)
To Donalds (Rogers, Valentine).
For Paul Hwoschinsky, bowls of haggis,
Though for us, the thought would gag us.
For Thomas Murphy, toys and trains,
And Happy New Year, David James.
Jingle bells for Robert Trent;
Joyeüx Noël to Paul F. Kent.
Gifts galore to Cecil Harris;
For Bea Ortu, a trip to Paris.
Marley's ghost to Richard Dickens;
Lots of luck with turkey pickin's.
A hint to Barbara not to hock,
Just to fill her Christmas sock.
Loads of fun to Flora Stone,
Judy Lawrence and Lloyd Kohn.
A Christmas goose
For Shirley Nuss.
We're short of space and out of rhymes,
But wish you all the best of times.
So if your name did not appear,
Lift your cup, be of good cheer—
We'll get an *early* start next year.

ANON.

Safety Programs

Two new aspects of Fairchild's safety program have been announced by Mike Mickel, safety engineer.

The first program is a course in safety practices using motion pictures in sound and color. The first film emphasized the importance of wearing safety glasses in designated areas. The color movie showed what happens when a metal fragment gets into the eye. The documentary then showed an actual operation of removing the fragment using surgical methods. Subsequent movies will deal with the proper use of chemicals, electrical safety, first aid, fire prevention and other safety methods.

The second program is a course in the use of resuscitator units in emergency conditions. Five resuscitator units are in the plant and their proper use will be demonstrated in two-hour training sessions with supervisors, foremen and employees from the various sections. The training course will instruct employees in the new mouth-to-mouth breathing technique, approved by the Red Cross.

Computer Conference

The Fairchild ten-foot display booth at the Eastern Joint Computer Conference will feature our diffused silicon transistors, diodes, micrologic elements and special products. Exhibits of the latest computers, equipment, systems, components and sub-assemblies are planned for the more than 3000 members of the three sponsoring societies expected to attend the conference December 13-15 in New York.

The EJCC is sponsored by the National Joint Computer Committee, which consists of representatives of the Institute of Radio Engineers, the American Institute of Electrical Engineers and the Association for Computing Machinery.

Representing Fairchild at the three-day conference were Tom Bay, John Hall, Bob Graham, John Ready, Howard Bobb, Don Rogers, Ran Johnston, Don Farina, Bob Norman, Bob Schultz, Dick Anderson, Richard Crippen, Jim Nall, Jay Last, Bob Dugan, Joseph DiMatteo, Richard Day, Walt Andrews, Bill O'Hara, Donald Beene, Don Cavallo, Jim Paris, Thomas Murphy, Bernard Marren, Bob Major and Joseph Gattuso.

A sales meeting of the Eastern and Central region sales force was held just prior to the conference, December 12.

Lunar Holiday Soon

By Caroline Glasser

Taking a trip to the moon next year? Well, don't forget to sew your pulse transmitter in your underwear.

Scientists predict we'll be going there within the year, wearing underwear equipped to transmit temperature, pulse, electrocardiogram and respiration.

The mad moon rush of the sixties is in progress. But, unlike the gold rush of 1849 or the uranium find of the fifties, the moon has, in fact, nothing to offer us. There is no life, no water, no oxygen —no nothing, except maybe green cheese. And now even that is being doubted.

The advantage of breaking the tape at the finish line lies mainly in the prestige of being first. Also, a lunar radio station would enable messages to be transmitted to and from half the globe without relay stations. Missiles, easily sent from the moon, could hit any point on earth more accurately.

Here's the latest on our position: Of all launchings in which all or most objectives were achieved, 27 were American and 9 Russian; of all space vehicles still in orbit, 15 are American and 3 Russian; of all space vehicles still transmitting data, 8 are American and 1 Russian. This information was released by the National Aeronautics and Space Administration in Washington, D.C.

According to the Senate and House Armed Services and Appropriations Committee, the USSR has still a considerable lead over the U.S. in ballistic missiles. The Russians were the first to put any object into orbit, the first to hit the moon, and have sent much larger vehicles into space than we have.

1961 or 1962?

It is still uncertain as to whether man's first space flight will be launched in 1961 or 1962. Manufacturers claim that space vehicles now under construction will not be ready until 1962 or thereafter. Yet only two weeks ago, Dr. Wernher von Braun, leading missile scientist of Redstone Arsenal, Ala., stated there is "no reason to believe we will not have an orbital flight in 1961."

An NASA spokesman also said that schedules are set for "sometime early next year."

A test space capsule was displayed in September for the first time at the Air Force Association in San Francisco by AiResearch Manufacturing Company. The capsule, designed to hold one man, measures six feet in diameter and eight feet in length.

Television cameras and other instrumentation in the front of the capsule transmit psychological information concerning reaction to simulated space-flight conditions.

Cabin environments expected to be used in space flight, such as various mixtures of oxygen, nitrogen and carbon dioxide, will be duplicated in the sealed capsule. Heating elements in the liner will permit radiation to the occupant from the wall of 200°F temperatures, to simulate the heat of re-entry.

Under development in Baltimore, Md., is one such space laboratory, weighing 16 tons and designed to orbit around the earth 400 miles out. With a crew of four to six, it would be boosted into a year-long orbit by vehicles of NASA's three-stage Saturn class of rockets.

Based 100 percent on currently known technology, the specially designed laboratory shell of beryllium and aluminum alloy would enable the crew to work in their shirtsleeves.

After operating the station for about a month, the crew would be returned to earth in a rendezvous vehicle that would bring up a relief crew.

120-Pound Space Suit

If you're thinking seriously of becoming an astronaut, better first consider yourself in a lunar space suit.

Not exactly Ivy League, it weighs 120 lbs., is 7 feet high and 2 feet in diameter. On the moon, where gravity is about one-sixth that of the earth, it would weigh only about 20 lbs.

The suit consists of a two-piece cylindrical aluminum tunic and torso with arms and legs attached. A 14-inch-high plexiglass window encircles the dome-shaped top section.

A carbon dioxide absorbent and a fan for the circulation of oxygen are contained in a canister attached to the rear.

The arms and legs are made of neoprene covered with nylon. To prevent punctures, wire mesh covers the tops of double-soled aluminum shoes. A variety of mechanical devices can be substituted for gloved hands on the arms.

Within the aluminum capsule are a radio communication unit, air conditioning and oxygen, supply controls, lifting handles, food and waste storage

FUTURE RESORT?
Link Observatory Photo

bins (for green cheese), searchlight control and an electrical power supply.

On long trips the lunar explorer can rest by lowering legs of a tripod stand.

"Man" Conquers Space

Men, rejoice! The theory that women are better suited psychologically and physically for space travel holds little water with authorities. Thus far, they have picked eight men and one woman for future astronauts.

It looks as if it's going to be a man's world again.

In any case, spacemen (or women) must be highly specialized scientists, trained and conditioned for their celestial journey.

Personal relations between the members of the crew, enclosed for months or years in a narrow space, may easily become strained (especially if the crew is eight men and one woman)—a source of psychological dangers no less menacing than the obvious physical dangers.

The whole trip will resemble more a laboratory experiment of long duration, involving dangers which only the foresight of a scientist can meet.

We'll let you know when sign-ups will be taken.

Lead Wire

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NEWS STAFF
Editor ..... Judy Machanik
Sports Editor ..... Dick McElroy
Columnists ..... Barbara Hock, Mary Grigsby, Shirlee Munn

Donors wait their turn

Mrs. Bertha Hanzlik, administrator of Peninsula Memorial Blood Bank, and Mrs. Mary Nacino, Blood Bank nurse, take Fairchilder's histories before they donate blood.

FSC Blood Bank

Fairchild employees donated 114 pints of blood when the Peninsula Memorial Blood Bank "set up shop" in the cafeteria November 29. The donated blood will be available to all employees and their immediate families.

The Bank maintains a reservoir of whole blood from which all types of blood may be supplied for transfusions. Operating on a "credit" and "replacement" system, a donor contributing blood to the Bank is given credit for the amount donated, for himself or anyone he designates. In our case, Fairchild has established a credit reserve of blood which is available to all employees.

The temporary Fairchild "clinic"

Carol Himsworth is permanent secretary of Fairchild's blood bank reserve and Betty Martin is alternate secretary. Contact them to receive blood from the Bank.

Rocks from such diverse places as South Africa, Montana and Sutter Creek hold court on the coffee table in the front lobby as Courtney Hart describes the piece of opalized wood he holds. The spectators are the first Fairchilders who have voiced interest in a newly formed Mineralogy Club. The club is still looking for prospective members. Plans for future programs include field trips, guest speakers, displays and exhibits. Seated around the table, left to right, are Peter Rippert, Mechanization; William Mueller, Mechanization; Helen Morton, Micrologic; Dick Holland, Mechanization; Courtney Hart, Materials; Gertrude Neubauer, Transistor Development, and George Bloom, Mechanization. Contact George, Courtney or Willie for further information.

Credit Union Plans Meeting

The first annual meeting of the Fairchild Semiconductor Federal Credit Union will be held Saturday, January 28, 1961, at 10:00 a.m. in the cafeteria of the Mountain View Plant. The plans are being made in accordance with the Federal Credit Union bylaws. All members of the Credit Union are urged to attend.

There will be summary reports by the president, treasurer, supervisory committee and credit committee covering the operation since the charter was granted. This is the opportunity for members to learn first hand how their organization has progressed.

Myra Landolfi, board president, is general chairman for the annual meeting. Committees are at work with the following chairmen in charge: Tony Roder, planning and arrangements; Ed Krueger, publicity; Jay Cockrum, nominations.

Members who can devote some time toward planning the meeting are invited to contact the chairman of the group with which they would like to work.

As this is to be the beginning of the first full calendar year for the organization, the nominating committee will present nominees for the nine-member board of directors and for the three-member credit committee. Terms will be for one-year and two-year periods this first year only, and thereafter for two years, so that the terms are staggered. There will also be nominations from the floor followed by elections.

BOWLING TEAMS GOING STRONG

After a week's respite for Thanksgiving turkey, the Fairchild Mountain View bowling league resumed play with Fab Tools still clinging to their game-and-a-half lead over the challenging Rita's Raiders. Both teams swept their last three games, with Fab Tools' Jay Cockrum rolling a sparkling 617 series. His individual games were 227, 190 and 200.

Current league standings are as follows:

TEAM	WON	LOST
Fab Tools	20	7
Rita's Raiders	18½	8½
Cox's Army	16	11
Tab Fax's	13½	13½
Cold Turkeys	13	14
Late Comers	13	14
Mac's Butchers	12	15
The Goofers	11	16
Screwballs	9	18
Jack Rabbits	9	18

The Fairchild bowling team checks scores between games. Left to right, front row: Lorraine Scharff and Rita Braudrick; second row: Bill Dawson, Ken Deivers, Phil Deas, Jim Cramer, Leona Goring, George Lao, Ray Gregory; third row: Bill Hamrol, Lloyd Kohn, Art Clarke and Jackie Maly.

Curling--A Stone's Throw Away

By Dick McElroy

Anyone interested in a team sport combining shuffleboard, billiards, bowling, housecleaning, ice hockey, fun and enjoyment should try curling.

FSC has two four-man teams entered in the Peninsula Curling League. One team, composed of Frank Parlette, Jim Lundstrom, Brian Bell and Don Campbell, has the distinction of holding first place in the league. The other team includes Lee Coward, Ivan Branson, Ed Russell and Ray Jones.

The sport is played on ice, the object being to lag or curl your stone to the opposite end of the ice inside a circle or certain area. The stone is thrown so it will hook like a bowling ball hooks as it goes down the lane.

The speed of the stone is controlled by team members ahead of the stone armed with brooms which they use to sweep the frost or ice in front of the stone as it progresses down the ice. This is used as an advantage to get around the opponent's stone which may block a stone that is in scoring position.

As in shuffleboard, once the stone is in a scoring position it is blocked or screened by other stones so that it can't be knocked off by an opponent's stone.

The stones weigh approximately 42 pounds and are concave on the bottom so just the outside edge is exposed to the ice.

Curling is a complete team effort that depends on the final score. Each team member throws two stones so by the time all the stones have been thrown there are 16 stones on the ice. The last man on the team has a hard time making his stone count for a score or knocking the opponent's stone out of scoring position.

The teams play on Tuesday nights at 5:30 at the Mountain View Curling Rink off Alma in Mountain View. The season lasts from September to May and is climaxed by a playoff.

For further information regarding the organization of new teams, contact Frank Parlette or Jim Lundstrom at Industrial Way, Ext. 33. There is plenty of room for new members and everyone is welcome. The cost is $3 to join and $2 per night in league play, which also allows practice sessions for free.

Throwing the stone is Frank Parlette, watched by Don Campbell, Ed Russell, Brian Bell, Ivan Branson, Jim Lundstrom, Lee Coward and Ray Jones.

Fairchild's two curling teams—Top row: Lee Coward, Don Campbell, Ed Russell, Brian Bell and Jim Lundstrom. Bottom row: Ray Jones, Frank Parlette and Ivan Branson.

ALL AROUND THE PLANT

By Mary Grigsby

Santa's bag is gonna have to be mighty rotund to fill all the requests Fairchilders are submitting this year. Some of the "spontaneous" (?) answers to the question, "What would you like for Christmas?", were as follows:

Charlie Campbell: *A New England White Christmas.*

Alan Joyce: *What's the charge?*

Jerry Levine: *No commercials.*

Jack Magarian: *The same thing I want for New Year's.*

Charlie Sporck: *A sales order for 100,000 FT-4000 ACs.*

Norm Peterson: *Redhead, blonde or nothin'.*

Jack Sheets: *The white T-Bird sitting in the parking lot* (Dick Fouquet's perchance?).

Kit Donnell: *Spontaneity.*

Harry Sello: *A little Hawaiian doll with a grass skirt.*

Robert Trent: *Harry can keep the grass skirt.*

John Hall: *Don't want license suspended at hearing next month.* (Rots 'o ruck, John!)

Bob Noyce: *New foundation on my home that won't leak.*

Lee Swasey: *A set of golf clubs.*

Santa Claus: *"OUT."*

FSC ski beauties Lindsay Barber, Nancy Humpel and Alice Skurko proved to be top-notch models at the skiers' spaghetti feed December 3. Lotsa talent!

The latest in fashion news 'round the plant is a chemical splashproof helmet worn by Jack Callahan's marking & packing girl, Helen Antonucci. Really quite fetching!

Paul Hwoschinsky, in Administration, has a fun hobby which is going to come in handy for Christmas this year. Seems Paul has his own Santa's workshop and is working merrily away making wooden bowls and carvings for his friends. One of Paul's famous gifts was a cow pie resplendent with a centered mushroom. Hear, too, Paul likes to make vinegar. Seems he was originally making wine, but it turned out to be the best vinegar in the area!

FSC Ski Club members are looking forward to three exciting days over New Year's at Squaw Valley. Don't forget to get your reservations to Mary Grigsby early!

Mary Reimel, "Miss Fairchild Semiconductor," and Loretta Hayes, runner-up, are expecting shortly. Hope it isn't catching, Carol. Perhaps the contest title should be revised.

R & D LAB GAB

By Shirlee Munn

We are proud of our Arjun Saxena, whose paper was accepted at the recent Thanksgiving meeting of the American Physical Society in Chicago. The paper was theoretical and the subject "Neutron-Proton Pairing Interaction."

Overheard while lying on the table at the recent blood-letting party. Nurse: "Now don't you feel proud of yourself after donating this pint of blood?" Unidentified R&D patient: "I'm so proud I'd like to go in the corner and divide!"

Notice the sylph-like figures slinking through the lab? . . . baggy lab coats? . . . hollow cheeks? . . . The "900-calorie liquid diet" hit this place with quite an impact recently. In preparation for the holidays, no doubt—and it eases the conscience, too. While the total weight loss was pretty great, the individual cases were nothing stupendous—with the exception of one or two.

That new voice on the switchboard belongs to Virginia Orr, who joined us recently. We hope she keeps smiling, even after she gets to know us.

Now that Thanksgiving is over, we can hardly avoid the fact that Christmas is near. Many thoughts are turned toward Christmas Club checks, evening shopping, decorations, etc. Thoughts of office decorations are being born, also. . . . Jean Jones is even going to decorate her strategically placed dual-purpose mirror with holly!

Christmas lists are being hastily compiled and the letters to S.C (Santa Claus) are pouring in. I took a peek at a few:

Rich Vilas wants an automatic back scratcher . . .

Paul Ignacz (Badge 885) wants his badge number reduced by 880 . . .

Worden Waring wants a unicycle . . .

Jerry Lessard wants the cellophane-wrapped girl advertised in PLAYBOY . . .

Phil Flint wants a recount of the election results . . .

Elwynne Trepel wants a "Mr. Machine" that will stop people from taking books from the library without signing for them . . .

Chet Gunter wants Nancy back . . .

Hope no one is disappointed!

OFF THE LEADWIRE

A new Northwest District Sales Office has been opened at 378 Cambridge Avenue in Palo Alto. Alan Bayley, district sales manager, will head the office. His territory includes northern California, Oregon, Washington, Nevada, Utah, Colorado, Idaho, Montana and Wyoming.

Alan Joyce, FSC controller, and Lloyd Kohn, senior accountant in the Accounting Department, were recently elected to membership in the National Association of Accountants.

Congratulations to Charles Arkebauer, whose wife, Mary, presented him with a son November 13. Paul Andrew weighed in at 8 lbs. 5 oz. Charles works in Quality Assurance.

Du Mont Labs, the newest member of the FCI corporate family, recently announced a new fast-writing twelve-inch radar tube. The new electrostatic focus and deflection 12-inch tube features a unique design, low drive electron gun which permits use of transistorized video circuitry. Fairchild engineers presented an Applications Seminar for staff members of the Du Mont Laboratories in New Jersey on November 17.

Watch for details of an employee photography contest to be held in January. The display board is being assembled and more details will be forthcoming soon. Black and white shots with an 8½x11"-size limit will be accepted and must be titled and signed by the photographer. Dinner for two at a peninsula restaurant will be awarded for the winning photograph.

SOME DATA FROM DIODE

By Judith Anderson

Subbing for Barbara Hock

All of the assembly girls seem to be overwhelmed by the size and beauty of the new plant. It would seem the main excuse for being late from breaks is, quote "Sorry I took the wrong turn, and got lost." Oh well, so much for the breaks.

The lead women on swing are thinking seriously of getting a requisition signed for roller skates, a trouble light at each station or even megaphones to find out who is in trouble, where and why, and also a megaphone for them to holler back. The only trouble with the megaphone is it might cause a little too much static and interfere with the ever-so-constant hum of the machines. It would at least be a change of pace.

The Maintenance Department has kept its men quite busy with the chores of fixing foot peddles in the bonding area and adjusting air pressure. These boys really seem to enjoy their work.

In Stores we will certainly have to give their little push cart credit for standing up under all its load and travel. It seems the main policy is to get all the material you need at the beginning of the shift and a little left over to start the next shift. This little cart has quite a heavy load to carry from quite a few departments. It would be a long and weary journey without this little cart to assist in all it can possibly handle. Next year we may have compact cars to haul all supplies.

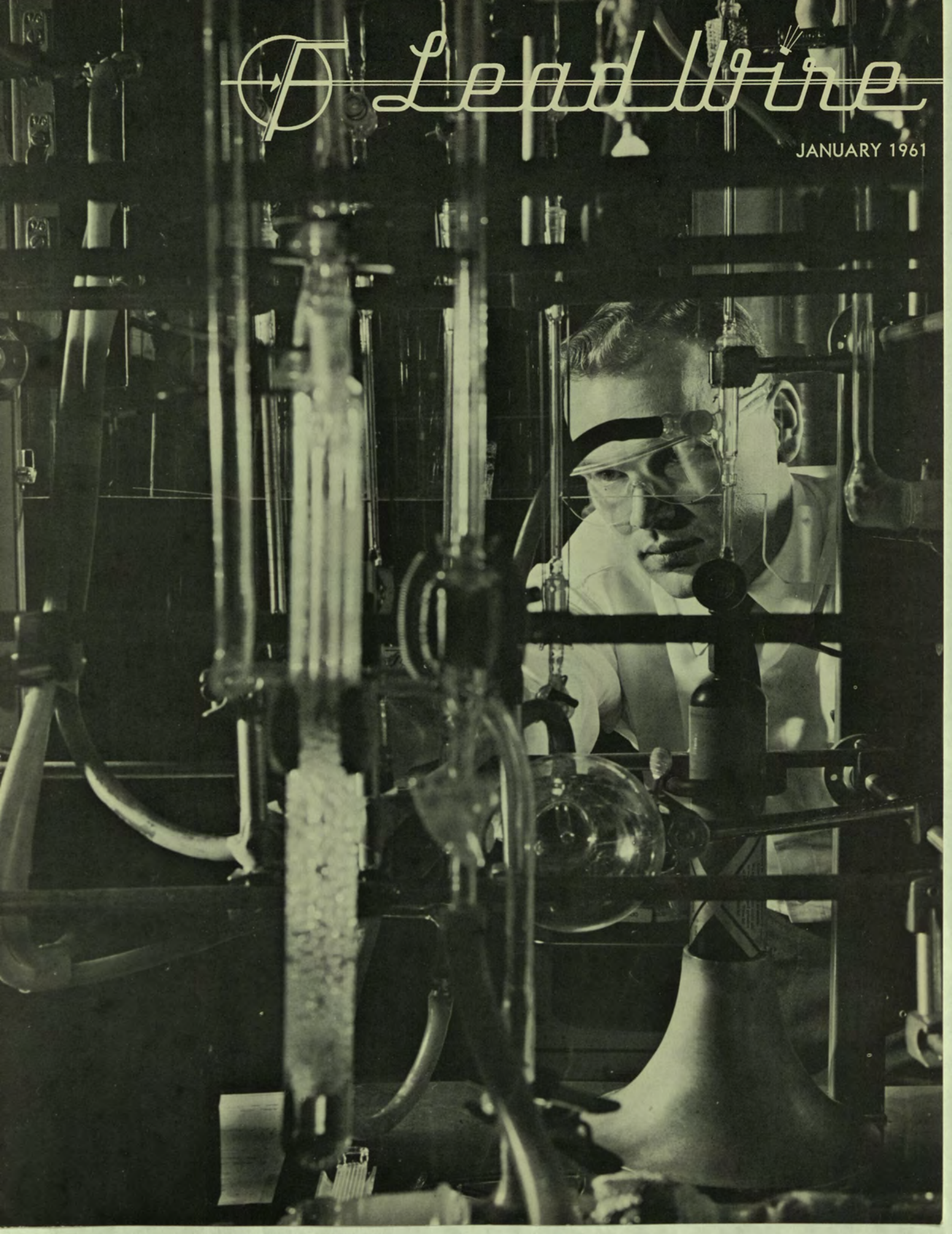
It seems that there is a new bug in the plant, but don't be alarmed, it won't bite too hard or eat too much. It just seems to be a very happy style bug—hair styles that is. There have been some lovely new colors in hair and some very complimentary styles on quite a few individuals. Keep up the good work, little style bug; with all this new-born beauty, we may be able to bring the production up—higher and higher. Go to it, gals; we may find a way to hatch diodes by the dozen.

Has anyone noticed the collection of knick-knacks the strip and tint area has acquired? Some of the solder drippings from the pots are quite original, and if one is quite imaginative, one may find a solder fish or some other such form.

Noreen Outsen, Engineering secretary, is a grandmother—girl, 6 lbs. 11 oz., Lisa Ann Gallagher. Adrian Sahlein and Bill Busche were married in Reno during Thanksgiving. Bill's already bringing his lunch in the little brown bag! Jane Cross recently moved from Mountain View to act as PBX-Receptionist at 27 Jordan St. Jane was formerly in the Advertising Department in Mountain View. A new clerk typist in Production Engineering is Geraldine Toothman, Welcome aboard! Another new face is that of Tristam Pitts. Tris and his wife and four children have just moved up from Costa Mesa where he was a foreman with Hughes Aircraft in Newport Beach. A new product engineer is Edward Small. Edward is a graduate of U.C. at Berkeley and has been with the Optical Coating Labs, Inc., in Santa Rosa.

Lead Wire

JANUARY 1961



"FAIRCHILD 1961". . .

Past Progress and Future Plans Reviewed at Meeting

Over 100 Fairchild Semiconductor Corporation management and technical employees gathered at the Pioneer Hotel in Woodside Friday night, January 6, to review past progress and plans for 1961. The meeting, held to insure coordinated efforts toward company goals, is the first step in an expanded program of employee participation in company developments.

Speeches by General Manager Dr. Robert N. Noyce; Dr. Gordon Moore, director of Research and Development, and Jim Paris, district sales manager for Philadelphia, were followed by question periods and a dinner.

Field Sales

Mr. Paris used the theme, "Problems of Field Sales," to deal with the specifics of product expansion, personnel expansion and the introduction of new products. Discussing product expansion and getting product information to customers, he noted the need of good technical back-up to present the product to accounts, and the desirability of adequate descriptive literature to be forwarded to the sales offices throughout the country. With reference to personnel expansion, Paris said that "relocation often causes problems since it brings with it the breaking of continuity with an account. Rather than the salesman getting to know the account well, sometimes the account has to become acquainted all over again with a new salesman. The Philadelphia district's major accounts include General Electric, Burroughs, RCA and Philco, among others.

"Sales were good and our ratio of dollar sales to salesmen was higher than in any other semiconductor company and in some cases three times as high as some semiconductor companies . . . this is our total dollar intake divided by the number of salesmen," he stated.

"Communication problems will exist inevitably in a field sales office. Time is of the essence, of course, and there are times when we need product literature and information, production schedules and the actual device to put in the customer's hand—but miles can be overcome just so quickly.

"Improving the effectiveness of the individual salesman is largely one of education in the judicious use of personal time and personal discipline. Most of the problems we encounter do not admit of rapid improvement, but rather long-range growth correction. Increasing our general effectiveness will entail expanding the field sales force and thereby letting each salesman concentrate on a smaller area, and attempting to stabilize the sales force. Big things in 1961 will be our diodes and planar epitaxial devices."

R & D Technology

Dr. Moore presented a description of the technological environment in which Fairchild is operating, discussing as background the present development state of diodes and transistors at FCS to point out the direction in which progress could be expected.

Discussing the meeting are Ray Brown, Norm Peterson, Stan Veith and Paul F. Kent.

The performance advantages of diodes and transistors prepared from "epitaxial material" were described and it was pointed out that a "relatively few optimum planar epitaxial transistors could replace essentially all transistors being used today. Similarly, diodes of much broader applicability can be made in this manner. Major improvements in costs can be expected with the advent of transistors and diodes optimized for producibility rather than spectacular performance."

The Micrologic approach was described wherein complete circuits are packaged in transistor-size cans. A look at the possibility of using much larger arrays was included that suggested the possibility of making systems someday employing "hundreds of millions" of transistors.

Dr. Noyce shows details of a slide to Basil Weir and John Fisher.

Some of the work being done on other products was mentioned by Dr. Moore, such as the 3SG solid state strain gauge pressure transducer presently being prepared for manufacture by FCC. Mention was made of load cells and accelerometers.

Dr. Moore concluded his talk with a brief discussion of the applicability of new physical phenomena to solid state electronics.

1961 To Be a Busy Year

Dr. Noyce predicted that this year will show a continuation of the progress made by Fairchild Semiconductor Corporation since its inception in mid-1957.

In his introductory remarks, Dr. Noyce noted that over the past decade the semiconductor business has been one of the outstanding examples of a growth industry in terms of dollar volume. An independent market research report recently predicted that by 1964 the unit volume of transistors will increase from 125 million units to 400 million units, and that the total dollar market will be 1½ times as big. "We expect to grow considerably more rapidly than that during this period," stated Dr. Noyce.

A series of diagrammatic slides illustrated the next section of the speech. The first slide showed historical data on the semiconductor market, pointing up that the diode business was the first to build up and the first to switch to silicon. Transistor sales started to build up later and silicon as yet accounts for a much smaller percentage of the transistor market. "I believe we can expect to see the same shift which we have seen in diodes, that is that silicon captures a larger part of the market."

(See page 3)

COVER BY MELGAR

John Sentous, manufacturing engineer, takes readings on the flow meter at a diffusion furnace. The meter controls the flow of gases into the furnace and the gases, by a diffusion process, tailor the semiconducting properties of silicon.

(Continued from page 2)

The second slide showed our percentage of the total silicon transistor market and our percentage of the total transistor market for the past two years. "It is really a pretty fantastic record . . . showing a rapid increase in the share of the transistor market which we have captured."

Discussing the transistor market, Dr. Noyce noted that the industrial market is 90 per cent germanium and the military is largely silicon. The industrial market is predicted to have the greatest growth in the coming years. To enable us to make inroads into the industrial market, germanium devices will be sold by FSC.

"As you know, we have acquired a one third interest in SGS, an Italian semiconductor producer," he said. "SGS is presently manufacturing germanium transistors and is setting up to manufacture silicon devices for the common market area. Fairchild has the exclusive right to distribute their products in the U. S. We are planning to import germanium alloy transistors from them for sale in the States to help them get on their feet and to let us enter the industrial market for germanium devices. The long-range solution, however, is to switch users to silicon.

Production of Sub-Assemblies Planned

"Micrologic is also a means of expanding our total sales. A semiconductor company could increase its share of the total electronics business by being more than a component manufacturer, i.e., by building sub-systems. We can do this through the Micrologic route . . . in this 'component' we substitute device design for the circuit assembly which is now done by the customer . . . he has less left to do and consequently can afford to spend more of his total sales on his purchased parts.

"We have captured the market which we have by being able to give to the customer what he wanted, based on a technical superiority. We intend to continue to do this and for this reason are maintaining a high caliber of R & D work, since this appears to all of us to be the best way of assuring that we will be able to continue to give the customer what he wants. Fairchild has a significant number of firsts to its credit—high performance mesa transistors to begin with and this year the introduction of the Planar family. If I were to name the most significant points of accomplishment during 1960, the introduction of Planar devices would top the list. Getting the diode plant established is certainly another. Progress in efficient production of transistors is a third. I think it is fair to say that a year ago we had great promise as a rising newcomer in the business. Now we have assured our place in the industry."

Dr. Noyce then discussed specific goals for 1961: "Goals have been established for all of the operating groups—R & D, Sales, Transistor and Diode plants, Accounting and Administration . . . goals can be spelled out pretty well in terms of yields, principal costs, overhead rates, etc. Those that are less easily spelled out are organizational strength and planning for the future so that we do not spend our energy working for immediate returns only to find ourselves at the end of 1961 with no place to go. R & D goals are set

(Continued on page 7)

New Special Products Group

A Special Products group, recently formed at Fairchild Semiconductor Corporation to take care of special customer needs, has been announced by Tom Bay, Marketing manager.

Headed by William Hafner, the group is responsible for the production and sale of special units made up of one or more standard transistors and/or diodes assembled in a single transistor header and transistors in unique packages especially developed for particular customer applications.

Among special units already available is the chopper—two transistors on a single header tied to the same thermal sink so that they remain matched over a wide range of temperatures; and the photo transistor, which is sealed in such a manner as to allow light to strike the active device area.

Fairchild's new planar structure has made it practical to put multiple transistors in one package because the high yields from the process keep the cost of producing such units at a reasonable level.

Although in its initial phases a product may be classified as a special product, as soon as there is a large demand for the unit by one or more customers, and the unit goes into high volume production, it will be transferred from the special products group into regular production.

The chopper—a single package containing two transistors connected thermally with closely matched electrical characteristics.

Pictured is a photo transistor in a TO-18 package. This unit consists of a standard 2N 699 transistor encapsulated in such a way as to allow light to strike the sensitive area.

Diode Open House Jan. 29

An open house marking the "official" opening of the Diode plant in San Rafael will be held Sunday afternoon, January 29, from 2 to 5 p.m. for all Fairchild employees and their families.

Plant tours will be conducted throughout the afternoon and refreshments will be served in the cafeteria. The plant is located at 4300 Redwood Highway in San Rafael.

A special issue of the LEADWIRE will be published to be distributed at the open house.

Welcome to Fairchild

Alfred L. Greig

William J. Wagner

Alfred L. Greig is the new head of the Mechanical Engineering Design Group at R & D. Working under Eugene Kleiner's Administrative Research Services Section, Greig's staff will provide mechanical design support for R & D.

A native San Franciscan, Greig served for 2½ years with the U. S. Army in the European theater before attending California State Polytechnic College in San Luis Obispo. He received a B. S. degree in mechanical engineering in 1950.

Greig, 35, was previously associated with the U. S. Navy Radiological Defense Laboratory in San Francisco. For the past five years he was head of their Project Engineering Section of the Technical Engineering Branch of the lab.

Now residing in Pacifica, the Greig family plans to move to Cupertino next month. The family includes wife, Bee, Susan Ann, 15, John Allan, 11, and Nancy Lee, 10.

The posters advertising the Christmas party were the work of an artist, writer, lecturer, film producer, television color consultant and now promotion coordinator for the Advertising Department. The new addition is William J. Wagner.

Born in San Francisco, Bill spent most of his childhood in Guatemala, Nicaragua and Mexico, returning to this area in his early teens. He served in the Army.

Back in San Francisco, he worked in various film making capacities and for the past nine years was art director and production coordinator for Channel 4, KRON-TV in the city.

At Fairchild, Bill is working on a new color film about our company and products plus other promotion programs.

The Wagner family—wife Amalia and sons Robert, 7, and Ronald, 13, reside in Daly City.

Field Sales Staff Increased

The Fairchild sales offices have recently increased their field engineering sales staffs, appointing eight new field sales engineers within the past three months.

The most recent additions are Bernard T. Marren, in the sales force of the central region, and Don Cavallo and Joseph Kotrich, Jr., representing Fairchild in upstate and metropolitan New York.

Bernard Marren was formerly employed by Avco Corporation in Cincinnati as an electrical engineer and Cook Electric Company of Morton Grove, Illinois, as a project engineer. He received his B. S. from Illinois Institute of Technology of Chicago and attended University of Cincinnati for two years.

Don Cavallo was formerly with General Electric of Syracuse in the Data Processing Equipment Development Unit. A graduate of Syracuse University, he received a B. S. in Electrical Engineering in 1959. Cavallo's military obligation was fulfilled in the Navy, where he attended the Naval Electronics School at Great Lakes, Illinois.

Joseph Kotrich is a graduate of Massachusetts Institute of Technology and Harvard Graduate School of Business Administration. He received his E.E. degree in 1952 from MIT and then added to his credit an M.B.A. from Harvard in 1956. A first lieutenant while serving in the Army Signal Corps, Kotrich, 31, was formerly employed by Admiral Corporation of Chicago as a senior systems engineer.

Anthony B. Pontecorvo

James E. Forrester

Anthony B. Pontecorvo is the newly appointed safety and training engineer at the Diode plant. "Bart" comes from the Shipbuilding Division of Bethlehem Steel in San Francisco, where he supervised the safety and training program. He was also with Columbus Iron Mining Company, U.S. Steel Corp., in Cedar City, Utah. He received his B.A. at University of Nevada and attended graduate school at University of Oregon in Eugene. Bart lives in Larkspur with his wife and son.

James E. Forrester, a new supervising engineer for the Applications Engineering Area of Electronic Engineering at San Rafael.

Mr. Forrester came to us from Hughes Semiconductor in Newport Beach, Calif., where he had several years' experience in application engineering. A graduate of Oklahoma State University, Stillwater, Oklahoma, Jim has a wife and two-year-old daughter.

John Stadig (l) recently joined Diode as a senior engineer in the Production Engineering Section. John came to us from Shockley Semiconductor Corporation, where he has had experience with the Shockley four-layer diode. A graduate of MIT, John is married and has four children.

John Berliner came to us from General Instrument in New York. He has seven years' experience in all phases of semiconductor work, in diffusion, and in assembly operations. John is a supervising engineer in our Production Engineering Section. John, the father of two children, ages five and seven, was graduated from Brooklyn College with a B.S. in Physics.

Edward "Ned" Small (r) also joined us the end of November as an engineer in the Product Engineering Section of the Engineering Department. Ned was formerly with the Optical Coatings Lab in Santa Rosa, Calif. He received his B.S. from University of California at Berkeley, and attended University of Paris for one year. Ned is married and has two children.

A Loving Cup for Loretta

Rita Norton, "Miss Fairchild."

Second place winner Carole Lipinsky.

Our own Loretta Sue Hayes has been officially declared third place winner in the "Miss Fairchild" contest, outdistanced by only a handful of votes by Rita Norton of FCI and runnerup Carole Lipinsky of Fairchild Controls in the company-wide contest embracing all Fairchild divisions and subsidiaries.

FSC's Loretta Hayes admires her beautiful silver and black trophy which inscribes her as third place winner in the "Miss Fairchild" contest of 1960-61.

Impressions

By Mary Ann Hrynczak

(This is the second article by Mary Ann describing her experiences on a recent tour of Europe.)

BERLIN — where the bombed-out "tooth church" stands in the middle of the city as a constant reminder to the people of the disaster that once prevailed in this now modern city. Looking at West Berlin, you see that all of her ruins and damaged buildings have been restored and modern architecture reminds one of many buildings in America. Along the main avenue there are theaters, outdoor cafes and plush restaurants. Berliners I met were warm and friendly and possessed great intensity in their personalities. They were eager to make you understand them and their political situation.

One evening I was looking for a particular dining spot. I stopped to ask a man who was waiting for a bus if he could help me. Not only did he help me, but he walked me to the restaurant, the whole time asking many questions about the United States. His curiosity showed he had a real interest in the U. S. and her people. Similar situations occurred continually throughout my stay in Berlin.

One afternoon I spent time at the Free University in West Berlin built by the people who crossed the border from East Berlin. In construction, the university is very similar to our schools. The attendance is much better than at the University in East Berlin. There are no student records with addresses, due to political reasons and possible harm which might come to those East Berliners who cross the border every day to attend classes.

A two-room flat in West Berlin is $10-15 a month. The average salary is $120 per month.

When you drive beyond the Brandenburg Gate that divides the two sectors of the city, you enter another world. Shopping is limited and not much fun . . . the only things you can buy are books and records. They are considered for the purpose of cultural advancement.

Only communist papers are available in the eastern sector. To read any other, you must go to a West Berlin library. The younger generation are leaving East Berlin.

About 500-600 people leave East Berlin each day to enter one of the three refugee camps in the western sector. The camps house the family for nine days, and then the family is sent to Western Germany to work. The refugees do all the work and are only supported by a small staff of Red Cross people—the camp is given 80 cents a day per person for food, water, electricity, etc. This information was given to me by the director of one of the refugee camps in West Berlin.

In East Berlin I spent a day at a beautiful communist Youth Park. They had a train station, puppet shop, zoo, swimming pools, recreational fields and a large Science Center. The director was charming and treated us like guests. Leaflets were distributed and questions were encouraged. One felt almost a part of their program, which, by the way, was fascinating.

I left Berlin feeling compassionate, friendly and respectful towards these people who have no choice but to live in a city divided. One can never know the pressures that exist in their everyday lives.

Credit Union

Plans are being finalized for the first annual meeting of the Fairchild Semiconductor Federal Credit Union, to be held in the cafeteria of the Mountain View plant Saturday, January 28, at 10 a.m.

The nominating committee will present nominees for the nine-member board of directors and for the three-member credit committee. There will also be nominations from the floor, followed by elections. Summary reports will be given covering the operation since the charter was granted. Myra Landolfi, board president, is general chairman for the annual meeting.

Myra announced that as of January 1, Maureen Christensen Bagliere has been appointed full-time treasurer for the Credit Union, replacing Marilyn Jacobs, who resigned.

Applications are still being taken for loans and funds are available to handle a greater number of loans than ever before.

WAY BACK IN 1960

The Fairchild Christmas parties were pronounced great successes by employees of the Mountain View and Palo Alto plants and the San Rafael plant.

Welcome to the party—and Merry Christmas!

Part of the R & D gang who celebrated Christmas at Chez Yvonne the afternoon of December 23rd.

Lower left corner: Martha Hecht.

Seated (left to right): Chet Gunter, Alyce Washburn, Jean Jones, Carol Greco, Warren Wheeler, Hank Scherling, Helen Bonfadini.

Standing (left to right): Ben Wood, Doris Hall, Jim Macomber, Mike Staub, Shirlee Munn, Bernie Yurash, Eugene Kleiner, Betty Heiple, Dick Anderson.

A bit of refreshment between dances . . . June Chadim, Phil Boutcher, Bev Tighe and Cal Slewing (l to r).

L-R: Delio Luna and Gail Hamelin.

Kathleen and Uli Hegel enjoy a dance at the FSC Christmas party.

Donnie and Helen Sims and guest.

L-R: Flora Shaffer, Bill Rule, Dolly Rule, Myrtle Milham, and Alvin Milham.

FSC employees at the Diode Christmas party.

L-R: Bob Berryhill, Adrian Busche, and Bob Champagne.

The Western Regional Sales Office had a Christmas party in Los Angeles December 23rd. Pictured (l to r) are Carl Steffens and Sandy Campbell, and Jody and Terry Kilduff. Terry was in L.A. for a regional sales meeting.

Peninsula Bowlers Mid-way in Season

Former fifth-place-team Cox's Army shot into first place with only two weeks remaining in the first half of the bowling season. Dick McElroy of Tooling and Fabrication rolled 222, 232 and 220 for a new high series.

LEAGUE STANDINGS

TEAM	WON	LOST	HIGH GAME
Cox's Army	27	15	715
Fab Tools	26	16	625
Rita's Raiders	24½	17½	656
Late Comers	24	18	702
Tabfax	22½	19½	637
Screwballs	19	23	558
Cold Turkeys	16	26	601
The Goofers	16	26	578
Jack Rabbits	16	26	579
Mac's Butchers	19	23	687

HIGH GAME

Men—V. Cady, 10/12..... 257
Women—R. Braudrick, 11/2..... 207

HIGH SERIES

Men—D. McElroy, 11/30..... 674
Women—R. Braudrick, 11/2..... 493

Interdivision Fairchild bowling is scheduled to begin January 22.

"FAIRCHILD 1961". . .

(Continued from page 3)

out with specific developments to be ready for manufacture at definite times, as well as exploratory work for expanding our market participation and/or completely new product lines in which we are not now involved."

Dr. Noyce not only predicted great sales increases but stated that "during 1961 we have twice as many new products to introduce as we had in 1960. We also want to formulate plans for setting up a satellite plant for assembly of our products."

Concluding, Dr. Noyce stated that "we are the *best* in the industry in our own chosen area of semiconductors. In the future, to reach our full potential, we will have to be better than our competition in *their* chosen areas as well. I believe we have this capability—we need to focus our talent on the challenge presented to us."

To follow up the dinner meeting, Transistor Plant Manager Charles Sporck is planning a general meeting of his salaried personnel to explain and discuss the plans and goals of the company. Similar plans are being undertaken by Robert Freund, Diode Plant manager.

Diode Bowling Team (l to r): Wes Fellows, Joe Horton, Edith Hall, John Nash, Herb Bartholomew, Nathaline DeBeaumont, Jane Cross, Ben Anixter, Wyman Owens, Dennis Jenson, Floyd Counts, Lee Steward, and Art Pearson.

Sports Review

Basketball

The Fairchild basketball team began league play once again on January 3 at Terman Junior High School on Arastradero Road in Palo Alto. The team lost its first game to Freeman Paving of Palo Alto 45-38 but promises better scores "next time." Team members are Dick Cole, Bob Somers, Bill Johnson, Gerry Milligan, Roger Smullens and Doug Noyce. A game schedule will be posted on the bulletin board.

Go-Karts

Bob Arnolde, avid Go-Karter, informs us that the club is still in its winning ways. Bob pulled two first places in two consecutive weeks at Snow's Kartway in San Jose and also a third in another race. Walt LeValley won a second in "A" Modified and also a fifth in the "A" Super, which is one class up for his type of car.

Curling

There are now three complete curling teams representing FSC at the Mountain View Curling Rink. The new members are Bill Geene, Stewart Webster, Chris Swift and Leonard Tedds. The two original teams, upon completion of the first quarter of play, have succeeded in placing first and second in the league.

Diode Bowlers Keep Active

Nathaline DeBeaumont's team, which includes Harold Clement, Louis Roe, and Ben Anixter, is in first place. Team 6 is in second place: Mary Busolo, Barbara Bredouw, and Floyd Counts. Stan Chapman is still leading the men with high series and Nathaline has high series for the women. The December 20th results found Joseph Horton and Norma Dauber with high games, and Norman Wardman and Norma Dauber with high series. Mary Busolo still has high average for the women and Chuck Gunther has high average for the men.

Fairchild square dance enthusiasts gathered over 75 strong at the Sunnyview Club Monday night, January 9, at the first get-together of the Fairchild Square Dancing Club. Instructors and callers Don and Pat Hills "presided" over the squares (8 in a square) and the five-piece "Square-Notes" band provided suitable music.

Ping-pongers Gary Mickelson, Rich Wills, Gordon Davis and Peter Niem try their hands at a noon session of the popular game in the Mountain View patio. A tournament is under way using matched play eliminations to determine the ping-pong champ at Fairchild.

ALL AROUND THE PLANT

By Mary Grigsby

The other day I overheard a conversation in the cafeteria about the lovely Zsa Zsa Gabor. Says Ben Hjerpe, "Really she's a mess. Ya otta see her in the morning." Oh really, Ben?

Anyone for Hawaii this summer? An eight-day luxury tour is being offered to FSC people for only $250. This includes round-trip champagne flight, lodging at the Waikiki Biltmore Hotel, breakfast and various tours. The entire stay will last eight days. See Carol Himsworth for more information and/or sign-ups.

Tom Murphy (Eastern salesman) and wife, Ann Marie, recently had twins to add to their family. With the recent addition they now have a family of ten.

Best wishes to Maurine Christensen, who became Mrs. Russell Bagliere January 2. Maurine recently transferred from Production Control to become full-time treasurer of the FSC Credit Union.

Goodbyes went to Phil Deas of the Accounting Department at her farewell party December 27. Phil and hubby are leaving for Norfolk, Virginia, while her husband serves his stint in the Army there. Phil has promised to come back to us in a year or so.

'ROUND S. F.

San Francisco offers much fun and entertainment providing one knows what's going on and where. For instance, did you know the Robert Shaw Chorale, Chicago Opera Ballet and Pierre Monteaux conducting the S. F. Symphony Orchestra will be featured during February? Contact Mary Grigsby or Jerry Levine for more information.

This month's featured restaurant will provide a rendezvous in Spain at La Bodega, 256 Columbus Street. Here you will find a fixed menu with one entree per night, pleasant decor, soft guitar music and good house wines. On weekends you are likely to find live Flamenco music. Only about $5 for two. Closed Monday and Tuesday.

Recently Personnel had an applicant who claimed to know quite a bit about our products, yet there was a doubt in Dick Denzler's mind as to his knowledge. He asked him a few questions to test him . . . here are a few.

What is a semiconductor?

A part time railroad worker.

What is a transistor?

One who deals in rapid transit problems.

What is a vacuum tube?

The long aluminum rod in an electrolux.

What is a diode?

A poem to the dead.

SOME DATA FROM DIODE

By Barbara Hock

Earl Head in Plant Engineering is quite interested in getting a radio club started and would like any other interested people to get in touch with him. Along the club line, bridge is becoming quite the thing at Diode. Every noon, several games can be found going in the cafeteria. If anyone is interested in getting a Duplicate group going, contact Lou Lyons, fabrication foreman on swing.

Some employees "celebrating" a whole year with Fairchild are: Peggy Ritter, Shirley Hancock, Herb Bartholomew, Ginney Carreiro, Flora Shaffer, Dorothy Spagnoli, Jim Nicholas, Dolly Rule, Carla Clements, and Lee Stewart.

Patty Murphy, plant nurse, just received her citizenship papers, severing her connections with jolly ole' Ireland. A trip to the snow country was in order for Evelyn Pritchard, assembler who went up to Tahoe. Ruth Brunner, in the Lapping area, went up to Walla Walla, Washington, for the holidays. Jim Dunlap, machinist, made sure Diode had plenty of mistletoe . . . he didn't miss an arch in the entire plant. Betty Kerr kept complaining that nothing happened to her while under the mistletoe. George Compton, swing shift foreman, received a bottle of Scotch from his gals, complete with music box.

Shirley Galbreath changed her name to Yancey during the holidays. Another marriage was that of Sandra Wilson and Paul Kreuter. Sandy was married at her family's home in Lagunitas. Ella Zwirtz, of Development Engineering, celebrated her 24th wedding anniversary last month. Before Joe Facchin, technician, left for a trip to Europe, he was given a dinner by Fred Vogel, Henry Darcy and Bob Berryhill, all in the Electronics Section. Joe was planning to spend Chirstmas with his family in Sweden and then do a bit of traveling. Roses to Ruth Zablocki, production, who fell out of bed and broke her leg. Marlene Baldwin, Production, received her engagement ring from Butch Potter for Christmas. Another new sparkler is on the left hand of Geraldine Carlson, swing Production.

If you think you see a familiar face on TV every now and then, you are probably right. It's our own Vickie Van Zandt, production technician. Vickie was recently on "Father Knows Best" and is often on commercials. She most recently did a bit in "Return to Peyton Place" and was in the original "Peyton Place."

Recently transferred to Diode are Chuck Koontz, head of Diode Accounting, and Elmo Ramsey, Laboratory technician.

New foremen in our Production Section are John King and Richard Weir.

R & D LAB GAB

By Shirlee Munn

Christmas bells and wedding bells . . . Randy Parker, handsome young lab tech, asked for a little time off the other day. This was Wednesday, Dec. 21, at about 3:30 p.m. Randy said he'd sure like to leave a little early, say about 4:30 p.m. Porter James, before granting such a request, asked why he wanted time off. "Gettin' married tonight," said Randy! Permission was granted and Randy took off—leaving everyone standing with mouths open. The lucky girl was the former Denise Theberge and our Dennis Tavares was best man. Rich Vilas (who else?) was here the next day at 8 sharp to see if Randy would be in on time. Believe it or not, he was!

More wedding bells—almost . . . Ken Ramshaw, new man in our new Electro-Optical Dev. Section, was *supposed* to get married on Christmas Eve. Now we all know that you need a marriage license to get married these days . . . seems that Ken was going to pick it up the afternoon of the 23rd at about 2 p.m. Wha' happened, Ken? A little too much Christmas cheer? The wedding never did take place—like there was no license. They planned to try for New Year's Eve, now, and should be happily wed at this printing. (I wonder if Ken was at the Christmas luncheon at the Chez Yvonne?)

Income tax time is coming and some people really plan ahead. Lionel Kattner, Hank Scherling, and Murray Siegel will all have another exemption to claim. Shirley Kattner presented Lionel with a son, Kenric, in November. Hank Scherling's fourth exemption is a 10-lb. 3½-oz. boy by name of John Matthew, born Dec. 20. Murray's wife Mimi said "Merry Christmas, Murray" with the birth of 7-lb. Michelle Ann Dec 21. Congratulations to all. . . .

Bill Merklinger, super snoop in antique shops, old trunks, etc., came across two interesting things recently—a 1773 Almanac (when we were still a colony yet) and an 1803 Almanac (in the 27th year of our independence). Gordon Greenslitt, our glassblower, has an interest in this same sort of thing. Gordon was recently looking through some books at Goodwill Industries—he purchased one rare item entitled *A Summer in Arcadie*, and upon leafing through it found a genuine $10 bill! Says Bill to friend Gordon: "The grass was never greener in Arcadie."

OFF THE LEADWIRE

The Board of Directors of Fairchild Camera and Instrument Corporation declared a cash dividend of 50 cents per share on the 1,219,768 shares outstanding, payable December 28 to stockholders of record on December 16.

George Cone, former section head of Quality Assurance Inspection, has been appointed product manager for large geometry devices in the Marketing Department. Madhu Desai, who formerly held George's new post, is now project engineer for small geometry devices in Applications. Glenn Livingston, formerly of Quality Engineering, has been promoted to section head of Quality Assurance Inspection.

Congratulations to Bob Graham and his wife, Nancy, on the birth of their daughter, Lisa Ann. Bob is Western Regional sales manager.

Gene Keyarts, Distributor sales manager, recently announced the appointment of Guy M. Golley as his assistant in the distributor section of the Marketing Department.

Welcome to the newest Fairchild distributor, Atlas Electronics, Inc., in Perth Amboy, New Jersey.

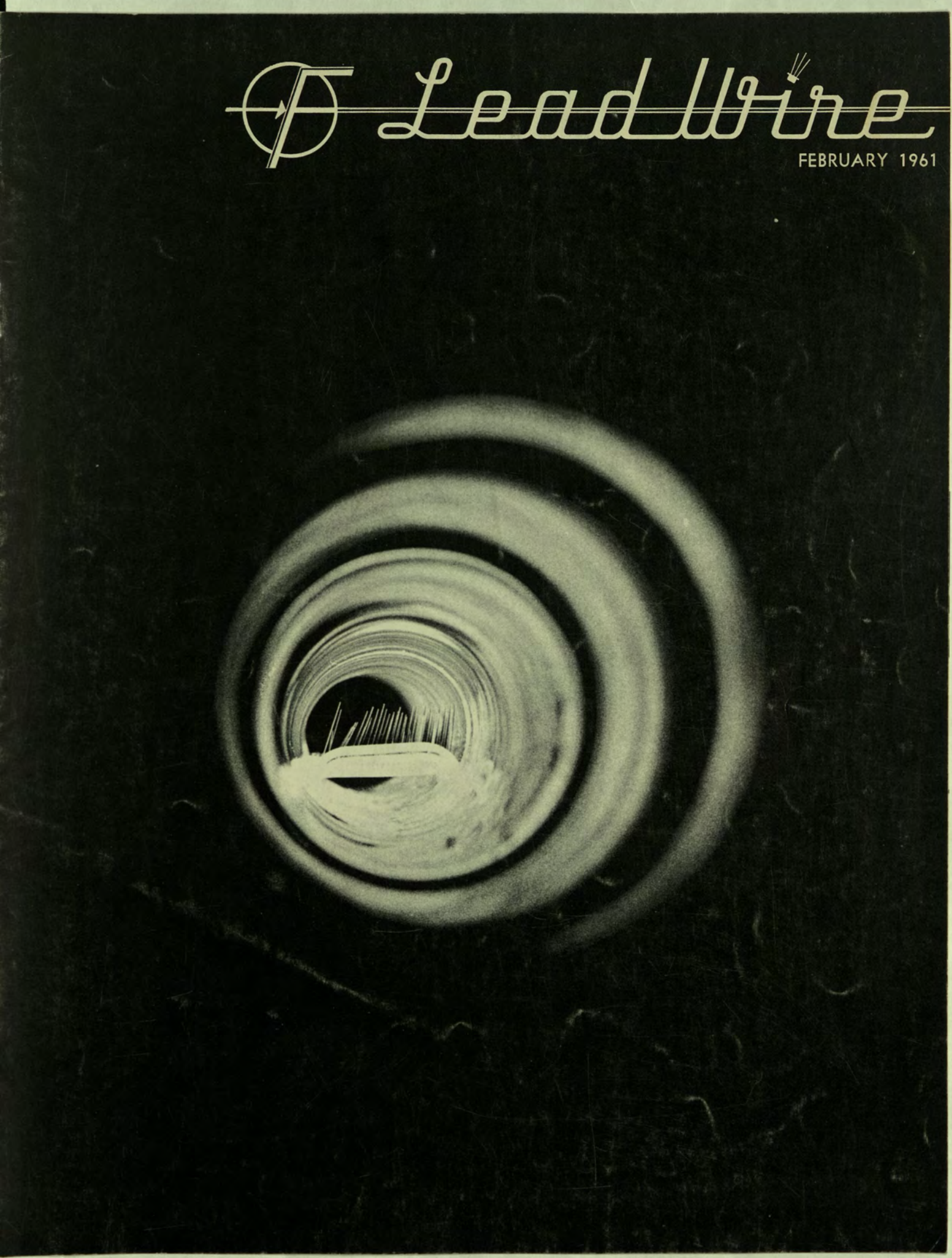
Congratulations to Charles Isherwood and his bride, the former Patricia McInerney, who were married in Los Angeles December 17. They are now residing in Mountain View. Charles is in the Industrial Engineering section.

The success story of the National Press, which prints the Leadwire, was recently featured in *Printing Magazine Pacific*. Our praise, also, ladies and gentlemen.

The Fairchild Recreation Council has been busy lately working on the coming sports season, trophies and the about-to-be-formed Cricket Club.

Lead Wire

FEBRUARY 1961

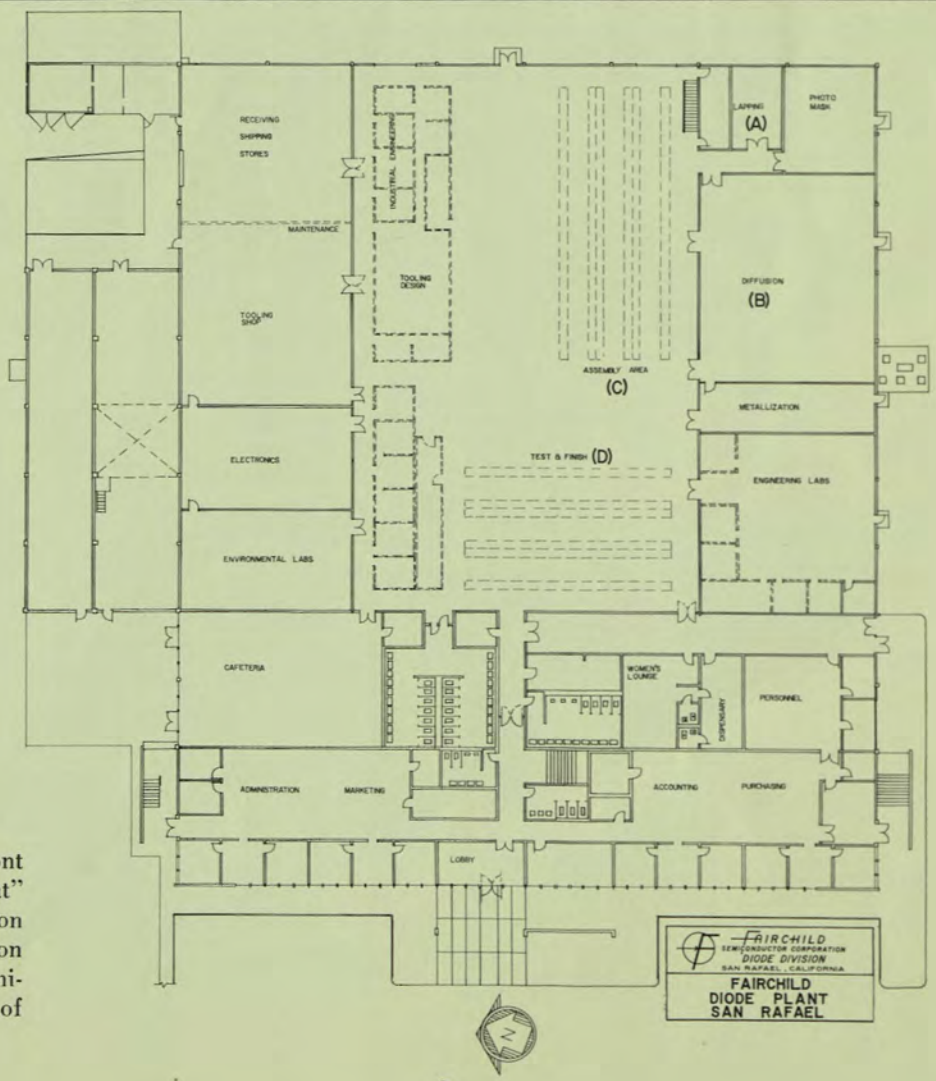


Diode Open House

More than 3,000 Fairchild employees, their families and special guests visited the new Diode plant facilities in San Rafael on Sunday, January 29. The official opening of the plant was held from 2 to 5 p.m. and included continuous plant tours and refreshments in the cafeteria. Hostesses for the tours were Marilyn Bourland, Adrian Busche, Barbara Hock, Ellen Howard, Alice Lewis, Bonnie Martz, Maxine Mendonsa, Patricia Murphy, Shirley Nuss, Ruth Shepardson, Dorothy Spagnoli, Noreen Outsen, Sylvia Greenberg, Betty Cowan, Norma Dauber and Barbara Bredouw. Explaining various manufacturing processes along the route were Bob Tobias, Lou Lyons, George Korpontinos, Bill Hertzog, Tris Pitts, Paul Driscoll, Al Silver, Ben Anixter, Dave Trauner, Lee Rogers and John King.

In his welcome message to guests, Plant Manager Robert E. Freund stated: "We all believe that in this young industry, we cannot look back on our accomplishments, but must concentrate our vision and all our efforts on the events of tomorrow. This last year of building our organization and our plant has been stimulating and rewarding. As guests of the Diode plant, I hope your visit here today demonstrates the accomplishments of this past year, and you leave sharing in the confidence we have for the future of our new plant at San Rafael."

Robert E. Freund, Plant Manager of Fairchild Semiconductor Corporation's Diode Plant.



COVER

Pictured on the front cover is a quartz "boat" of wafers in a diffusion furnace. The diffusion process tailors the semiconducting properties of silicon.

Manufacturing a Diode

From a silicon ingot grown in our Mountain View plant, thin wafers are sliced and delivered to us in San Rafael. These wafers, the bases of our product, first go through an etching and oxidation process where a protective coating is applied. The wafer then goes to Lapping (A) where it is ground to a specified thickness, typically 85 microns thick, which is approximately 34 ten-thousandths of an inch.

The wafer goes to Diffusion (Front Cover and B) where chemicals are diffused into it, giving it tightly controlled and specific electrical characteristics.

Mounted on a steel slice, the wafer is cut up into individual dice and prepared for packaging. The dice are the functional parts of the diode, tiny squares of diffused silicon with a dot in the middle. The dice are then sorted. Perfectly square ones are sent to bonding, where the operator affixes a tiny gold ball on the dot. It is now ready for packaging.

In the Assembly area (C), the diode is sealed in its protective glass package. The first half of our package is a glass capsule open on top with a lead through the other end. Our assemblers place a piece of solder and the finished die on the lead wire. This solder makes a firm electrical contact and holds the die in place. It is a wire like the one at the other end with an S-shaped whisker and a glass "collar" set back from the whisker. The whisker is bonded to the gold ball on the die and the glass "collar" is fused to the open end of the capsule. The leads are stripped and tinned with solder.

The diode is now sent to the Test and Finish area (D), where it is classified as to its electrical characteristics. The capsule is painted black to protect the sensitive device from light. The marking machines print numbers on the glass capsule to classify them and the diode then receives a final protective coating.

The diode is now ready for our customers.

(A) Ruth Brunner is measuring wafer thickness on a Sheffield Gauge.

(B) Assembler Grace Gunter is putting a quartz "boat" of wafers into the diffusion furnace.

(C) Scriber Arveta Blanford cuts the wafer into dice.

(D) Earlene Chupco puts the diodes through the Epoxy Coating machine.

Dieter Zemann (right), assistant electronic technician, and Kent Kratochvil, assistant foreman, are checking out the final seal controller.

Rene Patten, an inspector in the Quality Assurance Department, tests diodes on the reverse current checker. The QA Department includes the Inspection and Quality Engineering sections. These groups test the diode in various environments to which it may be subjected.

Bob Bush, of the Tooling Section, works on an engine lathe. The section fabricates prototype equipment and assembles most of the equipment used in production.

Engineer Ben Anixter (right), in the Electronic Engineering Section of the Engineering Department, and Frank Rittiman, assistant electronic technician, look over equipment which will be used to help evaluate our product for the customer.

SGS Head Visits Fairchild Plant

Dr. Dietrich Jenny

Dr. Dietrich Jenny, general manager of SGS, the Italian semiconductor firm in which Fairchild has a one-third interest, visited all the Fairchild facilities last week. Accompanying him on his tour of the plants was Desmond Spittlehouse, a senior member of FSC's technical staff, who has been performing technical liaison work between the firms.

Dr. Jenny was born in Switzerland and received his degree from the Swiss Federal Institute of Technology in Zurich. In 1947 he came to the United States and joined RCA at Princeton University, where he did his doctoral thesis. He started at RCA as a member of the technical staff and left the company in 1960 after serving on the staff of the vice-president of engineering.

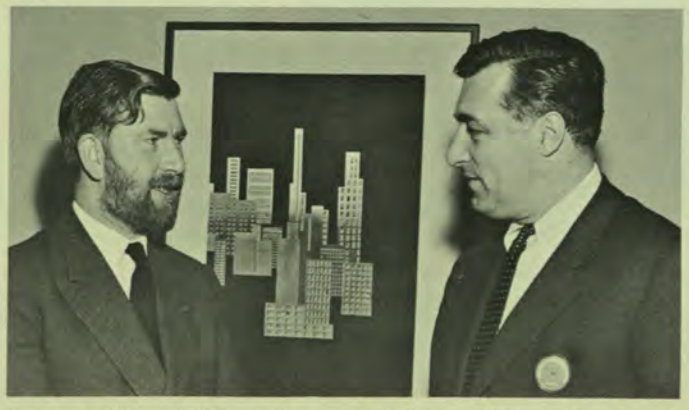
SGS will soon begin pilot production of silicon transistors and expects units on the market by June. The company is in the process of doubling its plant space. "We are introducing two new devices of our own and they should be on the market by mid-year," stated Dr. Jenny. They are high current rectifiers for the automotive and industrial market.

According to the SGS general manager, Italian engineers are still "pioneering" and working hard to help bridge the technological gap between Europe and the U.S. "We hope to be able to contribute to the Fairchild operation some of the advantages of a European company," he stated. "Italy has many good engineers, who, if given the chance, are very creative. We are trying to give our engineers the chance to use their creativity."

Spittlehouse remarked that, in reference to SGS and FSC, ". . . ours is an association of the best blend in Europe and the best blend in the United States."

Dr. Jenny was very impressed with California—"Good weather, nice people, a dynamic society . . . and the human ambiant in California is more agreeable than in the East."

Thank you, sir!



Discussing FSC and SGS are Desmond Spittlehouse (left) and Dr. Dietrich Jenny, general manager of SGS.

Dr. von Braun To Speak in San Jose

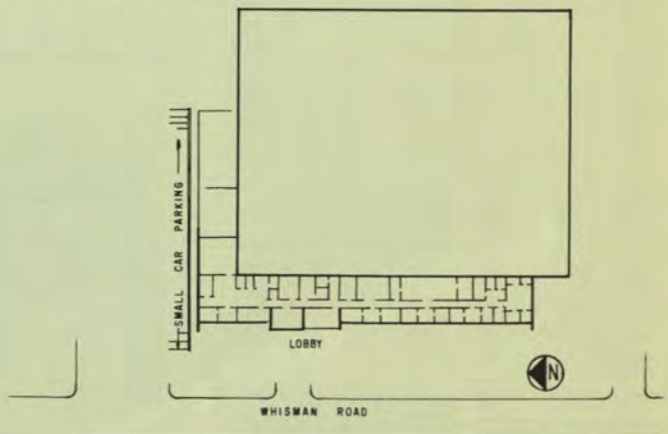
Dr. Wernher von Braun, leading missile scientist of the NASA, will be the main speaker at the Engineers' Week banquet on Thursday, February 23, at the Santa Clara County Fairgrounds Exhibition. The banquet is being held as part of the local participation in National Engineers' Week, proclaimed by the President to take place February 19-25. Area sponsors for the affair are the Santa Clara Valley Engineers' Council and the Engineering and Research section of the Lockheed Management Association.

Also on the program will be Dr. Herald of the "Science in Action" television program. Dr. Harry Sello, manager of transistor manufacturing, was the speaker at last year's banquet.

Members of the sponsoring groups represent the county's nine professional engineering societies: Society of Automotive Engineers, American Institute of Industrial Engineers, American Institute of Electrical Engineers, American Society of Civil Engineers, California Society of Professional Engineers, American Society of Tool and Manufacturing Engineers, American Society of Mechanical Engineers, Engineers' Club and the American Society for Quality Control.

The county Engineers' Council is made up of two members of each of the professional societies, one of whom is the club's technical societies chairman. Jay Farley, head of Transistor Quality Control, is one of ASQC's representatives to the Council.

Tickets for the dinner and program are $4.50 and can be obtained from Jay Farley, Ext. 235, Mountain View. He noted that "a good Fairchild turn-out is hoped for to support Engineers' Week and to hear this fascinating speaker." Wives are welcome to attend the banquet.



DOWN WITH CADILLACS

Starting February 13, the north side of the Mountain View plant (see drawing) will be reserved for small cars which are no longer than 14 feet and no wider than 5'6." Compacts get thumbs down for this reserved area since they are too long to allow for a full-size driveway between the two rows of parked cars. It is requested that small cars use the designated area so there will be more space in other areas for "outsize" vehicles. A final request for you Goggomobilers—be sure your wheels are against the bumper strip so the cars won't stick out in the driveway.

MINUTEMAN!

Fairchild transistors played an important role in the successful first firing of the MINUTEMAN ICBM, which had a programmed 4200-mile firing at Cape Canaveral the morning of February 1.

Gen. Thomas D. White, Air Force chief of staff, called the launching "one of the most significant steps this Nation has taken toward gaining intercontinental missile supremacy. . . ."

Jim Carlyle, Autonetics contract manager for the Fairchild contract with Autonetics, praised the 30 girls on the Autonetics board assembly line here at FSC who, he said, "made a major contribution to the success of the firing." Carlyle commented that all three stages of the missile were successful and that approximately 1,000 Fairchild transistors were in the guidance system of the "bird."

Autonetics, a division of North American Aviation, Inc., is an associate prime contractor to the Air Force on MINUTEMAN. Fairchild is a sub-contractor for developing and producing high reliability transistors for the program. Dave Beadling is Fairchild's MINUTEMAN program manager.

Credit Union - New Loan Allocation

A $500 unsecured loan can now be obtained from the Fairchild Semiconductor Credit Union, according to the report submitted to members at the first annual meeting of the group Jan. 28. At the beginning of operations, it was necessary for the Board of Directors to set a $300 maximum limit, but as there is now over $23,000 available for loans, the loan figure was increased. Membership in the CU is a prerequisite for a loan.

Approximately 40 members of the Credit Union gathered in the cafeteria on the 28th to hear the various reports and to elect new officers and board members. Board members include Maurine Bagliere, treasurer, and Betty Barnes, assistant treasurer, both of whom will serve for two years. Other two-year terms will be served by Jerry Groux and Bill Stansbury. Elected to one-year terms were Marilyn Jacobs, Barbara Winding Bonham, Jay Cockrum, Ed Krueger and Tony Roder. The newly elected Credit Committee includes Joe McCoy, chairman; Bea Ortu and Louise Whitehead. The Board elected its officers, who are Tony Roder, president; Bill Stansbury, vice-president; Marilyn Jacobs, secretary; Maurine Bagliere, treasurer; and Betty Barnes, assistant treasurer.

Myra Landolfi, outgoing president, turns over the gavel to new Credit Union president Tony Roder.

Myra Landolfi, outgoing president of the Credit Union, submitted a report to the assemblage on behalf of the Board. She said, in part, ". . . the past half year of operation has been paramount in laying the foundation for a solid credit union that can continue to grow and perform necessary mutually beneficial services for its members. The company has extended every possible assistance . . . both in terms of morale and finance. All operating expenses from June, 1960, through December, 1960, were assumed by the company." Regarding loans, ". . . ultimate goal is to reach the $750 maximum unsecured loan figure as allowed under Federal bylaws."

New President Roder stated that there are now 680 members in the CU. He urged employees to make use of the many CU advantages, which include planned savings, future dividends and the availability of loans.

The newly elected FSC Credit Union Board of Directors. Seated, left to right, Barbara Winding Bonham, Marilyn Jacobs, Maurine Bagliere and Betty Barnes. Standing, left to right, Bill Stansbury, Tony Roder, Jerry Groux and Ed Krueger.

Grinich To Give Paper in Paris

Dr. Victor H. Grinich, associate director of Fairchild's R&D facilities, will present a paper entitled "The Planar Transistor Family" at the International Symposium on Semiconductors in Paris during the week of February 20-25. Dr. Grinich co-authored the paper with Dr. Jean A. Hoerni.

Prior to the symposium, Dr. Grinich will attend the International Conference on Electronic Components to be held in Paris the week before the symposium.

The symposium is part of a meeting of the French National Federation of Electronic Industries organized by the French Society of Electricians and Radio Electricians and is the fourth international meeting of its kind.

During his two-week stay on the Continent, Dr. Grinich will visit the SGS facility in Milan and several other European electronics firms.

M&G SOCIETY

The Crystal, the new monthly newspaper of the FSC Mineralogical and Gem Society, announced in its first edition that Willie Mueller was elected president of the society at its first meeting. The new president is a designer in the Transistor Tool Design Section. Helen Morton from R&D was elected secretary of the group. They are still seeking new members.

Armed with hammers, picks, magnifying glasses, sneakers and sledge-hammers, members of the society and their families descended on the Guadaloupe mine in the Los Gatos Hills the 21st of January in search of agates with marcasite. The day's findings included clear quartz crystals, gypsum crystals, gem quality serpentine, marcasite and banded blue agates that polish to beautiful stones.

HELP WANTED: Staff For Science Seminars

Peninsula Science Seminars are in need of those fortunate persons who can classify as $1-a-year-men-or-women, who have scientific knowledge, an interest in helping teen-agers and a concern for the scientific future of the country.

What are the seminars? A few years ago a Chicago manufacturer, Joe Berg, established his "Berg Plan for the Advancement of Science" to further the scientific studies of gifted high school students. Henry C. Martin, science teacher at Palo Alto High School, heard about the plan, was enthusiastic about its purposes, and in March of 1958 wrote to 100 local scientists about starting a similar program in this area. Would the scientists in question be interested in helping to "keep alive the fire of curiosity in these embryonic scientists upon whom so much of the future depends?"

They would be interested, they replied. With the approval of the Board of Education, the superintendent of the Palo Alto Unified School District and the senior high school principals, a science seminar program operating on a 12-month basis was authorized to provide gifted students the opportunity to work with top-flight scientists and valuable scientific equipment. By a rigorous and exacting testing process, some 35 students from the 9th to 11th grades were selected from the Palo Alto high schools for the program.

The idea caught on and spread so that now there are science seminars not only in Palo Alto, but in Mountain View-Los Altos, Fremont and Menlo-Atherton.

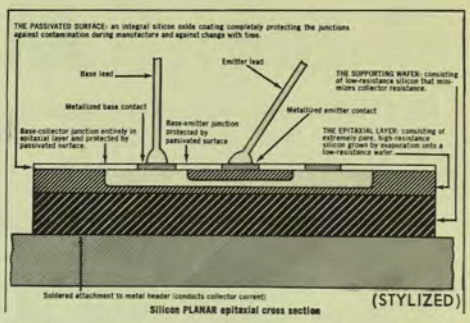
A typical once-a-week meeting begins at 7:30 with about 30 students in attendance. The speaker of the evening takes about an hour, after which there is a question-and-answer period. Then the students and staff members break up into their various groups—math, physics, engineering, electronics, biology, psychology, chemistry or geology—and discuss matters of scientific interest and the research projects undertaken by the students.

The seminars need people to speak to the groups, advise the budding scientists and work with them on their individual projects. Discussing the need for scientific aid, Mr. Martin noted that "we feel the conservation of our manpower resources is as important as the conservation of our national resources; the various organizations have a stake in this program. We must begin early to instill in these youngsters habits of independent study and creativity if we want industry to progress in the years to come. Any help you can give in the way of speakers for our formal program or students' sponsors to work with them as advisors on their research projects will contribute to this program immensely."

Bob Merrick, assistant advertising manager, recently gave the Mountain View-Los Altos group a presentation on FSC and our products. Speakers and staff members come from Stanford University, Stanford Research Institute, Westinghouse, Varian Associates, Lockheed Missiles and Space Division, University of California, Beckman Instruments, Hiller Aircraft, U. S. Geological Survey, Malkin Laboratories, NASA, IBM and others.

For further information contact Dr. Thomas Allen at Stauffer Chemicals in Mountain View at RE 9-0511, Henry Martin at Palo Alto High School at DA 2-2127 or Wes Anderson of Varian Associates at DA 6-4000.

Dr. Thomas Allen explains structure of the atom equation to L. David Dodd, Bob Hosek and Greta Mueller, all students of Los Altos High School taking part in the Mountain View-Los Altos science seminar.



Silicon PLANAR epitaxial cross section

Planar Epitaxial Devices Developed

A new dimension has been added to the Fairchild product line with the development of Planar Epitaxial transistors and diodes. First product announcements will be made at the IRE Convention in New York March 20.

Giving our devices a more universal character and application, the process allows the device to offer higher switching speed, higher frequency, more power and lower saturation voltages. An epitaxially grown crystal is produced by the vapor deposition of micron-thick high resistivity material on a sub-strate of low resistivity bulk material.

The epitaxial process is Fairchild's third major improvement in semiconductors. The commercially practical diffused mesa transistor scored a major "first" in semiconductors for FSC. A mesa device is etched to make it the shape of a desert plateau, from which it takes its name.

Our second major technical breakthrough was the Planar process. Planar devices have as their major feature the surface junction protective oxide which results in an order of magnitude improvement in leakage and a useful gain from 100 mA to 500 mA.

The Planar Epitaxial combines all significant device improvements. It is made similarly to our Planar devices except that a relatively impure wafer with very low resistivity is used to begin the process. The wafer is placed in a furnace where a thin layer of extremely pure material is grown. It is just deep enough to receive base and emitter diffusions. The result is a transistor which has normal breakdown voltages due to high resistivity epitaxially grown material, and low saturation resistance due to the low resistivity material which is a few mils thick.

(Continued on Page 7)

Sports Review

FSC hoopsters have started the second round of play in the Class "B" basketball league at the Terman Jr. High School in Palo Alto. Results so far are as follows:

Fairchild	39	Freeman Paving Co. 47
Fairchild	39	Meier Electric 41
Fairchild	33	Oasis Club 34
Fairchild	45	Hewlett-Packard 31

The team has high hopes for the rest of the season and will be bolstered by the addition of Gary Tripp (6'7) and Leo Lujan, both members of last year's team. More company spectators would be a big help and information as to times and places of games can be obtained from team captain and manager Dick Cole.

Bob Somers is the second highest scorer of the league with 58 points. Dick Cole, who was leading the league, dropped points due to missing a game.

FSC teams in the Peninsula Curling League are still making a good showing. The team of Don Campbell, Chris Swift, Ray Jones and Dale Harrell is currently holding down first place.

The top ping-pong player at Mountain View is Jim Yeh, who won first place in the recent ping-pong tournament. Peter Niem took second place with runners-up Frank Yeh and Charles Arkebauer making the top rung in the contest which involved over 30 competitors.

Fairchild keglers have completed the first half of the bowling season with an exciting finish. Fabtools came from second spot to edge Cox's Army for the first half championship. The remaining teams will compete for the top spot during the second half and will meet Fabtools to determine the season champions.

League Standings—Second Half

TEAM	WON	LOST	GAME
Fabtools	3	0	625
The Goofers	2½	½	608
Latecomers	2½	½	702
Mac's Butchers	2	1	687
Cox's Army	2	1	715
Jack Rabbits	1	2	610
Screwballs	1	2	589
Never's	½	2½	568
Rita's Raiders	½	2½	674
Cold Turkeys	0	3	601
High Game:			
Men—D. McElroy, 11/30			674
Women—R. Braudrick, 11/2			493
High Series:			
Men—V. Cady, 10/12			257
Women—R. Braudrick, 11/1			207

Fairchild's basketball team prepares for action. Left to right: Bill Johnson, Dick McElroy, Roger Smullen, Jerry Milligan and Bob Somers.

Interdivision bowling between Fairchild divisions and subsidiaries began last week with top FSC bowlers right in the thick of the competition. Pictured is the first team and alternates, left to right: Ran Sansone, Jay Cockrum, Lloyd Kohn, George Lao, Art Kenney, Vern Cady, Howard McLaughlin, Bill Hamrol, Dick McElroy and Bud Whetton. Competition will go on for 8 to 10 weeks.

The top Mountain View bowling team of the first half of the season, the Fabtools. Left to right: Jay Cockrum, Bob Gregory, Don Visger and Jay's wife Dru.

PLANAR EPITAXIAL

(Continued from Page 6)

The resulting device is a more perfect switch, a much more efficient amplifier and a device able to handle higher power due to higher current handling capabilities. The same general process and results are applicable to the Planar Epitaxial diode.

The Planar Epitaxial transistor will enable the designer to fabricate faster computer memories and higher power RF amplifier and oscillator circuits.

NEWS STAFF

Vol. 3, No. 2 February, 1961

Editor ..... Judy Machanik

Sports Editor ..... Dick McElroy

Columnists ..... Barbara Hock, Mary Grigsby, Shirlee Munn

SOME DATA FROM DIODE

By Barbara Hock

Among Diode's 430 employees, there is much interest brewing around possible ski trips for employees and families. Will all interested people contact Dean Mack or Barbara Hock?

The new foreman in our Model Shop is Carl Dalton. Carl comes to us from General Electric in Palo Alto, where he was in charge of a 48-man shop. . . . Stan Chapman, formerly an experimental machinist in the Tooling Section, is now reporting to Purchasing. Stan will be responsible for all outside vendor liaison, tooling, and maintenance services. . . . George Compton, previously a foreman in Production, transferred over to Production Engineering Section as an engineer. . . . Anyone interested in saving money, see Eileen Collette in the Accounting Department—she will be more than happy to enroll you in the Company Credit Union. . . . Tester Jessie Davenport, in the Electronics Section, is telling grand stories of her recent trip to Southern California and Mexico. . . . Floyd "Jack" Counts, Electronic Tech, and wife Betty are the proud new parents of a 6-lb. 15-oz. baby girl named Susan Ann. . . . Smilin' Hal Clements is back on the job after hospitalization. . . . Frank Rittiman, Electronic Tech, announced his engagement to Joan Boehle of San Francisco. . . . Celebrating anniversaries in March are: Frances Lawrence, Production, who fetes 14 years of wedded bliss; Susan Hoaglin, 1 year; Bernice Antonio, 6 years; Pauline Gregorio, 7 years.

Margaret Kozak, day shift Production, has left us to get married. . . . The swing shift did it again—they planned and had a fabulous surprise party for Jenny Jump at Joe's in San Rafael to celebrate Jenny's birthday. . . Dana Donovan will be returning to work with a brand new name—she is now Mrs. McAlbain. . . . Another farewell party given was one for Alice Mahaffey—this one was hosted by Holly and Lil Sims—the twins even made a cake, all by themselves. . . . If you feel in the need of that Continental flair, check with Delio Luna, Electronic Engineering. He recently organized a school for Spanish dance and speech—lots of luck! . . . Welcome aboard to Norine Smith, Quality Assurance; Karole Henslee, clerk, Production Control; Don Heisler, machinist; Brent Purdom, draftsman, Engineering; Tony Bachmann, machinist; Lilyan Kaldor, clerk, Production Control; Robert Feierbach, electronic technician; Randolph Richmond, engineer; Felix Marshall, Production Control; Billy Downs, machinist; Jim Watson, Electronic Tech; Jim MacQuarrie, Production foreman; Vi Dietz, senior clerk, Production; and Pat Linch, Accounting.

OFF THE LEADWIRE

The Fairchild Square Dancers are holding lessons regularly at the American Legion Hall on Villa off Calderon in Mountain View every Monday night at 8.

Joe Gattuso of the field sales force is the proud papa of Douglas James Gattuso, born January 2.

Congratulations to the former Adrienne Provan, who became Mrs. Dan Hernandez at a candlelight ceremony in Palo Alto January 21. Adrienne, buyer at Industrial Ave., was honored by her associates at a luncheon the day before the wedding. Dan is a Santa Clara lawyer and they are living in Santa Clara after a Palm Springs honeymoon.

The Syracuse Sales office is glad to have secretary Lee Meltzer back on the job. Lee was out for two weeks in the hospital.

The list of distributors handling Fairchild products grows and grows. New additions are: Statewide Electronics Supply Co., Inc., in East Syracuse, New York; Standard Electronics in Buffalo, New York; Lake Engineering Co., Ltd., in Scarborough, Ontario, Canada; and Weatherbie Industrial Electronics, Inc., in San Jose, California.

R & D LAB GAB

By Shirlee Munn

Looks like Chet Gunter will be lodge-skiing the rest of the year. . . . Chet took a week's vacation and, along with Leo Lujan and new equipment, took off for Mount Rose Ski Lodge. On their third day of skiing, Chet and Leo rode the T-bar all the way to the top. Leo started down first, and Chet yelled down to him to wait so they could go down together. Leo stopped and waited—Chet started down—he missed a turn and fell right at Leo's feet. Leo said he heard the bone in Chet's leg snap, and as he looked down at him with his leg in a grotesque position, Chet brilliantly remarked, "I think I broke my leg!" The only thing Chet was concerned with was his new ski pants. "Be sure to cut the pants on the seam," he muttered all the way to the hospital. Chet hasn't returned to work as yet, but stopped in one day last week—just couldn't stay away. He was lucky in that he had only a spiral fracture and no surgery was required. His leg will be in a cast from 4 to 6 months, according to the doctor, so Chet's activities will be considerably curtailed. Anyone for chess?

Latest addition of an edition in the library. . . . A book, *Analysis of Water*, written by a Mr. F. H. Rainwater.

Maria Bognar, tester for Device Evaluation Section, became the proud mama of a baby girl on January 20, who weighed in at 7 lbs., 4½ ozs. Maria will be back with us in late March.

The new Administration promises to improve international relations—and Arjun Saxena is doing his bit. The paper that Arjun recently wrote has created much interest among other countries. Specifically, Arjun received a request from a Professor Zhakarev, physicist at Russian Academic Sciences (located in Moscow, Russia), for a reprint of his paper. Arjun answered the letter stating that one would be forthcoming as soon as available, and in the return mail received a copy of a paper by Professor Zhakarev, which he sent voluntarily, and which was translated into English!

The entire lab was happy to see Shirley Brossius back with us. If you recall, Shirley and Nancy Johnston left in November for a tour of Europe. Shirley says the tour was magnificent. She set foot in U.S. Dec. 24. The end of the story goes like this: Shirley had just enough money for her ticket to San Francisco, plus 25 cents. When she landed in New York, there was a question in her mind as to whether she should spend her last two-bits on a shuttle bus between airports, or not. You're right—she spent it! Nancy didn't come back, though . . . it seems she decided to stay on and pick up some Danish culture.

ALL AROUND THE PLANT

By Mary Grigsby

Bill Horton, Industrial Relations, bought a large deluxe dog house for his hound recently. The apartment manager banned such animals, so Bill went out and bought a home. Now Bill is always in the dog house!

People beware! Better keep your cars off the streets of Mountain View 'cause Irene Schuler is taking driving lessons. Could be disastrous.

March 10 is a big day for Esther Tygret, Manufacturing, as she prepares to march down the aisle. Esther plans to leave Fairchild February 24. Robbie Ricketts is going to Ensenada, Mexico, for her vacation, where she plans to attend bullfights and dog races. We wish Elaine Wilson, Manufacturing, a speedy recovery. Elaine is in the hospital for surgery on her knee. Welcome back Hank Rodeen . . . mumps aren't much fun, are they?

A shiny new car for Miriam Lawrence and red roses for Gail Herback on her birthday. 'Fess up now Gail, how many . . . roses? One of our twins in the Testing Room, Jackie Herron, was temporarily missing, due to an auto accident. Bert Allen was luckier, though sad, as they towed away her new red MG from a foggy morning accident.

Fairchilders are planning to take over Hawaii May 12 for an exciting one-week vacation at the Waikiki Biltmore Hotel. Champagne flight, seven nights at the Biltmore, limousine service on arrival at the International Market, all-day circle tour of the island Oahu, a cruise around Pearl Harbor and a luau are just some of the fabulous features for a bargain price of just $246. See Carol Himsworth for sign-ups before February 15.

'ROUND S.F.

This month's featured restaurant will take us to distant and alluring "Little India," 40 Jones Street, which is an outstanding bargain restaurant in the city. Small, delightfully decorated and reasonable, one may choose from five or six curries and three or four side dishes . . . a la carte is suggested when ordering. Two people dining together might have a curry each and share one chapati (flat Indian bread), one samosa (stuffed pastry type device) and one salad. Indian sweetmeats are free for dessert. Total bill for two—approximately $6.00.

Schedule of events happening in the city this month are briefly listed below:

Feb. 11—Jazz at the Pacific: George Shearing, Andre Previn, Masonic Memorial Auditorium.

Feb. 17—Bob Newhart, Masonic Memorial Auditorium.

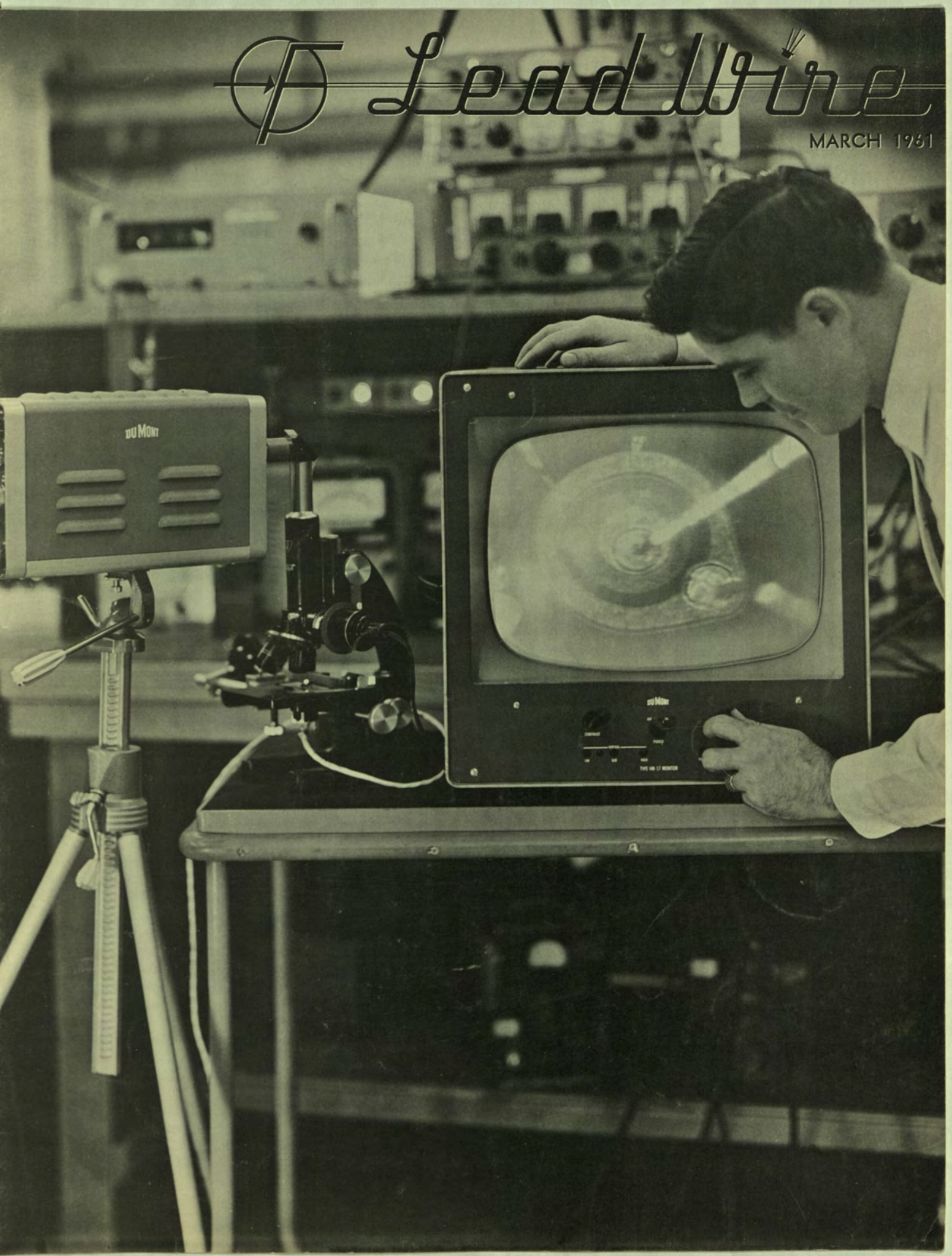
Feb. 24—Jose Greco and his Spanish Ballet, War Memorial Opera House.

March 4—Mahalia Jackson—gospel singer, War Memorial Opera House.

See Mary Grigsby about ticket information.

Lead Wire

MARCH 1951



Fairchild Exhibits New Products and Test Equipment at IRE in N.Y.

Fairchild will exhibit micrologic elements, transistor test equipment, new packaging of diodes and other new products at the 1961 International Radio and Electronics Convention (IRE) March 20-23 in New York City. Approximately 1,000 exhibits at the year's major annual electronics show will demonstrate practical applications of engineering as a counterpart to the theoretical and technical papers presented during the convention.

The Micrologic Flip-Flop

At IRE, Fairchild will announce the availability of the micrologic flip-flop in sample quantities. This is the first member of the micrologic family to become available and the first public announcement of the six-element set of miniature digital building blocks which will compatibly perform computer logic functions. The other five elements will be made available at regular intervals. The elements are: the flip-flop, a half-shift register, a gate, a buffer, a half adder, and a counter adapter.

A micrologic element consists of a silicon slice with selectively diffused regions which act as transistors and resistors. All interconnections are deposited on this solid silicon substrate. As to broad applications, the micrologic concept applies in any logic portion of computer or computer type vehicles. This includes a full gamut of arithmetic units, control units, synchronized delay lines (including deltics) and satellite instrumentation.

In general, the elements can be used wherever computer cost reduction, small size and low power requirements are of importance. The circuitry used in our micrologic elements is DCTL (Direct Coupled Transistor Logic). If a suitable transistor is available, this type of logic circuitry is the most adaptable to reliable and economic production methods. The elements benefit from other attributes of this approach including lower power, high speed, insensitivity to component variation, reliability, single power supply, etc. Basic criteria to be met by any successful microminiaturization program are low cost, reliability and usefulness — Fairchild's elements meet all these requirements.

Transistor Test Equipment

Fairchild's capabilities in the design, development and building of transistor test equipment will be indicated at IRE by the display of the Type 4 Tester. The Type 4 is an automatic multi-parameter tester which operates on a load line go-no basis. After testing, transistors are automatically sorted into a number of reject and pass sort bins. A self-check circuit halts testing if there is a test circuit malfunction. The equipment tests and classifies transistors at a speed of approximately 1,000 per hour.

An information brochure on transistor test equipment will be made available at IRE, discussing new test equipment developed at FSC which will be

The Type 4 Tester

marketed in the near future. In addition to the Type 4, the brochure describes four other pieces of equipment. The Data Logger is a multiparameter transistor tester with data logging facilities. The system performs up to four tests on five transistor parameters and punches out the results of up to 16 of these on IBM punch cards. The Automatic LV_{CEX} Tester automatically measures LV_{CEX} on a load line go no-go basis. Up to three tests may be checked sequentially in approximately 100 msec. A Wide Range h_{FE} Tester measures h_{FE} by means of a load line go no-go technique. PNP or NPN testing is possible. The Low Current I_{CBO} measures I_{CBO} on a go no-go basis by comparing the I_{CBO} reading with a known reference current. These testers of both the go no-go and absolute readout type have been designed and built by the Instrumentation section of FSC, headed by Ed Russell. The equipment has accuracy and reliability proved by in-factory use at FSC.

Fairchild is now offering a new product line of diodes packaged in pairs and quads with matched characteristics. The devices will simplify component mounting and improve performance of many circuits. The devices offer ultra-fast re-

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COVER BY MELGAR

Warren Wheeler, research assistant in the Electro-Optical section of Research and Development, adjusts the picture on the Du Mont closed circuit television monitor, part of a closed circuit system now in the R & D lab. Used in the system is the Du Mont Type VM-17 Monitor, a Du Mont TV camera and a metallurgical microscope. The eye-piece of the microscope has been replaced with the camera eye and a magnified image of the device under the microscope appears on the TV screen. In addition to using the system for demonstration purposes, FSC scientists are contemplating the use of the system for better viewing in conferences, meetings and technical sessions involving large groups of personnel. Other applications of the system are being investigated.

Du Mont is a division of Fairchild Camera and Instrument Corporation.

Device Developments Lead to Medical Work

Two Fairchild developments—the micrologic technique and the strain gage—have led interested FSC scientists to contribute their time in exploratory work with the rehabilitation of the physically handicapped.

Dr. W. Waring

Last fall, Dr. Worden Waring, head of the Chemistry section of R & D, had an idea that the two FSC developments might be useful in the work being done in the medical fields of Orthotics and Prosthetics. Orthotics is the bracing and support of existing limbs which have minimal functions. Prosthetics is the replacement of an absent part by an artificial one and the provision of functions that have been lost due to disease, accident or a congenital deformity.

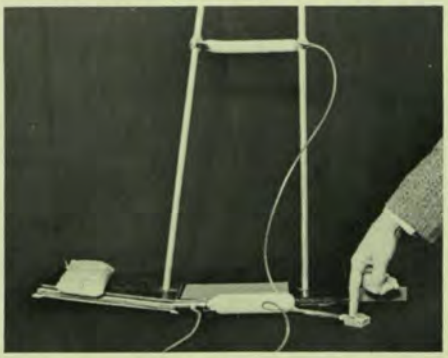
Dr. Waring first contacted Dr. Daniel Feldman, director of the Division of Rehabilitation at Stanford University Medical School. Dr. Feldman was most interested in the application of our devices and encouraged Dr. Waring to go forward with his ideas. Working with Bill Hafner, head of the Special Products section, and Wendell Lafky, whose group developed the strain gage, Dr. Waring contacted two medical groups in Southern California who were interested: the Rancho Los Amigos Hospital in Downey, which works in Orthotics, and the Child Amputee Prosthetics Project, which is connected with the University of California Medical School in Los Angeles.

Discussing how the two FSC developments could be applicable to mechanical and electronic aids to the handicapped, Dr. Waring noted that the micrologic technique allows electronic controls and programming devices to be put in small spaces, e.g., small circuits could be added to supporting equipment to enable co-ordination of muscles and movement.

FSC recently developed a strain gage, which is a solid piece of diffused semiconductor material with no movable parts. The strain gage is the heart of the high-accuracy transducer developed by Fairchild Controls Corporation which converts energy and/or information from one form to another. The strain gage takes mechanical energy (twisting, stretching, bending, compressing) and converts it to an electrical signal. In medical rehabilitation work, the strain gage could be used as a sensor device which would receive change of motion or distortion and act as a translating device. Movement or motion sensed by the gage changes the electrical resistance of the gage and this change can be used as part of an electric circuit to generate a signal. By putting the strain gage on the limb, outside control is possible. This control of residual motion on the outside of the limb is easier than inside control (implanting) since no surgery is required and the device can be removed at night.

The ultimate extension of these efforts could be the detection of nerve signals, otherwise impeded or at an impasse at a deformed or non-functioning joint, amplified as a signal to be used for signalling and controlling desired motions through mechanical devices. This amplified current flow in an electric circuit can be used for the signal or control of other equipment.

While in Southern California recently, Dr. Waring and Bill Hafner visited sites where the doctors indicated that our techniques will be of continuing interest in their work. The Rancho group sent movies and an artificial muscle to Fairchild (see photo). The movie was shown to employees at R & D concerned with this area of work and the movie and muscle device was shown to a staff and student group at Stanford Medical School.



Pictured is an artificial muscle used on post-poliomyelitis patients at the Rancho Los Amigos Hospital in Downey. By depressing the lever, the carbon dioxide gas in the tube is controlled and a weight can be lifted. A five-pound bag of lead shot is being lifted in the operation shown.

Dr. Waring stated: "The excitement is in the experimentation going on. Where there was disability there is now ability—children can be taught to draw, women can cook and put on make-up, men can be taught to use machines for industrial jobs. Successful stages of research allow us to get from the human

(Continued on Page 8)

Beadling Named Diode Manager

David A. Beadling

David A. Beadling has been appointed plant manager for the Diode plant in San Rafael. He assumed his new duties on March 8. Formerly MINUTEMAN program manager for the Fairchild/Autonetics MINUTEMAN contract, he replaces Robert E. Freund, who has resigned.

Beadling graduated from the U.S. Naval Academy at Annapolis in 1948. He served with the Navy in the sixth fleet in the Mediterranean, was with a PT squadron, and was awarded the Bronze Star in Korea in 1951. He was discharged with the rank of lieutenant in 1954 and joined Hughes Semiconductor Corporation as a sales engineer. He began with Fairchild in early 1959 as western regional sales manager and was appointed assistant marketing manager in June of 1959. In May, 1960, he was appointed to the MINUTEMAN post.

The Beadlings — wife Barbara and sons John, 11, David, Jr., 10, and Richard, 7, are now living in Redwood City.

84 Attend Meeting

Eighty-four members of the Research and Development staff attended a professional staff meeting February 1 at Rickey's in Palo Alto. Eugene Kleiner, head of R & D's Administrative and Research services, introduced the speakers, Dr. Robert N. Noyce, FSC vice-president and general manager, Dr. Gordon Moore, director of R & D, and Dr. Victor Grinich, associate director of R & D. Dinner followed the speeches. Kleiner stated he hopes to have these meetings become a regular affair to facilitate closer co-ordination of the R & D staff efforts.

Part of the staff attending the meeting included (seated, left to right) Bob Brown, Jeff Wilson, Sid Levine, Warren Wheeler and Les Greig. Standing are Bob Schultz, Stan Moore and Nolan Pearson.

PRIZE WINNERS

Two R & D employees won top honors in the Fairchild Employee Photography Contest, held between employees of the peninsula plants. Betty Thomas's "Styxs" and Bob Martin's "Cats" were the winners. Bob is an engineer in the Micrologic section and has been an active photographer since 1952. Betty is a lab technician in the Materials section and her winning photograph was the first one taken with the new camera she received for Christmas!

Dr. Wigton Joins R&D

Dr. Henry F. H. Wigton has been appointed to the technical staff of Fairchild's R & D laboratories, in the Physics section.

Prior to joining Fairchild, he served as a research chemist with Minneapolis Honeywell's Semiconductor Division in West Palm Beach, Fla. Dr. Wigton, 38, received his B.S. degree in chemical engineering from Texas Technological College in 1943 and his M.S. in the same subject from Oklahoma State University in 1948. Prior to receiving a Ph.D. from the University of Colorado in 1952, he was an instructor of chemical engineering at CU. He left the university in 1952 to join the Pigments Department of DuPont, Newport, Del., as a research chemist.

The Wigtons—wife Virginia, son Larry, 13, and daughter Kathy, 7—live in Palo Alto.

Safety Committee

A Safety Committee has been formed at the Research and Development lab in Palo Alto to "ensure a safe working environment" for R & D employees. The committee works under the direction of Eugene Kleiner, manager of Administrative and Research Services at R & D, and is advised by Mike Mickel, safety engineer for the peninsula plants.

Bernie Yurash is chairman of the committee, which includes Gene Troyer, Al Wesolowski, Jerry Lessard, Don McCall and Phyllis Hughes, secretary of the committee.

The committee has made recommendations ranging from the use of safety glasses to proper fire prevention methods and the use of safety equipment. A film on the use of resuscitators and other emergency reviving measures was shown to the R & D employees, including all laboratory personnel. Operation of fire extinguishers was demonstrated and employees were familiarized with the location of various emergency equipment. The committee meets once a month to review Safety procedures and use of new equipment.

BILL BAILEY TO SGS FOR SIX MONTHS

Bill Bailey, product engineer in the NPN Planar section of the Manufacturing Department, is the first Fairchild employee to take part in a private "international exchange program" between FSC and SGS, the Italian semiconductor firm in which Fairchild has an interest.

Bill will go to Milan for about six months as a product engineer and SGS will send an employee here on a reciprocal basis. It is hoped that this newly established exchange of professional personnel will promote and improve technical communications between the companies. SGS has not notified FSC as to whom it will send here.

Bill will be flying to Milan at the end of the month, and is now busy learning Italian. Arrivaderci. Arrivaderla. Or is it "ciau"?

New Sales Engineer In N.Y.

Joseph Feller

Joseph Feller is a newly appointed sales engineer in the Syracuse, N.Y., sales office. A native of Rochester, N.Y., he graduated from St. John Fisher College with a B.A. in business and then served for four years in the U.S. Air Force. While in the service, Joe attended electronics school for eight months and graduated as a radar mechanic. He was formerly a resistor sales engineer for MEPCO and most recently a sales engineer for Texas Instruments. Joe and his wife, Delores, have a son, Daniel, 3½.

COMMITTEE MEETS WEEKLY

Pictured are Joe McCoy, Louise Whitehead and Bea Ortu, the members of the Credit Union Committee, elected by CU members. The committee passes on loan applications, determines whether the security offered, if needed, for the loan is necessary, grants extensions of loans or refinances them. The committee meets weekly to discuss loan applications received from employees. All information is kept strictly confidential and the committee is available to discuss the prospective borrower's financial problems and advise on effective solutions. The committee works with the treasurer in ascertaining the availability of funds. According to CU President Tony Roder, funds are low now. "We have more loan applications than money now. We need more members with savings to put in—the more money we lend out, the better the dividends on savings are going to be," stated Tony.

Fairchild has sub-leased 12,000 square feet of space at 1625 Stierlin Road in Mountain View. Moved to the new facility are Accounting, Advertising, the IBM Tab group and part of the Materials section. The building has been leased for 16 months from Radiation, Inc.

According to Julius Blank, head of Plant Engineering, construction of the 40,000-square-foot addition to the Mountain View plant is tentatively scheduled to begin in April. The addition, to be built adjoining the main plant along Whisman Road, will combine office space and manufacturing areas and will feature a cafeteria with complete cooking facilities.

NEW RECORD SET

The Final Seal girls on the Small Geometry line set what is believed to be a new record in yield quality for the week of February 13-19. The rate of loss was only one transistor for every eleven thousand sealed.

George Wiggins, supervisor of the team, stated that this record was a "good example of team work by all concerned and proves that skilled operators, excellent equipment and a 'can do' attitude are hard to beat."

Congratulations on a job well done to (seated, left to right) Maxine Oltrogge and Patty Sitton, and (l to r) Alice Long, Agnes Myreholt, Beverly De Los Santos and June Heaton.

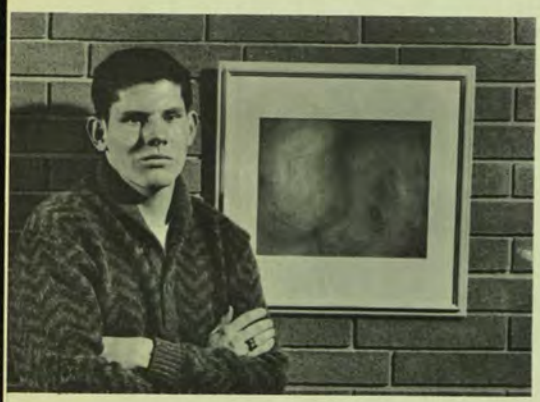
the art exhibition - - - - - -

The art exhibition in the large conference room of the Mountain View plant on Wednesday afternoon, February 15, drew a crowd of approximately 200 employees between 3:30 and 5 p.m. Bill Wagner showed his art film "Scribbles" during the afternoon and over 40 paintings, sculptures and mosaics were viewed by employees.

MARJORIE ELLEN CRAIG has been painting since high school days and works mainly in watercolor and oils. In 1955 she won first prize at the California State Fair in the watercolor division and is currently a member of Gallery House, Inc. She is exhibiting at I. Magnin's as part of a group show. Marjorie, wife of Dick Craig of R & D, prefers to paint old houses and still lifes. She submitted "Northumberland House" and "Persimmon" for the exhibition.

OTTO LEISTIKO, a research assistant in the Physics section of R & D, has worked in oils, watercolor, pastel and inks during the 10 years in which he has engaged in art. He has exhibited in the Students Exhibit at the Portland Art Museum and at the Unitarian Art Festival at S.F. State College. One of his paintings, "Gate to a Japanese Garden," is owned by Dr. Worden Waring, head of the R & D Chemistry section. Otto submitted Dr. Waring's painting, and "A View from Lars House," "St. Francis Yacht Club," "Cape Lookout," "Lighthouse on the Oregon Coast," and "East to Presidio."

WILLIAM J. WAGNER, promotion coordinator in the Advertising section, has been an artist for 24 years and favors Guache and mosaic. He has exhibited at Gumps' in San Francisco, Fort Miley Veterans' Hospital, Steinhardt Aquarium, Northern California Association of Ceramists, Santa's Village, art and novelty shops and various San Francisco art exhibits. Bill submitted "Brick Factory," "Primitive Face" and "Stretching Cat" for our exhibition.



TOM W. BRIGHT, lab technician in Crystal Growing in the transistor plant, has been working in pastels and watercolors for a year and a half. He has exhibited at Foothill College and enjoys "working in a realistic abstract form." He submitted "Metamorphosis" for the exhibition.

SHIRLEY ANN BROSIUS, from R & D, submitted her vivid mosaic, "Hither and Zither," for the FSC exhibition. Shirley previously worked in copper enamels and has just lately turned her artistic favor toward mosaic work. She has never exhibited before but has sold her work privately. Mark Weissenstern of R & D owns "Hither and Zither."

JACQUELINE MALY, material processor in Shipping and Receiving, has been painting for about five years and enjoys landscapes. Jackie's work was seen by some fellow employees who encouraged her to go on, and she is now in the process of working for a BA in art at night school. She submitted "Multnomah Falls" and "Intermittent Showers" for the exhibition.

ROSALIE A. AUER (top photo), wife of Ralph L. Auer from the Quality Assurance section, has been an artist for 12 years and works in watercolors, oil, concrete and wood. She favors landscapes and has exhibited her work at the Stanford Art Gallery, Pescadero Ranch Art School Gallery and the Palo Alto Presbyterian Church. She submitted "Abstract" and "Watercolor" for the exhibition.

IRENE C SCHULER (top photo), who presides over the Insurance Desk in the Personnel Department, has been painting in oil for about 15 months and favors landscapes and seascapes. Irene submitted four paintings—"On the Way to Fort Bragg," "The Golden Gate," "Beach at Late Afternoon" and "The Desert."

VIRGINIA HALL's husband, James, is a professional artist and has worked in almost every medium during the 25 years of his endeavors. Jim has never publicly exhibited his work, but has sold much of it commercially to television and newspaper, magazine and book publishers. He submitted "Dark Princess" for the exhibition. Virginia works in Mark and Pack at the transistor plant.

MICHAEL JULIAN, lab technician at R & D, submitted his "United States Cavalry-Trooper—1876" and "Hussar." Mike has worked in art for about 15 years and uses oils, watercolors, pen and ink, pastels and pencils. Most of his work depicts the early American west and his paintings strive toward the photographic in their depiction of detail.

BETTY JOYCE, wife of FSC controller Alan Joyce, has been painting for a year. She doesn't favor any particular scene or subject and has never exhibited before. "Desert Knight" was done entirely with a pallet knife. "Day's End" was done in oils and "Lonely Vigil" is a study in pastels. Mrs. Joyce was unable to attend the exhibition.

DICK SUMNER, friend of Dave Reid who works at R & D, has been an artist for 15 years and works with varied mediums and subjects. He has exhibited at the Villa Hotel in San Mateo, Art of Today Gallery, the Belmont Gallery and will have a one-man show starting April 9. Dick submitted "Orange Tree," "Soft," "Autumn Barn," and "O-G" for our exhibition.

GENEVIEVE WILL, a top stamper on the Autonetics line, has been painting for twelve years and works mainly in oils and ink. She has exhibited at the Lester Shields School in San Jose and at the State Fair in Salem, Oregon. She has sold three of her paintings. Ginny submitted "Oregon Coast," "Home Place," "The Elk" and "Old Fashioned Ship."

Fairchild Pilots Find Flying Hard To Give Up

By Caroline Glasser

Imagine a crisp, wind-swept morning. Bayshore traffic tickles your nerves to the tune of a stop, start, change-lane rhythm. Nearing Moffett Field, you make the turn toward Fairchild; a screeching jet gets but a second thought as the turmoil that has already started draws your attention into the day ahead. But imagine yourself at the turn-off and the sound of the jet not above you, but within you as you transfer yourself to the cockpit and absorb the roar and the peace and an aloneness you've never before experienced. This is the "Shangri-la" belonging to more than ten pilots employed by Fairchild.

A newcomer to flying with only 35 flying hours on his student license, Dick Fouquet explains that "flying is a challenge that demands perfection." Dick spent four years in the Navy as Air Intelligence Officer. "I decided then that flying was something I one day intended to learn," he said. So the day came to pass when he and Jay Cedarleaf ventured many dollars into a Cessna 140, the second of two planes the pair have co-owned. Jay is also half owner of a partially completed glider. With his partner, Uli Hagel, he started last August to build a $600 sailplane and expects to have it completed in the fall. Work on the plane must be done while temperatures are above 65° to keep the spruce frame, held together with glue and nails, from warping. When completed, it will weigh between 400 and 500 pounds and cruise around 45 m.p.h.

Sail (or glider) planes are usually taken aloft by tow planes. They have a danger all their own in that they depend on air currents to keep them in flight. This is the reason Uli feels that "gliders are the most challenging of all. While judging conditions for landing, the pilot must be correct the first time, for there is no second chance to go up and come down again."

Uli learned to fly in Guatemala at the age of 16 but didn't receive his commercial license until coming here in 1958.

"Back home in Nebraska, it's so far from one place to another, one almost needs to fly to get around!" Dean Smith, a pilot from a family of five who all carry private licenses, also learned to fly at an early age. His private license is good for 300 hours.

Chuck Woodward, veteran Army Air Force pilot, has owned several planes while accumulating 2,500 hours of flying time. A Cessna 120 was used to commute 45 miles to North Texas University in 1946 after he was released from the AAF. In 1950 and '51, Chuck also owned two Steermans which he used for crop dusting and spraying, a highly paid but hazardous skill.

"Crop dusting was especially dangerous in those days," Chuck explained, "because there were no schools where it could be taught. Dusting from planes meant that they flew with their wheels in the crop, just a few inches above the ground. Telephone wires, pitchforks in the middle of a field, or trees were accepted hazards. Inexperienced fliers with only one or two hundred flying hours would go in for this, and the *majority* of them would be killed off within the first few weeks of the season."

Retired Marine Air Corps Major Ed Carmichael has been flying for 21 years and has acquired over 5,000 hours. His Cessna 170 is a four-passenger, 145 h.p., high-winged plane in which he commutes to his home in Chester weekends.

Dick Burzycki, a captain in the U.S. Air Force Reserve, annually serves two weeks active duty as a navigator on A.F. transports to Hawaii and Japan.

Another pilot out of WWII is Sherwood Kelly, with over 3,000 hours. Sherwood began in Norfolk, Va., in 1935 at the age of 23. He holds a private license with instructor's rating and was influential in Dick Fouquet's first few hours behind the controls.

Irene Schuler, perhaps the only woman flier at Fairchild, began her lessons in a seaplane. She holds a student license and accumulated her 100 hours in 1954 over the San Francisco Bay area. Irene originally planned to become a freight line co-pilot, but was discouraged when she learned women cannot legally fly for commercial air lines unless they are owners.

Also a former crop duster is Dick Denzler, owner of a small Mooney M-18C ("Mite"). The Mooney is a sports plane weighing only 540 pounds. It holds one man (uncomfortably) and

Dick Fouquet

normally cruises at 125 miles an hour.

During WWII Dick spent 5 years on flying "boats." When he was discharged, his flying experience helped put him through the Iowa State College at Ames. Between 1948 and 1953, with his own Cessna 140, he instructed, chartered, and used the plane for an ambulance. Dick has 4,000 flying hours. When asked why he flies, he replied, "Because I have to."

George Wiggins has had some interesting moments in his flying career. In 1944, while an aviator with the U.S. Navy, he patrolled the Pacific in search of submarines and mines. In 1946, as a civilian, he joined the Missionary Aviation Fellowship and flew many a doctor and missionary into the uncivilized, mountain jungles of Mexico.

Three months ago, Dick Schaffnit, jet reserve pilot for the Marine Air Corps, decided to give up flying. Today he is looking to purchase a plane of his own. After 11 years and 2,000 hours, flying is in his blood.

It may be hard to understand why some of these pilots "have to" fly. Some of them have found their "Shangri-la" up there and it calls them just as certainly as the sun rises somewhere each morning. It may be hard to understand, but, next time you hear the jets over the Bayshore, perhaps you can imagine.

(Continued from Page 3)

element where there is lack of control, to control by an outside mechanical device. These new abilities help prepare the people for a more useful and productive life. We are not interested in just measurement, as is a great deal of medical electronics work, but rather in giving clinical and therapeutic support to the doctors in their work. We can offer the skills of engineers, chemists and physicists to the field of medical electronics. The future involves a continuation of exploratory work in both Orthotics and Prosthetics, using our devices and giving our specialized experience which may be valuable. There is so much work to be done . . ."

Basketball Team Fourth in League

FSC's basketball team finished the season in an admirable fourth place in regular league play. This showing entitled them to a berth in the playoffs, but the team was defeated by Freeman Paving of Palo Alto 54-39.

Dick Cole was the league's leading scorer, with 154 points in 19 games. Bob Somers was also among the top four league scorers with 119 points in 20 games.

A vote of thanks to the team members for their time and efforts representing Fairchild in the league this year. Team members included Dick Cole, Roger Smullen, Dick McElroy, Gary Tripp, Leo Lujan, Bob Somers, Rich Wills and Bill Johnson.

IRE Exhibit

(Continued from Page 2)

covery time and high conductance and may be used up to 100 mc. The new components feature exceptionally high reliability and close matching due to our planar fabrication process. The series announced will be the SA2000-SA2011, which are pairs; the SA4000-SA4011, quads; and the SD400, which is an ultra-fast planar diode with high conductance and high power dissipation.

New Transistors

The epitaxial construction of the new 2N914 Planar Epitaxial Transistor improves efficiency and increases speed. It is a low storage device, with rise and fall times typically half that of equivalent planar transistors. The 2N914 will switch more current than its equivalent planar device.

The 2N1978 is a very high frequency power amplifier, oscillator and switch which can be used in military and industrial applications. Its applications are particularly good for use in computer memories.

The 2N869 is a PNP silicon transistor for switching and special circuits. It can be used where opposite polarity from NPN is required.

The fastest silicon transistor now available from FSC is the 2N917, an NPN silicon planar transistor with small geometry. It oscillates above 1 KMC (1,000 megacycles) and is designed as an amplifier at 500 mc. Its many applications include its use in a non-neutralized IF amplifier.

Fairchild ping-pong champs have their own private competition at a noon-time session. Recent winners in the ping-pong tournament held at Mountain View are (left to right) Charles Arkebauer, Peter Niem, Jim Yih and Frank Yih. Jim took first place in the contest.

8-Team Bowling Tournament On

The Interdivision Bowling Tournament has progressed through its fourth week with the FSC team presently in fifth place among the eight teams entered from throughout the corporation.

Du Mont and FCI are currently pacing the field, but with 10 weeks of competition remaining all teams are still in the running.

Our team displayed its best form of the season last week in defeating our sister west coast division Survey's team three out of four games. Ray Sansone's series of 530 was high for Semiconductor, followed by Howard McLaughlin's 521, George Lao's 514, Lloyd Kohn's 511 and Art Kenney's 498.

League Standings

Current league standings for the FSC teams are as follows:

	WON	LOST	HIGH GAME
Mac's Butchers	12	6	687
Late Comers	11	7	702
Cox's Army	11	7	715
Fabtools	10	8	625
Jack Rabbits	10	8	678
Rita's Raiders	9½	8½	674
The Goofers	8½	9½	608
Cold Turkeys	7½	10½	601
Never's	5½	12½	568
Screwballs	5	13	589

Lead Wire

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MOUNTAIN VIEW—PALO ALTO—SAN RAFAEL
CALIFORNIA

Vol. 3, No. 3 March, 1961

NEWS STAFF

Editor ..... Judy Machanik
Sports Editor ..... Dick McElroy
Columnists ..... Barbara Hock, Mary Grigsby, Shirlee Munn

The Traveling Trophy for the winner of the Fairchild interdivision bowling tournament.

Nash's Bowling Team #1 at Diode

Latest reports from the Diode plant place John Nash's bowling team firmly in first place with 43 won and 26 lost. The team also has high game (651) and high team series.

In the number 2 spot is Dean Mack's team, with 40 won and 29 lost. Natalie DeBeaumont's team is in the third position with 38 won and 31 lost.

Batter Up!

Softball season will soon be upon us. Anyone interested should contact George Reh for further information. FSC will probably have two teams this year, a class "B" and class "C" if enough interest is shown.

ALL AROUND THE PLANT

By Mary Grigsby

The event-of-the-month will take place at Fairchild March 17 when FSC skiers wind up the snow season with their last group trip to Heavenly Valley, which is ideally located in the midst of Lake Tahoe's south shore activities and lush scenery.

The Sinaloa had a very fetching floor show a few weeks ago when a certain talented man, being beckoned to the challenge, put the gal dancers to shame, feathers 'n' all. Mmmmmuch talent!

All the gals who are "expecting" wore red to Dave Beadling's party Saturday, Feb. 11, being Mmes T. Bay, B. Merrick, G. Korpontinos and D. Beadling. Did I see Howard Bobb sporting a red tie?

Star "Flexee" artists of the month are Tom Bay, Charlie Sporck and Madhu Desai.

Who was the technician I saw dash into the men's room with precarious exposure due to a sit-down strike on H.F. acid?

Bill Bailey has been practicing with Bea Ortu—Italian, that is. Bill is leaving shortly for a stay at SGS facilities in Milan.

Marking and Packing surprised Jack "Smiles" Callahan with a cake for his "24th" birthday; Washington's birthday, too, so we know "Smiles" isn't telling a lie.

Farewells went to Rosemarie Hensel at a luncheon given by her section and close friends at Sabella's February 28, Rosie's last day at Fairchild after serving for 1½ years in the Advertising section.

The gals gave a wedding luncheon for Nancy Chang (Chuck Woodward's secretary) Thursday, March 2, at the Tonic Room. Nancy became Mrs. Frank Yih Saturday, March 4.

Marie Doughtry, avid Shakespeare enthusiast of the test room, was seen riding a hobby horse in the middle of Grant Avenue in S.F. Happy Chinese New Year, Marie! Herman Raabe and Carl Tempier of Manufacturing will be leaving our plant for a new job at FSC's Palo Alto plant.

A series of small rooms opening onto a center courtyard complete with garden and fountain are the alluring surroundings you'll find while dining a la Japanese at Nikko, Van Ness and Pine Streets. Teriyaki is excellent, as is Sukiyaki cooked at the table. Try the warm rice wine (saki). If you want a drink before dinner, have a saki martini (Sakini). Extremely reasonable.

Events in S.F. this month are listed below. Contact Mary Grigsby for ticket info.

March 9-April 23—Geometry in Painting, S.F. Museum of Art.

March 15-19—S.F. Home and Hi Fidelity Show, Cow Palace.

March 17-18—San Francisco Ballet, Alcazar Theatre.

March 19—Andres Segovia, Curran Theater.

SOME DATA FROM DIODE

By Barbara Hock

Fairchild's Diode plant was complimented with an article in *Marin This Month*, a monthly magazine published in Sausalito. As a cover, the same picture of the diffusion oven featured on last month's *Leadwire* cover was used.

Some new people in the plant who recently transferred from Mountain View are Bob Merrick, Advertising; Roger Murray, Production Engineering, and Jim Tracey, Industrial Engineering.

Since the weather is getting so nice, the golf bug is hitting hard. We would like to get a team organized, so would all interested persons please get in touch with Chuck Gunther, Plant Engineering?

Attending the ski trip to Strawberry Lodge over the week-end of Feb. 10 were Casey Collins and wife; Marlene Baldwin and fiance; Peggy Ritter and husband; Dolly Kissling, Ann Pietsch and husband; David Laufenberg, Lee Stewart, Arthur Hunt, Dean Mack, Lee Rogers, Dieter Zemann and John Nash.

(Before we go much further, we should mention that the column this month is dedicated to "Winnie The Pooh" in our Accounting Department.)

Speaking of Accounting, David Laufenberg recently transferred there from Production Control.

Geraldine Carlson, assembler in Development Engineering, was married in Las Vegas March 4. Cliff Call, a material processor, is also taking the fateful step—Cliff will marry Shirley Briggs at the Mormon Temple in Salt Lake City on March 21. Recently wed Dana Donovan McAlvain, test and finish, was so excited when applying for her marriage license that for her father's birthplace she wrote FSC! Martha Lantis, production, will leave us soon to await the birth of her baby. Word reaches us that Elizabeth Pearl Williams, now on leave of absence, had a baby girl, who was named Jennifer. Two gals from Diode will be making the company-planned trip to Hawaii in May—the lucky girls are Gail Hamelin and Margaret Williams. A recent party at Gail's included Renee Patten and boy friend, Margaret Williams and husband, Gerry Callaway and wife, Jim Nicholas and Chuck Gunther, Holly Sims and Arthur Johnston, and Lorraine Roper, to mention a few. New grandmother is Sally O'Neal, whose grandson, Steven, was born February 13. Herb Bartholomew, Drafting, and Kathy Phillips, an inspector in QA, plan a June wedding. Word from the Tooling Section is that Mr. Kool is so discouraged with his bowling (not his dancing) that he plays pinball machines all evening long.

Congratulations to John Fisher, head of Purchasing, for being elected president of a local Lions Club.

Welcome aboard to all of our new people: Juliane Cox, Bertha Lansing, Harold Chankin, Richard MacDonald, Walter Glauser, Jocelyn Poarch, John Brown, Millicent Kemp, Diane Friedrichsen, Lauralee Dunlap, Dorothy Boothe, Margaret Sangermano, Dorothy Helfrich, Pearl Weise, Imogene Hix, Faith Peoples, Perella Crist, Phyllis Richmond, Norma Greene, William Morinville, Robert Fike, Donna Briggs, Alain Flower, Nolan Brewer, Dora Clark, Harold Marshall, Michael Bromham and Vickie Agenbroad.

OFF THE LEADWIRE

Bill O'Hara, former Upstate New York district manager in the field sales force, has been transferred to Mountain View and is now in charge of Industrial Product Sales. His section will be responsible for expanding Fairchild sales into industrial and commercial markets.

Blossomtime is here in the Santa Clara Valley, according to the San Jose Chamber of Commerce. The chamber will make available free blossom tour maps, with a San Jose State College fraternity cooperating by placing directional arrows throughout an 85-mile blossom route.

The engagement of Kathy Poncini and Gil Silva was announced recently. Kathy is Lee Swasey's secretary. Her fiance is a resident of Santa Clara and works in San Jose. Congratulations, Kathy.

Fairchild was well represented at the 1961 International Solid State Circuits Conference in Philadelphia last month. Dave Hilbiber presented a paper on "A New DC Differential Transistor Amplifier." Dave Allison, Bob Beeson and Bob Shultz presented a paper on "KMC Planar Transistors in Microwatt Logic Circuitry."

R & D LAB GAB

By Shirlee Munn

We did it again—picked another gorgeous day for a picnic at Mitchell Park. This time it was in honor of Lars Lunn (our prodigal son), who returned from Europe to visit his old working buddies. The usual salami spread and sunny skies prevailed. Lars is on his way to South America, by way of Mexico, driving his new Volvo. We all look forward to his next trip through this area.

Have you wondered whether or not we've been hiring R.N.'s to work in the lab? Actually it's just a change of uniforms. The sparkling, crisp, clinical, white nylon dresses being worn by the girls are a changeover to a lint-free atmosphere.

Expanding families this month—John Carter is proud father of number two child, Cynthia Anne, 5 lbs., 7 ozs., born Jan. 31. Brian Tighe also welcomed number two, Barbara Louise, on Feb. 1. Brian, incidentally, is no longer on swing shift and joins the early risers. Chem. Section's new man, Dan Borror, became the father of his fourth child, a boy born on Feb. 23, who will be known as David Lawrence.

We are glad to see Tudie Holt and Erma Bench back with us again. Tudie has had back trouble and Erma was recovering from an operation.

Mike Julian feels rejected! Mainly because he has been. Mike, Gary Tripp and George Santos received their notices from Selective Service—you know, the draft. They had to take their physicals as a preliminary requisite, and Mike and Gary didn't pass. Not because they are physical wrecks, but because they're both too tall. The limit is 6'6" and Mike, being 6'8¼", and Gary, being 6'7", just didn't qualify. On the other hand, it seems that George Santos is disgustingly healthy! Those who qualify will probably be in uniform within a month.

LEADWIRE

JULY 1961

One person can cause an accident hundreds are affected by it.

This booklet has been produced each employee to our safety requir and procedures. Please read it thoro keep it on hand for reference. We hav our plant as safe a place as possible your cooperation can maintain ou standards.

Your supervisor and safety engin directly interested in your safety; y encouraged and required to report discuss any unsafe condition you m counter. Prompt action will result in safety for you and your fellow work

GENERAL RULES

1. Report all injuries and accidents, ir minor ones, to your Supervisor immedi
2. Report all unsafe conditions to your Su or to the plant Safety Engineer.
3. Personal protective equipment, *i.e.* p prescription safety glasses, gloves, etc.

Summertime, 1961

Summer is here! And with the onset of warm weather, city recreation programs are in full swing, with activities designed for children from 4 to 104. The following brief highlights are from the recreation programs of San Jose, Sunnyvale, Los Altos, Mountain View, Palo Alto, and San Rafael. Each of these cities has a wide and varied recreation calendar; for more detailed information, call the following recreation department numbers: San Jose, CY 2-3141; Sunnyvale, RE 9-0531; Mountain View, YO 7-7211; Los Altos, WH 8-1491; Palo Alto, DA 3-1306; and San Rafael, GL 4-1912.

SAN JOSE

Happy Hollow, San Jose's children's playpark which opened in March, is one of the key features of the city's recreation program. Located in Kelley Park at Keyes and Senter Road, the playpark features Danny the Dragon, the Tree House, a Puppet Theater, Alice in Mirrorland, the Tower Castle, and a birthday party area.

Opened for its thirteenth year at Alum Rock Park, the "Rustic Land" camp program will be in operation until the first of September. At the camp, boys and girls live in the natural mountain setting and hike, explore, blaze trails, shoot arrows, swim, make articles from natural materials, cook over an open fire, and experience other outdoor adventures. San Jose has over 50 recreation centers open throughout the city.

SUNNYVALE

Sunnyvale's parks and playgrounds will be open all summer with supervised activities ranging from crafts to dramatics. De Anza, Fair Oaks, and Washington Parks are open from 9:30 to 5 Monday through Saturday and from noon to 5 on Sundays. Playgrounds open from 9:30 to 4 are Cherry Chase, Morse Madrone, Fairwood, Lakewood, Raynor, and Serra. Sunnyvale's 250-acre Mountain Park is located at 16900 Skyline Blvd. and is available to all Sunnyvale residents and their friends.

MOUNTAIN VIEW

Mountain View's scheduled playground program includes such events as Frontier Week, Pirate Week, Hawaii Week, and Awards Week. Playgrounds where supervised programs are in force are Benjamin Bubb School, Dana Street Playground, Fairmont and Bush Playground, Edith Landels School, Monta Loma School, Kenneth Slater School, Theuerkauf School, Varsity Park, and Whisman School.

A feature of this year's program is a Ladies Slim-Swim class for women over 18. The first hour will include rhythmic exercising, the second hour includes swimming, agility tests, volleyball, badminton, etc.

LOS ALTOS

With a summer recreation theme of "Orbiting Into Summer Fun," an eight-week program of daily playground activities, instruction classes, and special events centered around weekly themes will be offered at ten elementary school playgrounds in Los Altos. A Teen Club program will be available each afternoon at Covington School cafetorium for all 7th or 8th grade students either living in Los Altos or attending school in the Los Altos school district.

PALO ALTO

Bridge lessons, Latin American dancing class, chess club, theater group workshops, ceramics, and free movies are just a few of the offerings of the Palo Alto Recreation program for summertime, 1961.

The city's three pools—Rinconada, Wilbur, and Terman—are all open and instruction at levels for all ages is going on each day. Senior high activities include basketball, bridge, Hi-Club, golf, tennis, swimming and archery. Elementary age activities include projects in woodworking, clay, ceramics, stamp collecting, field trips, outdoor sketching and others. The summer playground program began June 26.

SAN RAFAEL

"Family Fun for '61" is the theme of the summer recreation program offered by the San Rafael Recreation and Park Department. Summer playgrounds offer a program of sports, arts and crafts, story hours, dramatics, contests and special events. A series of four family programs has been scheduled. The San Rafael and Terra Linda High School pools will be open until August 27 and each Tuesday and Thursday from 6 to 8 is family night at the pools.

Picnictime, 1961

It's "that" time again—the event of the year for Fairchild employees and their families! The annual company picnic is scheduled for Saturday, August 12, at Adobe Creek Lodge. From 12 noon to 8 p.m., the picnic will feature contests, games, swimming, dancing, food and refreshments galore with events planned for everyone from every age group. Be sure and reserve the date now so you and your family won't miss what looks like a wonderful fun day!

The following departments are handling specific parts of the picnic arrangements:

Children's games and rides	Manufacturing
Teen-age entertainment	Instrumentation
Adult entertainment	Sales
Food	Quality Assurance and Prod. Control
Beer and soda-pop	RED
Set-up	R & D
Selling tickets	Engineering
Taking tickets at the door	Materials
First Aid and Guards	Plant Engineering
Lost & Found (things & people)	Applications
Bills and statements and such	Accounting
Hosts and hostesses	Personnel
Prizes	Purchasing
Publicity	Advertising

COVER BY MELGAR

"Astro," from the new Fairchild safety brochure, goofs once in a while, but he has helped make the brochure noteworthy and enjoyable as well as informative about safety requirements and procedures. Mike Mickel, Chief Safety Engineer, reports that the brochure has been well received, not only by Fairchild employees, but by other area companies interested in conveying safety information to their employees.

New 'Rep' Program

A new concept in semiconductor marketing has been announced by Fairchild Semiconductor with the establishment of a "stocking rep" program. This is a program where manufacturer's representatives buy and maintain inventories of Fairchild's product line and operate as stocking reps for the company. The representatives receive equal price protection with industrial distributors.

Tom Bay, Fairchild marketing manager, said that the stocking rep is a combination manufacturer's rep and distributor handling only one semiconductor line. The new plan not only permits the reps to penetrate into the semiconductor market on a bigger scale, but gives Fairchild a larger market area for its products. The plan puts a larger sales force at the disposal of the manufacturer and establishes a closer contact with the engineering personnel of end users.

After only two months of operation, the program has been highly successful, according to Field Sales Manager Don Rogers. New areas are being covered and we now have sales or representative offices in major electronic centers throughout the country. Through the addition of new reps and their salesmen, over 50 personnel have been added to a sales force which can contact engineering and purchasing people. The number is expected to reach 65 by the end of the year. Rep groups were contracted based on their familiarity with their area, the size of their operation, and their familiarity with warehousing, billing, and inventory procedures. Under the contract with its representatives, only Fairchild's semiconductor line will be handled. The reps will purchase the stock from the manufacturer and will maintain inventories which will allow overnight deliveries to any place in the country.

New groups taking part in the program include S. Sterling Company, covering Michigan, Ohio, and western Pennsylvania; Engineering Services Company, covering Missouri, Kansas, and Iowa; Norvell Associates, covering Texas and Oklahoma; L. L. Schley Company covering New England and upstate New York; Angus-Sloane Associates, covering southern New Jersey, Wash-

(Continued on Page 7)

FACTS ABOUT FAIRCHILD

Meet the Management

(Fairchild Semiconductor became a division of Fairchild Camera & Instrument Corporation June 8, 1961. This is the second in a series of articles to acquaint semiconductor employees with the corporation, its management, and the various divisions and subsidiaries which form the corporation.)

The record of a company's progress is a direct reflection of the men who comprise its management. The management team at Semiconductor includes Dr. Noyce in the post of General Manager; Dr. Moore, Director, and Dr. Grinich, Associate Director, of Research and Development; Charles Sporck, Transistor Plant Manager; David Beadling, Diode Plant Manager; Tom Bay, Marketing Director, and Staff Department Heads in the areas of Administration, Accounting, Facilities, R.E.D., Industrial Relations, and Instrumentation. These men meet weekly to determine current operating policies for our Division.

This structure reflects a similar organization for the total corporation. Instead of weekly meetings, the staff of Fairchild Camera & Instrument Corporation gathers for monthly meetings to determine overall policies governing all divisions and subsidiaries. Dr. Noyce travels to Syosset, Long Island, New York, each month for these meetings as our representative.

Who are the men who form the management of Camera & Instrument?

Sherman Fairchild, founder of the corporation, is chairman of the Board of Directors. He and his associates determine the concept and direction of the corporation. As president of the corporation, John Carter is responsible for the operation of the corporation, its divisions and subsidiaries. He is directly responsible to the Board of Directors and to the stockholders. As his close associate, Richard Hodgson, executive vice-president of the corporation, acts as top advisor in corporate matters and fulfills the president's obligations during his absence.

Financial guidance for the corporation comes from the office of Vice-President and Comptroller E. S. Hill. Financial policies, forecasts, budgets, taxes, contracts, organization and procedure are administered from his department. General K. P. McNaughton maintains liaison with the Department of Defense and various branches of the military.

George J. Wade, secretary and treasurer of the corporation, has the responsibility for corporate records, financial reports, insurance programs, and banking.

James B. Moore, as corporate director of Information, is responsible for corporate policies concerning public relations and the publication and distribution of information concerning the corporation.

B. R. Hand, director of Product and Market Planning, is responsible for market surveys, and his department investigates companies which are candidates for future acquisition by the corporation.

These men and their supporting staffs form a group of 51 who aid President Carter in giving direction and guidelines to F.C.&I.

FASTEST TRANSISTOR SWITCH - - FAIRCHILD 2N709

The world's *fastest* transistor switch has been announced by Fairchild Semiconductor. The new NPN planar silicon 2N709 (FT-1310) is faster than any other switching transistor of either germanium or silicon and represents another technological "first" for the company.

The planar process allows smaller geometry since the lead attachment is over the surface of the die without shorting. Planar uniformity simplifies high performance circuitry and gives longer life, improved stability of characteristics throughout the life of the transistor, and greater reliability. The ultra-fast saturating switch will find its most useful application in computer circuits.

Pertinent characteristics of the new device include the following: The τ_s charge storage time constant has a maximum of 6 nanoseconds with a typical of 3 ns. t_{d+r} turn on time ($V_{BE\ (O)} = 1.0$ volts) has a max of 15 ns. and a typical of 6.0 ns. t_{s+f} turn-off time has a 15 ns. maximum with an 8.0 ns. typical. f_T gain-bandwidth product ($f = 100$ mc) has a typical of 800 mc.

FIRE BRIGADERS HONORED

Fairchild Semiconductor honored its volunteer fire brigade at a dinner last month at Sabella's restaurant in Mountain View.

The brigade, which was formed last November, recently completed an intensive 2½-month fire-fighting course under the direction of the Mountain View Fire Department. The course, under the direction of Assistant Fire Chief Byron Chaney and Captain Louis Christensen, was the first to be given to industrial volunteer brigades in the area, according to Fire Chief Leslie Coon. The volunteers met twice a week for instruction and drills and will continue to meet once a month for a refresher course and further training.

Jim Stokes, Fairchild's Plant Protection Officer, was chairman of the dinner which featured a film entitled "Our Obligation" dealing with fire safety and prevention. Attending the dinner, in addition to brigade members and company officials, were Mayor Charles Moore, City Manager John O'Halloran, and members of both the Fire and Police Departments of Mountain View.

Officers of Fairchild's brigade include: Fire Chief Ralph Fitzgerald; Fire Marshal Phil Simpson; and Brigade Captains P. Wilson, D. Johnson, R. Parker, G. Wiggins, B. Simonsen and B. Person. The brigades function at the Whisman Road plant and the Stierlin Road facility.

Fairchild's volunteer fire brigade members and officers at a dinner held in their honor. Left to right, front row: Bert Person, Norm Nicolson, Ed Mundweller, Frank Ramos, Jim Newton, Sam Luppo and Pat Wilson; middle row: Bill Simonsen, Elof Carlson, Bert Christensen, George Mullnix, Dick Parker, Murray Siegel, Mike Starr and Ray Reposa; back row: Emery McGehee, Courtney Hart, Walt Faleschini, Ralph Fitzgerald, Jim Stokes, George Reh, Dan Johnson, Tom Moore, Bill Bennett and Frank Walker.

Waterskiers!

On the week-end of August 4-6 Fairchild waterskiers will venture to Clear Lake for a stay at the lovely Clear Lake Country Club. They will enjoy swimming in a heated pool, horseback riding, golfing, and of course water-skiing. The "package" includes two nights' accommodations, two deluxe breakfasts, a festive Saturday night dinner and party including refreshments and entertainment. Dancing to live music in the hotel ballroom is available also. The whole week-end is only $17.00. Water-ski boats are not included in this price, however. Group members can bring their own boats and there is a launching ramp two blocks from the hotel. Individuals can charter boats with or without driver at standard rates. Early sign-ups are requested. See Mary Grigsby at the Whisman Road plant, or call extension 453.

Rec Council Busy

The recreation council has had a busy 1961 acknowledging many new organizations at Fairchild with their support. The following projects have been represented in the council and have received financial aid: Skiers Spaghetti Feed; Basketball Shirts and Entry Fee (Girls); Softball Equipment (Girls); "B" Softball Equipment and Uniforms; "B" Softball Entry Fee; Interdepartment Softball Trophy; Square Dance Club; Table Tennis Equipment; Ping Pong Trophies; New Ping Pong Paddles; Golf Club Fee; Golf Team Caps; Bowling Trophies; Cricket Equipment: Total $1,310.76. The council also contributes a large amount towards the company picnic, and plans have been designed for a park adjacent to the new plant which the council has initiated and supported.

(Continued on Page 5)

Your Credit Union

By Jerry Groux and Jay Cockrum

We should start by wishing the Credit Union a happy birthday, because the organization is a year old this month. Looking over the past year we find that we learned a great deal by experience. Through the help of officers and members we overcame many obstacles. Through group efforts, routines and procedures have become organized and we are able to offer good service to all employees interested in joining the Credit Union and to those who are already saving with the group.

As Brice Williams put it when he made his federal audit, our big problem was in growth. We grew so fast that keeping up with administrative details was a tremendous task. Many committees worked long and hard to help the CU grow and we appreciate the patience and assistance of our members.

We hope that this year will be one of growth. We have pledged ourselves an increased membership and an increase in our share dollar. At present our total paid shares are $85,417.29. We are going to make a major effort to bring this total to $220,000 by the end of the year. Save with the Credit Union and watch your savings grow.

With Credit Union savings, not only do you get a high return on your money on yearly dividends, but you have insurance on any money saved. In our next article we will publish a comparison for members—in the meantime, check your Credit Union's many advantages.

Some of the questions we were asked to answer in this issue are:

Q. Can I draw money from my shares for my vacation?

A. Yes, you may.

Q. How long would this loan take?

A. If you have enough shares to cover the loan, and pledge them as collateral, there would be no wait.

Q. How much insurance do I have in the Credit Union?

A. In your Credit Union, you have one dollar insurance for each dollar you have saved. So, if you have $500 saved, you have $500 insurance or $1,000 in the event of death, plus any loan balance which is automatically paid off.

Field Salesmen

Fred W. Lawrence has been named District Sales Manager for the Fairchild field sales office in Orlando, Florida. He served four years with the U.S. Marine Corps and is a graduate of the Newark College of Engineering where he received a BSEE. Lawrence was formerly an applications engineer with General Electric, Aircraft Electric Equipment Division, in Virginia and prior to joining Fairchild was a field sales engineer for Transitron. He holds membership in four honorary electronic fraternities and has published a paper on electrical systems in the Navy Journal. He and his wife, Patricia Ann, have a son Michael James, 7, and a daughter Kim Ada, 3.

Joseph Obot, 30, joined Fairchild Semiconductor's field sales office in Chicago as sales engineer. Born in Milwaukee, he attended Marquette University where he received a BME in 1952 and BEE in 1957. Obot served as a First Lieutenant with the U.S. Air Force for four years and was formerly with A.C. Spark Plug where he served in various engineering and sales capacities for four years. He is a member of Sigma Phi Delta, national engineering fraternity, and Eta Kappa Nu, national honorary electrical fraternity. Obot and his wife, Mary Ann, have three children, James Joseph, Deborah Anne, and Thomas Allan.

LEADWIRE

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MOUNTAIN VIEW—PALO ALTO—SAN RAFAEL
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NEWS STAFF

Editor ..... Judy Machanik
Sports Editor ..... Dick McElroy
Columnists and Reporters ..... Barbara Hock, Mary Grigsby, Shirlee Munn, Niki Cramer and Ann Schaefer

Telettra Exchange Engineer at R & D Lab

BY SHIRLEE MUNN

Paolo Mastalli, young exchange engineer from Italy, has been with the Fairchild R & D Lab for two months. He will remain another two months before returning to Italy and Telettra Company, with whom he has been associated for the past 2½ years.

Paolo was born in Livorno, Italy. He attended University of Padova, near Venice, where he studied for a degree in E.E. He also did graduate work at Polytech College in Milan, leaving his studies in 1959. At that time he joined Telettra as an engineer in their Microwave Laboratory. Similarly, he is working with Dr. Solt in the Microwave Section at R & D.

Franco Forlani (left) and Paolo Mastalli, exchange engineers from Italy, at work in the R & D lab.

Paolo shares an apartment with Franco Forlani, exchange engineer from Societa Generale Semiconduttori, who makes the spaghetti. (Paolo did not comment as to the quality.) Paolo respectfully admitted the Italian restaurants here are not quite authentic in that there is a mixing of American and Italian food. He was quick to comment, though, that there are certainly many excellent American restaurants.

His impressions of California are interesting. When asked what he noticed first, he replied, "A lot of beautiful women!"—secondly, a "more easy way of life." He elaborated further that human relationships are different, habits of society are not the same. This lends itself to the fact that the working relationships with people here are a little easier, on a more cooperative and relaxed level.

After seeing our scenery, Paolo commented that it is similar to that of Italy, with the seashore and the mountains. Speaking of trees, and excluding the redwood, Paolo has found only one here that is not also in Italy, that being the eucalyptus.

FC&I Announces New Division

Formation of a new Business Machines Division for the manufacture and marketing of a complete line of paper handling equipment was announced recently by John Carter, President of Fairchild Camera & Instrument Corporation. The new operation will be headquartered in Cleveland, Ohio.

Product lines will include postage meters, postal scales, folding machines, collators, inserters, and other types of mail-room equipment. First products are scheduled to reach the market by September, 1961.

Carter stated: "We have been studying this 7½-billion-dollar market for business machines for quite some time and have been developing and acquiring some unique and proprietary products for which we think there is a ready market. Formation of this new Division, plans for which were announced to shareholders in May, is in line with Fairchild's long-range expansion program into non-military markets."

REC COUNCIL

(Continued from Page 4)

The recreation council would like to inform Fairchild employees and organizations that recreation insurance is available to them only if they register with the council formally. Chairman of each organization should contact Jack Shriber, Tom Regul, Joe McCoy, or Mary Grigsby for a form which would insure them of coverage while participating in a recognized company activity. Any organization requesting funds is automatically recognized by the council.

Diode Spring Dance a Big Success

By Lee Stewart

The Spring Dance has come and gone and everything went off without too many troubles—except that the photographer didn't show up to immortalize us all! The evening was perfect, warm and balmy, the men ever so handsome and the gals, of course, beautiful—all of them! That really was the Elks' Hall, although the decorating committee had transformed it into what looked like something out of the old Sweet's Ballroom era. (Probably remembered by the old-time Bay Areans only.) It was complete with balloons, crepe paper, revolving lights, and all.

Jay Dee acted as master of ceremonies without the assist of his supposed-to-be partner in crime, Jim Nicholas, who was suddenly taken mysteriously ill. Those responsible for the fine decorations were Chuck Gunther, Len Walker, Peggy Ritter, Roger Hartgraves, Colleen Walker, Bobbie Fox, Jay Dee, Lois McIvor and Lee Stewart.

High-spot of the evening was the dance contest. There were three categories. Ballroom was won by Delio Luna and Peggy Ritter doing a medley of waltzes—this should be good for the attendance in Delio's school of dance. The second category was "Swing" and was won hands down by Lee Rogers and Bobbie Fox. The last one was "Latin." The judges had a hard time agreeing, but finally decided on Chuck Gunther and his wife, Joan. The judges were Jack Yelverton, Lou Lyons, and Ann King. The door prize, a transistor radio, was won by Chuck Gunther—what are you, some sort of a cheat? Our plant manager's wife, Barbara Beadling, drew the winning ticket and presented the prize.

Maxine Mendonsa looked striking in yellow chiffon, complete with matching head-band. Vickie Van Zandt was outstanding in a floating pink cloud of something. Bobbie Fox was in a white sheath with huge ruffled sleeves. Mrs. Yost was stunning in a black and white print with side-swept hairdo. An estimated 295 were in attendance, including the Don Rogerses and Tom Bays, up from Mountain View.

DIODE WOMEN'S SOFTBALL LEAGUE

About 25 gals have signed up for the women's softball league. Practices are being held at the Bernard Hoffman Elementary School in Terra Linda on Tuesday and Thursday evenings at 7 p.m. Our mighty team is being managed by Roger Murray and Dean Mack, with assistance of Coaches Len Walker and Lee Rogers. The team is looking forward to having a field directly behind our plant and, with a bit more practice under their belts, will challenge ol' Mountain View to a game. You'd better start getting prepared down there! Some of the gals signed up are Dottie Boothe, Helen Stapelton, Jean Bianchi, Sharon Seeley, Marge Rollins, Joey Poarch, Bobbie Banks, Jean Terwilligar, Ester Sanchez, Cindy Smith, Sonia Wasilewski, Judy Anderson, Lee Stewart, Bobbie Fox, Florence Elijah, Pat Samuels, Donna Briggs, Myrla Radley, Ann King, Marge Williams, and Gerry De La Montanya. Anyone interested is invited to come on out. It's not really too strenuous, and Bobbie Fox and Dottie Boothe both report that their fingers are healing nicely. Pictured are, standing: Marge Rollins, Helen Stapelton; pitching, Judy Anderson; kneeling, left to right: Gerry De La Montanya, Jean Terwilligar, Dottie Boothe, Donna Briggs, Marge Williams, Dodie Cooper, Bobbie Fox, Ester Sanchez, Pat Samuels and Joey Poarch.

Diode Bowlers In Close Contest

As of the middle of June, the first four bowling teams found themselves only one game apart. Team 1, Larry Pendergrass, Dean Mack, Mary Busolo, Bobbie Fox, and Lee Rogers, is in first place. Norm Wardman had individual high game for the men of 209 and Bobbie Fox had women's high game of 177. The big question seems to be whether Herb Bartholomew can retain his average after his honeymoon! First high team, three games, was team 10, Margaret Sangermano, Chuck Clark, Karole Henslee, Tony Bachmann, and Walt Glauser. Team 10 also had first high team game of 802.

Picnic August 6

Plans are now being formulated for the Diode company picnic to be held this year on August 6 at Morton's Hot Springs in Glen Ellen, Sonoma County. The picnic will feature food and grog, swimming, baseball, volleyball and badminton, and we're hoping for another bingo game as successful as last year's. There will be lots of prizes for the kids. Tickets at 25 cents each for those under 12 years of age and 50 cents for all others will be available from the committee members pictured: Top, Cynthia Smith, Dottie Boothe, Joey Poarch, Margie Rollins, and Betty Kerr. Bottom: Gerry De La Montanya, Chuck Gunther, Sonia Wasilewski, and Margie Williams. See you and your family there!

Section Head

Robert W. Busch has joined the Inspection Section of the Quality Assurance Department in San Rafael. Bob comes to Diode from Mack Trucks, Inc., the engine, transmission and carrier plant in Plainfield, New Jersey. He has a B.S. from Penn State which he received in 1951, is married, and has three children.

Arnolde Wins Go-Kart Trophy

Bob Arnolde (below) sits by the trophy he won by garnering the highest number of points in the Santa Clara Valley Go-Kart Club. He scored 5,637 points, 10 above the second-place winner. Bob's trophy is 53 inches in length and is the newest addition to the many trophies won by our kart team. When Bob's kart broke down he used his wife's, which brought him good luck and started him on the way to high points. He has held consistent first, second and third places with the majority of points scored in the win column. The whole club competed in this run for the trophy, with Jack Allen and Bill Whittington playing key roles in Bob's victory. They defeated the runner-up in their class, enabling Bob to keep ahead in points and go on to the victory position.

'Rep' Program

(Continued from Page 3)

ington, D.C., east Pennsylvania, Maryland, and northern Virginia; B. B. Taylor Company, covering Manhattan New York and northern New Jersey; the G. S. Marshall Company, covering southern California and Arizona; Weatherbie Industrial Electronics, Inc., covering northern California; and Samuel M. Stroum Company, covering Oregon and Washington.

One indication of the immediate success of the new program is the fact that the first rep groups on the program, G. S. Marshall and Weatherbie Industrial Electronics, Inc., have already added new sales personnel to handle the Fairchild line.

Fairchild's girls softball team poses in new uniforms. They are in the process of forming a league of other area girls teams and have been playing practice games the past few weeks. Pictured left to right are, front row: Lynn Flowers, center fielder, Small Geometry; Diane Lawler, first base, Production; Juanita Warrick, pitcher, Applications; back row: Mary Guidicatti, second base, Small Geometry; Marilyn Westlake, left field, Small Geometry; Linda Tolliver, shortstop, Process Development; Frank Law, coach, Machine Shop; Wanda Brown, catcher, Process Development; Mary Ann Landrum, third base, Marketing; Bert Sistrumk, right field, R & D. Not pictured are Tex Yarber, Process Development; Carman Navarette, NPN Planar; Pat Soulet, Small Geometry, and Coach Jerry Mullen, Design Engineering.

Golfers Vie for Weekly Prizes

Fairchild's golf league is well under way with prizes presented each week to the best golfers. Winners for the past three weeks have been kept to a rather exclusive group and include Gary Tripp (2-time winner), Ernie Yim (3-time winner), George Lao (2-time winner), Don McCall (2-time winner). Those more recently allowed into this group include Ken Sievers, Lloyd Kohn and Ken Goodale. The rest of the 32 team players and alternates just have fun!

Tied for first place are the teams of Leo Lujan-Bob Quiel and Hank Wigton-Ernie Yim. Half a game behind these two teams are Sue Chisholm-Ethel Trautwein.

Two new Rules Committee members have been appointed—Ethel Trautwein, vice-president, and George Parker, treasurer.

The league is still open to new people, pros or novices. Just contact any member of the Rules Committee or come to Sunken Gardens on Thursdays after work and sign up!

SOFTBALL

By Dick McElroy

After getting off to a great start in the first half of the season, the Fairchild softball team seems to have "fizzled out." It is hard to understand how a team can score 14 runs and still lose a ball game, but this happened against Hiller Recreation Club, with the final score 17-14, Hiller winning. Losing the game put Fairchild in a three-way tie for first along with Palm Plaza and Outside at the Inside. Fairchild lost to Outside at the Inside 4-2 and this seemed to deflate the team considerably. The team then lost to Varian Associates, with the winning run being walked in in the seventh and final inning—and Varian won 7-6. Fairchild then lost to Sylvania 9-8 in an extra-inning game.

Confusion seems to reign on the field with wild pitches, passed balls, errors, and generally poor infielding. If Fairchild's team intends to make a better showing it should pick itself up by the bootstraps and play a better brand of ball—or else the team will be replaced by the women's team, which is winning a goodly percentage of its games!

ALL AROUND THE PLANT

By Mary Grigsby

Fairchild received an unusual letter from a University of Redlands biology student who requested assistance in locating Desert Big Horn Sheep. Wishing to determine what these creatures do during the year, but unable to find them, the student requested from Fairchild a small, light, long-lasting (six months) and powerful 10-watt output transistor transmitter which could be designed to attach to the animals. With much consideration, a reply was sent informing the student that the suggested "10-watt power level you are suggesting would require 150 12-volt automobile batteries; this might be more suitable for locating elephants"—and thanked him kindly for his letter!

R&D LAB GAB

By Shirlee Munn

Parents-of-the-Month: Dick Crippen and wife qualified when baby girl Jill arrived June 7. Dr. Irv Solt joined the ranks when his wife presented him with their first-born, a girl, on June 28.

Parent-to-be-of-the-Month: Kathleen Muray retired to domesticity to await the birth of her second child. Kathleen was honored at two luncheon showers before she left.

Book-of-the-Month: The increased business in the R & D library is not a new book. Neither is it a new magazine or journal. It's Margie Fisher, cute, blonde, and here for the summer before becoming a freshman at San Jose State. Margie is the daughter of Marge Fisher, Jack Ehlers' secretary in Mountain View. We hope Margie enjoys her temporary employment with us as much as we enjoy having her. Speaking of the library, Elwynne Trepel received her Ph.T. degree (putting-hubby-through) when husband Tony graduated from Stanford.

Returned-Employee-of-the-Month: Beware! Dick Dittman is back! After spending the academic year at Notre Dame, Dick is back with us again for the summer. He said hello to his old friends at an R & D party on the beach at Natural Bridges State Park at Santa Cruz, which was attended by some fifty people!

Bride-of-the-Month: Claire Mallet, Physics Section, came back to work recently as Mrs. Eddie Ossig. She and Eddie were married June 10 and spent their honeymoon at Castlewood Country Club and Lake Tahoe.

Gag-of-the-Month (instigated, of course, by Mike Julian!): The company of Rainier Ale started a gag-advertising campaign, pushing the repeal of the 19th amendment. Appealing to its masculine followers, Rainier encouraged them to send for literature, sign a petition, and receive large badges reading "Repeal the 19th Amendment." So Mike (laugh-a-minute) decided to cooperate. In writing to the company, he started his letter with "Dear Mr. Ale." Sure enuff, petition was signed, literature and badges received. Most male lab coats (and some female) were sporting the badges. Charles Vorst was noted periodically covering his badge with his hand. When questioned about this, he stated he did that whenever a pretty girl walked by. A big laugh was had by all when, at 5 o'clock recently, Big Julian was noted surreptitiously placing the badge in his desk drawer before going home to Linda! Rest assured, the girls will still be at the polls next election day!

The June issue of *Semiconductor Products* featured the second part of a technical article by Jack Kabell and Vic Grinich of R & D titled, "Zener Diode Circuits for Stable Transistor Biasing."

Accounting's Frank Dodge and wife left for Europe June 30 for a month. Dolores Simoes had a marriage proposal the other night but the boy friend had a difficult time making a decision between a new car and her. Bill Johnson got a ticket for everything BUT speeding and that *is* a switch! He lacked a license and his carriage lacked lights—in fact, he's not even sure to whom the car belongs!

Recent additions to the ranks of Mrs. include Emma Harell, Leona Goring and Beverly Berridge. We're losing Helen Ott (Production Control), who is moving to Seoul, Korea, with her husband, who will be stationed there. If you want to buy furniture, see OTT's flea market.

Rudy Gutierrez made good use of his safety training when his baby swallowed 17 aspirin tablets and he administered proper treatment. He also gave first aid to Fairchild's maimed softball players, one being Ralph Ulrich (Materials), who slid into home on his shoulder—good trick, Ralph!

"Sing Along with US," headed by Cecil Harris, Tom Moore, and Vincente Cruz, is a new club being formed which has had outstanding response... about 75 members so far. The group will be supervised by a hired group leader. Wait'll Mitch hears us! See Mr. Cruz regarding signups if you wish to join this community sing.

Ray Wollesen and Gordon Morrison are going into our Sales Department, much to the disappointment of their present department (all gals, natch!).

R.E.D Leads

By Niki Cramer and Ann Schaefer

Signs of summer are really in the air as the parade of vacationers begins at R.E.D. Sue McGuire just returned from a most enjoyable vacation in Wisconsin. Linda Julian spent a week in Southern California, including two days at Disneyland—toboggan riding, no less! Two other vacationers are Frank Durand, visiting relatives in Pasco, Washington, and Bill Swintek, eying the female population in Cleveland, Ohio.

Many thanks to Stan Veith and those who helped him replace the hideous red inventory tags... no more stockings snagged, girls!

Our congratulations to the R.E.D. baseball team. After losing the first game, R.E.D. replayed the same team for double or nothing and won both the game and the beer! An additional victory was added last week, making our team undefeated after the first defeat! Among the outstanding R.E.D. players were Clarence Dutra, who hit a grand slam home run, and Herb Ginsberg, who hit a pinch-hit homer.

Have you heard Sam Arnold's new motto? ..."No smiling on company time!" Really?

Among the R.E.D. battle-scarred are John Calhoun, with a gravel-scarred face, and Dick Fellows, with a black eye. Dick says he ran into Ken Hills' elbow...?

Roll Out the Red Carpet

Welcome to newcomers at the various Peninsula facilities: Ann Rich, Mktg., typist; Joseph Obot, Mktg., engineer; George Vashel, Mfg., engr.; Mike Doherty, Mktg., messenger; Fred Lawrence, Mktg., district sales manager; James Weiser, Mktg., assistant advertising manager; Carmen Caldwell, Industrial Relations, clerk; Dolores Brasch, Mfg., assembler, rehire.

SOME DATA FROM DIODE

By Barbara Hock

At the recent management meeting held at Dominic's in San Rafael, Diode Plant Manager David Beadling reviewed changes and progress during the past three months and objectives for the last half of the year. He noted that the month of June set a sales record.

Regarding our progress in some of the major military programs, Beadling announced that Dick MacDonald, Industrial Engineering, will be working under Don Yost to coordinate our effort to qualify Fairchild's diodes in the MINUTEMAN missile program.

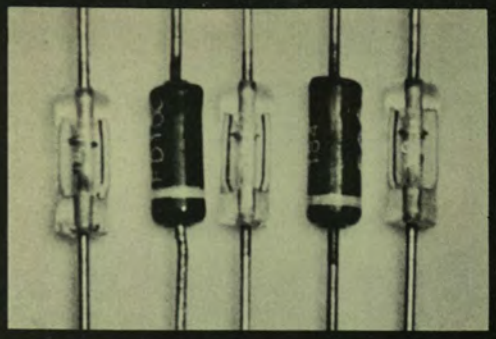
Robert Busch, section head of Q/A Inspection, and Bart Pontecorvo, safety and training engineer, are now working up a training program for all of the inspectors in Q/A. This program is designed to give the girls a better understanding of basic electronics and the functions of the diode.

Formal signing up for the Savings Bond Drive has come to an end with the enrollment of some 45 employees. Just remember that anyone wishing to have deductions made from his paycheck for Savings Bonds can sign up at any time in the Personnel Department.

Tony Falworth has recently joined us as a senior engineer in Basil Weir's Development Engineering group. Tony, a graduate of University of Durham in England, comes to us from Transitron in Wakefield, Mass. Our new secretary in Tooling and Manufacturing Engineering is Sharon Manor. Sharon replaces another redhead, Jean Gainer, who left us for a husband and homemaking. Production Control is happy to have Miss Joan Striano in its group. Joan was formerly in the Air Force, stationed at Hamilton AFB.... Only one marriage—the Bartholomews—and no new babies, although there are several due, including Carla Clements, Q/A; and Diane Brock, Assembly. ... Test and Finish reports, via Nancy Walker, that they are losing three gals: Elsie Sweet and her husband are off to Germany for three years with the Air Force; Carlene Carlson and her husband have bought a house in Willows, where he will be the new superintendent of Glenn County High School District—Carlene has signed a contract as the school nurse in Willows Elementary School; Mickey O'Donnell and her husband will be leaving some time in August for Okinawa.

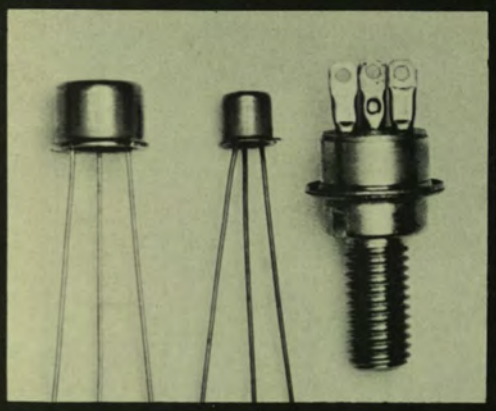
R.E.D. is sorry to lose three employees: Jeri Hougland, Kitty Waters, and Jack Hires. Jack has gone back to his ranch in Missouri... just had to do some catfishing! Jim Prichard has replaced him.

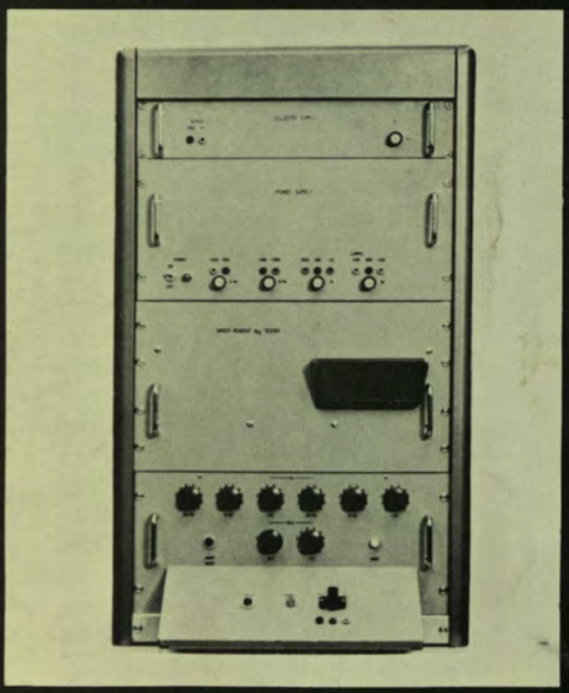
R.E.D. riddle: portions of lunches which mysteriously disappear from the IBM room. ... Could it be a two-legged mouse?

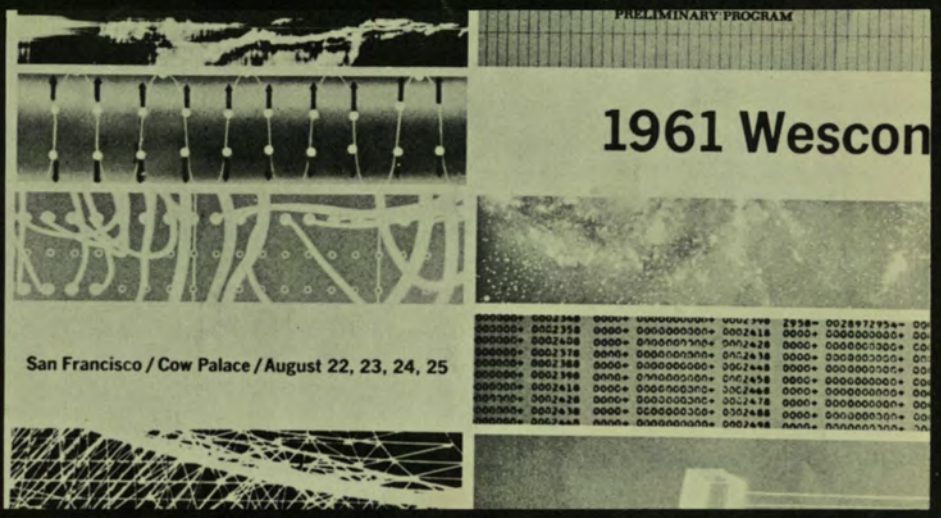


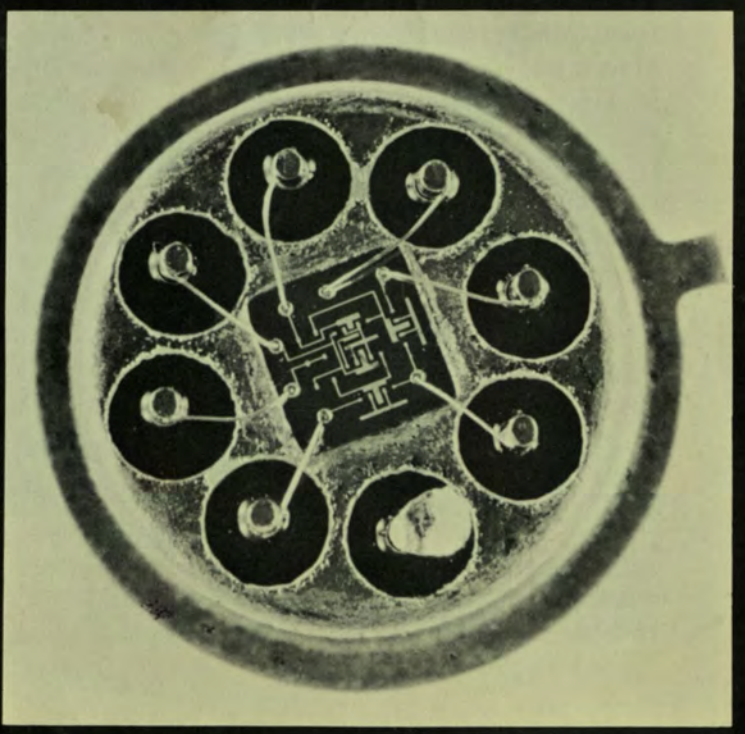
LEADWIRE

AUGUST 1961









WESCON

The annual Western Electronic Show and Convention (WESCON) will be held in San Francisco's Cow Palace from August 22 through August 25. The technical program, forecast as "the strongest ever held in San Francisco," features 120 authors and nearly as many critique-panel members covering the range of major engineering disciplines. The latest in hardware achievements will require nearly 1200 booths for display. Special exhibit areas have been set aside for distributor-marketed products, production and materials, and publishers.

Features of WESCON, in addition to its technical program and exhibits, are the all-industry party at the Fairmont Hotel August 22, the WESCON banquet August 24 with featured speaker Dr. Lloyd V. Berkner, international president of the IRE, the Future Engineers Show, Industrial Design Awards, and an outstanding program for women at WESCON.

FAIRCHILD PEOPLE AND PRODUCTS AT WESCON

Once again, Fairchild personnel and products will take a major place in the WESCON program. Dr. Victor Grinich, associate director of our R & D Laboratory, will be session chairman and organizer for Session 22, "Circuit Design for Extending Performance." The session will be held Thursday, August 24, in Room B from 10 a.m. to 12:30 p.m. Panelists for the session, sponsored by the Professional Group on Circuit Theory, are Frank A. Brand, U.S. Army Signal Corps; Marion E. Hines, Microwave Associates; and George L. Matthaei, Stanford Research Institute.

Dr. Gordon Moore, director of our R & D Laboratory, is session chairman and organizer for Session 32, "Solid State Devices II," to be held Friday, August 25, in Room B from 10 a.m. to 12:30 p.m. The session is sponsored by the Professional Group on Electron Devices. Papers will be discussed by Dr. Howard H. Loar, Bell Labs; Dr. Robert L. Pritchard, Texas Instruments; and Dr. I. Arnold Lesk, Motorola Semiconductor.

In this session on solid states devices, C. T. Sah, a senior member of R & D's technical staff, will present a paper on "A New Semiconductor Tetrode, the Surface-Potential Controlled Transistor." Dr. Sah, who has been with Fairchild since 1959, received B.S. degrees in engineering physics and electrical engineering in 1953 from University of Illinois and M.S. and Ph.D. degrees, respectively, in 1954 and 1956 from Stanford.

FAIRCHILD BOOTH—814 & 816

Fairchild's 20-foot display booth will feature the 2N709, the world's fastest transistor switch recently announced by Fairchild, and our three micrologic elements now commercially available—the flip-flop, half-shift register and gate.

New products to be announced are the 2N2060, a differential amplifier; the 2N2049, low-noise transistor; and the TA6200, a high-current transistor. Our line of diffused silicon industrial transistors will receive major attention in the booth display. Twelve 2N numbers have been assigned our line of industrial devices and one of these will be officially announced at WESCON.

Over 200 types of silicon planar diodes, both computer and general purpose types, will be featured, as will transistor/diode multiples. There will be a static display of the manufacturing sequence of a micrologic element, and the Beta Tester, designed, developed and produced by our Instrumentation Department, will be operating at the booth.

DR. C. T. SAH
WESCON PAPER

New Micrologic Units Available

Two additional micrologic elements—the half-shift register and a gate—are now in production at Fairchild Semiconductor. The first element of the micrologic family, the flip-flop, was made available in March.

Using the three elements now available, it is possible to build a complete logic and control section of a digital computer. The addition of the final three elements later this year will make possible further reductions in size. Still to be added to the six-element set of miniature digital building blocks are the buffer, a half adder and a counter adapter.

The gate element has a supply voltage of 3v dc ± 30 percent, power dissipation of 15 mw typical and average delay time of 50 nsec.

The half-shift register has the same supply voltage as the gate; however, dissipation is 75 mw typical and average delay is 100 nsec. Both units operate in the 55°C #1 to 125°C range.

COVER BY MELGAR

WESCON . . . people, products and places. Reading around counter-clockwise, our composite cover shows diodes, transistors, the Beta tester, people at a WESCON booth, an unencapsulated micrologic half-shift register, the WESCON program booklet, a San Francisco cable car (one of WESCON'S symbols this year) and—the little box in the middle—a new special assembly. (See adjacent story.)

Boeing Orders FS Transistors

The high reliability of Fairchild transistors has once again been recognized with an order from the Boeing Company, Seattle, to supply transistors for the electronic components of the Air Force MINUTEMAN weapon system. Boeing, an associate prime contractor for the ICBM, is responsible for the assembly of the missile and for the development and manufacture of the ground support equipment.

The contract is valued in excess of one-half million dollars. Three of our MINUTEMAN transistor types will be supplied to Boeing between now and February, 1962. Devices to be supplied are the 501M, 701M and 850M.

This newest MINUTEMAN contract is in addition to contracts which Fairchild has with Autonetics, a division of North American Aviation, Inc., which is associate prime contractor for the inertial guidance and flight control systems of the missile.

Fairchild has successfully completed five phases of the program for testing and supplying high reliability transistors for MINUTEMAN. Each phase has involved environmental testing, storage life testing and operating life testing, with each succeeding phase requiring higher levels of reliability than the previous phase. Fairchild has met this increasing reliability requirement and is now testing to qualify for Phase 6 for future shipment to Autonetics.

Fairchild personnel concerned with the program feel it has been highly successful to date and note that the recent acceptance of the Planar devices by Autonetics and the new Boeing order are reflections of our outstanding performance.

2N957 Announced

A new fast-switching silicon industrial transistor, the 2N957, is available from Fairchild Semiconductor, according to Bill O'Hara, Fairchild's industrial products marketing manager.

Designed for use in VHF and IF amplifiers, the 2N957 has a voltage rating of 40 volts and a power rating of 800 milliwatts. Guaranteed minimum dc beta of the 2N957 is 45; minimum ac beta at 1 mc is 40 and at 100 mc is 2. The device is packaged in a JEDEC TO-18 configuration.

FACTS ABOUT FAIRCHILD

Defense Products Division

(This is the third in a series of articles designed to acquaint Semiconductor employees with Fairchild Camera & Instrument Corporation, its subsidiaries and divisions.)

The Defense Products Division designs and produces specialized, high-performance electro-optical systems and instruments for all branches of the armed forces, government agencies and major defense contracts. DPD also designs, develops and produces data-acquisition, processing and display systems, communication and special radar systems, electronic control systems, precision optical subsystems, ground support equipment and ordnance products. The division's engineering, research and production facilities encompass over 400,000 square feet of space at Syosset, Long Island; Clifton, New Jersey; and Los Angeles, California. Its personnel now total close to 2,000.

Administrative offices, engineering, research, development, environmental test and manufacturing facilities are located in Syosset. The Systems Management and Engineering Department, in its own building, is staffed by more than 500 engineers and scientists backed by skilled technicians.

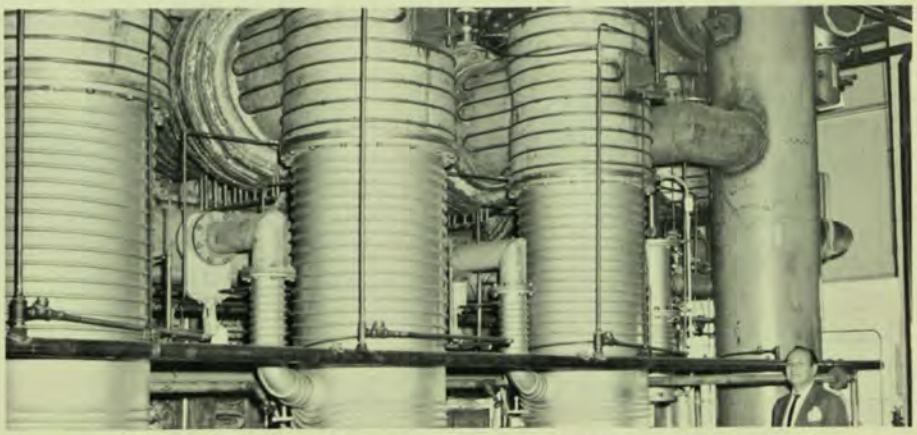
The DPD engineering team has performed assignments ranging from feasibility studies to complete systems management programs. Complex systems developed by DPD demand combined application of optics, electronics, mechanics, servo-mechanisms and computer techniques. The division has also developed and produced specialized programming, fusing, safety and arming devices which are playing important roles in a number of current missile, satellite and space programs. An Advanced Studies Group is making substantial contributions in projecting the division's equipment and technology into the aerospace environment.

In 1959, the division established a Basic Research Laboratory and a Photographic Processing Laboratory. The success of research efforts has resulted in further expansion of these facilities for conducting new studies.

Du Mont Military Electronics was integrated into the division in 1960. With the addition of new skills and experience, the division acquired increased competence in electronic reconnaissance and imaging systems, military television, communications, special radar and large area display systems and check-out equipment. The Du Mont Department's engineering team is composed of Reconnaissance, Data and Display, Test Equipment, Communications and Radar, Product Design and Advanced Development Laboratories.

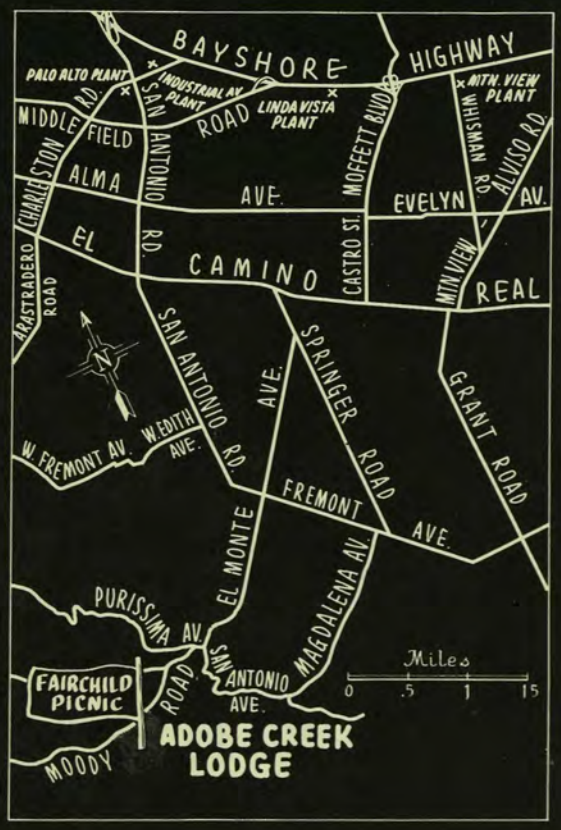
The Du Mont Military Electronics Department, which is equipped with an IBM 1620 Data-Processing System, maintains its own environmental testing facilities and manufactures its equipment in a separate plant of over 129,000 square feet.

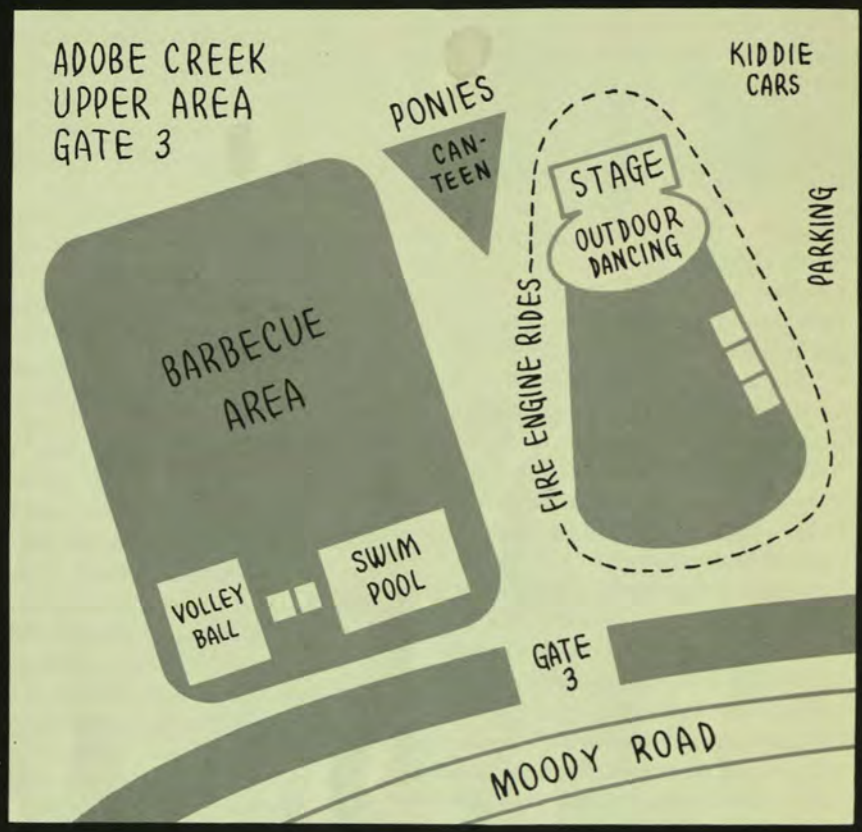
With the acquisition of Curtis Laboratories, Inc., in April of this year, the division expanded its operations to include the design and production of complex and highly precise optical subsystems.



Huge size of Defense Products Division's Space Environments Laboratory's 2800-cubic-foot capacity altitude-temperature chamber is emphasized by three of its six 32-inch high-vacuum pumps. The new $2 million test facility, which is in the final stages of completion, can test equipment ranging from infrared sensors and photographic systems to complete satellites at altitudes up to 200 miles and at temperatures from —100°F to +200°F.

PICNIC--Aug.12





Cold beer, New York cut steaks, live music for dancing, a new and exciting folk-singing group, a trip to Reno for two, hot dogs all day, an egg-throwing contest, a volleyball tournament and all-day events for the children are just a few of the many features of the company picnic to be held this Saturday, August 12, at Adobe Creek Lodge in Los Altos.

DOOR PRIZE—TRIP TO RENO

The door prize this year will be a two-day trip to Reno. Fairchild employees will be eligible for the trip by submitting their ticket stubs (with their names on them) at the gate. THE DRAWING WILL BE HELD AT 5:15. The winners will leave on a Friday night and return on Sunday, having spent two exciting days at the Riverside Hotel. The trip includes dinners and breakfasts, free champagne and cocktails and a special guide to escort the winners to the famous and glittering night spots in Reno.

PICNIC SCHEDULE & EVENTS

There will be food and drink in abundance at the picnic. Hot dogs will be served all day, along with soda pop and beer. From 2:30 to 5 steak dinners will be served with all the trimmings—salad. French bread, potato salad. barbecue-baked beans and ice cream.

ADULT ENTERTAINMENT

Volleyball Tournament
Between Departments: 1:30 to 4:15
Egg-Throwing Contest and
Mixed Games: 4:15 to 5
Door prize drawing 5:15
Entertainment 5:30
Dance Exhibition—Louie Kloeth
Folk-Singing Duo—Joe and Eddy
Dancing 7

TEEN-AGE ENTERTAINMENT

Swimming During the Afternoon
Rock and Roll Band, "The Jesters,"
7 p.m. on stage for dancing

CHILDREN'S EVENTS AND ENTERTAINMENT

For children from 6 months to 5 years, "entertainment" will be provided and bottle-warming facilities will be available. Two qualified people from the Mountain View Recreation Department will be on hand to keep an eye on the children.

Fire Engines,
Ponies and Racing Cars....Noon to 4
Roving Clown,
Complete With Candy.....Noon to 3
Puppet Show on Stage....1:30 and 3:30
Magic Show.....2:30
Balloon Man.....4:30
Games and Sports....1, 2, 3 and 4 p.m. on the field area

The pool will be available to Fairchild picnickers during the afternoon.

Mary Ann Wyckoff To New Sales Job

Bob Dugan, transistor marketing manager, recently announced a promotion that should be an incentive for all female Fairchild employees.

Mary Ann Wyckoff, a Fairchild employee since June, 1959, will be directing the work traffic in the transistor plant sales office. The office handles order-processing for all products made by the transistor plant. It will be Mary Ann's responsibility to see that this function operates smoothly, efficiently, and in close cooperation with other departments such as Accounting and Production Control. She will have seven girls working directly under her in the office.

Mary Ann joined Fairchild when operations were still being carried out in what is now the R & D Lab in Palo Alto. She and another girl handled all the order-processing for the then-new company. As orders increased, so did responsibility, and a few more girls were hired to help expedite orders and process the necessary paper work. The order-processing group is now divided into regions—Eastern, Central, and Western—duplicating the organizational structure of our field sales regions.

Mary Ann has seen the sales office responsibilities grow and become more complex. She has been behind many methods improvements and "knows the ropes" behind all the many jobs done in the office. Knowing all this, she feels her new job offers many possibilities in the areas of toning up procedures, acquainting other departments with the office's jobs, training the girls to handle more varied work loads, and offering

(Continued on page 9)

Ehlers Elected To AIIE Post

Jack Ehlers, Fairchild Reliability Engineering manager, was recently elected membership chairman for Peninsula Chapter of the American Institute of Industrial Engineers. He will attend board of directors' meetings in his new capacity and will direct the membership program for the 190-man chapter. Don Kratz, of the IE department, will be working with Ehlers as subcommittee chairman on membership activities.

The chapter meets once a month for dinner and a program, usually a talk on some aspect of the industrial engineering profession. The summer months feature plant tours for chapter members.

GROUP TOURS TRANSISTOR PLANT

On the evening of August 8, a group of AIIE members toured the Fairchild transistor plant. They heard Dr. Sello, head of transistor manufacturing, discuss transistors and their manufacture, saw a film on the subject and were taken on a plant tour. John Haldenwang, IE, was in charge of the arrangements for this event.

Members of the chapter from Fairchild include Ehlers, Kratz, Haldenwang, Tom Regul, Walt Schneider and Phil Schirm.

Norman at NATO Meeting

Robert H. Norman, head of the Device Evaluation Section at R & D, presented a paper on micrologic elements at the Microminiaturization Panel of the Fifth AGARD avionics meeting of NATO in Oslo, Norway, last month. AGARD is the Advisory Group for Aeronautical Research and Development of the North Atlantic Treaty Organization. The panel was held July 24-26 and was followed by a conference on low noise electronics, which Norman also attended.

The paper on micrologic elements was co-authored by Norman and Jim Nall, head of microelectronics research at R & D.

A BUS FULL OF TOYS

Fairchild employees from San Rafael to Mountain View opened their hearts to the children at the Ming Quong home in Los Gatos. The green Volkswagen bus bought for the children was driven around to each of our facilities and employees filled it to the top with toys, books, games, clothing, blankets, sports equipment and "what-nots." Each of the plants contributed many boxes of gifts, but special mention goes to groups who made outstanding efforts—employees in transistor plant Plant Engineering, Industrial Engineering, Administration and Mechanization contributed enough for a new bicycle. The Mountain View Recreation Council donated $50 for new sporting equipment. The girls on the small geometry line chipped in to buy new sporting equipment and toys.

The bus was presented to the home's director, Charles O'Neil, Friday afternoon, July 28. The children will be our guests at the company picnic August 12—and will naturally drive to Adobe Creek in their shiny new bus.

Martha Whitford hands Dick Fouquet another gift to put in the bus for the Ming Quong children. Looking on are Paul Hwoschinsky, chairman of the Contributions Committee, which arranged for the bus; Frank Deal, representing a group of employees who donated money for a bicycle; Dick, who was on the committee; Martha, representing the girls on the small geometry line; Barbara Stamps from the 4200 production line; and Sandra Knox, also from small geometry.

R. E. D. PICNIC

Mountain View City Park was the site of the R.E.D. department picnic which was held on Saturday, July 15. Warm weather, bright sunshine, and good food provided the perfect ingredients for a successful picnic day. The R.E.D. employees and their families feasted on hamburgers, hot dogs, potato chips, salads, beer and soft drinks, beneath the shade of eucalyptus trees.

After satisfying their hunger, the picnickers organized a baseball game. At the end of three innings the game was called for a beer break. Activity was then resumed on the volleyball court, where two teams of R.E.D. employees vigorously whopped the ball back and forth across the net.

Meanwhile, other employees sought the cool shelter of the Mountain View City Park Swimming Pool, and a few of the less energetic ones mustered up a bridge game on the soft grass in the shade of a neighboring tree.

The considerable effort Connie Jack, Liz Elstad, Jacque Allen, and John Calhoun put into planning this picnic was certainly appreciated by all the R.E.D. employees who attended. Many thanks also go to Bill Swintek, who was responsible for the liquid refreshments, and to Bob Quiel for the food supply, even if he did arrive late with the potato salad.

Ann Schaefer

Here's one for the family photo album! R.E.D. employees posed on the grass for a group photograph during their picnic July 15.

The children of R.E.D. employees joined in the picnic spirit as they played on imaginary horses in the sand pile at the park. Having themselves a wonderful time are Carol Calhoun, Cindy Grisby, Cindy Mallicoat, Mike Elstad (top), Rene Mallicoat, Glen Grisby, Jr., Nancy Mallicoat, Monty Mallicoat and Suzanne Allen.

Sam and Rita Arnold supervised Parvez Namvar's cooking while John Calhoun's son Robbie sampled one of the finished products.

"Fill 'er up," said Liz Elstad to Herb Ginsberg, who was ably dispensing beer. Waiting for their turn are Sedira Mallicoat (sitting), Mitzi McCallahan, Bernie Clinton, Claire Curran, Bob Quiel, Liz Elstad, Skippy Bernardo, Dave Hoefler, Kathy Schaefer, Sam Arnold (sitting), Jacque Allen and Herb.

R.E.D. employees enjoyed lunch in a eucalyptus grove. Pictured left to right are Del Harrington, Bob Jack, Carolyn Harrington and Connie Jack.

Jacque Allen's little daughter, Suzanne, seemed to be attracting the attention of several R.E.D. employees during the picnic. Paying court to Suzanne are Mitzi McCallahan, Claire Curran, Bernie Clinton, Bob Quiel, Connie Jack, Liz Elstad, Suzanne, Skippy Bernardo, Herb Ginsberg and Parvez Namvar.

Talbert to SGS For Six Months

David V. Talbert, Fairchild manufacturing engineer, leaves for SGS facilities near Milan the first of September to spend six months working with SGS engineers on the development and production of transistors. Dave has been with Fairchild for two years. He received a BSEE from University of Nebraska in 1957 and is a member of Eta Kappa Nu, an EE fraternity. His preparations for the trip include Italian lessons! SGS will send one of their engineers to Fairchild as part of the "reciprocal trade agreement" between the two firms. Bill Bailey was the first Fairchild engineer to go to SGS on the program and Franco Forlani from SGS worked in our R & D lab.

Field Salesman

A new addition to Fairchild's growing field sales force is Bruce A. Giron, sales engineer in the Bedford, Mass., sales office. Bruce served in the U.S. for three years as a lieutenant at headquarters for the Atlantic fleet in Virginia. He is a graduate of University of Pittsburgh, where he received a B.S. in 1953. Before joining Fairchild, he was a sales engineer for General Electric in the Electrical Instrumentation Division and most recently was a sales engineer in the Boston area for National Semiconductor Corp. Bruce and his wife, Anne, have three children, Douglas, 4, Beth, 3, and Christopher, 6 months. They live in Topsfield, Mass.

Silicon Elements In Controls Corp. Transducers

Fairchild Controls Corporation, a division of F C & I, recently announced four new transducers which use silicon strain-sensing elements designed by our Transducer Section and produced by our Special Products group.

The 3S-G Low-Level-Output Silicon Semiconductor Strain-Gage Pressure Transducer provides a 50 MV D.C. signal. Developed to replace low-level strain gages currently in use, the 3S-G combines the best features of other strain-gage pressure transducers by using semiconductor material having piezo-resistive characteristics as transducer sensing elements.

The new 3S-G differential pressure transducer uses silicon semiconductor sensing elements to provide extraordinary accuracy throughout its entire operating temperature range from —65° to 250° F. The unit will operate in all gaseous and liquid media for measuring, testing and control of pressures in military and industrial systems.

Also announced by Controls are two new silicon-semiconductor strain-gage pressure transducers for measuring absolute and gage pressures. The sensing elements are piezo-resistive semiconductor materials. Because functioning parts have been reduced to two, accuracy is unaffected by rough handling or severe environmental conditions.

One of the new transducers announced by Fairchild Controls. The transducer uses silicon strain sensing elements designed by our Transducer section and produced by our Special Products Group.

Fairchild Song-Fest

Peninsula Fairchild employees at the first meeting of group-singing enthusiasts, held in the main plant cafeteria the evening of July 21. Leading the singers is Jerry Lynch, a professional music director who coaches quartets and choruses in the area. Fairchild singers were entertained by a women's quartet, the Masqueraders, who received a big ovation for their excellent harmony and arrangements. The next meeting was held July 31 in the cafeteria. Cecil Harris, one of the organizers of the group, said that the good-time-had-by-all was spread word-of-mouth and even more potential choristers turned out for this second meeting. Plans are to have Mr. Lynch continue to lead the group and help form it into a club with regular get-togethers. The next meeting of those interested in group singing will be Tuesday evening, August 15, at 8 p.m. in the Whisman Road plant cafeteria.

GOOD IDEA!

Jim Gorud (left), of transistor plant Shipping and Receiving, checks the number of packages going to the airport with C. F. Winkler of the Falcon Parcel Service. Jim recently suggested using this service in place of one previously used and it is expected that the new method will result in a high amount of transportation savings for our customers. The shipping operation, which daily entails sending many packages to all parts of the country and overseas, will also be simplified.

Technical Assistant To FC&I Head Office

Dr. Samuel W. Levine has been appointed to the newly created post of technical assistant to the President's Office of Fairchild Camera and Instrument Corporation. He will be responsible for the review and coordination of technical development programs which are jointly sponsored by two or more divisions of the corporation. He will also aid in the evaluation of research and development programs currently under way and planned in Fairchild divisions. In addition, he will be concerned with the appraisal of the technical capabilities of companies being considered for acquisition.

Dr. Levine joined Fairchild in 1953, his most recent post being that of director of engineering and research for the Defense Products Division. He received his doctorate from M.I.T. and both his master's and bachelor's degrees from A & M College of Texas. He has also completed nuclear instrumentation studies at the Oak Ridge Institute of Nuclear Studies.

Dr. Levine holds numerous patents in the fields of electronics, optics, mechanics and instrumentation and also has had many articles published in leading technical journals. He is a senior member of the IRE, a member of the Optical Society of America, Institute of Physics, American Chemical Society, Technical Association of Graphic Arts, and the American Ordnance Association.

Record Earnings & Sales---FC&I

Fairchild Camera and Instrument Corporation chalked up new records in sales and earnings for both the second quarter and the first half of 1961, according to a report released July 20 by President John Carter.

Second quarter earnings and special credit were $1,422,000, or $1.14 per share, up 61 percent over earnings of $881,000, or 71 cents per share, in the second quarter of 1960. Net earnings and special credit of $2,299,000, or $1.85 per share, were reported for the six-month period ending June 30, 1961, an increase of 37 percent over the $1,682,000 or $1.35 per share reported for the same period in 1960. All figures are based on the 1,243,475 shares outstanding as of June 30, 1961.

Net sales and machine rentals during the second quarter of 1961 were up 45 percent compared to the same period in 1960. Net sales and rentals for the first six months of 1961 increased 47 percent over the first six months 1960 net sales and rentals.

(Continued on page 9)

San Rafael Rec. Council Election, Aug. 16

The 10 pictured Diode employees will vie for three posts on the San Rafael Recreation Council at an election to be held Wednesday, August 16. Posts to be filled are chairman, secretary and third vice-chairman. The council was set up last year in order to disburse funds for the recreation equipment and activities for employees, such as the Spring Dance, picnic, ping-pong equipment, etc. The fund is made up of vending machine profits and the 30 cents a month per employee that the company donates. There are six members on the council who serve for two-year terms, with three members retiring each year. The three members remaining on the council for the next year are Maxine Mendonsa, treasurer, Bob Champagne, vice-chairman, and Roger Hartgraves.

BETTY COWAN
Secretary Q/A

PATTY MURPHY
Plant Nurse

EDITH HALL
Assembler
Q/A Inspection

LOIS McIVOR
Inspector Q/A

BOB BUSCH
Section Head
Q/A Inspection

JUDITH ANDERSON
Assembler
Q/A Inspection

TONY FALWORTH
Senior Engineer
Development Engineering

BOB TOBIAS
Foreman
Production/Assembly

LEE ROGERS
Foreman, Production Test and Finish

JACK LAWSON
Lab Tech
Production/Fabrication

Softball Team Scores 2 Wins

The second half of the Mountain View "B" League has started with Fairchild's team making a better showing than in the first half. In two consecutive extra-inning games, the team came out on top with a 3 to 2 victory over Hewlett-Packard and a 4-3 victory over Varian Associates.

In the game against Varian, Bob Somers hit a home run in the eighth inning to give the team a victory. The team gave Pitcher George Reh some fine support, with faultless ball and no playing errors.

Not only has the team shown vast improvement over the performance in the first half of the league, but we have four men among the top ten hitters of the league. Bill Hill has high honors with a .450 average, followed by George Reh, Bob Somers and Tony Macaluso. Fairchild also led the league in errors, which just might be why the team wound up in a tie for fourth place in the first half of the league.

DIODE BOWLERS

Bowling Team 10 at Diode (Clark, Hensley, Bachmann and Glauser) is in first place, according to latest reports from San Rafael. Team 1 is second and Team 5 is holding third place. High man is Chuck Gunther, with a 570 series and high individual game of 242. Donna Briggs leads the gals with a 501 series and high game of 187.

Mary Ann Wyckoff

(Continued from page 5)

them more room for incentive and initiative.

"Having been in the office and being part of its operations for two years, I am anxious to tackle the job," she commented. "I have every confidence that by continuing to work right along with the girls we can make it a sales office of which Fairchild can be proud."

F C & I Sales

(Continued from page 8)

Mr. Carter commented, "I told our shareholders at the annual meeting in May that our sales in 1961 would approximate $100,000,000. Our operations are still on schedule and moving as planned toward that goal.

GOLFERS TEE OFF

Leo Lujan of R & D, one of the consistent golf winners in the Peninsula golf club group which meets each Thursday after work at Sunken Gardens.

Fairchild Golf Club officers for the Peninsula players relax before teeing off at Sunken Gardens course. Left to right are Bob Brown, president; Ethel Trautwein, vice-president; Helen Bonfadini, secretary; and Jack Shriber, treasurer, Palo Alto.

Teeing off is George Lao with onlookers (left to right) Don Farina, Maurice O'Shea and Don Shank wondering just where that little white ball is going to land.

Gals Are Even

Last month, the Diode women's softball team trounced the transistor team by the large score of 14-2. Friday night, July 28, the gals on the transistor plant softball team "got their own back" by beating the Diode team 12-6.

The game was an exciting seven innings, with both teams showing good spirit. A large rooting section for each team cheered the girls on—six carloads of people came from the Diode plant down to Palo Alto, where the game was played, and there were approximately fifty people from the Peninsula plants.

There are now rumblings about a playoff game. . . .

LEADWIRE

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Vol. 3, No. 8 August, 1961

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Sports Editor ..... Dick McElroy

Columnists and Reporters ..... Barbara Hock, Mary Grigsby, Shirlee Munn, Niki Cramer and Ann Schaefer

ALL AROUND THE PLANT

By Mary Grigsby

Nellie Jones's daughter, Carolyn, has been attending college in Little Rock and has been accepted at U.C. as a junior psychology major. Lillian Mickey's vacation was nipped in the bud by four molars which landed her in bed. John Leermakers played it cool and did his reserve duty at review time . . . sounds more like an attack of Reviewitis. Miss Fairchild, Mrs. Loretta Hayes, is back at work after the birth of her new son. Jenny Pert returned from a trip to Honolulu where her father is head chef at the Surfrider.

The scampering of feet and dark offices prompted the question, "Were the boys chasing the girls, or vice versa?" when the lights went out for over an hour the other day. Ralph Fitzgerald is purchasing a self-contained breathing apparatus for the safety operation. Skin divers, better keep a lookout for R. F.

"Janitor at work . . . use other lounge" prompted a certain manufacturing gal to journey down the corridor to the smaller ladies' lounge. As she opened the door, to her horror, she spied a male employee washing his hands and thereupon became quite indignant that he should be using the girls' room. Well, he wasn't!

Technician Bill Beecher is sweating it out in Diffusion . . . not because of the heat, but because of the draft.

Foreman Pat Wilson's latest folly is dredging for gold with skin diving equipment, but he is very upset because all that can be found are beer cans. I wonder where he's diving these days . . . some "dive"!

Carol Painter is going to Oklahoma with red hair. Wow! Mary Orsua and family just returned from two weeks' vacation in Oregon and Washington. Jean Osborn and family will venture to the northwest next month, also.

Congratulations to Ed Pausa and wife on their first-born . . . a handsome new 6-lb. son, born Saturday, July 22, by the name of Jeffrey Clemens.

R&D LAB GAB

By Shirlee Munn

Fairchild's loss and Italy's gain is Franco Forlani, who has gone back to Italy after spending four months with us. Franco was honored at a luncheon before he left, and presented with his own game of Scrabble. Margery Felton tipped us off that Franco was mad for the game, so he was given his own set. This was a big aid to Franco in hurdling the language barrier. Franco is going back with a few more pounds than when he arrived —must have been his own delicious spaghetti. *Arrivaderche!* (Sp.?)

Mother and daughter sets seem popular around here. Vera Judnich's daughter, Bonnie, is now working with the Physics Section in the Diffusion area. Betty Heiple, Device Evaluation, is the mother of Betty Lee Burkett, who works in Optical Alignment, Physics Section. Betty Lee, like her mother, is a tall, statuesque brunette.

If you haven't stopped by to see the painting in Worden Waring's office, you should do so. I understand it is for sale. Besides that, his secretary is getting tired of looking at it.

Speaking of paintings—the latest one done by R. Ishikawa is hanging in his office. It's an abstract entitled "Impression: The Wall." Sure looks like an empty frame to me, though.

Apologies and congratulations to Mary Sisk Forest, whose marriage recently was unreported in the last *Leadwire*.

A survey was taken the other day in the coffee lounge. Question: What do you want to be when you grow up? Answers: Gary Tripp wants to be a child movie actor. Elwynne Trepel wants to be anything but a librarian. Rich Vilas would like to be a professional student, and his friend, Mike Julian, has ideas of becoming a dirty, lecherous old man. Well, out of the mouths of babes oft-times come gems!

SOME DATA FROM DIODE

By Barbara Hock

Bees buzz around honey, but what's with these flies? . . . Bad news. . . . Come out, come out wherever you are, Runge. . . . Bob Broze, Development Engineering, and Dick Weir, foreman in Productions Fabrication area, have been spending much time at R & D, Palo Alto, to pick up the latest scoop on a process to manufacture epitaxial wafers for our diodes. . . . Some of the new faces around the plant are those of Helen Chenoweth, secretary in Sales; Frankie Kuffel, fresh up from Phoenix, a steno in Q/A's Inspection Section; Hugo Stebler, an experimental machinist from Switzerland.

Donna Briggs goes on military leave soon and reports in as secretary to the general at Hamilton AFB. Poor Donna, a S/Sgt., will be reporting with some 75 men for duty in her group! Such duty! . . . Fred Bialek reports that the men's team is starting practices with many of the same players from last year.

Vacations, vacations—Myrtle Milham just back from Indiana; Lois McIvor to Tahoe; Colleen and Len Walker, back from Kelso, Wash.; Don Yost family to New York and Montreal; Bonnie Martz, all rested after stay at a dude ranch in Reno and a bit of glider soaring; Paul Kent and family doing the Redwood Highway bit; be sure to check with Basil Weir on any new probability theories that he may have picked up in Reno. . . . Word reaches us that Marlyn Wise, on leave from Production, had her baby; likewise Carla Clements, Q/A, a new boy; Dolly McGinley, Production, a new girl named Betty Sue. Both Dora Clark, Sales, and Win Gordan, Accounting, have also joined this popular club.... Leaving Production are two foremen, Jim MacQuarrie, Test and Finish, and Al Silver, Assembly. Al will be going into the aluminum window business here in San Rafael. . . . Chuck Gunther, Plant Engineering, celebrates three years with Fairchild on the 11th of August. Chuck worked in Mountain View until Diode got under way in December of 1959. . . . A note to all Diode employees from Lee Stewart in Tahoe: "I want to say a very sentimental goodbye to everyone I have known and to those of you who gave so graciously of your time and energy to teach me. My heartfelt thanks. See you in a better world. Signed. Lee."...Dave Beadling, our plant manager, was recently named to serve on the executive committee of the Marin Industrial Development Foundation.

Bob Champagne was recently promoted to engineer in the Special Assemblies Section. ...Ben Anixter, formerly in Engineering, deserted us for Mountain View. . . . Judith Anderson, Diane Brawley, and Lorraine Jones transferred to Q/A Inspection.

Roll Out the Red Carpet

Welcome to newcomers at the various Peninsula facilities: Rupert Miller, research assistant, R.E.D.; Thomas Phillips, electronic technician, Instrumentation; William Welling, sales engineer, Marketing; Walter Lummen, electronic technician, Instrumentation; Nancy De Long, secretary, Marketing; Florence Klem, senior clerk, Wage and Salary; Gorden Ness, instrumentation marketing manager, Marketing; Nicholas Veizades, senior engineer, Instrumentation.

R.E.D Leads

By Niki Cramer and Ann Schaefer

Have you heard about Dottie Philpott's latest enterprise? It seems she's now giving Mary Valdez swimming lessons . . . after all, it's only three years before the next Olympic competition!

Janie Carter, Skippy Bernardo, Sue Mallicoat and Dick Fellows have been suffering from a common ailment—blown out tires! Statistical tests showed that this was purely a random occurrence. However, there isn't much hope that Dick Fellows will make another 3000 miles in that car!

Dorie Filipponi recently returned from a glorious four-day vacation at Lake Tahoe. The greatest attraction seemed to be Harrah's Club lounge, where such interesting floor shows as Ray Anthony and his Bookends and Jack Benny kept her entertained. A hypnotist act almost convinced Dorie that this might be a possible way to give up smoking, but with no results. Her companion on this trip was Norma Hoeber, a former Fairchild employee.

Another R.E.D. vacationer was Jim Murphy, who spent a week touring Yosemite Park, Sequoia Park, Kings Canyon, and the Feather River Valley. The results of all his travels were many beautiful colored photographs and a badly sunburned left arm.

Neglected in our last column was mention of Earl Gregory's enjoyable vacation which he spent with his wife and three children. The Gregorys drove to Redding, rented a trailer, and toured Northern California including Lassen National Park.

The most recent R.E.D. disabled veteran is Jo Mullins, who is suffering from a badly sprained finger and a sore back. The casualties occurred when Jo rounded a corner at R.E.D. and bumped into Bob Quiel, who escaped without damages.

We're sorry to lose Alice Beecham, who is taking a leave of absence to have her fourth child.

The latest R.E.D. riddle: How Elmer Hampel manages to make iced tea from the hot water dispenser.

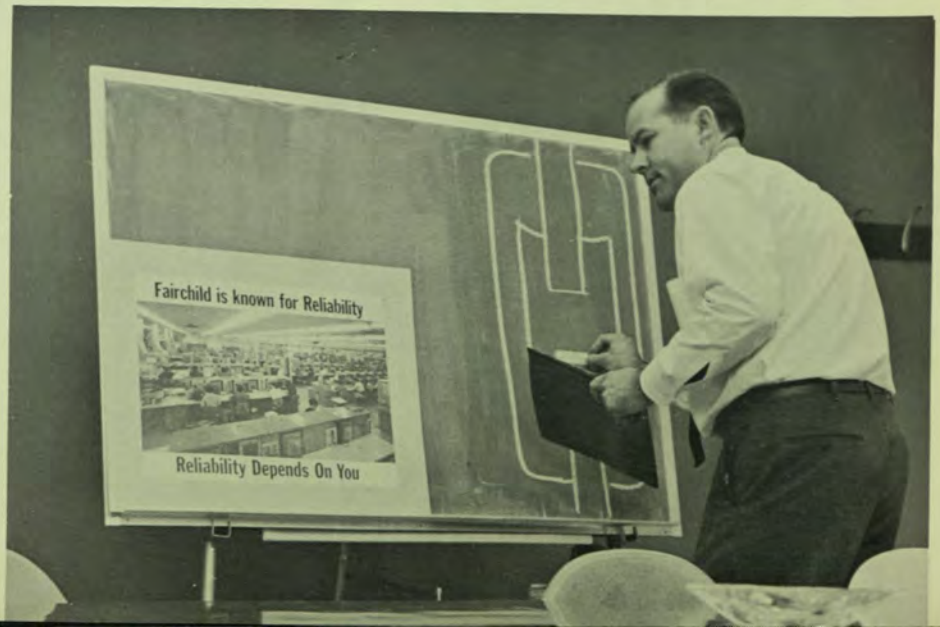
LEADWIRE

SEPTEMBER 1961

The class listens intently.

Ed Thompson helps Barbara Sousa take a reading from a scope. This instruction is part of the intensive training course at the Diode plant.

Ed Thompson explains the diode to Margaret Ritter, Mary Templeton and Judy Anderson.



Ed Thompson uses a reliability poster to make a point to the class.

DIODE TRAINING PROGRAM

Quality Assurance, with the assistance of Engineering, Works and Training, has been holding one-hour sessions daily to familiarize employees with the diode, its construction, applications, characteristics and methods of production. Assemblers and inspectors in Q/A and production leadwomen are the students intructed in math and statistics, the use of test equipment, the characteristic-testing of the diode and the proper method of reporting test findings. Each girl attends two sessions a week.

The classes began on July 13 and will run until September 21. The introduction to the program was given by Cliff Lionbarger, Bob Busch and Bob Merrick. Ed Thompson discussed the diode characteristics and defects. Harold Chankin covered basic electronics. Elements of blueprints was handled by Irv Michelson, Ed Thompson and Walt Heinzer. Meter reading was handled by Ed Thompson and Walt Heinzer; math and stat by Walt and Bob Busch; Q/A reports, Bob Busch; systems and procedures, Ed Thompson and Walt Heinzer; summary and review, Bob Busch.

Attending the sessions, which are of a conference-type nature to allow questions and answers, are: Florence Elijah, Edith Hall, Lois McIvor, Nadia Past, Myrla Radley, Marcell Pillus, Margaret Ritter, Mary Templeton, Gerry De La Montanya, Clara Schiavo, Vickie Van Zandt, Nancy Walker, Lorraine Jones, Sharon McPartlan, Jackie Allen, Ann King, Colleen Walker, Mary Busolo, Mickie O'Donnell, Ann Pietsch, Dolores Rule, Margaret Williams, Connie Schumpert, Barbara Sousa and Diane Brawley.

FACTS ABOUT FAIRCHILD
Fairchild International

(This is the fourth in a series of articles designed to acquaint Semiconductor employees with Fairchild Camera & Instrument Corporation, its subsidiaries and divisions.)

The main office of Fairchild International is on the 42nd floor of a tower at 515 Madison Avenue, the entire top floor of a building with a beautiful view in mid-town New York City. Fairchild also has a Latin American regional office in Miami, Florida, and another office in Milan, Italy, to handle European affairs.

The international division provides representation for Fairchild and Du Mont products throughout the world, with more than 150 overseas representatives. The personnel of the division are all highly experienced in foreign trade and electronics and are thoroughly familiar with all the details of export activities. Executives make frequent overseas trips. They are able to converse with representatives in their own languages and, in the home office, correspondence received in a foreign language is translated by a multilingual staff.

New York headquarters is staffed by a general manager, an assistant general manager and an export manager, plus the necessary secretarial and clerical help. This group was originally the International Division of Du Mont Laboratories and was established as Fairchild International a few months ago.

Fairchild International works closely with the domestic divisions of Fairchild Camera and Instrument Corporation, including Semiconductor. They now handle our overseas order-processing and are acting as our representative in Australia and India.

For the Industrial Products Division, International recently held a demonstration in England of Fairchild's Flight Analyzer for a large group in the British military organizations. Subsequent to the Flight Analyzer demonstration, a seminar was held in Paris for the overseas representatives of Du Mont instruments and electronic tubes.

Fairchild International arranges for exhibits and demonstrations of the company's products in various countries abroad. Du Mont products were recently exhibited at the MESUCORA Show in Paris in May. Fairchild Cinephonic Cameras were exhibited at the Photographic Show in London in May also, and, at the Electronic Components Show, Du Mont instruments were displayed during the same month. Fairchild products will be shown in Paris in February at the components show and in Milan later in the year.

A view of New York from the 42nd floor of Fairchild International offices

NEW POLICY YEAR STARTS

On September 1, 1961, a new policy year began for all employees covered by the Contributory Life Insurance and Major Medical Insurance programs.

Payroll deductions for these programs are based on employee earnings. Deductions are revised each new policy year to reflect wage increases during the prior 12-month period.

MAJOR MEDICAL BENEFITS

Employees must meet a certain deductible (i.e., 1 percent of their earnings OR a $50 minimum) before major medical benefits are paid. Once this deductible is met, the major medical plan pays 80 percent of all expenses over the deductible amount.

THE DEDUCTIBLE AMOUNT MUST BE MET WITHIN A CONSECUTIVE THREE-MONTH PERIOD. For employees who had medical expenses starting June 1 or after and have not presented a claim, these expenses can be considered and used for a deductible amount during September.

In order to qualify and present a claim for benefits, medical expenses must start with treatment or diagnosis by a physician for an illness or injury. Whatever the physician prescribes for treatment (medication, therapy, registered nurse, x-rays, lab tests, etc.) will be used as a basis for the claim. Major medical insurance does not include industrial injuries, dental care and dental surgery, cosmetic surgery, pregnancy or psychiatric disorders. For further information contact the insurance desk at your plant:

Transistor Plant, Irene Schuler, Ext. 220.

R & D, Marion Smith, Ext. 57.

Diode Plant, Patty Murphy, Ext. 327.

COVER

By Dick Steinheimer

Judy Anderson, an assembler in Quality Assurance inspection at Diode, is one of the employees taking the training course described on page 2. She was photographed while practicing the use of a microscope, part of the course the girls are taking. Judy has been with Fairchild since April of 1960.

ADOBE CREEK UN-LODGED

"How 'bout that"—

Gee, Dad, it's a red Wurlitzer!

It didn't hurt much . . .

Thank heavens for little girls!

Strike four!

Eleven hundred twenty-five pounds of steak, 20 tubs of salad, 180 loaves of French bread, 48 half-kegs of beer and 57 lost children (counting re-runs—Jonathon Sporck was "found" at least three times) later, the August 12 picnic for peninsula personnel, their families and friends was judged a howling success. And there WAS lots of howling.

The play-offs which finally netted R & D (Grinich) the perpetual volleyball trophy accounted for plenty on their own—it was a tight match all the way. Lloyd Perrier captained the winners against the formidable Marketing team in a series that drew as much enthusiasm from the spectators as from the players.

Back to the howls . . . you never saw so many children in one place before. The children from Ming Quong were special guests of the day. Rock 'n' Roll from The Jesters blended into the general melee. Joe & Eddy put forth some high style singing; Louie Kloeth's dancing exhibition gave people an appreciated chance to enjoy it all from the sidelines for a moment; but on the whole it was a "participant's" party. Sack races, egg-throwing, softball, ride-the-fire-engine, look-for-your-children, out-guess-the-magician . . . and, always, have a brew! The crew on the charcoal pits did an admirable job, steak fork in one hand and beer in the other. Swimming was on the agenda, and some there were who took a dip long after the pools closed—unintentionally. Ken Stevens and his wife won the trip-for-two to Reno—from a beer bust to a champagne weekend—not too bad! None of the children stayed lost and Dick Cole advanced his cause by several notches before the day was done.

To say there was "nae a harsh word nor a blow struck" would be an exaggeration, but none was fatal.

And the final word came from Mary Ann Landrum, captain of the edged-out Marketing volleyball team: "Wait till next year."

That's kid stuff!

Staff meeting.

"Hip-hooray"!

Rec Council Insurance Change

On August 10, the Recreation Council changed insurance carriers which provide accident and injury coverage for recreation council activities.

The new insurance company has asked that ALL injuries occurring during recreation council activities be reported to them as soon as possible.

Please follow these instructions in case of injury:

1. Recreation activity injuries should be treated by a private physician of your choice. It is NOT necessary to report injuries to the plant nurse.

2. Obtain an accident report from the Insurance Desk as soon after the accident as possible. Complete the form and submit it to the Insurance Desk immediately.

3. It is not necessary to have doctor bills with this report. The bills may be submitted as they are received by the employee.

For further information on this new program contact Irene Schuler. After office hours she may be reached at AX 6-7859.

Fairchild WESCON Public Service

Engineers attending WESCON were kept informed on world news happenings and timely Wescon events through a unique service provided by Fairchild Semiconductor at five major San Francisco hotels.

Teletype machines in the Fairmont, Mark Hopkins, St. Francis, Sheraton-Palace and Jack Tar hotels provided United Press International news headlines and Wescon news bulletins throughout the day to keep engineers attending the show posted on the latest stock information, world news developments and up-to-the-minute Wescon information.

Fairchild joined the hotels to present the information as a public service.

I'VE GOT THE TICKETS! Ken Stevens, of Transistor plant Shipping and Receiving, informs his wife that he has the tickets for the Reno trip which he won at the picnic August 12. Mr. and Mrs. Stevens took the trip the weekend of September 9. They stayed at the Riverside hotel and enjoyed the night clubs, shows, and—the free champagne!

SGS To Manufacture, Market FS Products In Europe

Societa Generale Semiconduttori (SGS) of Milan, Italy, has begun manufacturing and marketing Semiconductor products for the European market, according to Dr. Robert N. Noyce, Fairchild Semiconductor general manager. Fairchild owns a one-third interest in the Italian firm.

Dr. Noyce, who recently returned from Milan where he worked out the details of the program with Dr. Dietrich Jenny, SGS general manager, said that the Italian firm is now manufacturing the 2N 1613 silicon Planar transistor. SGS is the first firm to make a Planar device in Europe.

SGS plans to manufacture other Semiconductor products later this year. In the meantime, SGS will stock and sell all standard Fairchild Semiconductor products now on sale in the U.S. in addition to its own line of semiconductor products.

The decision to begin manufacturing in Europe at this time was based, in part, on the fact that "the European market, and especially the Common Market, is showing tremendous growth and growth potential," Dr. Noyce said. "NATO requirements will play a big role," he added, "but even more important in the future will be the civilian, industrial and military markets in England and on the continent.

SGS recently doubled its plant near Milan to 100,000 square feet and employs about 600 persons.

Jerry Levine, manager of administration and planning for Fairchild Semiconductor, will be SGS coordinator. The firms are also exchanging technical personnel for both production and research and development projects.

TUITION AID?

Employees interested in obtaining a tuition aid refund are reminded that applications for the refund must be filed 30 days prior to the beginning of a course. Further information can be obtained by checking Company instruction 780 or the personnel offices. Forms are available from any of the three personnel offices.

Please may I have some more?

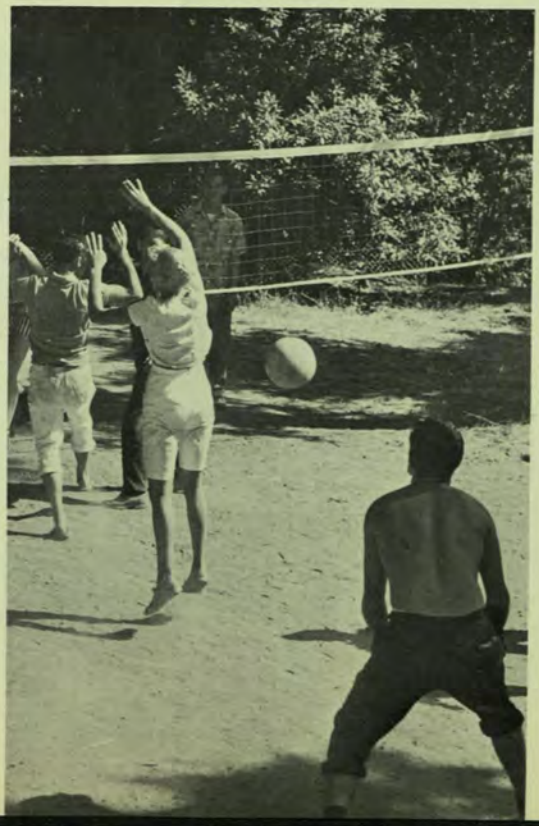
MARIN PICNIC SUCCESS!

August was picnic month for Fairchild! On August 6th, 650 people attended the Diode plant picnic at Morton's Hot Springs in Glen Ellen, Sonoma County. Arvetta Blanford won a chaise longue as a door prize and Dottie Boothe won a $25 merchandise order. The women defeated the men in the softball game (the men batted left handed). Ten kegs of beer were destroyed (?) and good fried chicken, provided by Chef Carnin, met its fate. The balloon-popping contest for the children provided them with all sorts of grand prizes. Al Desmond won the bathing beauty contest, but Jim Nicholas must have lost his contest with the life-guard! Vern Gingrich won the sack race, which left Paul Driscoll and Fred Bialek with bad backs. The children had a ball—and so did the grown-ups.

The chow line forms to the right!

Strike!

One for you, one for me . . .

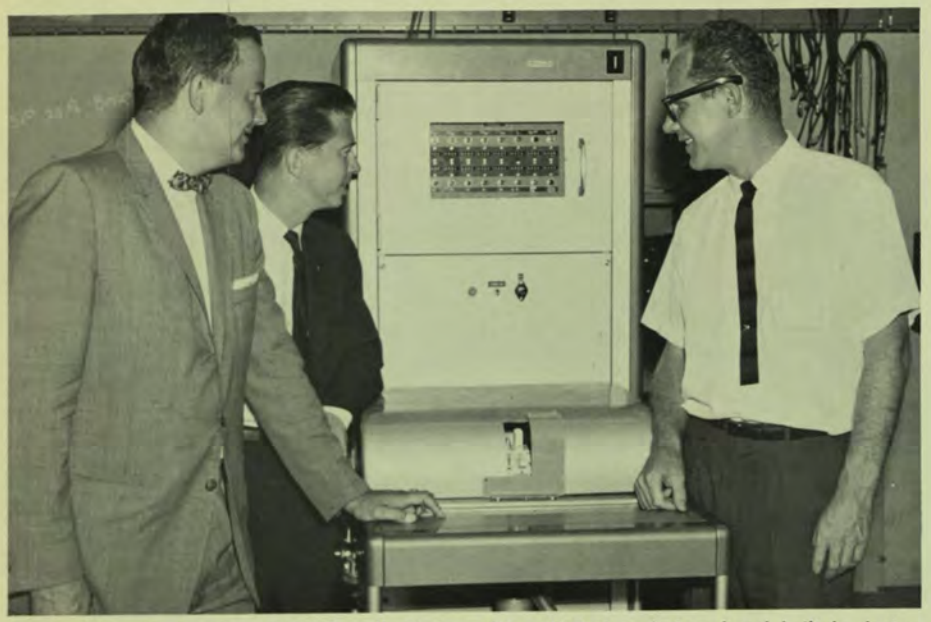


Please save the pin-bones, mom!

Reach!

INSTRUMENTATION:
People and Products

A lab with people hard at work is a dynamic place. The pace is steady and intense. Movement and activity only cease when calculations must be pondered, when readings must be taken. The Instrumentation Lab in Palo Alto is one of Fairchild's busiest facilities. We walked around watching the work being done and caught a few people unaware. Some we purposely posed. We thought you might like to see both.



Gordon Ness, Bill Martin and Ed Russell admire a Type IV Tester, designed and built by Instrumentation.

On June 1, Instrumentation was transferred out of the Transistor plant as a separate, operating department and now reports to the general manager. In addition to supplying electronic equipment to R & D, Diode and Transistor plants, Instrumentation is developing a proprietary line of equipment for sale to the industry as a whole. The department is under the direction of Ed Russell.

Recently named to the new position of instrumentation marketing manager is Gordon L. Ness. Prior to joining Fairchild, he supervised 20 West Coast sales engineers on automation equipment and processes for Howe Scale, a Division of Fairbanks-Morse of Canada, Ltd. Ness attended Stanford University, where he majored in electrical engineering. An IRE member, he has also been associated with Boeing's Bomarc project, with the Philco Corp. as a senior field engineer, and with Lockheed Aircraft Services, Special Devices Section, as sales representative for Instrumentation.

Working closely with Ness is Bill Martin, sales engineer for Instrumentation.

Jim Lundstrom, electronic fabrication supervisor, explains to Jane Carter and Sue Mallicoat how to mount components on a printed circuit board.

Dave Jones (left) and Jack Irwin "debugging" a piece of equipment in the Instrumentation Lab.

Chris Chrones (left) and Ne[illegible] calculations and data on a project in the Instrumentation Lab.

Noel Montagnon (left) and Norm Nelson discuss readings they have just checked on an oscilloscope.

JAPANESE ENGINEERS IMPRESSED WITH FAIRCHILD TRANSISTORS

Fairchild devices not only have an outstanding reputation in this country, but our advanced technology and superior components are fast becoming admired throughout the world. Madhu Desai recently visited Japan and was greatly impressed with the interest expressed in our products. In a memo to management and engineering personnel, he expressed sentiments which will be of interest to all employees:

"I was in Japan for a total of 18 days and had an enjoyable and educational stay. I visited all major electronic firms in Japan—and I think we have a tremendous advantage over our competitors in Japan due to two reasons: (1) our Planar process and (2) the confidence of Kanematsu (our distributors) in our devices. It was truly a pleasure to represent a company (Fairchild) which is so highly regarded in a country which is one of the biggest manufacturers of transistors in the whole world."

Madhu showed our transistors to various electronic companies throughout Japan.

"The engineers in this company are unanimous in using 2N706 transistors for their forthcoming computer," he said. "The engineers here are definitely pro-Fairchild." . . . "He tried out samples in his circuit—I have never seen a more pro-Fairchild man." . . . "They were convinced that our transistors on the whole are much superior." . . . "Very much interested in the Type IV Tester."

"In conclusion I think Fairchild is very highly regarded by all major electronic companies in Japan."

Lead Wire

Published by

FAIRCHILD SEMICONDUCTOR

MOUNTAIN VIEW—PALO ALTO—SAN RAFAEL

CALIFORNIA

a Division of

Fairchild Camera & Instrument Corporation

Vol. 3, No. 9 September, 1961

NEWS STAFF

Editor ..... Judy Machanik

Sports Page ..... Dick McElroy and George Lao

Columnists and Reporters ..... Barbara Hock, Mary Grigsby, Shirlee Munn, Niki Cramer and Ann Schaefer

NEW SALES ENGINEER

William Henry Welling, 28, has joined Fairchild's field sales force as a sales engineer in the Oak Park, Ill., sales office. Born in Kansas City, Missouri, Welling is a graduate of Marquette University with a BSME received in 1954. He also attended Tulsa University Law School. Formerly a sales engineer with the Worthington Corporation, he is a member of the American Society of Mechanical Engineers, the American Petroleum Institute and Pi Tau Sigma, honorary mechanical engineering fraternity. Unmarried, Welling lives in the Chicago area.

SAFETY PROGRAM IN FULL SWING

Fairchild Semiconductor's safety program is a continuous one which affects every employee in every facility. Activity is going on in many areas of safety and safety training.

- An intensive specialized training course is now being given for personnel in Chem-Mix who are exposed to bulk quantities of HF acid and various acid mixtures. Employees are being instructed in the safe way to handle materials, emergency procedures in case of accident or other unusual working situations and the unusual conditions to be avoided while working with acids. The course is being given at the Transistor plant by Mike Mickel and at the Diode plant by Bart Pontecorvo. Bernie Yurash from R & D is acting as an advisor in the course instruction which is given in the working area.

- Fairchild's volunteer fire brigade members are being given an advanced first aid training course. In addition to standard advanced course material, extra information is being taught which would be of value in the plant where particular gases and chemicals are used and handled by employees. Brigaders are also being taught the new closed-heart massage technique which would be used in any instance where the heart was caused to stop—electric shock cases, gas poisoning, suffocation, etc.

- Safety engineers are working with Design Engineering building safeguards into new equipment and modifying present equipment to improve its safety. This program is particularly applicable at the Stierlin Road facility and in the design and construction of the addition to the main plant.

- There is a continuous inspection of all facilities to detect possible safety hazards before an accident could happen and to insure that safety requirements are being met and maintained. Fairchild's standards for satisfactory safety inspection are higher than standard State inspection requirements.

OPERATOR TRAINING

The responsibility for training new operators at the transistor plant is shared by various departments, mainly Personnel and Industrial Engineering. This "training department" must give new employees both general and specific information about their jobs and the company. They are told about Fairchild's transistor manufacturing process and discuss the need for both production quantity and product reliability. Supervisors demonstrate the proper use of microscopes, tweezers and other pieces of equipment used in the jobs. The girls engage in extensive practice of separate parts of the job—and finally the entire operation. Samples of their work are reviewed carefully before they are finally put "on the line."

Plant Nurse Betty Martin tries safety glasses on Josephine Steinert. The girls are carefully instructed on safety procedures during their training period.

Val Kann, from Personnel, talks to new employees Monday mornings as part of the company familiarization program. The girls are told about the insurance and medical program, the Savings Bond program, the Credit Union, sick leave, hours to be worked, pay-check intervals, and general company policy.

Bob Roth from Industrial Engineering explains how to adjust a microscope to Linda Santos. Looking on are Josephine Steinert (left) and Cora Mora.

BREAKFAST MEETINGS BEGIN

As a result of a suggestion from personnel in manufacturing, breakfast meetings are being held bimonthly in the Whisman Road conference room. The meetings include hourly employees, supervisors, foremen and management personnel and are held at 7 a.m. two Wednesdays a month. A full breakfast is served for those attending the meeting. The informal meetings are initially under the direction of Manufacturing and Personnel and, according to Dr. Sello, head of transistor manufacturing, the meetings are being held to acquaint employees better with management. Jack Sheets, personnel director for the Transistor plant, is coordinating the program.

Denzler–Training Director

Dick Denzler, of the Transistor Plant Personnel Office, has been given the administrative duties of training director for the plant. Dick will coordinate the various training programs throughout the plant, working with section heads, supervisors, and department heads who wish to instigate or continue training programs. Dick's office will serve as a clearing house for information regarding training programs in progress.

Transistorized Scopes By Du Mont-Fairchild

A new design concept in oscilloscopes was introduced at WESCON when the Du Mont-Fairchild combination unveiled two new transistorized oscilloscopes. Termed the 746 and 766 types, the new scopes are professional oscilloscopes which utilize simultaneously two plug-in circuits in which Fairchild transistors are used. They are the first oscilloscopes in the new Du Mont 700 series.

Styling of the new series conforms with the newest in instrumentation trends and features a pastel green cabinet set off by aluminum structural members and panels. The new scopes feature ruggedized construction with environmental specifications equal or superior to military requirements. The main frame of the new series contains only the power supply, calibrator and CRT. Weight is under 27 pounds. Plug-ins provide all functional circuitry, driving the CRT deflection plates directly. This feature eliminates any limiting effects of other circuitry in the oscilloscope.

AIIE Members Tour Transistor Plant

Phil Ferguson, at the left, explains the lead-bonding process to members of Peninsula Chapter, American Institute of Industrial Engineers, who recently toured the Whisman Road plant. The Du Mont closed-circuit TV set-up allowed the visitors to see details of the bonding operation being performed by Georgia Washington. Before the tour, the group heard Dr. Sello, head of transistor manufacturing, discuss the manufacture of transistors. Looking on while Phil explains the process are Gerry Groux (to Phil's left) and Nelson Walker (in back), head of the IE Department. Jack Ehlers was recently elected membership chairman for the AIIE.

Freddie and the Fish . . . Freddie and the Bond

Freddie Judnich holds a 3-lb., 24-in. pike he caught in Ely, Minnesota, July 7.

Freddie proudly takes the $25 U.S. Savings Bond he won by catching the biggest fresh-water fish in the recent company-wide contest for children of employees. Presenting the 9-year-old with his prize is General Manager Dr. Robert N. Noyce. And the lady with the happy smile is Freddie's mother, Vera Judnich. Mrs. Judnich has been with Fairchild for 2½ years and is presently doing metallurgical work in the Chemistry section at R & D. She says the bond is going into Freddie's bank account.

Mechanization Wins Departmental Softball Contest

John Ronald (left), Production Control; Bill Riefsnieder, Production Control, and Dave Glenn of Mechanization make sportsmanlike gestures before the playoff game which saw Mechanization beat Production Control for the transistor plant intra-department softball trophy.

Bowlers Off And Rolling!

The Fairchild transistor plant bowlers are off and rolling again this year at the new Futurama Lanes in San Jose. Participants met August 30 to elect new officers and were greeted by outgoing president Lloyd Kohn. Election results were: Nevan Engle, president; Betty Martin, vice-president; Bea Ortu, secretary; Jack Schriber, treasurer.

After elections, the new and enlarged league of fourteen teams kicked off another new season of tough competition. The league meets each Thursday at 6:30.

FAIRCHILD SPORTS IN REVIEW

GOLF

Recent competition at Sunken Gardens has the team of Leo Lujan and Bob Quiel leading second-place. J. McIntosh and G. Parker. Third-place team is H. Wigton and E. Yim, with fourth-place held by J. Schriber and D. McCall. Trophies will be awarded for the top three teams at the end of the season.

GO-KART

Fairchild's ardent Go-Karter Bob Arnolde recently set a new unofficial time record at the Berryessa track of 21.8 seconds. The previous record was 22.3. Bob also set a record recently at the Monterey track—22.2—beating the previous record of 23.1 seconds.

GIRLS' SOFTBALL

Fairchild's transistor plant ladies' softball team lost an exciting game to the division champion service team at Moffett Field by a score of 10-4. Coach Frank Law said his team missed the hitting power of Lynn Flowers, who was in the hospital.

SOFTBALL

Fairchild Transistor Plant men's softball team is still in contention for the playoff championships at the end of the season. To get to the playoffs, the team will have to win the remainder of its games. It is off to a good start by a victory over Stosser Tool & Die, 14-4. In this game Fairchild's team came up with a 12-run barrage in the first inning that completely demoralized the opposition!

The team has recorded two recent losses—the first loss was to Palm Plaza 4-2 and the second to Outside-Inside by the same score.

All team members would greatly appreciate more support from company personnel!

TOP VOLLEYBALL TEAM

Dr. Noyce (far right) and Lloyd Perrier admire the trophy won by the R & D Grinich team in the interdepartmental volleyball tournament held at the picnic. Lloyd captained the team, which included (left to right) Mike Dragmire, Transducer; Nolan Pearson, Transducer; Alberta Sistrunk, Device Development; Betty Burkett, Device Development; Lloyd from Applications Drafting; Harry Downing, Applications Lab; Del Hicks, Applications Lab; Hank Scherling, Transducer; Wendell Lafky, Transducer; Ross Kennedy, Applications; Rich Wills, Applications; Gary Mickleson, Applications; and Ray Reposa, R & D Electroplating. Not pictured are Caroline Glasser and John Woodworth.

ALL AROUND THE PLANT

By Mary Grigsby

Quotable Quotes—Picnic-wise

Where's the beer? Food is being served at the barbecue pits . . . over by the beer stand. Charlie, you're burning the steaks! Oh, aren't they cute in their aprons and hats! Charlie, you're supposed to be cooking up steaks . . . nothing else. Would someone get me some beer? I need a fork. Don't we get to keep our cookout outfits . . . some sort of singe benefit?

They were supposed to bring a keg out here for the volleyball players. Hey, you guys; you have too many players! R & D won—but they cheated. Would John Hall please pick up his children? Certainly you can stay, dear, if you find a ride home, sure, stay if you want. Would the entertainment committee please report to the P.A. system . . . over by the beer stand? My feet are dirty. My steak is really tender. Did you know you split a seam? Haaaa, think I'll get some more beer. Daddy, please take me on the fire engine ride. Would someone please pick up a little lost girl at the Lost and Found Department . . . over by the beer stand?

Oh, dear, look at him walk? Look at the kids. Forty-eight half-kegs? Unbelievable! Only two girls' rooms?—This is ridiculous! Would the entertainers please report to the beer stand? Where'd my husband go? The swimming pool? Sure, know where the beer stand is? Well, just keep going straight ahead, you can't miss it. Does anyone know where my husband is?

They've closed the beer stand!!!

FSC has many proud new parents this month. Richard Goodman (Production Control) has a new son, Rick Allan, born August 28. Clarence Dutra (Instrumentation) has a girl, Patricia Ann, born August 3. Jim Lundstrom's Cathy Louise was born August 2. Michelle Jane was born July 20 to Mr. and Mrs. John Rainer. August 4 brought Paul Edward to Walt Schneider, and Carol Zarate (Manufacturing) is the proud mother of Laura Marie, August 6.

Shipping/Receiving carries the loss of Jim Gorud and Danny Blair, who plan to return to school this fall.

The former Jackie Hardcastle is now Mrs. Lemar Cunningtam. Greg Harrison's and Ed Pausa's secretary, the former Shirley Zeller, is now Mrs. Lee Marks.

R&D LAB GAB

By Shirlee Munn

The Fairchild Chess Club was represented by four R & D people at a tournament in Sonoma. Bob Kinsman, Don Ramsey, George Santos and Jim Wilkerson took home a half gallon of wine as their prize. The Industrial League Tournament will be starting late September or early October and players (male and female) are needed who can play chess on weekends or evenings. Contact any of the above, or Fred Schulenburg. After all—more players, more wine!

The following loudspeaker announcement the other Tuesday afternoon broke everyone up: "Attention, members of the Fairchild Swim Club! All those attending the swim party tomorrow are reminded to bring their swimming suits."

The "bootee set" reports new members: Kathleen Muray is the proud mama of her second son, born August 9. Peter Ullman is buying blue bootees with the birth of his son August 14. Howard Bogert was proudly passing out cigars to announce the birth of his big 9-lb. 1-oz. boy, Howard Daniel, August 22. Pink bootees go to Randy Parker's daughter, Leigh Ann, who made her natal debut on August 18.

Bon voyage to Paolo Mastalli, the Italian exchange engineer. Paolo was honored at a luncheon at the new Lodge Restaurant.

Bob Brown lost his last baby tooth, at last! It seems there wasn't a permanent tooth growing there to push the baby tooth out, and it just stayed. But it just couldn't take any more action and dropped out while Bob was brushing his teeth. Naturally, it was a front tooth, and, inasmuch as he is always grinning, it is a great loss.

Mel Hoar has proboscis problems. I don't know what he was running from in the darkroom, but his story is that he ran into the wall. The nose is broken in four places, and it makes me hurt to think about it. Mel currently is running around with his nose in a splint.

R.E.D. LEADS

By Niki Cramer and Ann Schaefer

R.E.D. softball team is short of manpower—but we never say die! Four females have volunteered to join the five remaining male players to form a mixed team. Manager Sam Arnold hereby challenges any mixed softball team from any Fairchild department, regardless of the male-to-female ratio! Are there any takers?

Two returning vacationers are Milton Meyer and Dick Fellows. Milton spent two weeks at Clear Lake, water skiing, mostly. I understand Milt has a sensational trick which really snowed the other skiers! Dick took a trip East to vacation in Pennsylvania and Ocean City, New Jersey. He returned with a lovely sun tan and laryngitis! Must have spent too much time talking—or something.

In the guise of an inquiring reporter, I asked several employees if they'd like to make a statement for the *Leadwire*. Some of the replies were: Janice Cooke: "I stand on the fifth amendment." Sue McGuire: "All I can do is gasp." Bob Zarko: "How are you today?" Liz Elstad: "I had a ball at the picnic." Gladys Zwemke: "I can think of some but they wouldn't be printed." Bob Quiel: "I'm sick!" Ken Hills: "I wonder if anyone can tell me if I had a good time at the picnic. I can't remember!" Dora Jeszewski: "I haven't any statement to make, but your hair sure looks nice!" Skippy Bernardo: "The two most helping hands are at the end of your own coat sleeves." (Hm-mm—maybe that was a hint.)

R.E.D. Riddle: Where did those two dozen roses come from, "Sweetie"?

Roll Out the Red Carpet

Welcome to newcomers at the various Peninsula facilities: Geraldine Murphy, reproduction equipment operator, Plant Engineering; Donald Femling, senior electronic technician, E. Instrumentation; Robt. Van Antwerp, maintenance mechanic, Plant Engineering; Marion Nelcey, secretary, Accounting; Marg. Thompson, assembler; Alberta Stidham, assembler; Gerry Annett, assembler; Josephine Pollick, assembler; Margaret Elliott, assembler; Barbara Gorman, assembler; Goldie Bacon, assembler; Rita Knight, typist, Marketing; Dorothy Keeler, assembler; Doris McCormick, steno, Marketing; Peggy Jamison, assembler; Josephine Steinert, assembler; Linda Santos, assembler; Corazon Mora, assembler; Rose Tennis, assembler; Nancy Orsua, assembler; Lynne McCaw, clerk, Marketing; June Kipling, clerk, Marketing; Theresa Poitra, assembler; Randall Shearer, clerk-messenger, Marketing; David Anderson, senior draftsman, E. Instrumentation; Juanita Black, clerk, Marketing; Wanda Jones, clerk, Marketing; Ramona Damon, assembler; Frances Gilbert, intermediate clerk, Accounting; Dorothea Mercer, assembler; Eunice Lawrence, assembler.

DATA FROM DIODE

By Barbara Hock

The recreation council elected Lee Rogers, Production Control, Judith Anderson, Q/A, and Patty Murphy, plant nurse, to round out their committee for the following year. . . . Special welcomes to Barry Klaas, our new I.E.; Margaret Vrable, steno in Paul Driscoll's production office; Gerald Hudson, our wonderful new janitor; Gail Tarrant, typist for Electronic and Special Assemblies, replacing Nadine McDermott, who is now in Tokyo after a very fine going-away party at the Chateau complete with champagne. . . . Glad to have Donna Briggs, Al Desmond, and Bob Napoli back from military leaves. We were afraid you'd be in Berlin by now. . . . Poor ol' Bob Runge is sporting the grandest of bandages on his left hand—that's what you get for playing softball with the ladies! . . . Vacations led Lela Pelkey to Las Vegas, Dolly Rule to Reno. . . . The Men's softball team lost to the JC's 8 to 1 but won its game with the Marvel Athletic Club, 11 to 8. . . . Linda Farr is the proud mother of a baby girl, Kimberly. . . . Dave Beadling finally had a girl to go along with his three boys. . . . Our new painting in the lobby brings the following comments: F. Ravinet: "It even looks like the streets of Laredo; notice the red lights at the top." D. Dickens: "What's this, the golden cliffs of Hindustan?" Jack Brewer: "Somebody's sick." J. Yelverton: "I picked it out; I gotta like it." C. Gunther: "That's just what I need on my wall at home." H. Bartholomew: "A mixture of gold and blood." H. Wong: "Beautiful, what is it?" J. Lawrence: "I like it much better than the other one." C. Lionbarger: "What's it worth?"

LEADWIRE

NOVEMBER 1961

COMPUTER INVENTOR PRAISES MICROLOGIC

J. Presper Eckert, 43-year-old "father of the electronic computer," visited Fairchild Semiconductor recently and called the firm's Micrologic program the "most advanced" development he has seen in integrated circuits for solid state electronic computers.

Eckert, now a vice-president of Rem-Rand-UNIVAC, invented the first electronic computer, "ENIAC" in the early 1940's with Dr. John Mauchly at University of Pennsylvania.

Eckert's visit to Fairchild was arranged by Robert Norman of the Micrologic Applications Section. The group toured the main plant and conferred with Dr. Robert Noyce, general manager, and Thomas H. Bay, marketing director, before going to the R&D labs for further discussions with Norman and Dr. Victor Grinich, associate director of R&D.

Eckert said he had been following the Fairchild Micrologic program for more than a year and had talked with Fairchild engineers earlier this year. He commented on the "great strides" that had been made since his last visit.

After his Fairchild tour, Eckert spoke to the IRE Professional Group on Electronic Computers at Lockheed's Palo Alto auditorium, where he again singled out Micrologic as the most advanced development he had seen in integrated circuitry. He noted, "Fairchild contributed this major breakthrough in integrated microminiature circuit design earlier this year and I feel certain it will lead to major reductions in the size and cost of solid-state digital computers."

J. Presper Eckert, co-inventor of the first electronic computer and now vice-president of Remington Rand-UNIVAC, confers at Fairchild on the Micrologic program. From left to right, Eckert, Robert Norman and Dr. Robert Noyce.

Eckert's talk commemorated the 15th anniversary of the computer's invention. He covered the invention, computers today and the computers of the future.

Executives 100 Feet Tall

He predicted that when the computer is used properly by management for help in decision-making, it "should make executives 100 feet tall." He cautioned, on the other hand, that managements which do not take full advantage of computers soon will be as out of step as the clock which goes "tock tick."

The computer of the future, he said, will call for "new inventions, new approaches, even new mathematics which will make it possible to solve today's seemingly unsolvable problems. . . . "

"There is an outstanding need now for equipment which can recognize patterns, visual and audible; recognize a man's features, his handwriting, his voice," he added.

"One approach to develop the machine or machines that can engage these problems will be to emulate fairly closely the way man thinks."

Invention Explained

Eckert explained how the electronic computer was invented. He and Dr. Mauchly were working together at the time on a special University project computing firing tables for U.S. Army Ordnance.

Eckert was dissatisfied with the analog computer used to make the computations.

"To me," he explained, "the machine was like a giant erector set, requiring someone with the 'delicate' skill of an automobile mechanic to assemble and operate. John Mauchly and I griped—about the slowness, the unreliability, of this monstrosity.

"We agreed that electronics — used primarily in radio and rudimentary television at that time—deserved broader application than just in the entertainment field. Together we outlined an electronic computer that could, we hoped, perform at fantastic speed.

"We submitted our plan to U.S. Army Ordnance April 9, 1943. Army Ordnance gave the University a contract and funds for preliminary work and study on an electronic computer.

"The work was started. John was consultant. I was named project engineer.

"Two hundred thousand man-hours later the first all-electronic, general-purpose digital computer was completed. It

(Continued on page 7)

$11,000 to UF

The United Fund and Bay Area Crusade drives conducted in the plants October 16-20 have resulted in employee contributions totalling more than $11,800, a record amount for Fairchild and more than double last year's contribution.

Total employee participation was 53 percent, more than twice that of last year. Outstanding percentages were recorded by: Diode, 52; Stierlin Road, 64; Manufacturing, 42; Applications, 66; Engineers and Office (including plant engineering), 71; R & D, 48, and Industrial Way, 48.

Dick Fouquet, chairman of the Contributions Committee for the peninsula plants, said that at an "early returns" United Fund luncheon he was introduced as the representative from Fairchild, the pace-setting company of the local area drive. He noted that the success of the drive was due in large part to the enthusiasm and conscientiousness of the 50-man committee working on the drive. Committee members found the popularity of last year's Ming Quong gift a big factor—employees were enthusiastic and willing "to help."

The Contributions Committee, reporting to the general manager, will again act as an advisory employee group and recommend a deserving charity they feel is eligible for a portion of the company's gift. (All employee gifts go to the United Fund.)

COVER

Ron Yee Keow, Melgar Photographers

Close-up view through the bell jar of a metal evaporator. In order to make electrical contact to our devices, fine wires must be bonded to metallized areas on the devices. The metallized areas are formed by evaporating metal on to the surface of the wafers, shown in the photograph. (Photo taken in the main Research and Development Laboratory. Many thanks to Bob Martin of the Microelectronics Research section for his help with this photograph.)

Fairchild unencapsulated differential amplifier

NEW AMPLIFIER

A new differential amplifier which consists of two low-noise closely matched and highly stable silicon planar transistors in one six-lead JEDEC TO-5 transistor package is now available from Fairchild Semiconductor.

Designated the 2N 2060, the two-transistor device is capable of amplifying very small signals under conditions where it was necessary to use carrier-type feedback amplifiers employing mechanical choppers.

Current gain (h_{FE}) of the 2N 2060 is matched to within 10 percent at 0.1 ma and 1.0 ma collector current and the maximum base-emitter voltage differential allowed is only 5 millivolts at 0.1 ma and 1.0 ma. Temperature stabilization of the device provides a maximum allowable base voltage differential change of only 10 microvolts per degree centigrade over a temperature range of —55 degrees C. to +125 degrees C. at 1 ma collector current.

Close matching of the transistor pairs is insured by selecting both transistors from the same silicon wafer. All parameters are inspected to meet military quality acceptance standard MIL-105B at inspection level II and AQL of 0.65 with a sample size of 75.

THANKSGIVING HOLIDAY

The "floating holiday" for 1961 will be Friday, November 24, making a 4-day Thanksgiving weekend. Employees on authorized paid sick absence, paid leave of absence, or vacation will receive holiday pay only for Thursday and Friday of that week. For further information regarding hours and shifts, check Company Bulletin 13.

FACTS ABOUT FAIRCHILD

Industrial Products Division

(This is the sixth in a series of articles about the various divisions of Fairchild Camera & Instrument Corporation.)

The Industrial Products Division, headquartered in Yonkers, New York, produces and markets a broad line of special cameras and related equipment for industrial, consumer and commercial use.

The Fairchild Cinephonic 8—the world's first 8-mm home movie camera with self-contained, synchronized magnetic sound—was introduced in 1960. A companion sound projector-recorder was also introduced. Accessories to the line are also offered. More than 500 franchised dealers sell Cinephonic 8 equipment to advanced amateurs, business and educational markets.

A line of portable 8-mm sound movie projection equipment especially designed for sales demonstrations, training, and audio-visual instruction was introduced early this year. The projectors are each about the size of a small portable typewriter and weigh less than fifteen pounds. Each projector incorporates a continuous film magazine which does not require rethreading of the film, but replays continuously. Applications for this equipment include use in sales demonstrations, social services, travel agencies and department stores.

The Division offers a line of specialized cameras for industrial use. Among them is a group of high-speed motion-analysis cameras and related equipment. Used by engineers to detect malfunctions in high-speed machinery, in missile-testing and in similar fields, these 16-mm motion picture cameras are capable of taking up to 8,000 frames per second.

Fairchild Oscilloscope cameras with Polaroid film attachments are widely used by design and test engineers in research laboratories and in all applications requiring permanent or semipermanent records of oscilloscope traces. A Polaroid-back identification camera used by industrial security and police agencies and all organizations needing quantity personnel records is also offered. (Semiconductor security guards use this camera in taking badge identification shots.)

The Fairchild Photographic Flight Analyzer records the take-off or landing-space trajectory of a moving object on a single record.

Fairchild F-316 Automatic Film Processor can develop, fix, wash and dry negative movie film at six feet per minute. It is used as a companion to instrumentation cameras, in television studios to get news on air fast, and in medical labs to process cineradiology film. It weighs only 65 pounds.

Mini-Rapid 16, the first of the Division's line of film processing equipment, was introduced in 1957. This is a portable, automatic, rapid processor for 16-mm motion picture film.

In addition to its industrial applications, the device has proved popular with TV stations, which use it as a fast money-saving means of rushing new films onto the air waves.

The Division has approximately 65 employees, including a Consumer Products Group, and has two plants in Yonkers, N.Y.

FAIRCHILD EXHIBITS

Fairchild Semiconductor exhibits this year for the first time at the Northeast Electronics Research and Engineering Meeting (NEREM) in Boston, November 15-17. The meeting is sponsored jointly by the Boston, Connecticut and Western Massachusetts sections of the IRE. Fairchild's 20-foot booth will feature our latest semiconductor products and micrologic elements.

More than 400 firms are exhibiting their products in the Commonwealth Armory of Boston. The engineering meeting is expected to draw thousands of engineers and scientists from the key electronics area in and around Boston.

DIODE HALLOWEEN PARTY

An unsuspected flair of originality was displayed by all attending the Diode Halloween Costume Ball held October 27 at the Bermuda Palms in San Rafael. There's more than a little "ham" in all of us, as was amply evidenced by a stunning array of marvelous costumes. Winning outfits were: Best Man's Costume—Joe Dietz, superbly done as a Mandarin; Best Woman's Costume—Dorothy Spagnoli, a lovely Japanese girl; Best Couple—Herb and Kathy Bartholomew, magnificent as a Roman soldier and Egyptian queen; and Most Original—Vickie VanZandt, as Vampira, complete with bat. "Booby prize" went to courageous Gene Paredes, who was great as a little boy with bow tie and short pants. A high point of the evening was the fine talent of Dorothy Palacios, who sang two vocals with the band, "Back in Your Own Backyard" and "Sometimes I'm Happy."

Three of the winning costumes: left to right, Dorothy Spagnoli, Joe Dietz and Gene Paredes.

Left to right, Marlene and Harold Potter and Dan and Peggy Ritter. Confusion prevailed as to who was who, but we THINK we have it straight!

"Big Al," alias Lee Rogers, and "Ziegfeld Showgirl" Marlene Potter.

Kathy and Herb Bartholomew, pride of the ancient world.

Arveta Blanford and husband masquerading as Sinbad the Sailor and harem girl.

Two eras from the past: Thelma and Vernon Gingrich, Southern gentleman and belle, and Loretta and Leo Sanchez, straight from the Roaring Twenties.

Donnie Harris and Fran Grossman as Little Red Riding Hood and the Wolf; John and Maxine Mendonsa as Bat Masterson and "Friend"; and Gene and Bonnie Martz as Picasso and painting, "Girl with Hat."

BALLERINA AT DIODE

One of the most talented girls to grace the Diode plant is Kathy Bartholomew, an accomplished ballerina and a veteran of the ballet theater and television. Kathy began dancing with the Marin Ballet Association when she was in her teens and studied under Leona Norman, founder of the association, for eleven years. In 1958 she received a scholarship for two years to study and dance in New York with the American School of Ballet, the Ballet Russe de Monte Carlo and the Ballet Theater. Summer outdoor concerts in New York's Lewisohn Stadium were memorable performances for Kathy. Dancing in the television performance of "Billy the Kid" was equally exciting. Kathy, now married to Diode draftsman Herb Bartholomew, still dances for two hours a day and hopes to teach ballet. She also dances with Marin ballet groups. Kathy has been with Fairchild since April, 1960, and is presently working in Test and Finish.

DIODE MANAGEMENT CLUB

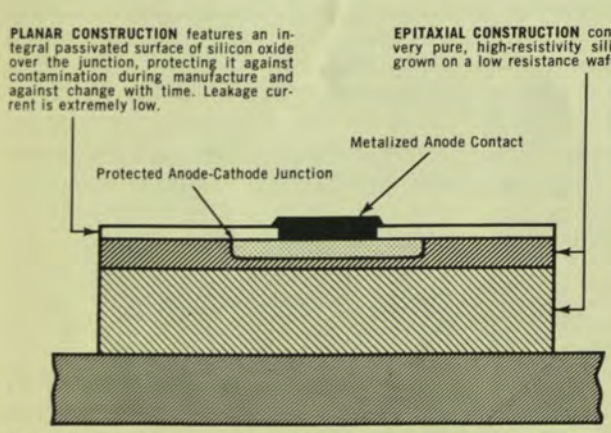
Diode's new Management Club is off the ground in a big way. Officers have been elected and plans are well along for several functions. The Club's first meeting featured an address by Diode Plant Manager Dave Beadling. A dinner meeting was held last month where the main order of business was approval of bylaws and operating procedures. The regular meeting date has been tentatively set as the third Wednesday of every month. Membership is open to any male exempt employee of the Diode Plant who has completed sixty days of employment with the Company.

The primary aim of the Management Club is to provide regular gatherings where each member may further his knowledge of modern management techniques. This goal will be accomplished through group discussions among members and also by bringing in outside speakers recognized as authorities in specialized areas of business management. Current problems in the plant common to all departments, and methods of solution, will also be topics of discussion. It is felt that improved liaison and communications between operating departments will result from this exchange of ideas and experience.

The Club is also planning to hold some purely social functions, possibly a Christmas dance, for members and wives.

Officers of Diode's new Management Club are, left to right: Norm Wardman, vice-president for Program Planning; Lou Lyons, vice-president for Administration; Paul Driscoll, president; Joe Dietz, secretary; and Gene Paredes, treasurer.

FAIRCHILD PLANAR EPITAXIAL DIODE STRUCTURE



Shown above is a cross-sectional view of Fairchild Semiconductor's new FD 600 diode. A thin layer of very pure, high-resistivity silicon is epitaxially grown onto a low-resistance silicon wafer. Into this epitaxial layer the electrical junction of the diode is diffused, using the Planar process, which provides an integral passivated surface of silicon oxide for protection.

NEW PLANAR EPITAXIAL DIODE

Fairchild Semiconductor recently announced the availability of a new Planar epitaxial diode which combines ultra-fast switching and high conductance. The device, the FD 600, features a reverse recovery time which is typically 2 nanoseconds and a guaranteed 200-milliamp minimum forward current at 1 volt. The high reliability and stability of the Planar process with the improved electrical characteristics of epitaxial deposition make the new diode an ideal device for such applications as avalanche circuitry, core-driving and logarithmic amplifiers for pulse amplifiers.

Other guaranteed electrical characteristics of the FD 600 include: Breakdown voltage, 75 volts (min.) at 5 microamps; capacitance, 2 micromicrofarads (max.) at 0 volts; reverse current, 50 millimicroamps (max.) at 50 volts; and power dissipation of 500 mw at 25 degrees centigrade.

F C & I ON BIG BOARD

Effective October 23, the common stock of Fairchild Camera and Instrument Corporation went on the New York Stock Exchange. F C & I, previously traded on the American Stock Exchange, had sales of $67,940,000 and net earnings and special credit of $3,755,000 in 1960. For the first six months of 1961, sales totaled $44,570,000 and net earnings and special credit $2,299,000.

The stock represents all of the eleven operating divisions of F C & I. In addition to the silicon transistors, diodes, integrated circuits and test equipment manufactured by Semiconductor, F C & I lists among its product lines such items as military intelligence gathering systems, electronic tubes and industrial electronic instrumentation, printing equipment, components, 8-mm magnetic sound photographic equipment and specialized cameras, paper-handling equipment and electronic cables.

F C & I facilities total more than 1,000,000 square feet with plants in California, New York, New Jersey, Ohio, Missouri, the Netherlands, and Italy. The corporation has sales and service offices all over the free world.

NEW CONTRACT

Fairchild Semiconductor has received the go-ahead to begin work on a two-year program for the Lockheed Missile and Space Company in Sunnyvale. The program, under a contract valued at approximately $162,000, is based on Lockheed's interest in the application of Minuteman devices for use in satellites being developed and built by Lockheed.

We will test the reliability of Minuteman devices 501 and 701, the devices undergoing environmental tests with simulated conditions similar to those found in an orbiting satellite. Earl Gregory, Fairchild's Minuteman Program co-ordinator, explained that devices in an orbiting satellite experience tremendous temperature changes and must be able to withstand these changes. The tests will be carried out by Fairchild's Reliability

(Continued on page 7)

ELECTRONICS AND THE ECONOMY

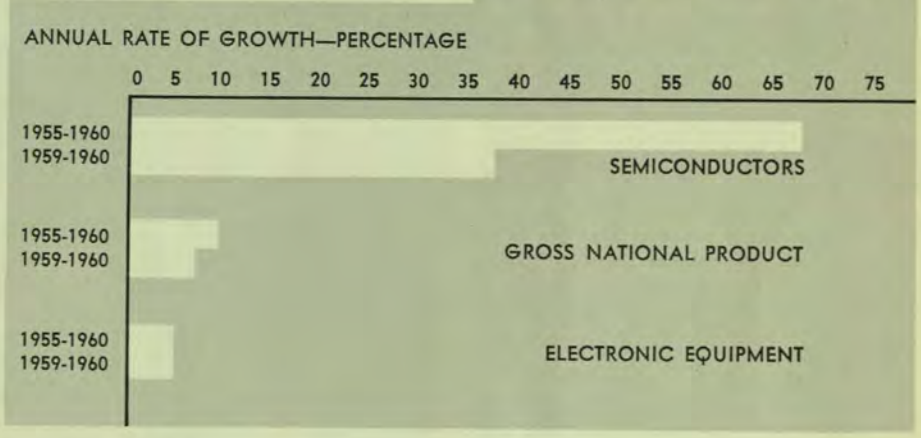
The growth of the U.S. economy is one of the most important problems facing the country at the present time. It was probably the major domestic issue in the last presidential campaign.

On the economic scene, the electronics industry has experienced a spectacular increase in output over the past few years. Since Fairchild products fall within this industry, this growth is vital to our own economic health and prosperity —both as a company, and as individuals.

The figures and chart give an indication of the vitality of the industry in which we work. Despite a recent slowing down of the rate of growth, electronic equipment sales grew more than 1½ times as fast as the economy as a whole from 1959 to 1960. In the same period, semiconductor sales increased over 4½ times as fast as those of electronic equipment.

Output	1955	1959	1960
U.S. Factory Shipments of Semiconductors (millions of dollars)	$ 40	$395	$542
Electronic Equipment Output (billions of dollars)	4	5.95	6.4
Gross National Product (billions of dollars)	398	480	504

Source of figures: U.S. Dept. of Commerce



MORE FIRE PROTECTION

In addition to a well-trained Fire Brigade, the transistor plant now boasts of rescue teams, fire wardens and an elaborate system of interplant communication which, in an emergency, coordinates the movement of our brigades and the MV Fire Department. This type of organization is unique in this area and other industries have started to model their fire program after the Fairchild plan.

The brigades were formed for the safety of property, lives and the continuity of production. The men who make up the brigades are all volunteers and have taken part in an intensive fire-prevention training program. The program employed the use of motion pictures, a standard practice for many municipal fire departments; manuals which were written for training purposes and distributed by insurance companies; and training in the use of all types of fire-fighting equipment. The training program was carried out with the assistance of the Mountain View Fire Department under Chief L. K. Coons and Assistant Chief B. R. Chaney.

The degree of efficiency attained by the brigades has become such that they are now able to work as self-contained units or with the local fire department under the direct supervision of its officers. Fire Chief is Ralph Fitzgerald and Fire Marshal is Coford Balin.

YOUR CREDIT UNION

By Gerry Groux

The services of the Fairchild Semiconductor Credit Union are available to all interested employees. Niki Cramer, treasurer of the CU, is in the main office to help and advise with budget problems or related financial problems.

The Credit Union received its charter in June, 1960, and gave its first loan in July of that year. For the last six months of 1960, the Credit Union issued $59,500 in loans to 236 members. In contrast to this, it issued $224,300 to 750 members for the first six months of 1961. This is almost four times the amount loaned between the first and second six months of operation of the CU. There are more than 850 Credit Union members.

While the CU is doing a "land-office business" in the loan department, it is also forging ahead in other areas. Many members are making cash payments on their loans in addition to regular payroll deductions and many are making sizeable deposits into their share accounts. Money can be credited to your account at any time you bring it into the office. Last month alone, more than $2,000 in cash was applied to accounts over the counter.

Money saved with the Credit Union earns good dividends and a low interest rate is offered on loans (1% on unpaid balance). Money saved regularly adds up quickly and you will not only be helping the Credit Union but you will be helping fellow employees.

COMPUTER INVENTOR

(Continued from page 2)

was a thousand times faster than any other calculating machine ever built. It could do the work of 50,000 people working by hand.

"Its name was ENIAC, for Electronic Numerical Integrator and Computer."

Concluding his speech, Eckert posed an often-asked question: Will machine ever run man? His answer:

"This is asking whether a machine will be built that breaks the 'thought' barrier. I don't really know. Who can tell whether in the next fifty years man will create a computer capable of self-reproduction and improving itself? But I certainly can say this—I hope the man who creates such a machine has the presence of mind to pull the plug out of the socket before he starts running."

Don Chaney (left) and Jim Cramer aim for strikes

BASKETBALL

After three practice sessions, our Fairchild basketball team is beginning to show promise of bettering last year's performance. Pete Shenck and his brother, Chris, seem to fit nicely into the picture with last year's players. They help to balance the lack of ball control and rebounding strength which was our team weakness last year. Frank Yih has also shown some efforts that make us hopeful for a better year. Frank has not played for many years but at his first try he managed to sink several nice shots and he's going to be a big help to us.

Hard training has made Roger Smullen the possible key to any success we may have. The big guy looks great and it is still early. "Hic"!

Dick Cole is a source of amazement; the way he can roll up points for our side is terrific. Bob Somers has aches and pains; he should come around as the season gets along.

LEADWIRE

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Sports Editor ..... Bob Somers
Assistant Sports Editor ..... George Lao
Columnists and Reporters ..... Mary Grigsby, Jim Wilkerson, Bonnie Martz, Maxine Mendonsa, Pat Keefe, Katie Remsburg and Ann Bernardo

KINGS AND QUEENS LEAD THE LEAGUE

The Mountain View bowling league is led by the Kings and Queens, who surged into first position replacing the Cinco five. The high team series of 2501 pins was not enough to keep the Cincos on top. Louise Sheets again was a standout bowler for the women with a spectacular 206 game. League standings are as follows:

Team	Won	Lost
Kings & Queens	20	8
Watusi's	19	9
Cinco	18	10
Tigers	17½	10½
No Accounts	17	10
Splitniks	15	13
Untouchables	14	14
Knight Shift	14	14
Team 11	13	15
Galloping Volts	13	15
Emitters	12	16
Gutterdusters	12	16
Spastics	11	17
Kwestionmarks	10½	17½
Angles	10	18
Filthy Five	10	18
High Series:		
Men—K. Myreholt		623
Women—L. Sheets		498
High Game:		
Men—G. Reh		240
Women—L. Sheets		206

NEW CONTRACT

(Continued from page 6)

Evaluation Section, under the direction of Jack Ehlers.

Administering the contract for Fairchild is Howard Bobb, Military Programs manager.

ALL AROUND THE PLANT

By Mary Grigsby

Jerry Levine, manager of Administration and Planning, left on a trip around the world Friday, October 13, and will be stopping in Japan, India, and Italy. At a luncheon given by his friends and working companions, he was presented traveling treasures consisting of a loving cup with the inscription, "World's Greatest Traveler," a charter of the UN (for political discussions), an ambassador ribbon in Italian colors and, to cover his head, a "Sikh Turban" for use in India.

Jerry Groux (Manufacturing), San Jose scoutmaster, led his troup in collecting supplies and money for a disaster-stricken family in his neighborhood. The family lost their home and a small child in a blaze that left them destitute. Jerry and scouts obtained money, food, clothing and other pertinent household goods from neighbors.

The "Sing-Along-With-Us" group needs Christmas bells to entertain San Jose children at the Municipal Auditorium during the holiday season. If anyone has such items please contact Don Kobrin on Ext. 278.

The Mountain View Community Council has begun work on its third annual "Santa Claus Exchange," which last year benefited more than 1,000 less-fortunate residents at Christmas time. The Council distributes perishable and nonperishable foods, new toys and used toys which are repaired by patients at the Veterans Hospital. Those families requesting Christmas aid are screened by the Council and goods are distributed according to need. This year the Council is requesting donations such as food items (canned goods, etc.,) new toys or any used wheel toys worthy of repairing. Please contact Mrs. Harry Pinto at YO 7-5924 for further information.

FROM THE FIELD

From Sherman Oaks: Congratulations to new parents—Jim and Diane Martin are proud parents of Susanne Marie, born September 16. John and Bennie Lambros are parents of Sandra Jean, born October 24. Best wishes to Don Valentine, who will be married November 22. And who says you can't win in Las Vegas? Al Bayley won the fantabulous sum of $0.30 on whisk and spent most of it on a postcard to the office saying how much he won!

From Orlando, Florida: New Arrival—Fred Lawrence and wife, Patricia. Missile moved from ramp to launching post at 2 p.m. August 26. Successful blast-off at 9 same day—seven-pound girl, Sandra Lee. Fred and wife recently motored to Virginia to relax in the Great Smoky Mountain National Forest and visited with friends in New Jersey and Philly.

Meanwhile, Back East: Jim Paris cruising in the Caribbean on a second honeymoon. He will stop at British Guiana and visit with President Chedi Jagean. Oh, yes, Mrs. Paris went along, also. And Bob Pack is substituting for Madhu Desai as back-up man here at B.B. Taylor and doing a wonderful job. Known locally as (ouch) Madhu-Pack.

Mrs. Jack Callahan would like to thank Fairchild people for the tremendous response to the call for blood during Jack's need recently. Special mention goes to John Sentous and Dick Cole, who were the first to respond to the call. Jack's condition has greatly improved.

Marriages this month include those of Mrs. Harry Hampton, the former Mary Bruce; Emery McGee and Sharon Mace, both of Manufacturing, and Gerald Mullin and Joyce Robinson, both Fairchild employees. Congratulations to Mary Ann Landrum and Frank Law, who became Mr. and Mrs. recently in Reno. Mary Ann is in sales and Frank is in the shop.

New babies include Ralph Jerry, Jr., born to Connie Osburn, Manufacturing; Elizabeth, born to the Kenneth Deweys (Sales); Gerald Randall, Dick Goodman's new-born; Martin, born to Ray Wollesen's wife; Christene, born to the David Andersons; and Jeffrey Kent, born to the Brenton Purdoms. The Jerry Diamonds' first-born arrived October 27; Jordon Paul weighed 6 lbs. 12 oz.

Margaret Cahill is back after 3½ months in Ireland and an extended tour of the continent. Small Geometry's Etsuko Flannum went home to Tokyo for a month. While enroute she stopped at Honolulu to see former Fairchild employee Shizue Robertson.

NOTES & QUOTES

By Jim Wilkerson

Ed Hudson was conspicuous by his absence recently and Lynn Clark by his wearing a hero's medal. While fishing on the Klamath River with Harlan Lawler, Bill Ward and Lynn, Ed broke his ankle. Lynn's car was a half-mile away, but, over giant boulders, steep and sandy slopes and narrow paths, Lynn managed to carry Ed back to the car with nary a bump on the broken ankle. (The REAL story is that Ed, who is used to riding around in that noisy Chevy of his, wasn't used to the smooth, quiet ride of Lynn's Merc! Awakening from a nap and discovering he was out of cigarettes, Ed decided to get some from the trunk—at forty miles an hour.)

Gary Tripp, not famous for his exceptional neatness but quite famous for the gay parties at his place, arrived home last weekend to find that his cabin had been broken into. The only things removed were dust, empty bottles and beer cans, and a stack of dirty dishes. Authorities aren't sure who the culprits were and the only clue they have is a note signed by Ruth, Alta, Lena and Linda.

Four new additions to the R & D lab this past month: Ray Braun comes to us from Lockheed and will be working with Arjun Saxena on high-vacuum apparatus. The new receptionist at the Fabian Way building is Mary Leon, also from Lockheed. The next "person" lasted only a short time as Dave Reid's assistant on the extended submersion of gold in water. Before Dave came in Friday morning his new co-worker was kidnapped. I was never introduced to the fellow but think his name was "Fleet Fin." Fourth addition is a very old gentleman named Alley Oop.

Roll Out the Red Carpet

Welcome to newcomers at the various Peninsula plants: Shirley Moser, Marian Killeen, Audrey Moisant, Keiko Tokuda, Helen Ulbert, Dorothy Mort, Mary Johnson, Vina Maxey, Ruth Henderson, Joy Legg, Virginia Tygret, Florence Chapman, Toshiko Sasaki, Deoia McKinney, Dorothy Bertram, Gloretta Worden, Mildred Helms, Natalia Toll, Lois Roach, Marjorie Bowen, Juanita McFadden, Dorothy Maloney, Martha Hanna, Helen Bailey, Wanda Unger, Olga Miller, Renate Arlt, Marie Johnson, Ruth Silvestre, Frances Hastings, Leona Micklo, all assemblers; Etta Huntress, inter. clerk, Purchasing; Gurcan Mete, engr., EI; Jose Mora, el. tech., Mrktg.; Eunice Ridenour, secty., Sales; Jerome Larkin, sales engr.; Mary McNair, Alberta Acosta and Maxine Dougherty, inter. clerks; George Dowdy, Mrktg.; P. F. Ebbing, engr., EI; Joanne Krissman, clerk, Mrktg.; Joseph Short, pro. equipt. re., Mfg.; Margaret Cahill, Mat. Proc.; Anton Wypich, el. tech., EI; Robert Reinecke, lab. tech.; Winifred Smith, inter. clerk; Richard Loren, asst. adv. mgr.; George May, el. tech., Mfg.; Harlan Bortner, foreman, Prod. Cont.; Patsy Langley, inter. clerk, QC; Lettie Antonelli, Mat. Proc.; Larry Fredrickson, timekeeper, Acctg.

DATA FROM DIODE

By Bonnie Martz and Maxine Mendonsa

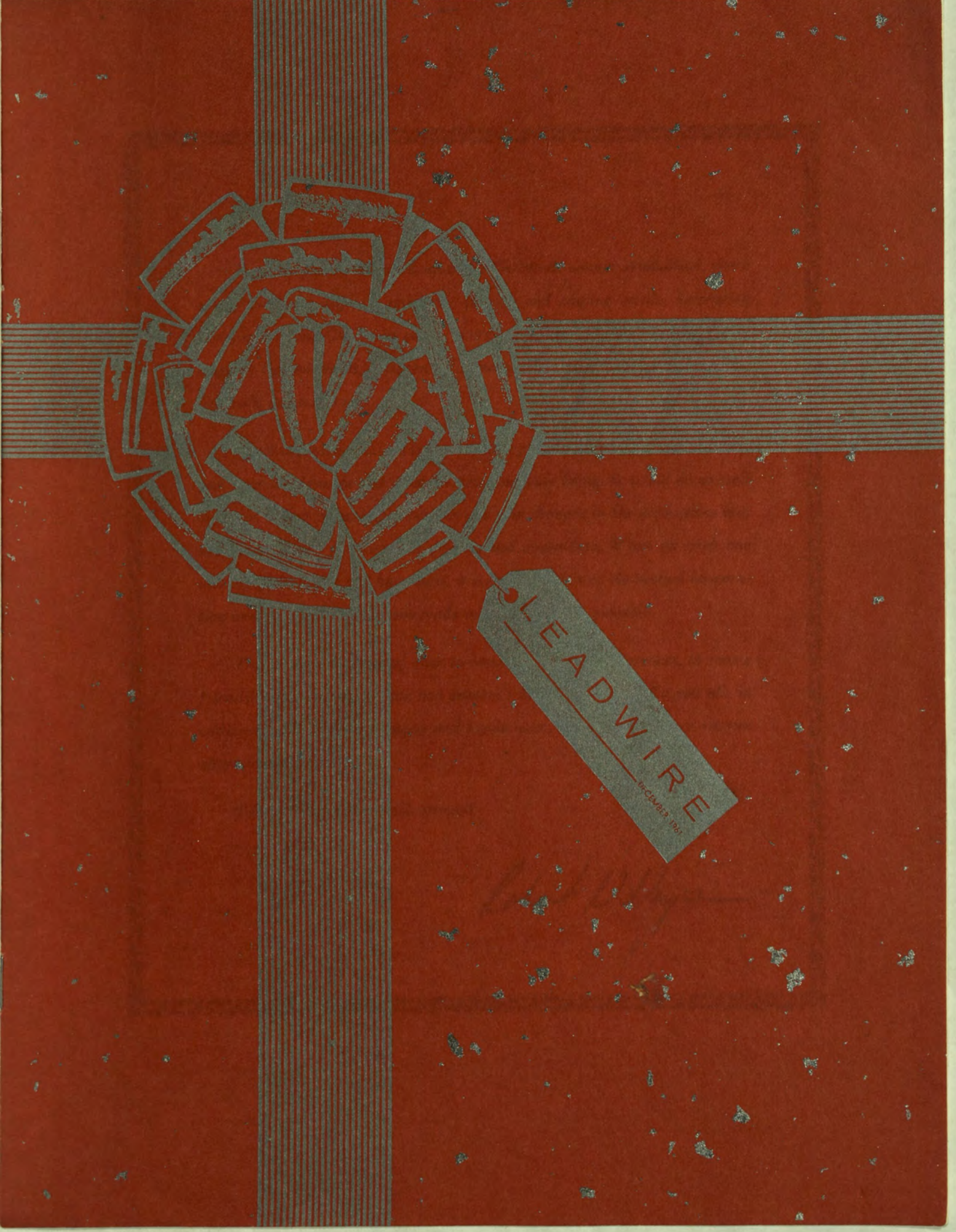
October was pretty rugged for Diode personnel. Everyone now seems to have recovered finally from the flu and assorted other bugs. Football and soccer have taken their toll, hitting hardest in Industrial Engineering, where limps and abrasions abound. We know what happened to Fernando Ravinet and Fred Bialek, but what happened to Irv Michelson and John Nash?

Fairchild bowlers held their banquet October 20. First place team trophy went to Team 1, captained by Larry Pendergrass. Winning team members are Bobby Fox, Mary Busolo, Lee Rogers, and Dean Mack. Jerry Calloway led his Team 5 to second place team trophy ownership. Individual high game trophies went to Sonia Wasilewski and Dean Mack, while Donna Briggs and Chuck Gunther walked off with high series trophies. Congratulations, all!

Personnel turnover saw Dick Dickens leaving to start his own business, Connie Schumpert off to Alaska, and Colleen Walker "retiring" to tend three little Walkers. Welcome to newcomers Dave Corbin, Electronic Engineering; Nick Phillon, Special Assemblies; Claud Childress and Jim Bossbach, Tooling; Dick Fellows, QA; and Ed Brotemarkle, Industrial Engineering. Harry Roberts' perpetual refrain, "Sorry, we don't have it," will be missed in Stores—Harry has moved "up front."

Onward and upward—The QA gals and Production leadgirls received their certificates upon completing the Inspection Training Program. Well done, girls!

Welcome back to wanderers Bob Broze from the steppes of Alaska, Marlene Potter from Las Vegas, Ned Small from New York, and Ray Brown from Washington, D.C. Tanned sports car fans Roger Hartgraves, Herb and Kathy Bartholomew and Dave Laufenberg took in the Grand Prix at Monterey.


LEADWIRE
DECEMBER 1961

If each of us were asked what the Christmas season symbolized, there would be many different answers—playing and singing carols, decorating trees, addressing Christmas cards, scurrying to finish last-minute shopping, brightly lighted stores, children's flushed cheeks, family gatherings . . . the list could go on and on.

But this season is also a time of contemplation and thoughts of what the past year has brought and what the new year may bring. It would do us well to pause in our private celebrations and give thought to the aspirations and ambitions of our families, our friends and co-workers. When we wish one another good health and happiness, it is an expression of the mutual cooperation and good will which have made our 1961 success possible.

This is also the time of year to remember old acquaintances, to renew friendships and to appreciate one another's hopes and needs. To you all, in addition to the wish for a happy and joyous year, let me add my own sincere appreciation.

Thank you and Merry Christmas!

Robert D. Wayne

CHRISTMAS CUSTOMS

Have you ever wondered, as you deck the branches of your tree, who trimmed the first Christmas tree? Or when Santa Claus was "discovered"? Or who sang the first Christmas carol or hung the first Christmas stocking? The J. C. Penney Co. recently released an article answering these questions.

Some Christmas customs are surprisingly recent, while others date back even beyond the earliest Christians. But the Yuletide we know—with gifts, friends calling and family reunions—has existed for only the past 200 years. To our ancestors who celebrated "Christ Messe" (The Mass of Christ) several centuries ago, Christmas was a time of solemn rejoicing and deep religious dedication, with little of modern gaiety.

SANTA CLAUS?

There was a St. Nicholas more than 1600 years ago—a Turkish bishop whose works of charity made him a legend in his own lifetime. Martyred in 342 A.D., he became the patron saint of children and of three nations: Greece, Holland and Belgium. People pictured him on a white horse, ascribed to him by old Turkish tradition. But his fame spread to Scandinavia, whose citizens felt more at home with a St. Nick who rode a reindeer-drawn sleigh. They gave him his red suit, a hand-me-down from the ancient Norse god, Thor. As for the rosy cheeks, white beard and jolly-jelly belly, they come from the poem, "The Night Before Christmas," whose author, Dr. Clement Moore, modeled his Santa after an old Dutch gentleman he had once met.

CHRISTMAS STOCKINGS?

One legend says that the original St. Nicholas, taking pity on a man too poor to provide a dowry for his daughters, dropped gold pieces into a stocking hung by the fire to dry.

In Italy, good children find gifts in their shoes, but the naughty ones discover only ashes. The German Santa enters with candy and cookies for the good children, an empty potato sack for the bad ones. America's naughty ones may discover coal in their stockings, but others find gifts ranging from toy guns to dolls or model missiles.

THE TREE?

The tree itself is still the center of attraction in most homes, a place of honor solidly rooted in history. Thousands of years before Christ, the evergreen was revered as a symbol of long life and immortality. German tribesmen brought fir trees into their homes to please the god-like "spirits" they thought to inhabit the trees. When these pagans were converted to Christianity, they transferred their feelings for the evergreen to the new religion.

It is said that Martin Luther was the first person to decorate a Christmas tree when he placed candles on a little evergreen tree to help capture the wonder of the season.

CAROLS?

The word "carol" means "to dance in a ring" and the man who popularized the practice was St. Francis of Assisi. To bring the Christmas message to his villagers, most of whom could not read, the saint arranged a manger scene using real people and animals. When the villagers came to see it, St. Francis led them in joyous celebration, "caroling."

Probably the most recent of the popular Christmas customs is the Christmas card. The first one was sent in 1845 by W. C. Dobson, one of Queen Victoria's favorite painters. Louis Prang of Boston made the first American Christmas cards in 1875, but only during the past 50 years has the practice of sending seasonal cards become widespread.

SINGERS ACTIVE

The Fairchild Sing-Along Club will perform at the transistor plant Christmas party to be held at Rickey's Studio Inn December 22. Earlier in the month, on December 17, the group performed for 1000 children at San Jose Municipal Auditorium. Both programs include Christmas carols in four-part harmony.

Vincent Cruz, the friendly custodian from the Whisman Road plant, founded the Sing-Along Club earlier this summer. Recently, the club has been directed by Mrs. Beverly Kobrin, a graduate of the New England Conservatory of Music, who has proven instrumental in making the club so successful.

Kay Gervasi, NPN Planar Diffusion, and Jack Shriber, Production Control, will be soloists for two of the carols. Other active Fairchildren in the club

(Continued on page 7)

CHRISTMAS SAFETY

Our plant safety and security experts and the Insurance Information Institute join to offer some hints on safety procedures that should be observed during the holiday season.

For the plant, all ornaments used in office decorations must be flame-proof or fire-proof. *Be sure to check with the plant guards before bringing any material into the plant.*

For your home and its safety, the National Board of Fire Underwriters brings up nine points dealing with Christmas safety:

1. The tree should be kept outdoors until it is ready to be installed. Don't set up the tree until just before Christmas.
2. The tree should be in a cool part of the house away from radiators, heaters, fireplaces or other sources of heat.
3. Provide a switch at some distance from the tree for turning lights on and off. Don't leave lights burning when away from home.
4. Be sure the lighting set and cord are in good condition. Discard sets with frayed wiring.
5. Set up electric trains and other electrical gadgets away from the tree.
6. Keep a wastebasket nearby for gift wrappings and papers.
7. Be careful with toys requiring alcohol, kerosene, gasoline or carbide lamps.
8. Be sure ornaments on the tree are of flameproof materials. Never decorate with cotton or paper unless they are labeled "fireproof" or "flameproof."
9. Be sure everyone in the family knows what to do in case of fire.

PARTY--DEC. 22

Transistor plant personnel will join for a Christmas party December 22, from 5:30 p.m. at Rickey's Studio Inn in Palo Alto. Rickey's will throw open the entire upstairs section for the party, which is for employees and one guest each. While the party is "free," tickets will be distributed so a count can be established for snacks and refreshments.

Chairman of the affair is Dr. Harry Sello, assisted by Hank Rodeen and John Leermakers, refreshments; Bill Stansbury and Frank Deal, entertainment; and Pat Wilson, decorations.

A combo will be featured for dancing.

Micrologic counter adapter

Micrologic half-adder

Micrologic buffer

MICROLOGIC ELEMENTS. NEW TRANSISTOR ANNOUNCED

Fairchild Semiconductor announced three new Micrologic elements and the first PNP silicon planar epitaxial transistor at the Eastern Joint Computer Conference in Washington, D.C., December 12-14.

The three new integrated functional digital logic circuits—the half adder, buffer and counter adapter—are in addition to the three elements now available, the flip-flop, gate and half-shift register. Using the family of six elements, computer manufacturers can build the complete logic or arithmetic section of a digital computer with a savings of 90 percent in the volume of the logic section compared with present fabrication techniques, 75 percent in the power requirements for the same speed and temperature range, 90 percent in the total assembly cost and 96 percent in the design time required using contemporary techniques.

The epitaxial silicon transistor, the 2N995, is a medium-power, high-speed switch and vhf amplifier which will give the higher silicon planar reliability and high temperature capabilities of all silicon circuits where previously only PNP germanium types would meet the required electrical characteristics. Packaged in a JEDEC TO-18 case suitable for printed circuit boards, the device has a power rating of 1.2 watts at 25°C case temperature and its epitaxial construction gives a collector saturation voltage of 0.2 volt at 20 mA (^{1}C).

More than 4000 turned out for the technical programs and exhibits at the conference, which was held in the Convention Hall of the Sheraton Park Hotel. Dause L. Bibby, president of Remington Rand Division, Sperry Rand Corporation, made the keynote speech, reflecting the theme of the 1961 EJCC, "Computers—Key to Total Systems Control."

Twenty full-frame computer manufacturers were among the 83 exhibiting firms, many of whom maintained their displays through December 15, when the U.S. Bureau of the Budget staged a data-processing orientation session on the premises.

Twenty-nine papers were presented during the three-day conclave, chosen from a field of 242. Among the papers presented was "CONTRANS" (Conceptual Thought Random-Net Simulation"), given by David Malin, a 17-year-old Rockville, Maryland, high school undergraduate.

The 1961 EJCC was the first to be sponsored by the American Federation of Information Processing Societies (AFIPS).

R&D PARTY

R & D personnel celebrated Christmas at a party Thursday, December 14, from 5 to 9, at the Stardust on El Camino Real in Palo Alto. General chairman of the affair was Eugene Kleiner, with the Stardust making arrangements for furnishing decorations, refreshments and a three-piece band. Watch for pictures next month.

DIODE CHRISTMAS PARTY DEC. 22

Plans are afoot for the second annual Diode Christmas Party to be held Friday afternoon, December 22, at Dominic's Harbor Restaurant in San Rafael, from 1 to 5 p.m. Committee chairmen are: Ed Thompson, general chairman; Gail Tarrant, refreshments; Helen Chenoweth, music; Al Flower, decorations; Jay Dee, entertainment; and Chuck Gunther, publicity. A buffet luncheon is planned, music will be live, and, surprise of surprises, we hope theatrical talent of Diode personnel will be on the program. See you all there!

Guiding lights of the Diode Christmas Party are, clockwise around the table, Clara Harvey, Gail Tarrant, Al Flower, Helen Chenoweth, Art Johnston, Bobby Fox, Donna Briggs, Jay Dee and Ed Thompson (standing).

FACTS ABOUT FAIRCHILD

Graphic Equipment Division

The headquarters of the Fairchild Graphic Equipment Division, in Plainview, Long Island, New York.

Newspapermen had dreamed of a simple, convenient, low-cost method of producing halftone engravings for many years. To make this dream come true, Fairchild Camera and Instrument Corporation embarked on a research and development program in 1937. Because of essential military commitments, research was suspended during World War II and was resumed in 1945.

Two years later Fairchild produced and delivered the world's first commercial electronic engraver—Scan-A-Graver. Combining optics, electronics and precision mechanics, it was hailed as one of the most significant advances in letterpress printing since the invention of the linecasting machine in 1886. Since 1947, acceptance has grown to the point where now more than 65 percent of the newspapers in this country use engravings made on Fairchild equipment.

Later developed was the Scan-A-Sizer, an improved enlarging and reducing version of the Scan-A-Graver. Fairchild know-how in electronic scanning techniques led to the development of Scan-A-Color, a device which provides a fast and economical means of producing color-corrected separations electronically for use in letterpress, offset and gravure.

In 1955, the Graphic Equipment Division was formed and in 1958, the division acquired the assets of the Teletypesetter Corporation from a subsidiary of Western Electric. Teletypesetter equipment is used to automate linecasting machines by means of perforated tape. Also developed were several Teletypesetter accessories.

The division, cooperating with the engineering and research staff of DuPont, designed and built the first automatic exposure and washout equipment for processing "Dycril" photopolymer printing plates. The first equipment deliveries were made to DuPont in 1956. This equipment is now in wide use throughout the country and will be extended to overseas markets.

With the acquisition in 1961 of the Technical Products Division of the Waste King Corporation, the Division undertook the marketing and servicing of the Color King Web Offset Perfecting Press. This press is designed for both newspaper and commercial applications and is receiving exceptional acceptance. It is designed for high-quality printing of newspapers and other materials at speeds of 18,000 papers an hour.

Fairchild Graphic recently opened a new Technical Center in the Plainview, Long Island, building. It is complete with a four-unit Color King Press, Dycril Processing Equipment, Scan-A-Graver and Teletypesetter. It will be used for demonstrations and technical training of our customers' personnel.

The Graphic Equipment Division has its headquarters in Plainview, Long Island; manufacturing facilities in Joplin, Missouri; and maintains a plant in Syosset, New York. Overseas, the division maintains a sales, service and manufacturing facility in the Netherlands and sales and service offices in Canada and in England.

YOUR CREDIT UNION

By Jerry Groux

The annual meeting of the Fairchild Semiconductor Federal Credit Union will be held January 13, 1962, at 10 a.m. in the Whisman Road cafeteria. Officers will give reports on activities of the past year, and plans for 1962 will be discussed. There will be an election of officers whose terms expire at the end of the year. Nominations can be turned in at the Credit Union office.

A new ruling passed at the last meeting of the Board of Directors has lowered the rate of interest to ¾ of 1 percent per month on the unpaid balance on new car loans, loans secured by share holdings in the CU and estate loans. The lowered rates were made possible due to our increased membership.

The officers extend to all employees wishes for a very joyous Christmas and a prosperous New Year.

DR. SELLO TO SGS

Dr. Harry Sello, presently manager of manufacturing at the transistor plant, leaves the first of the year for Italy, where he will assume direct responsibility for all technical and production activities at SGS in Milan. The assignment is expected to last for two years. Dr. Sello will report to SGS General Manager Renato Bonifacio.

In a company bulletin announcing the new assignment, Dr. Noyce noted that "the economic position of SGS in Italy holds great promise for Fairchild Semiconductor. We look forward to expanding our entry in the European market sharply through SGS, which will build and market a complete line of silicon transistors."

Dr. Sello noted that Fairchild's technical capabilities will be applied even more than they have been previously. The exchange of technical information and personnel will continue.

Dr. Sello's wife, Jerry, will join him on the trip and they will live in an apartment in Milan. Dr. and Mrs. Sello are busy taking a "crash" program of Italian.

Charles Sporck, transistor plant manager, will assume Dr. Sello's duties.

FIRE BRIGADES

Transistor Plant's Fire Brigades and Rescue teams held a practice session and their first "field experiment" recently in back of the Whisman Road plant, using all the techniques they learned in past training sessions. The session was supervised by Plant Fire Marshal Sgt. Don Murphy and Lt. Coford Balin and was witnessed by Mountain View Fire Department Capt. E. Hixenbaugh and Asst. Chief B. R. Chaney. Also witnessing the session were plant personnel including Charles Sporck, Nelson Walker, Mike Mickel, Plant Fire Chief Ralph Fitzgerald, Jim Stokes and the plant nurse. "Victim" was Jim Gray, a security guard at the plant.

Fire Department officials were extremely pleased with the methods used by the brigaders and expressed a desire to work with them more closely on future field experiments. Other companies in the area have started to model their fire programs after the Fairchild plan, which has been so successful to date.

The brigades and rescue teams were given five problems with which to deal.

Problem 1: Class A Fire—A fire has broken out in a storage area constructed of wood, containing printed material.

Problem 2: Class B Fire—A fire has broken out in a storage area containing gasoline, chemicals such as acetone, etc.

Problem 3: Class B Fire—A fire has occurred in a storage area containing gas and other chemicals as a result of an explosion. Due to the explosion, the fire has been scattered and covers too much of an area for one brigade to handle.

Problem 4: Class A-B Fire—An explosion and fire have occurred in an area in which an employee was working. The employee is injured, left arm broken, arterial bleeding from wound in right leg, and a possible concussion. The fire is scattered over a wide area, including a paper storage area and a chemical storage area.

Problem 5: Class C Fire—A fire has occurred in an electric generator that an employee was working on. The employee has suffered electrical shock and is unconscious. The generator is on fire. (Mouth-to-mouth resuscitation is used.)

The brigaders had equipment on hand for their use, including stretchers, blankets, extinguishers, air packs, etc. Taking part in the sessions were: Pat Wilson, Tom Carey, Tom Moore, Norman Mickelson, Ed Mundwiller, Elof Carlson, Arnold Kennedy, Mike Duffy, Walt Sinclair, George Mullnix, Frank Ramos, Del Hicks, Lloyd Perrier, Jerry Groux, Nevin Engle, Murry Seigal, Mike Starr, Jim Newton, George Grey, Don Johnson, Sam Luppo, Emery McGehee, Al Redman, Bill Shumilak, Ed Forcier, Bert Person, Jim Cramer, Tom Bright, Joe Ruiz, Ray Reposa, Ken Seivers, Pat Lowney, Tony Mack, Frank Walker, George Reh.

Wearing Scott Air Packs, a rescue team goes into a "gas-filled" area to rescue an "injured" employee.

Rescue teams and brigaders rush out to extinguish a Class A-B fire (see story).

Fire brigaders put out a Class B fire (see story).

A "victim" is evacuated from a fire area and taken to "safe" grounds.

FIELD SALESMEN

Fairchild Semiconductor has appointed two new field sales engineers to serve in Detroit and Jenkintown, Pa.

Jerry Larkin, 26, is a new sales engineer in the Jenkintown office. A graduate of Manhattan College, where he received a BSEE in 1955, Larkin has also done graduate work at Adelphi College. He served in the Army for two years and was with the Human Engineering Laboratory in Aberdeen, Md. Formerly a development engineer for Sperry Gyroscope Division of Sperry Rand, Larkin was most recently a sales engineer for Cornell-Dubilier Electronics. Single, he resides in Jenkintown.

William A. Dresser, 32, has been appointed field sales engineer for the new Detroit office. Dresser attended Milwaukee School of Engineering and at University of Illinois took a specialized course in industrial instrumentation. He was most recently district sales engineer for Daystrom, Inc., Weston Instrument Division. He served with the U.S. Navy in the South Pacific. Dresser lives in Detroit with his wife, Agnes, and four sons, Billy, Ricky, Brian and Robert.

REMEMBER WHEN?

Plumbers, electricians, carpenters were busy constructing an electronics plant out of a building that was once only a warehouse at 27 Jordan Street in San Rafael. The talk of the town was of gadgets that "went this way and that"—this new and novel factory, which bore no real resemblance to a factory, where they were making those thing-a-ma-jigs. It was just two years ago in December of 1959, when our diode was born.

Do you remember having only five assemblers in all of production, with possibly twenty people in the whole plant? Before too long, we had outgrown the Jordan Street quarters, and had annexes all over downtown San Rafael. The new plant was being built, but ever so slowly—so it seemed to those of us who made once-a-week excursions to check construction progress. Jordan Street was becoming more and more crowded and we yearned for the day when we could have a desk all to ourselves. It's hard to believe now, but we had about 350 employees on three shifts at the Jordan Street Plant by the fall of 1960.

Industrial engineers will fondly recall moving into the top floor of the unfinished new plant, sans windows, and wiping the dew and the rain off their desks as they arrived each morning. The first week of November, 1960, saw the moving vans, much packing and unpacking, labeling, hunting, etc., and at last we were moved into the new plant. Incredible as it may seem, once in a while you will hear an old-timer say of Jordan Street, "Those were the days!"

It's really been only two years—and we have come a long way.

SKIERS' NEW YEAR HOLIDAY

A New Year ski event will take place from December 29 through January 1 at Heavenly Valley, where Fairchild employees and guests will enjoy three delightful days in the snow at a lodge exclusively for Fairchild. Situated on Lake Tahoe, the lodge is near all the clubs and ski runs. Accommodations include all the conveniences such as private dining room, bar, television, dance area, large living room with fireplace, knotty-pine rooms with private bath, etc. Between 75 and 100 Fairchilders and guests are participating in this annual event.

The package includes three nights' lodging, three breakfasts and two dinners, 24-hour free transportation to and from the clubs, reduction on lifts and lessons, and a gala champagne cocktail party New Year's Eve with entertainment. The price: $24.00. Transportation will be in car pools.

LEADWIRE

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NEWS STAFF

Editor ..... Judy Machanik
Sports Editor ..... Bob Somers
Assistant Sports Editor ..... George Lao
Columnists and Reporters ..... Mary Grigsby, Jim Wilkerson, Bonnie Martz, and Maxine Mendonsa.

COVER

The paper used on this month's *Leadwire* cover is "Kinkami Red Silver Flecks," imported from Japan. The "package" was designed and executed by Ron Henry of the National Press Graphic Arts Division.

Merry Christmas and Happy New Year

BIG SEASON FOR BASKETEERS

Rated a powerhouse in Mountain View, Palo Alto, and Menlo Park, the Fairchild basketball team has smashed all of its opponents in beginning season play. Handy victories all—defeating Link 50-25, dunking Watkins-Johnson 44-16, and downing Eitel-McCullough by a 40-25 score. This year's team has played well and shown a lot of class. It is probably the best defensive team in the league and certainly the most balanced offense. Any one of the starting five or six men can have a big night and carry the team. So far this hasn't been necessary as everyone has done a fine job working as a unit.

Defensively we have used a full court press to good advantage, sometimes as long as three-fourths of a game. When we were not pressing, we were in a tight man-to-man defense. Offense has gone smoothly. We try to break that one man clear for an easy shot. Simple and, so far, very effective. We have more reliable depth than we have had for several years. It's going to be a good year!

Fairchild 50, Link 25

	FG	FT	PF	TP
Dick Cole	4	4	2	12
Clint Names	6	2	1	14
Roger Smullen	1	1	0	3
Pete Schink	0	0	2	0
Bob Somers	3	4	1	10
Chris Lunn	2	0	3	4
Larry Phillips	2	1	2	5
Frank Yih	0	0	1	0
Chris Schink	0	2	1	2

Fairchild 44, Watkins-Johnson 16

	FG	FT	PF	TP
Dick Cole	3	0	2	6
Clint Names	7	1	3	15
Roger Smullen	2	1	0	5
Bob Somers	4	3	1	11
Pete Schink	1	0	2	2
Chris Lunn	0	1	1	1
Larry Phillips	2	0	0	4
Bill Johnson	0	0	3	0
Frank Yih	0	0	0	0

(Continued from page 2)

are: Joy Barrett, Vincent Cruz, Pauline Curiel, Mary Hampton, Cecil Harris, Rita Knight, Don Kobrin, Dick McClelland, Doris McCormick, Shirley McQuarrie, Tom Moore, Ev Pangelina, Hank Rodeen, Patti Sheldon, Ruth Silvestre, Mike Starr, Pat Wilson, Pat Zumwalk, and John Leermakers.

BISHOP TO QUEEN FOUR AND CHECK

Fairchild has competitive chess!

There has been long-standing interest in chess throughout the company. In the past few months, the games being held at R & D have bloomed into full view—a chess club has been organized and is playing matches with other clubs in the area.

The Fairchild club has a great need for some of the company's more able and experienced players to make themselves known. The competition is tough—San Mateo chess club defeated us five games to one. Many other clubs have players who are rated as "A" in ability by tournament directors, whereas most members of our team take only a "C" rating.

Matches are held once a month. In December, we played against Staunton chess club of Los Altos and have a match on January 9, 1962, against Ampex.

If you are interested in joining the chess club, contact Jim Wilkerson at R & D. Perhaps you might enjoy attending one of the meetings discussing various openings and defensive strategies. Jim will be glad to give you information about the club.

WINTER GOLF

Fairchild's most devoted golfing clique, the "Winter League Set," plays once each month, each time at a different course. The meetings become occasions for a lot of fun and enjoyment, with everybody getting into the act. Prizes (golf balls) are given to the person carrying the low net score, low gross score, longest drive, closest to the pin, and least number of putts for the course. How can you lose?

On a very tough Pasatiempo course in Santa Cruz, Leo Lujan shot a good 95. Leo is probably Fairchild's fastest-improving golfer. December 9 saw the league play at the Pleasant Hills course in San Jose.

Anyone interested in playing should contact Gary Tripp at R & D. Fore!

Fairchild's chess club plays a San Mateo club. Playing for Fairchild (on the right side, top to bottom) are Mary Buenz, George Santos, Jim Wilkerson, Don Ramsay and Leo Lujan.

BOWLERS VIE FOR FIRST SPOT

Transistor team keglers are rolling into the home stretch of the first half of the season and it appears that the Watusi's are a good bet to emerge champions. With only three weeks remaining, they have gained a nice lead over the powerful Cinco team, which is in second position.

Top individual efforts were turned in by E. Grammatico, who had 203, 160 and 170 for a 533 series, and K. Myreholt, who had 221, 188 and 214 for a high series of 623.

Current league standings are as follows:

TEAM	WON	LOST
Watusi's	27	13
Cinco	26	14
Kings & Queens	25	15
No Accounts	24	16
Tigers	23½	16½
Splitniks	21	19
Gutterdusters	21	19
Emitters	20	20
Untouchables	20	20
Gogetters	20	20
Knight Shift	20	20
Galloping Volts	16	24
Kwestionmarks	15½	24½
Angles	15	25
Spastics	15	25
Filthy Five	13	26

High Series

Men—K. Myreholt	623
Women—E. Grammatico	533

High Game

Men—G. Reh	240
Women—L. Sheets	206

ALL AROUND THE PLANT

By Mary Grigsby

Santa has been looking down upon our humble existence and has decided to spread his generosity throughout our corridors and meager offices to make life easier for us all. Here are some of his plans:

PRODUCTION CONTROL—High-voltage tranquilizers.

SALES DEPARTMENT—Time clocks that chime "The High and the Mighty."

SWITCHBOARD—Steel nerves.

MEN'S ROOM—Leather lounging chairs, assorted cigars and cigarets, with a copy of the *Wall Street Journal* nearby.

GIRLS' ROOM—Walls of mirrors trimmed in lavender lace, satin lounges, perfumed soap, all supervised by French matrons . . . at least, matrons.

QUALITY ASSURANCE—More assurance.

MANUFACTURING—Italian/English dictionary for translation of Harry Sello's future correspondence.

PERSONNEL—Applicants breaking down door.

ACCOUNTING—More money.

MAIL ROOM—A thousand moist tongues to lick stamps.

ADVERTISING—Bitty books, dinky data sheets and midget manuals (storage problem!)

STATIONERY STORES—Generosity.

PLANT PROTECTION—Key rings.

CAFETERIA—Potted palms, full-piece orchestra, and flaming swordfish dinners on Friday.

MACHINE SHOP—More work orders issued on pink pastel, perfumed paper.

INDUSTRIAL RELATIONS—Afternoon dances in the central ballroom to insure better relations.

CRYSTAL GROWING—Expansion of product to rubies and diamonds.

ADMINISTRATION—Red carpets studded with diamonds.

SPECIAL PRODUCTS—Martinis with or without current.

Materials had a flood recently when the water line broke. Norm Peterson could be seen wading through four inches of water frantically mopping up the mess late one night. Tom Bright is now wearing trousers to work instead of shorts since he has purchased a car. Tom previously rode to work astride a racing bike; to preserve his trousers he rode in shorts and changed clothes at work. Seems the gals in Crystal Growing took it upon themselves to hide Tom's trousers occasionally, which left Tom helplessly working in his stylish shorts.

George Vashall is recognized as the spaghetti king after downing three platefuls of spaghetti at Rupes one Monday evening. Uggg! Bob Schaeffer (Accounting) had a pre-Christmas surprise when his dog gave birth to five puppies. The new face we've seen in Purchasing belongs to Cornelius Reese, who joined the company November 14. "Corny," a native Californian and San Jose State business grad, previously worked in Purchasing at Bethlehem Steel for five years.

Peggy Cassalata is now Mrs. Ralph J. Benitez and Lettie Ellen Antonelli became Mrs. Gordon Campbell last month. Kathy Poncini (Purchasing) and Larry Phillips (Shipping/Receiving) tied the knot recently. Joanne Krissman is now Mrs. Robert Low.

John W. Hall, advertising and public relations director, leaves the ranks of bachelorhood next month when he marries Peggy Facenda of Los Altos. The two will honeymoon in Hawaii.

Congratulations to Randy Shearer of the Advertising Department, who claimed Janet Masters as his bride on Dec. 1 in Menlo Park. The newlyweds are residing in Mountain View.

DATA FROM DIODE

By Bonnie Martz and Maxine Mendonsa

After strenuously resisting the charms of Marin County and commuting from Sunnyvale for more than a year, Bob Runge finally yielded and bought a new home in Terra Linda. Welcome to the fold, Bob.

Many new faces have appeared on the Diode scene during November. Hearty welcomes to John Capraro, Engineering; Ronald Timm; QA; Dorothy Mueller, Personnel; Larry Lehman, Production Control; Ed Kinyon, Tooling; and new Assemblers Saundra Brown, Yoko Clark, Pauline Norris, Connie Maestritti, Sauki Shaffer, Betty Ewing, Helen Manka, Kathy Ewing, Violet Thompson, Winona Lewis, Sonja Chambers and Rosie Pott. Former employees back with us again include Shirley Hancock, Engineering, and Assemblers Joyce Giacomini, Diane Brock, Janet Sturdevant, Lessie Lewis, Anne Ebitson, Doris Klopotek and Charlotte Laufer.

Vital Statistics Department: Among the new arrivals is a baby daughter, Shirley Ann, born November 8, to Al and Pat Mitchell. Congratulations to newlyweds Dean Mack and bride, the former Faith Peoples. Also newly married is leadgirl Gerry de la Montanya Wills.

Returned after lengthy illnesses are Susan Brockus and Marilyn Bourland. It's good to see you back again, girls.

Seeking snow country for the Christmas holidays are Helen Stapleton, bound for North Dakota; Clara Crouch, off to Oklahoma; and Inga Wagner to Lake Tahoe. We suppose Al Desmond will spend the holidays on skis or else nailing up a few more boards on his semi-completed ski cabin.

Bill Hertzog traveled 3000 miles to help tear down the goal posts after his alma mater, Lehigh, won their big game with Lafayette in the last five seconds. He also pulled the turkey wishbone with his father, who can't wait to get back to California for another party.

Classified - Information - We'd - Like - Unclassified - Department: Who rolls Art Pearson's and Bob Champagne's cigarets? Where does John Diepeveen procure his space-age lunch bags?

SEE YOU ALL AT THE CHRISTMAS PARTY!

Roll Out the Red Carpet

Welcome to newcomers at the various Peninsula plants: Mary Abrusci, Doris Siegfried, A. P. Sandoval, Eleanor Brown, Lucy Tidwell, Pat Sitton, Joan Tidwell, Elizabeth Leonard, Margaret Mattson, Naomi Newland, June Heaton, Eldena Davis, Caroline Escoto, Fumiko Anderson, Noriko Bryant, Gladys Joseph, Karlee Price, Barbara Steinberg, Evelyn Boren, Retha Lawrence, Gertrude Reed, Lucy Kallweit, Willa Anderson, Zoe Wiley, Dorothy DeVine, Peggy Russell, Joyce Harvey, Toni Sanchez, Patricia Doberstein, Dorothy White, Louise Terry, all assemblers; Ivan Nielson, lab tech.; Engebretson DeWane, exp. mach.; Claude Leathers, designer; Mary Ann Landes, int. clerk; Jean Ann Ray, int. clerk; Ronald Hammer, engr.; Vincent Fulginiti, asst. lab tech.; Loretta Aquino, sr. typist; Vincent Goskey, exp. mach.; Margaret Bean, clerk; Cornelius Reese, buyer.

NOTES & QUOTES

By Jim Wilkerson

Gary Parker and Betty Burge were married on Thanksgiving Day—a well-kept secret since the two have been working together at R & D for two years and not a hint of romance! The occasion was celebrated on the following Wednesday with a party at the Lodge and Gary was an hour late.

Congratulations to Phil and Mary Lou Ferguson on the birth of their third child, Lu Anne, November 6. Congratulations also to Helmut and Barbara Wolf on the birth of their second son, Steven, November 21. Helmut had an anxious experience this month when he managed to push his car off the S.P. tracks just before a train roared by.

Chin up, Gary Tripp; you are sure to find another bridge partner. Ed Porter was overheard explaining that a MNEMISTOR is an ELECTRONIC MNEMONIC. Elsewhere, one of our more uniform nonconformists was overheard saying that "irregardless of the results I preanticipated failure." ? ? ?

Rain arrived this month, much to the disheartenment of Bernie Yurash, Gene Lemons, Mike Julian and Rich Vilas. The four had planned a weekend hunting trip into China Camp in the Carmel Valley and EVERYBODY knows the dread fear of rain held by *all* cowboys. . . .

Welcome to Loretta Metoyer, Virginia Getty, Peter Angelides, Bill Augros, Jim Doherty and Stan Wetterhorn.

All R & D chess players are requested to record the results of all chess games on the ladder which can be found on my desk.

Good luck to Phil Flint, who is campaigning for nomination to the U.S. Congress in the newly formed 10th District.

And I want to extend this Christmas message to everyone ABCDEFGHIJKMNOPQRSTUVWXYZ. (Figure it out?)