



LAB NEWS

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AUGUST 18, 1972

SANDIA LABORATORIES • ALBUQUERQUE NEW MEXICO • LIVERMORE CALIFORNIA • TONOPAH NEVADA



Carter Broyles Named Director

Recently announced at the Labs was the appointment of Carter Broyles to Director of Effects Experiments 9100, effective Aug. 1. In conjunction with Mr. Broyles' promotion, two director transfers were also announced — Charles Bild to Director of Environmental Simulation 9300 and Lee Hollingsworth to Director of Computing 5400.

Carter joined Sandia in 1952 as a staff member in the Weapons Effects Department and later served as supervisor of Nuclear Burst Experiments Division and Radiation Physics Division. He was promoted to manager of High Altitude Physics Department in 1965 and since 1967 has been manager of Test Science Department.

Before joining Sandia, he held research and teaching fellowships at Vanderbilt University, where he received his PhD in physics in 1952. He received a BS in physics from the University of Chattanooga.

Carter was in the U.S. Army from 1942-45, serving in the European Theatre. He is a member of the American Association for the Advancement of Science, the American Association of Physics Teachers, and is a Fellow of the American Physical Society.

"When I have any free time," Carter says, "I like to go fishing, especially in northern New Mexico and Colorado. But most of our leisure is a family affair with our horses. Actually the horses (American saddle-bred) belong to my kids — Susie is 15 and Steve is 13 — but we all enjoy them."

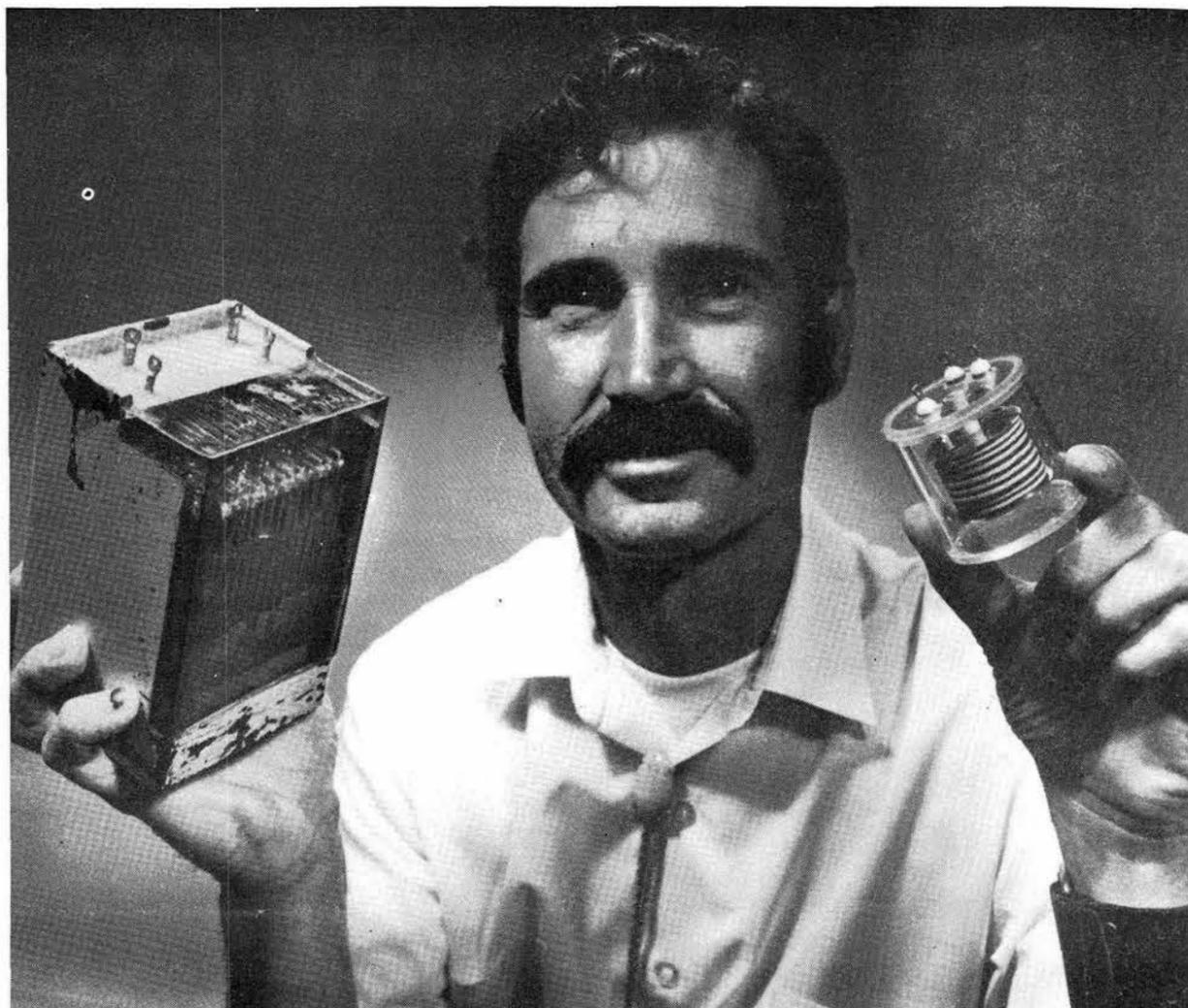
Carter, his wife Patricia, and their two children live at 5310 Los Poblanos Lane NW.

Harry Snook, Former Sandia VP, Dies

Harry Snook, former Sandia Laboratories Vice President for Manufacture, died Aug. 12 at his home in North Andover, Mass. He was a Western Electric Vice President, Manufacturing-Transmission Equipment. He was at Sandia in 1958-59.

He returned to WE in 1959 as assistant works manager at the Merrimack Valley Works, and was named general manager there in 1964. He assumed the responsibilities of Vice President-Transmission Equipment in 1969.

He is survived by his widow, two sons and six grandchildren.



DON BUSH (1913) displays an early model of a cup technology thermal battery, left, and a newer pellet technology battery at right. Recent AEC patent covers important innovations Don made in pellet technology.

Patent Granted for Thermal Battery Technology Advance

The AEC was awarded a patent recently for a thermal battery invented by Don Bush of Exploratory Power Supplies Division 1913. The patent covers innovations that advanced the design of thermal batteries from conventional cup technology to a pellet technology. Don's work provides the basis for all thermal battery components used in Sandia systems since the mid-1960s.

Essential characteristic of a thermal battery is the fused salt used as the electrolyte. Fused salts are solid and inert at normal room temperatures. When heated above their melting points, these salts become fluid and highly conductive electrolytes.

Because of their long shelf life — no maintenance or preparation before use required — thermal batteries replaced older types of power supplies in Sandia systems in 1955.

Early thermal batteries were fabricated by what is called conventional cup technology. The electrolytic salts were impregnated into a glass tape, and the temperature source was "heat paper" — zirconium fuel and barium chromate oxidized with glass and ceramic fibers.

Although these early batteries performed well, they were difficult to fabricate, and because of their intricate chemical systems, wide variations in performance resulted.

Power output of these cup-type thermal batteries is limited to less than five minutes. Then in 1960, Don Bush and other Sandians investigated the concept of pellet technology and, after four years of intensive work, the first completely pelletized thermal battery became part of a Sandia system.

The pellet-type thermal cell consists of three components: a heat pellet, the DEB (depolarizer, electrolyte and binder chemicals) pellet, and the anode.

Unlike heat paper, the heat pellet is easy to fabricate and not hazardous. It consists of an iron fuel and a potassium perchlorate oxidizer pressed into a homogeneous pellet. This pellet generates practically no gas upon burning, eliminating the need for a heavy case. After firing, the heat pellet is electrically conductive and the need for intercell connections is thereby removed.

The three components form a single cell, and a stack of single cells combined with additional heat pellets at each end, plus buffer pellets, complete the thermal battery. Buffer pellets (lithium sulfatesodium chloride fused salt with silica binder) function as heat reservoirs and prevent thermal shock which prolongs the output of the battery. Consistent power output performance has been achieved for up to 10 minutes in production models. •dg

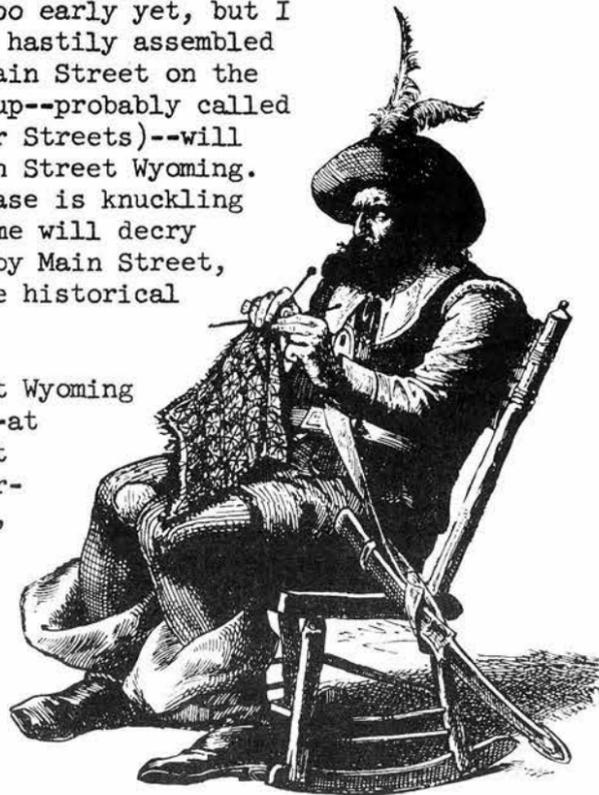
Afterthoughts

It Had To Come--From a local paper " ... the youth was brought into court by police who charged him with drunken riding on a bicycle... they spotted the man riding along a street in the NE Heights and he kept falling off the bicycle--the man was a mess..." BWI? why not?

Remember the Main!--It's a little too early yet, but I suspect it won't be long until some hastily assembled group protests the desecration of Main Street on the Base. In the first place, this group--probably called something like DSOS (Don't Sully Our Streets)--will bemoan the new signs which make Main Street Wyoming. Some will argue that it shows the Base is knuckling under to pressure from the City, some will decry the loss of the folksiness implied by Main Street, and surely someone will unearth some historical significance for the old label.

But the more dramatic change is that Wyoming (nee Main) must have been promoted--at least it now sports three stripes it didn't have before. It's now a four-lane thoroughfare with two lanes in, two lanes out at all times. It's a good idea--though I can't help but wonder why not three lanes with the current flow, one against. Probably the little podia the traffic police use are a bit too wide to fit the white stripes. Oh, well, the DSOS people wouldn't like it either way.

Always The Upbeat Ending--"Nothing on earth consumes a man more quickly than the passion of resentment." Nietzsche, Friedrich Wilhelm. *js



Supervisory Appointment



ISAIS GUTIERREZ, JR., to supervisor of Custodial Section IV, 4514-4, effective Aug. 16.

Isais joined the Labs in April 1964 as a janitor. Since then he has worked in a waxing crew, as a laborer, in the automotive maintenance shop, and most recently as a lead man on the labor force.

Before coming to Sandia, Isais spent 11 years in Alaska where he worked as a surveyor for the U.S. Army Corp of Engineers. "I've hiked and flown over every part of Alaska except for two tiny islands," he says.

Isais was in the U.S. Army during WWII, serving in Europe. He and his wife Cecelia have three children — Matthew, 12; Theresa, 10; and Paula, 8 — and live at 3914 San Isidro Dr. NW.

Friendly Neighbor Lends Helping Shovel

Appropriately modest, as if doubting that anyone would be interested, John Hornbeck has admitted to killing a rattlesnake with a shovel a few days ago.

Just before supper time his neighbor, a relative newcomer to Albuquerque, came over in a state of excitement — there was a rattlesnake on his patio. While reserving judgment on what kind of snake it would prove to be, Mr. Hornbeck went over to have a look. "It was a rattlesnake," he relates, "almost a yard long. He was hissing and rattling. We had scared him."

As a general policy Mr. Hornbeck is not in favor of upsetting nature's balance by wantonly killing snakes, but this situation seemed to pose a challenge and call for a response. Efforts at negotiation were fruitless, so he went and got a shovel and killed the rattler.

Asked whether he had been at all nervous, Mr. Hornbeck said, "Well, I didn't take the shortest shovel I could find. It had a long handle."

Events Calendar

Aug. 18-20, 24, 27 — "The World of Carl Sandburg," Corrales Adobe Theater, 8:30 p.m., 898-3323.
 Aug. 20 — N.M. Mt. Club, Sandia Crest Loop, 4 miles, Western Skies, 8 a.m.
 Aug. 23 — "Melusine," Aug. 24 — "Madame Butterfly," Aug. 25 — "Salome," Aug. 26 — "La Grande-Duchess de Gerolstein," 9 p.m., Santa Fe Opera.
 Aug. 25-27, 30-31 — Civic Light Opera, "Fiddler On The Roof," Popejoy Hall, 8:15 p.m., 277-3121.

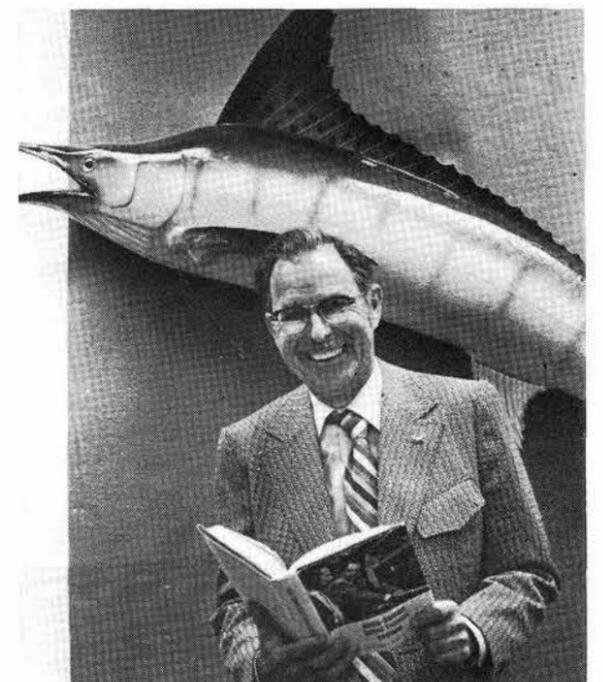
Aug. 26 — N.M. Mt. Club, Mystery Moonlight Hike, 6-7 miles, Gulf Mart, 6 p.m.
 Aug. 27 — N.M. Mt. Club, Cienega Canyon to Crest Ridge, 4 miles, Western Skies, 9 a.m.
 Aug. 28 — Fiesta-Carnival, Isleta Pueblo.

Alan Pope Named Fellow In AIAA

For outstanding contributions to the field, Alan Pope, Director of Aerodynamics 5600, was elected a Fellow of the American Institute of Aeronautics and Astronautics during the July meeting of the AIAA board of directors.

Alan, author of some 90 technical papers and seven textbooks on wind tunnel testing and supersonic aerodynamics, founded the local chapter of AIAA in 1961. He has served on the AIAA board of directors and is a Distinguished Lecturer in the organization. He has served as president of the Supersonic Tunnel Association and has held many civic positions in Albuquerque and New Mexico. He is currently a director of the Museum of Albuquerque and a member of the Governor's Committee on Education.

He joined Sandia as a staff member in 1951, coming here from Georgia Institute of Technology where he was professor of aerodynamics. He earned his BS in aeronautical engineering from Georgia Institute of Technology in 1934 and his MS in 1939.



Alan Pope

LAB NEWS

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An Equal Opportunity Employer
 ALBUQUERQUE, NEW MEXICO
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 as does norma taylor while
 bill lasker takes/makes pictures
 &

in livermore lorena schneider does all

The Alcoholic Among Us — Perhaps A Road Back

We all know what an alcoholic looks like, acts like, smells like. Watery, lack-luster eyes, red nose, stooped over, stumbling along (or maybe lying on a sidewalk), odor like a cheap saloon, or worse — right?

Wrong! at least 19 times out of 20. The derelict we've described makes up less than three percent of the nation's alcoholic population. Where are the others? They're all around us — living, driving or working with us, for us, or even above us.

So what is an alcoholic anyway? One simple definition: a person who has lost control of the practice of drinking alcoholic beverages to the extent that relationships with family, community, and employer are continuously and seriously disturbed. But most of them attempt to conceal the problem — from family, friends, and employers — so the illness progresses and the alcoholic pays the price of his cleverness by ending up on Skid Row. That is, unless the problem is discovered and the alcoholic is treated.

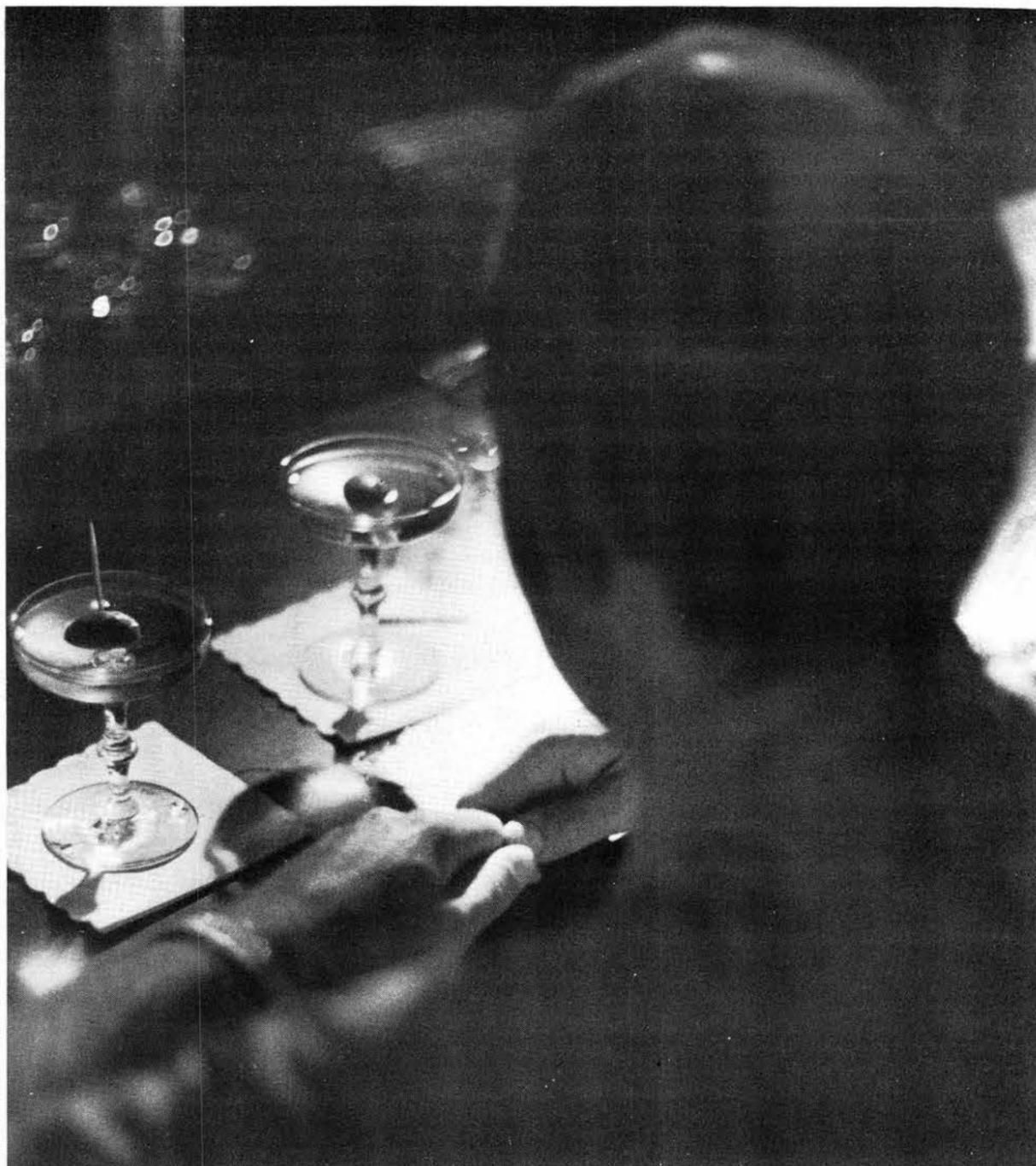
It's that Skid Row image of alcoholics that contributes to the problem. In two ways: 1) The non-alcoholic doesn't see any need for helping the person with a drinking problem until he's lost his job, his family, and his self-respect — until he's the kind of tragic stereotype we described. 'Tii then he's just another social drinker. And 2) The person with a serious drinking problem doesn't really think it's so serious because he's still got job, family, and friends — so he's obviously not an alcoholic.

The point is that all of us, whether alcoholics or teetotalers, are involved in the problem. It's a very real problem whether it's measured in terms of dollars (in lost time, sick leave, accidents, bad decisions) or in terms of disaster (to himself, spouse, children, friends, co-workers). And it's not rare: based on national averages, statistics suggest that Sandia Labs employs over 400 alcoholics and loses over 6500 working days annually through sickness absence attributable to alcoholism.

Sandia has just announced some positive steps in a new program on alcoholism. The all-too-common approach taken by employers has been to pretend nothing is wrong until the problem gets acute and pretense doesn't work anymore. Shortly thereafter, the alcoholic doesn't work anymore either.

Sandia's new program recognizes that the "fire the bum" approach is extremely expensive for both employer and employee. It acknowledges that both the company and the employee benefit by regarding alcoholism as a treatable illness, by reducing the social stigma surrounding the alcoholic, and by effecting a recovery.

As with any disease, chances for rehabilitation are greater if the disease is diagnosed and treatment begins in the early stages. Therefore, the new program is designed to work in two directions. The first is to assist supervisors in learning to deal with employees who have a drinking problem. This isn't easy. Supervisors seldom can identify their alcoholic employees until it's too late — then there's a confrontation based on quickly assembled attendance and performance data; termination may be the outcome.



Social drinker or problem drinker?

Under the new program, the supervisor will be shown how to encourage the employee who may have a drinking problem to go to Medical where trained people can help him. Thus the supervisor no longer need feel that he should overlook alcoholic symptoms until the situation deteriorates completely. If he does, he becomes an accomplice rather than a supervisor. For it is now known that the practicing alcoholic interprets his supervisor's acceptance of his work as evidence that his drinking must still be under control.

The second step is to convince employees that Sandia is sincerely committed to a workable program, specifically to early diagnosis and counseling which can prevent a minor drinking problem from becoming a major one.

Obviously no one can be or should be forced to accept these services. And it must be emphasized that Sandia is in no way concerned with social drinking. But when drinking repeatedly interferes with an employee's health and/or performance on the job, Sandia is concerned. Not only will medical services tailored to the alcoholic be available, but requesting them will not jeopardize the employee's job security or promotional opportunities. It's choosing *not*

to accept them that could jeopardize either or both.

Experience with alcoholism programs in other companies, however, shows that no matter how attractive the program, the alcoholic too often avoids treatment until constructively coerced. This isn't a sign of weakness or lack of courage. As one source discussing alcoholics in advanced stages puts it, "Pulling a physically wrecked body out of bed in the morning, charging it with alcohol, and doggedly going through the motions of getting to work represents a form of strength few nonalcoholics can realize."

The drive to conceal the symptoms of alcoholism will far too often continue even after a new program is announced. And the better the concealment, the worse the problem, and the harder the recovery. The urge to conceal dies hard. For one thing, the problem drinker can usually kid himself into believing that, since no one sees him as an alcoholic, he's still in control of his drinking.

For another, there's that social stigma again. Once the nonalcoholics can stop looking at alcoholism as a moral weakness, at the alcoholic as a disgrace, it will be much easier for the problem drinker to face reality and seek help through the kind of program Sandia has instituted. •bh

Man Is Victim of Self-Inflicted Promotion



BIKE RIDE, home to work, seven miles, turns out to be the way to go. Cyclist watches for dogs, the unfriendly variety, and cracks in road that can cause tire and rim damage. Only residential streets are followed. These are virtually free of traffic. Crossing arterials is easier when median is present — busy street can be crossed in stages. By entering Base through fence opening and cycling through housing area, Base traffic is also avoided.

A discerning reader of LAB NEWS may have picked up the notion that LAB NEWS is for (among other things) bicycles. Over the last year we've discussed bike exits from the Base, the Sandia Bicycle Ass'n., the Bike Map of Albuquerque, riding a bike to reduce pollution, and so on. While it's untrue to say that we don't go to press unless we have something on bikes, our coverage on the subject has been more extensive than that given to, say, the pursuit of butterflies, which people assure me is also lots of fun.

Trouble is, when you write promotional pieces, it's like the medical technician who becomes tainted by the disease strain he's working on. I prepared most of the bike stuff that appeared and found, after a while, that I was beginning to attach some credence to what I'd said. I'd been coming to work serenely on my super stud motorcycle, confident that *this* was the way to go. But I'm confident no more. I've been riding my new 10-speed bike to work for a month now, and the experience is a revelation.

* * *

The efficiency thing. Everybody knows what riding a bike is like, right? Actually sort of a chore. Wrong. There is a quantum difference between the performance of a good 10-speed bike, weighing 25 to 30 pounds and properly adjusted, and that of the 50-pound balloon-tired clunker of the type we had around the Tech Area a while back. The 10-speed is marvelously efficient. And even going up a grade the wide range of the gears makes the effort not excessive. Indeed, I had hoped that the 15 miles per day I put on the bike would be a good substitute for a two-mile running regimen, but the machine is simply too efficient and undemanding physically. (I concede that logic may here suggest a return to an inefficient bike if physical exertion is the aim, but I'm not all that dedicated.)

Traffic. What traffic? Cyclists who complain about traffic are generally those foolhardy types who choose to follow arterials. So you get out your handy Bicycle Map of Albuquerque (endorsed by Sandia Bicycle Ass'n.) and select a route through residential areas. In the seven and a half miles to my home, it's no exaggeration to say that less than 10 vehicles overtake me — and it's the overtaking vehicle which really is the only potential problem of any magnitude. Vehicles coming toward you, or those you encounter at an intersection are not "problems" in the sense of creating an unanticipated hazard. When the residential street intersects an arterial such as Lomas, Central or Louisiana, then I stop (as I would irrespective of mode of transportation) and cross when there's a break in the traffic. The cyclist prefers to cross arterials with medians because these can be crossed by stages. I enter the Base through the northwest fence opening (Base bike map, LAB NEWS, March 30), have a pleasant ride through the housing area, cross Gibson and Main Sts., and arrive at the Tech Area. Time: about 45 minutes, vs. 30 by motorcycle, and there's no walk from the parking lot.

Problems. (1) A non-cyclist would never guess the principal difficulty. I consider this to be rough streets, especially those with crevasse-like weather cracks running across the street. These cracks are perhaps two inches wide, some are deep enough to have grass growing in them, and when the thin, 70-pound bike tire hits one you feel your back teeth rattle. And they're hard on rims too. (2) There are only two species of dogs: *canis amicus* and *canis malevolentis*. Fortunately

most fall in the first group. For the latter several specifics are suggested. I prefer the eyeball-to-eyeball stare down, which seems more dignified. This may not be too effective against one dreaded subspecies, *optimus canis malevolentis*, for which the cyclist has but one recourse: pedal faster. (3) The right-turning motorist. Sounds harmless, but a nasty situation can develop when an unthinking motorist takes a right turn immediately in front of a cyclist. This character is usually the kind who neglects even to use his turn signals. (4) Weather. Ours is great and one of the best arguments for bike riding. If wind or rain comes up during the day, you can leave your bike overnight in the Tech Area and hitch a ride. Nowadays your bike is probably safer there than at home anyway. One person asked me, "But what happens when you get caught in the rain?" Answer: you get wet.

No sweat. Well maybe just a little. Thanks to all those tasteful TV ads, most Americans have a horror bordering on obsession of Causing Offense, otherwise known as smelling a bit. I've always thought the problem overstated. You probably wouldn't want to spend the afternoon in a phone booth with a man who'd been falling timber all morning. But bike riding, even on a July morning, produces little perspiration and, you can always sponge off in the rest room.

Esthetics. Aside from the physical thing and all the virtues of non-polluting, one would have to be extraordinarily insensitive not to respond to the esthetic in biking. It's fun. In the morning coolness, riding down the tree-shaded, silent streets is a pleasure. Compared to hauling a car through heavy traffic, well there is no comparison. Why aren't you on a bike? •js

President Hornbeck Appointed Head of New Mexico NAB

President John Hornbeck was installed this week as the new metro chairman for New Mexico's National Alliance of Businessmen, a group working to find jobs for the disadvantaged. He replaces Tom Overton, Mountain Bell chief engineer.

Mel McCutchan, supervisor of Community Action Division 3235, who has served as manager of the local NAB office for the past year, will become metro director, a position held previously by Harry Baldwin of Mountain Bell.

President Hornbeck, whose appointment was made by the White House, will direct NAB's job-finding efforts throughout the state until next June 30.

In confirming Mr. Hornbeck's appointment, President Nixon commended members of the business community for their willingness "to assume leadership of efforts to solve employment problems of the disadvantaged and the transition problems of returning Vietnam-era veterans."

NAB is a voluntary organization of businessmen working in cooperation with government and labor to find jobs and provide job training with private employers for the chronically unemployed and underemployed. In addition, NAB also finds summer employment for youth from disadvantaged neighborhoods, jobs for Vietnam veterans and jobs for distributive education students in public schools.



Supplies of service award jewelry are finally coming in. Kathy Rogers, Youth Opportunity Trainee in Div. 3243, is working to fill backlog of requests as rapidly as possible. Employee Services Division 3243 is hopeful that all employees who have made award selections will have their jewelry by Oct. 1.

Letters to the Editor (Cont.)

Last issue we carried a letter in which the author, Bill Busby (4116), took exception to programs aimed at eliminating discrimination but which seem to create other forms of discrimination. His letter prompted this reply by Ralph Trujillo (1742):

"Editor, Lab News

Re: Lab News 'Letter To The Editor' by Mr. Bill Busby

Discrimination is a hard and maddening thing to have visited upon one's family or person. Most Americans are probably 'against' discrimination; disagreement begins when the means of reducing or eliminating discrimination are considered. Mr. Busby defined his views on this subject; I would like to express mine.

It seems to me that any worthwhile goal requires sacrifice, and if we as a nation truly believe it is desirable to reduce or eliminate discrimination we must be willing to pay the price in terms of personal and economic discomfort. Such a goal can only be achieved at the 'expense of someone else' — be it a National Merit Scholarship Finalist with wealthy parents who doesn't get a scholarship, a Phi Beta Kappa who doesn't get a graduate assistantship (however, I'll wager he is now in graduate school), or a child who loses a job opportunity because he comes from a financially and emotionally stable home.

Yes, these individuals will pay a price in terms of somewhat muted personal opportunities, but I feel very strongly that they are buying a better America where the words 'advantaged' and 'disadvantaged' need not exist."

Congratulations

To Mr. and Mrs. Edward Roberts, Jr. (1932), a son, Edward, IV, July 18.

To Mr. and Mrs. Paul Plomp (7146), a daughter, Virginia June, July 27.

Take Note

Bill Mahaffey, chief film editor in Motion Picture-Video Services Division 7544, has been awarded the degree of Master Photographic Craftsman by the Professional Photographers of America, Inc.

The degree, the highest award given to professional photographers, was conferred in a special ceremony in Detroit last month at the 81st International Exposition of Professional Photography. It signifies the attainment of two awards — the degrees of Master of Photography and Photographic Craftsman — earned for exceptional service to the profession, for exhibit competition, and by demonstration of outstanding professional ability. Bill has been at the Labs for 11 years.

* * *

Additional Doctoral Study Program participants receiving degrees include: Don Schroeder (1433), PhD, EE, UNM; Mel Scott (5222), PhD, math, University of Vermont; and David Caskey (5424), PhD, EE, University of Texas.

* * *

Julian Lovato (4154) was recently awarded a BBA degree from the University of Albuquerque. He earned the degree under Sandia's Educational Aids Program.

* * *

Kindergarten? Your four and five year olds can attend the Base kindergarten near the Parade ground and it's less expensive than most — \$10 registration and \$20/month. If you're interested you can get more details by dialing 81-2795 or going to Bldg. T-231 (somewhere near the NE vicinity of the north-south runway at Kirtland West) between 9 and 3.

One-Day YWCA Tour Announced

The YWCA will host a chartered bus tour to Acoma, Perpetual Ice Caves and El Morro (Inscription Rock), on Saturday, Sept. 9.

Acoma Pueblo, situated on top of a mesa near Grants, is 1000 years old and is believed to be the oldest continuously occupied settlement in the U.S. According to Indian legend, the ice caves were formed some 5000 years ago when a volcanic mountain spewed out molten rock and the caverns resulted. Inscription Rock is a sandstone bluff which served as a landmark for early-day Indian tribes. Travelers marked their passage by carving their names or messages in the rock.

Cost of the trip for YWCA members is \$17, non-members \$18, and includes transportation, entrance fees and insurance. Reservations (247-8841) must be made and money paid before Aug. 26. The bus will depart YWCA at 8 a.m. and return at 6 p.m.

Sympathy

To Gene Jones (9125) on the death of his brother in Phoenix July 18.

To George Johnson (7453) on the death of his father-in-law Aug. 3 in Phoenix.

To Roger Edwards (5132) on the death of his father-in-law Aug. 4.

To Jennie Spann (7133) on the death of her husband Aug. 8.



MIKE O'BRYANT (7651), manager of Sandia's champion slow pitch softball team displays second place trophy the team earned in the recent state finals. The team is in Salt Lake City this weekend competing in a regional meet.

Recreation Notes

FUN & GAMES

Sandia Labs' champion slow pitch softball team is in Salt Lake City today playing against top teams from the western states in a regional tournament. The Sandia team came in second in the recent state tournament and third in the Albuquerque district meet.

Members of the team are Mike O'Bryant (7651), Leo Webb (7142), Winser Alexander (1752), Rick Orzel (5621), Matt Sagartz (9324), Dick Pewe (4121), Art Sharpe (9324), Ted Garcia (5411), Roque Gallegos (9323), Ray Jones (9213), Jimmy Winter (4513), Pat Freeman (7434) and Herman Kaneshiro (7122).

* * *

Dave Klein (AEC) is low gross winner and Ralph McClure is the low net champ emerging from a field of 63 contenders in the recent 13th annual Fred J. Given Memorial Tournament played at Arroyo Del Oso. Dave shot a 72 to earn his trophy, Ralph pulled 62 with handicap.

Deaths

Paul Bishop, a section supervisor in Production Services Division 4338, died Aug. 12 after a long illness. He was 53.

He had worked at Sandia Laboratories since July 1953.

Survivors include his widow Wanda (4118) and a daughter.



* * * * *

John Keller, a writer in Weapon Manuals Division 1612, died Aug. 8 after a short illness. He was 57.

He had worked at Sandia Laboratories for 29 years.

Survivors include his widow and two sons.



Summer Hires Discuss Working At Sandia

Over 25 faculty members, graduate students, and other students under the Youth Opportunity and Student Development Aid Programs are at Sandia/Livermore this summer. We asked several of them how they viewed their Labs employment.

* * *

AL RAWLINS



—draftsman trainee, Mechanical Design Drafting Section 8432-1; sophomore at Laney Junior College in Oakland, majoring in drafting technology.

“Working at Sandia for two summers has given me the opportunity to meet different people. But even more important, I’ve been getting experience in my field, which not many students are able to do in summer employment. The experience is especially helpful when I return to school. For instance, I’ve found I can skip sections where the subject matter was covered during the summer and substitute something else. I’m learning how business operates and how things are actually done on the job. It’s completely different from school — much more realistic. On the job everything is simplified and done the easiest way.”

* * *

—typist clerk, Visitor Control Section 8261-1, sophomore at Fresno State College with a major in pre-medical microbiology, working towards a career as an MD.

“I had certain ideas about people who work, the stereotypes, etc., but now I find a lot of my ideas are wrong. It helped me to become more aware of what the working world is really like. When I’m at school I deal with people my own age, where here people are older than I am, and it’s rather a broadening experience. One thing I have learned from working the past two summers is that you are responsible for your own actions; for instance, if I fail to write something down, to log it in or write it on a particular card, we completely lose that information, and it’s my fault. I wasn’t as aware of that last summer as I am this year.”

* * *

RICH RAMIREZ



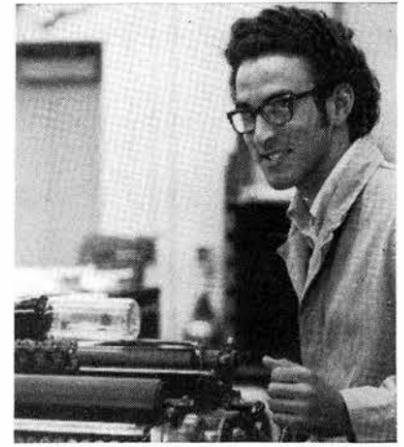
—assigned to Environmental Test Division 8413; sophomore at University of California at Berkeley, major in electrical engineering/computer science.

“What I’m doing right now is exactly what I did in my classes at school; but this is better since I have free use of a small computer. In school there would be a constant stream of people in and out of the computer center, day and night. My supervisor also wants me to get out among different people around the Labs, so I’m actually getting a lot of exposure to different aspects of engineering. I had a summer job back in my home town of Brentwood at about the same pay, but I knew I would get valuable engineering experience and I chose Sandia. When I go back to school in the fall, I should be on top of everything for my classes.”

ROY KENNEDY

—reproduction equipment operator, Composition and Printing Section 8231-1; returns to Livermore High School in September for senior year, college prep major in history and social sciences.

“By working for three months, eight hours a day, you realize better what it’s going to be like five years from now when you’re out in the world instead of going to school. At Sandia I’m not only learning the work, but general things like getting along with co-workers and reporting to a boss — all of which will be useful later on. My job is interesting now, but I don’t think I would want to work in it after I finish school.”



* * *

TED HATCHER



—assigned to Data Processing Division 8411; a graduate student at the University of Vermont working toward a PhD in applied mathematics, holds a master’s degree from Michigan State University.

“Students are oriented toward theory and research, but the people I’ve met here are basically problem solvers — definitely a different point of view. Just research and proving everything all of the time can get a little boring and you lose interest in math — you want to find a new road and something that is more relevant. In other words, find a purpose for it. I guess having a chance to use and apply the math I’ve been learning is the main advantage of being here. It gives me new insight and helps me to see the type of things I really need to get into when I return to school in the fall so that I can be better prepared when I come out.”

* * *

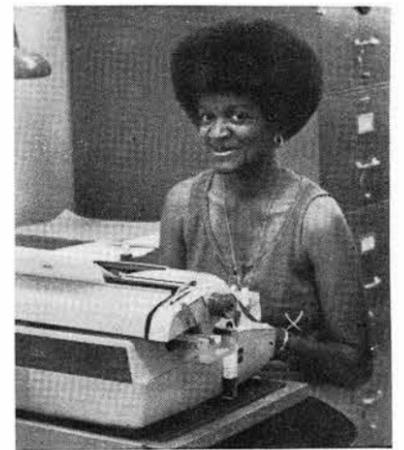
CAROL THORUP



—typist, Composition and Printing Section 8231-1; a sophomore at Merritt College in Oakland, working towards an AA degree in secretarial administration.

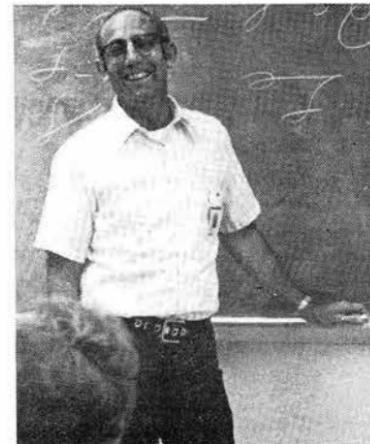
“Sandia’s summer program is a real opportunity. Working in Composition, I’m learning things from typing technical reports and documents that I could never get in a classroom. Since my job requires a great deal of typing, my speed has increased considerably, and I plan to attend the noon-hour refresher shorthand classes to sustain the shorthand speed I’ve achieved. Working this summer and maintaining my secretarial skills in school will help me in applying for a regular, full-time job when I complete my AA degree requirements.”

SHIRLEY ARCHABLE



* * *

JOE HUMPHREY



—assigned to Staff Personnel and Industrial Relations Division 8312; a business department teacher and counselor at Livermore High School.

“Summer employment at Sandia has provided me excellent information and insight for use in counseling young people. In fact, there are career areas that previously I had never heard about, such as industrial security, hazards control, and other areas relating to Sandia that one doesn’t get exposed to in the school business. I hope to be able to pass this on to students as vocational guidance. Projecting the employment situation in a certain field, whether today, tomorrow, or five years from now, will certainly be helpful in advising students who are deciding on careers.”

LIVERMORE NEWS

VOL. 24, NO. 17

LIVERMORE LABORATORIES

AUGUST 18, 1972



NEWEST MEMBER OF SANDIA'S BOARD OF DIRECTORS James Herbert (left) visited the Labs recently for briefings and tour of facilities. Shown with him at Livermore are Vice President Tom Cook (8000), center, and President Hornbeck.

Wildlife Federations At Colloquium Aug. 23

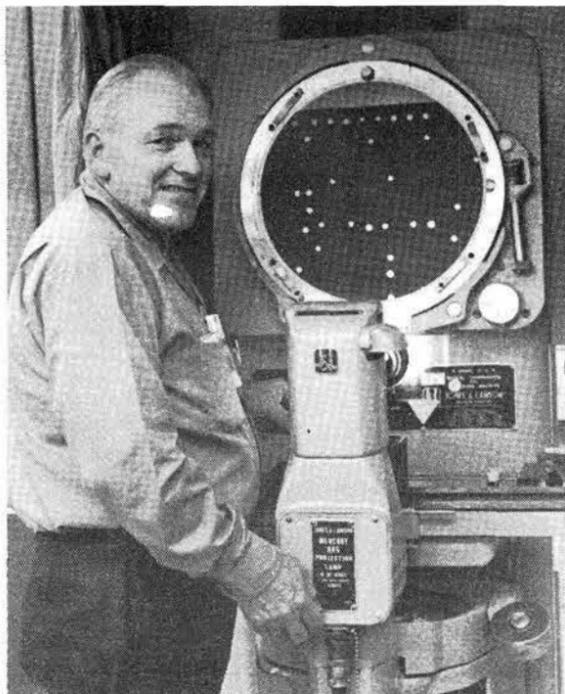
Representatives from the National and the California State Wildlife Federations will speak at a colloquium to be held at Sandia Laboratories Livermore, Wednesday, Aug. 23.

William Reavley, Western Regional Executive of the National Wildlife Federation, will discuss the goals of the Federation, and the national Environmental Quality index. This index is a systematic approach to quantifying the status of our basic natural resources.

Lawrence Cloyd, Executive Director of the California Wildlife Federation, will discuss how the survival of fish and wildlife resources in California depends on land, water and air as well as upon peoples' attitudes, thoughts and actions.

Tickets are required for admission. Alec Willis (8351) is host.

Retiring



Dan Dewhirst (8421)

Speakers

Tony Thompson (8313) and Ben Odegard (8312), "Room Temperature Creep of Ti-5/Al-2.5 Sn," Spring Meeting of AIME, May 9, Boston; also Livermore Technical Seminar Series, April 28.

Hartmut Spetzler (8314), "Thermal Expansions by Holography," American Geophysical Union Annual Meeting, Washington, D.C.

Pete Mattern (8331), "Radioluminescence of KCl:Ti," American Physical Society Meeting, March 27, Atlantic City, N.J.

Bob Rinne (8324), Mathematics Seminars: "An Introduction to Cobordism Theory," California State University at Hayward, April 4; "Cobordism Theory," University of California at Riverside, May 17.

Walt Bauer (8334) and Ron Musket (8313), "Near-Surface Compositional Studies Using Proton Bombardment X-ray Production," Spring Symposium of the Albuquerque Section of IEEE, Albuquerque, N. Mex., April 6.

Ray Mar (8314) and Monty Nichols (8311), "The Nature of Erbium Hexaboride," 74th Annual Meeting American Ceramic Society, May, Washington, D.C.

Take Note

Mickey Rindone, supervisor of Mechanical Design Drafting Section 8432-1, served as a judge for the Vocational Education Olympics Contest held at this year's Alameda County Fair in Pleasanton. Sponsored by the Fair's Board of Directors, the Alameda County Industry-Education Council, and the Alameda County School Department, the Olympics has as its objective the selection of the most skilled students from the secondary vocational education programs. To be eligible for competition, a student must be enrolled full-time in an occupational education course in a public or private high school in Alameda County. Mickey judged in the drafting division competition.

Sympathy

To Phillip Smith (8137) for the death of his father-in-law in Portland, Ore., July 20.

To Bill Byroads (8335) for the death of his father-in-law in Brentwood, July 14.

To John Bryson (8421) for the death of his father in Newcastle, Ind., July 16.

Authors

J.C. Crawford (1410), "Piezoelectric Response of a Ferroelectric-Memory Array," Vol. 19, No. 2, IEEE Transactions on SONICS AND ULTRASONICS.

R.L. Gerlach (5332), "Distortion of Differentiated Deflection Analyzer Current," Vol. 9, No. 2, THE JOURNAL OF VACUUM SCIENCE AND TECHNOLOGY.

G.H. Haertling (1316) and C.E. Land (5153), "Recent Improvements in the Optical and Electrooptic Properties of PLZT Ceramics," Vol. 19, No. 2, IEEE Transactions on SONICS AND ULTRASONICS.

J.E. Houston (5332) and R.L. Park (5331), "Appearance Potential Study of the Band Structure of Transition Metals on Transition Metal Surfaces," Vol. 9, No. 12, THE JOURNAL OF VACUUM SCIENCE AND TECHNOLOGY.

G.E. Laramore (5151), "Elastic and Inelastic Low-Energy Electron Diffraction (LEED) from Solids," Vol. 9, No. 2, THE JOURNAL OF VACUUM SCIENCE AND TECHNOLOGY.

R.L. Long (1433) and L.C. Beavis (1413), "A Versatile Soft X-Ray Appearance Potential Spectrometer," Vol. 43, No. 6, THE REVIEW OF SCIENTIFIC INSTRUMENTS.

E.J. McGuire (5234), "Origin of the Silver L-Series X-Ray Spectrum," Vol. 5, No. 6, PHYSICAL REVIEW A.

R.D. Nasby and E.L. Burgess (both 5335), "Precipitation of Dopants in Silicon-Germanium Thermoelectric Alloys," Vol. 43, No. 6, JOURNAL OF APPLIED PHYSICS.

R.L. Park (5331), J.E. Houston (5332) and D.G. Schreiner (5331), "Chromium Depletion of Vacuum Annealed Stainless Steel Surfaces," Vol. 9, No. 2, THE JOURNAL OF VACUUM SCIENCE AND TECHNOLOGY.

P.M. Richards (5132), "Direct-Process NMR Relaxation by Spin Waves in a One-Dimensional Antiferromagnet," Vol. 28, No. 25, PHYSICAL REVIEW LETTERS.

P.D. Thacher (5153), "A Linear Electrooptic Effect in Ferroelectric Ceramics: PLZT 12/40/60," Vol. 19, No. 2, IEEE Transactions on SONICS AND ULTRASONICS.

T.W.H. Caffey (1442), "Noise Figure Measurement and NPR Specification Using Thermal Power Ratio," April/May issue, TELEMETRY JOURNAL.

C.W. Harrison, Jr. (1426) and R.W.P. King (Harvard U.), "Transmission Line Coupled to a Cylinder in an Incident Field," Aug. Issue, IEEE Transactions on ELECTROMAGNETIC COMPATIBILITY.

L.B. Smith (5233), "Rotation of Wind Direction with Altitude as Obtained from Vapor Trail Observations," Vol. 77, No. 16, JOURNAL OF GEOPHYSICAL RESEARCH.

G.C. Tisone (5233), "Measurements of the Absorption of Solar Radiation by O₂ and O₃ in the 2150-A Region," Vol. 77, No. 16, JOURNAL OF GEOPHYSICAL RESEARCH.

A.G. Beattie (5153), "Acoustic Velocity Measurements in the Metal Hydrides ScH_{1.99}, YH_{1.93} and ErH_{1.81}," Vol. 43, No. 7, JOURNAL OF APPLIED PHYSICS.

L.R. Edwards (5132), "Effects of Pressure on the Resistivity of Ag-Au Alloys," Vol. 51, No. 2, PHYSICAL STATUS SOLIDI.

J.G. Fossum (1932), "A New Approach to Bipolar Device Modeling for CAD," Vol. 60, No. 6, proceedings of the IEEE—ELECTRONIC CIRCUITS AND DESIGNS.

H.C. Hardee, D.O. Lee and A.B. Donaldson (all 1543), "A New Method of Predicting the Critical Temperature of Explosives for Various Geometries," Vol. 18, No. 3, COMBUSTION AND FLAME.

M.L. Lieberman and G.T. Noles (both 5313), "Impurity Effects in Carbon Fibres," Vol. 7, No. 6, JOURNAL OF MATERIALS SCIENCE.

B.D. McLaughlin (5531), "Protective Metallic Coatings for Gamma-Quenched U-5 wt % Nb Alloy," Vol. 43, No. 3, JOURNAL OF NUCLEAR MATERIALS.

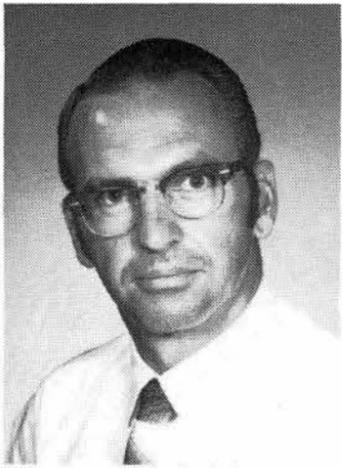
P.A. Miller, J.B. Gerardo and J.W. Poukey (all 5223), "Relativistic Electron Beam Propagation in Low-Pressure Gases," and Miller and Gerardo, "Relativistic Electron Beam Propagation in High-Pressure Gases," Vol. 43, No. 7, JOURNAL OF APPLIED PHYSICS.

B. Morosin (5152), "Structure and Thermal Expansion of Beryl," Vol. B28, Part 6, ACTA CRYSTALLOGRAPHICA.

H.J. Rack (5535), "Communication: The Influence of Titanium Additions on the Fracture Behavior of Iron," Vol. 3, No. 6, METALLURGICAL TRANSACTIONS.

A.J. Toepfer (5241) and L.P. Bradley (5245), "Plasma Instabilities in High-Current Field-Emission Diodes," Vol. 43, No. 7, JOURNAL OF APPLIED PHYSICS.

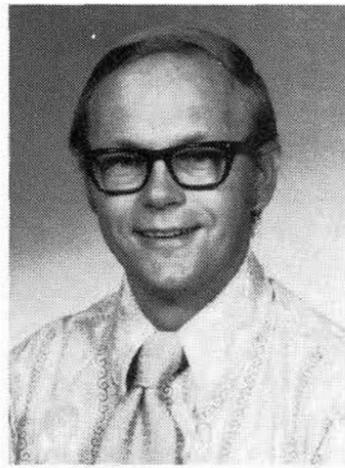
R.E. Luna and H.W. Church (both 5644), "A Comparison of Turbulence Intensity and Stability Ratio Measurements to Pasquill Stability Classes," Vol. 11, No. 4, JOURNAL OF APPLIED METEOROLOGY.



David Bushmire — 1431 15



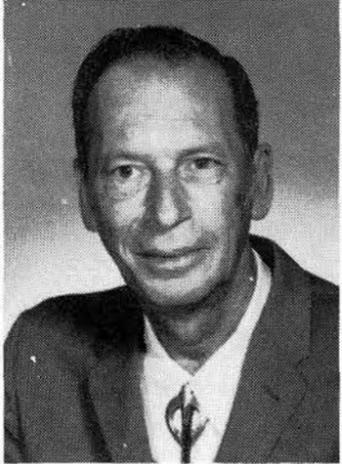
Charles Bray — 7111 20



Pete Stirbis — 1542 15

MILEPOSTS

LAB NEWS August 1972



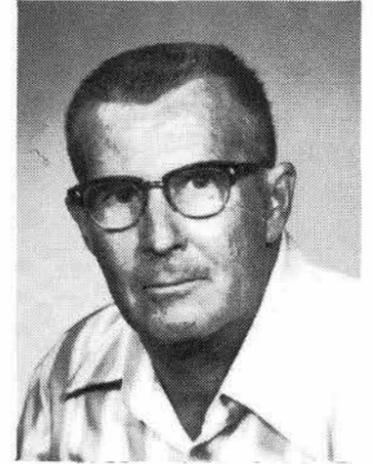
Bernard Bueffel — 1824 20



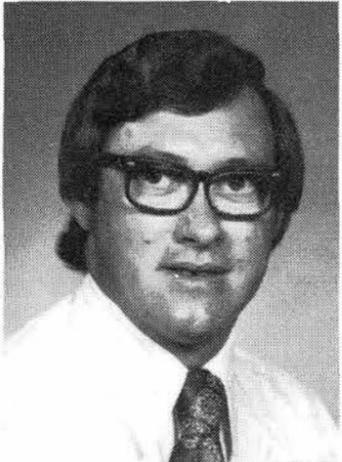
Bill Morehouse — 8175 20



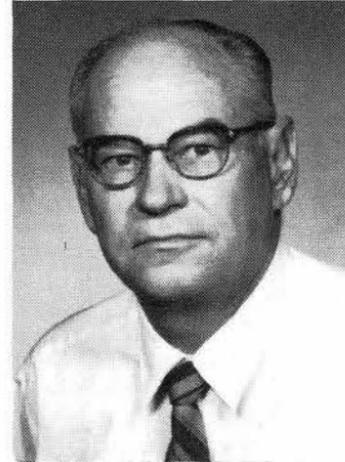
Jane Robertson — 7542 20



Frank Vest — 9321 20



Don Gluvna — 7613 10



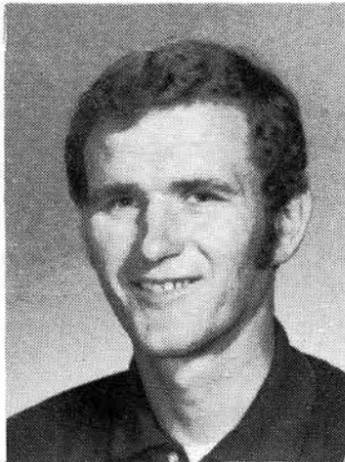
Robert Reineke — 1425 20



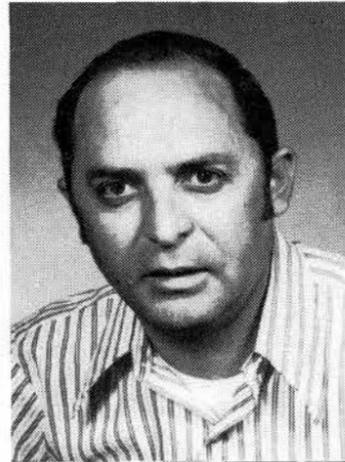
John Laster — 9239 15



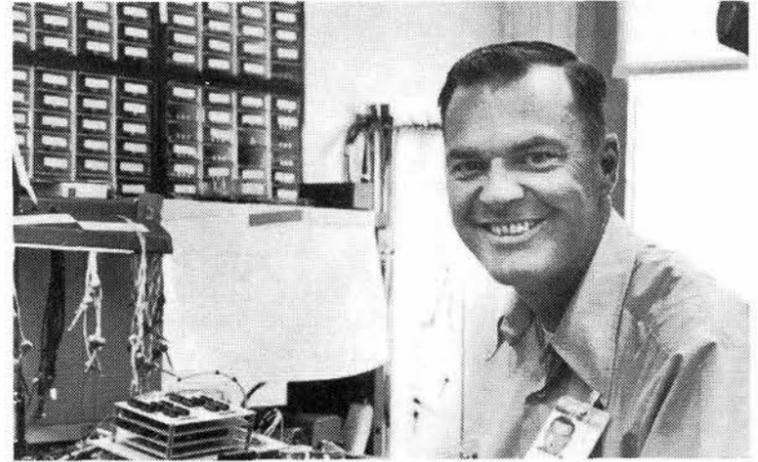
Bud Elliott — 7113 15



David Shirey — 9321 10



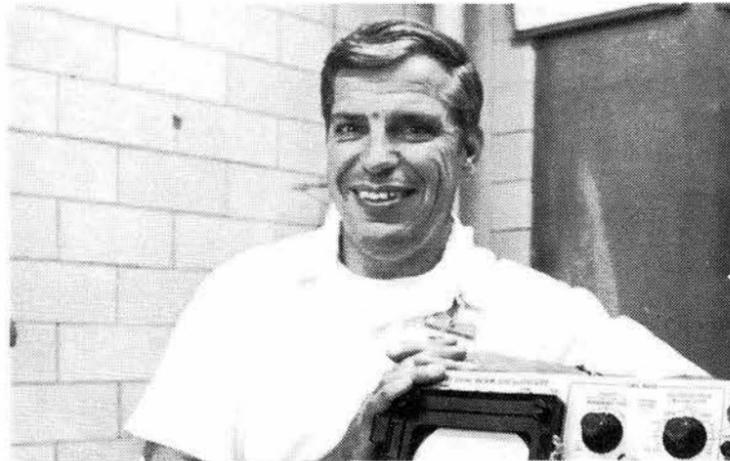
John Sisneros — 4151 20



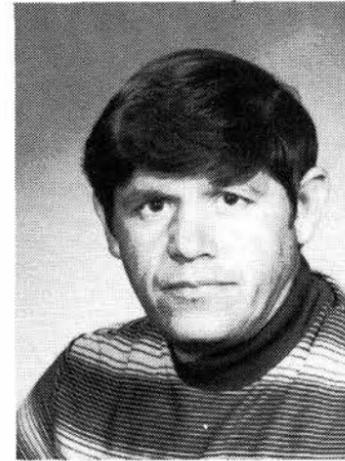
Theea Wheelis — 9241 15



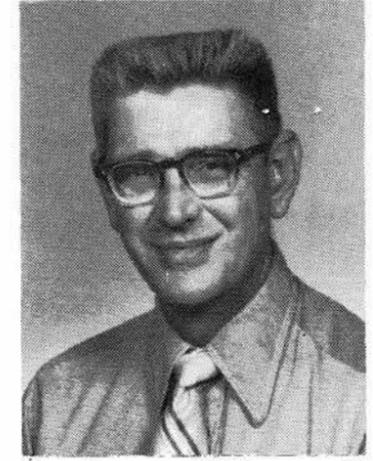
R. D. Christopher — 7423 20



Andrew Wilken — 1223 15



Louis Roybal — 7134 15



Hans Hansen — 9223 20



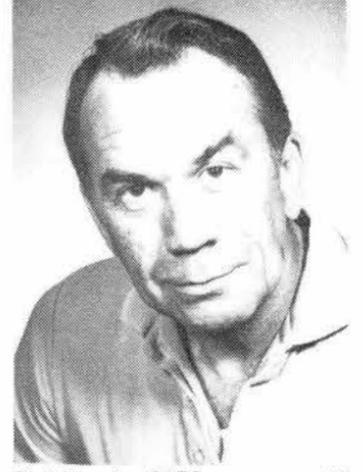
Lyle Schultz - 1525 15



Raymond Saiz - 4614 20



Jo Davis - 9334 25



Phil Mead - 3152 15



Everett Hayes - 1811 20



Thelma Carpenter - 7631 15



Frank Scofield - 4118 15



Roy Griego - 4152 20 15



Louie Bryant - 3520 20



John Larson - 1611 20



Edward Peterson - 7142 20



Bob Peterson - 8183 20



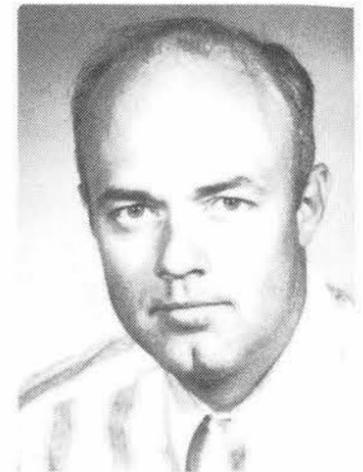
Richard Wilson - 1425 15



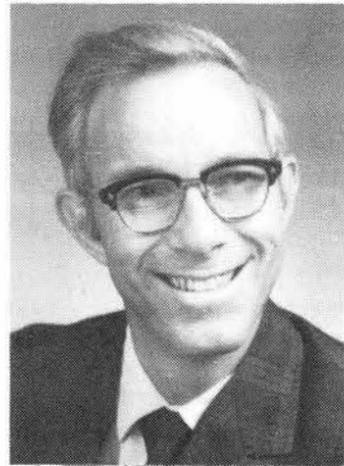
Pete Vigil - 4514 15



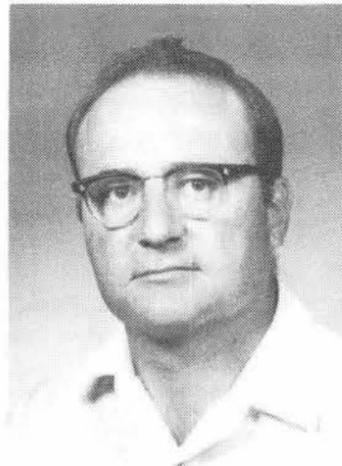
Ruth Adams - 1555 10



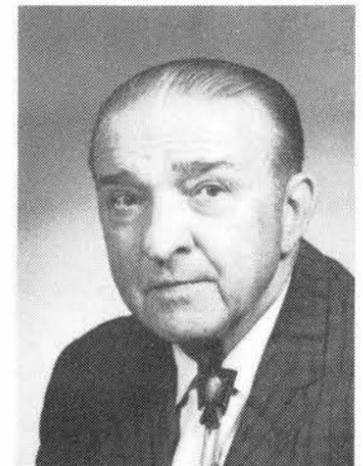
Ronald Williams - 7611 15



Wil Vandermolen - 8414 15



L. J. Woolrich - 9341 20



Thomas Tate - 1534 15

ECP Committee Planning New Kind of Campaign for October

A new concept for conducting the forthcoming Employees Contribution Plan campaign emerged from a meeting of the ECP committee and directorate representatives last week. Essentially, 30 individual campaigns will be conducted at Sandia simultaneously starting Oct. 3. Each directorate at Sandia Albuquerque will conduct its own drive tailor-made to fit the circumstances of the organization.

Ken Sutton (3250), chairman of the ECP committee, reports that enthusiasm is high among the members of the planning group.

"We have pinpointed the areas needing the most effort," Ken says, "and plans are underway to carry the ECP message home. Sandians generously support the ECP drive but there is much room for improvement. Our goal continues to be a Fair Share contribution (one hour's pay per month) from all employees. Only 48 percent of Sandians are now giving at this level. Some 18 percent of our people do not give anything at all. Obviously, we have room for improvement."

This year, Sandians have pledged \$357,000 to the 34 agencies of the United Community Fund and eight other national health agencies. UCF receives 85 percent of the amount pledged; the other agencies receive an amount

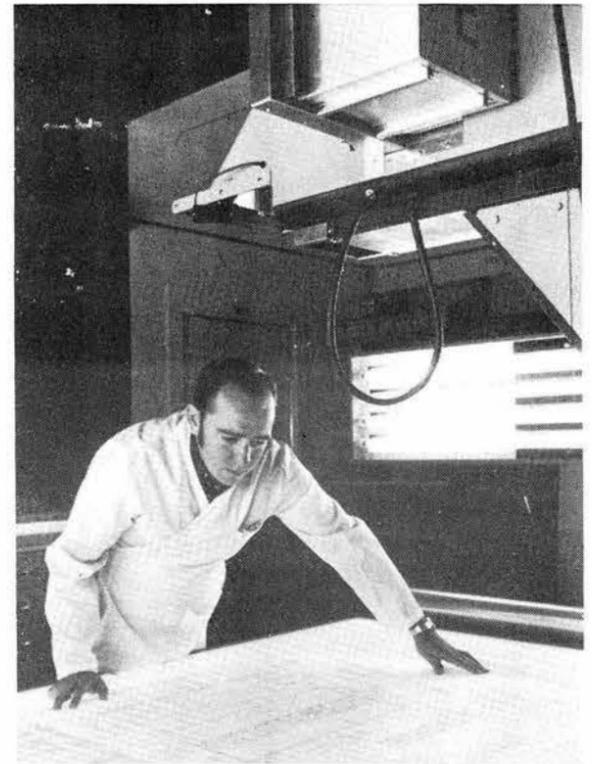
based on the organization's fund raising efforts in the community according to a percentage formula determined by the ECP allocations committee.

Intent of the ECP is to make it possible to support most of the charity efforts of the entire community with one gift painlessly deducted from the employee's paycheck each pay period.

"The point," Ken says, "is that our Sandia Fair Share is not the same as a Fair Share gift downtown. Theirs goes 100 percent to the United Community Fund. Only 85 percent of our Fair Share gift goes to UCF. In addition, the downtown people use a sliding scale — one hour's pay per month is not enough for people making more than \$12,000 per year. A fair share is figured at .6 of 1% for salaries up to \$12,000 and increases by .1 of 1% for each thousand above that until one percent is reached. We could improve our contribution record in this area."

Still, Ken and the committee would be pleased if every Sandian contributed a Fair Share by the existing Sandia definition — one hour's pay per month.

"If everyone contributed a Fair Share, Sandians would give an impressive \$540,000," Ken says.



RICHARD MILLER (7632) positions a drawing on the 105mm camera/projector. It's one step in the new wash-off process.

No Brush-Off For the Wash-off

To the best of Mike Michnovicz's knowledge, Sandia's engineering drawing files contain no dirty pictures. Nevertheless, the people in Mike's Micrographics Division 7632 often have to clean up drawings — and to do it they just wash them off.

It's almost as simple as it sounds. When a new drawing is to be made and it's pretty similar to an existing one or when a new drawing is to be made from several old ones, Mike's people (Ken Lloyd is the section man in charge) start with a 105 mm negative and a camera/projector. With these they make a full-size copy of a special polyester wash-off photo film with matte drafting surface. This film is special in that it permits small areas to be removed with a damp eraser. To remove large areas, they can make a contact negative and then block out the unwanted portion with a black felt-tip pen. Then they make a contact print with the same special film.

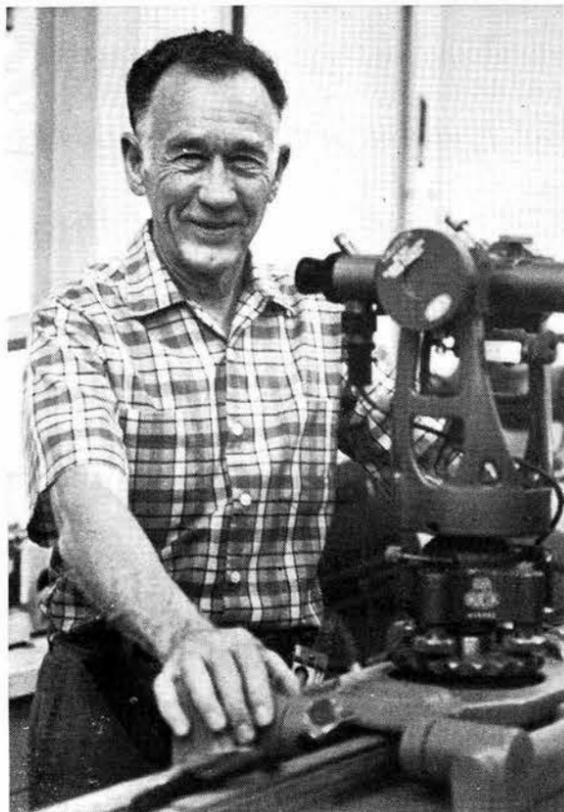
Once out and dry, the drawing goes to drafting for the necessary modifications. The draftsman no longer has to make a whole new drawing. It's not only easier and more accurate but it also averages about one-seventh as much time. The finished product is high quality too; it takes a keen eye at close range to detect the changed portion.

Other uses of the new film and wash-off process include going from a supplier's drawing to a Sandia drawing, from a computer-generated printed circuit board wiring master to an assembly drawing, and from a faded, worn original to a new original. The latter example, called refurbishing, involves a couple of "darkroom magic" steps developed by the division's Jim Karo. At the moment other companies are interested in the process — across the country there must be millions of dog-eared drawings — and several companies have been to Sandia to discuss refurbishing.

The AEC is interested in the whole process for two reasons. First, it may be something others in the AEC complex can use. And second, some rather impressive cost savings are projected by auditing — over \$450,000 in four years.

With or without dirty pictures, the wash-off process is proving itself well nigh indispensable. •bh

Retiring



Arlon Hudgens (9484)

Speakers

F.N. Coppage and E.D. Graham, Jr. (both 1933), "Device Degradation from the Effects of Nuclear Radiation and Passivation Materials"; W.E. Wilson (1933) and R.J. Chaffin (5113), "Radiation Damage Effects in Microwave Dielectric Substrate Materials"; R.A. Burghard (1934), "Anomalously Large Increases in Both I_{CEO} Leakage Current and Current Gain Due To Gamma Irradiation"; L.C. King (1900) and H.H. Sander (1933), "Rapid Annealing of Frequency Change in Crystal Resonators Following Pulsed X-Irradiation at Room Temperatures"; W.D. Brown (1933), "Semiconductor Device Degradation by High Amplitude Current Pulses"; J.E. Powell (5213), "High Resolution Neutron Spectrum Measurements in the Sandia Pulsed Reactor II (SPR-II) Facility"; J.M. McKenzie and L.J. Witt (both 1933), "Conversion of Neutron Spectra to Their 14 MeV Equivalence";

R.J. Chaffin (5113), E.D. Graham, Jr. and C.W. Gwyn (both 1933), "Radiation Effects in Microwave Bipolar Transistors"; C.W. Gwyn (1933), "Carrier Trapping Effects in Irradiated PN Junctions"; R.J. Chaffin (5113), "Permanent and Transient Radiation Effects in BARITT Microwave Oscillators"; J.G. Webb (1422), "Neutron Irradiation Effects on Microwave Power Transistor Amplifiers"; J.G. Webb (1422) and R.J. Chaffin (5113), "Noise Figure of Bipolar Microwave Transistors Exposed to Neutron Fluence"; J.E. Gover (1935) and L.D. Posey (5226), "Dynamic Measurements of the Gruneisen Coefficients of Tantalum, Uranium, and Uranium-Molybdenum Alloys"; D.L. Mangan and G.J. Scrivner (both 1935), "EMP Response of a Cavity - Part I"; Scrivner and Mangan, "EMP Response of a Cavity - Part II"; C.E. Barnes (5112), "Neutron Damage in GaAs Laser Diodes at and Above Laser Threshold"; IEEE 1972 Annual Conference on Nuclear and Space Radiation Effects, July 24-27, Seattle.

P.J. Roach (5643), "Finite Difference Methods for the Steady-State Navier-Stokes Equations," presented by S. Piacsek, Naval Weapons Laboratory, at the Third International Conference on Numerical Methods in Fluid Dynamics, July 3-7, Paris, France.

R.S. Blewer (1413) and J.K. Maurin (5522), "SCM Hot Stage Investigation of Surface Bubble Formation and Rupture in Helium-Implanted Rare Earth Films"; J.K. Maurin, "A 700°C Hot Stage for the JEOL JSM-2 Scanning Electron Microscope," 30th Annual Meeting of the Electron Microscope Society of America, Aug. 14-18, San Francisco.

G.E. Laramore (5151), "Some Recent Developments in Understanding Low Energy Electron Diffraction from Solid Surfaces," 1972 Summer Workshop in Theoretical Physics, Montana State Univ., Aug. 14-18, Bozeman.



Woodrow Lerke (4511)



Louise Dow (9230)

Promotions

John N. Barnhouse, Jr. (8322) to Computer Operator
 Tommie L. Bryant (8311) to Staff Assistant Technical
 Jose G. Castillo (4515) to Janitor
 Silviano Chacon (1323) to Staff Assistant Technical
 Timothy J. Cody (8322) to Staff Assistant Technical
 Charles F. Collier (8332) to Staff Assistant Technical
 Joe E. M. Cuellar (4515) to Janitor
 Frank Garcia, Jr. (7151) to Staff Assistant Technical
 Martin J. Gordon (8256) to Stockkeeper (Self-Service Stores)
 Randall G. Gummus (8322) to Computer Operator (Lead)

Stephen M. Halleck (8322) to Computer Operator
 Keith B. McGinnis (5214) to Staff Assistant Technical
 David A. Powers (5645) to Staff Assistant Technical
 Edward P. Sanchez (4511) to Fireman (Power & High Equipment)
 Elizabeth A. Walker (8421) to Record Clerk

SANDIA'S NEWEST Certified Professional Secretary is Etta Moore. She's the secretary to Bill Kraft, Quality Engineering Department 7430.



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3. Must be submitted in writing
4. Use home telephone numbers
5. For Sandia Laboratories and AEC employees only
6. No commercial ads, please
7. Include name and organization
8. Housing listed here for rent or sale is available for occupancy without regard to race, creed, color, or national origin.

FOR SALE MISCELLANEOUS

- 11; Jeep Wagoneer air conditioner; port. bar, 50"x-18"x40"; 2 work bench tops, solid maple; all alum. w/proof tool box. Zucuskie, 268-3105.
- BABY EQUIPMENT:** crib, playpen, high chair, Gerry child carrier, potty chair, diaper pail, \$55 or individually; Ossa Pioneer, \$675. Jones, 298-8492.
- SEARS AM Universal push button auto radio w/mounting bracket, 12 volt neg. gnd., \$25. Hernandez, 268-5000.
- '64 22' STREAMLINE travel trailer, sleeps 4, tub & shower, gas & elec., awning, jacks, hitch. Wardlow, 299-5485.
- INDIAN MINI BIKES' used 2 months, 50cc SE 54 & SE 5A, \$250 ea. Chavez, 299-8194.
- BELT MASSAGER, heavy duty, stroke intensity adjustment, \$45. Radigan, 299-8345.
- WINCH, Tulsa, 15,000 lb. hydraulic drive, power take off & hydraulic motor, \$175. Flowers, 282-3458.
- MACGREGOR matched set 4 woods, 2 through 9 irons plus wedge, reg. RH, \$75. Lemm, 298-4790.
- MOTORCYCLE, '72 Penton 125 MX, 21 hp, 6-spd., motoplat ignition, Ceriani suspension, \$700. Martin, 299-6768.
- GLASS SHOWER DOORS, \$7; 4 deluxe new hub caps, '66 Ford, \$8; bicycle canvas saddle bags, \$2.50. Peterson, 256-7514.
- WOODEN kitchen set — drop leaf table & 4 chairs, \$30. Vavro, 294-7340 after 6.
- GOLF CLUBS: Pro Line Junior Set, 1-3 woods, 3, 5, 7, 9 irons, putter, \$35. Crump, 299-5664.
- STUDENT DESK, \$20. Luna, 299-2488.
- BAND INSTRUMENTS, baritone & clarinet. McIlroy, 8907 Los Arboles Ave. NE, 299-4977.
- '66 SUZUKI, 120cc, trailbike, \$180. Suazo, 344-3197.
- 2 REG. AKC Samoyed puppies. Demaree, 296-1344.
- 2-YR.-OLD RCA color TV, recent check up & repairs, \$200. Miller, 5308 Constitution NE, 255-1838.
- BEDROOM SUITE, \$70, 2 night stands, bookcase dbl. bed, triple dresser w/big mirror. West, 268-6464.
- HIDE-A-BED, 1 yr. old, queen size Krohler, \$85. Jellison, 296-9155.
- 16' FIBERGLASS Lonestar, 90hp OMC, I/O, full canvas, tilt trailer, skis & equip. extras. Poole, 296-8625.
- BIRCH CABINET, 41"x33"x18" w/built-in Garrard 3 spd. record changer, \$15. Roherty, 296-2618.
- KING SIZE MATTRESS & BOX springs. Salazar, 255-1301 after 5.
- STEREO AM/FM console, small size, Delmonico-Nivico, \$40. Lumpkin, 299-9179.
- TV, 24" Magnavox, B&W, early American console w/remote control, needs work, \$25. Grimes, 299-2548.
- PIANO, sturdy, upright, well used, \$125 or make offer. Waddoups, 865-7952.
- ELECTRIC AX, solid, without amp or speaker, \$35. Lenz, 298-9121.
- BEAGLE CROSS PUPS, free; boat, 15' Triton fiberglass, 75hp Evinrude, 18 gal. built-in tank, full panel, skis & rope; barbeque grill, \$6. Chandler, 296-3323.
- TAPPAN elec. range, nearly new, 4-burner, 30" extra lg. oven w/window. Barth, 345-0172.
- LABRADOR RETRIEVER, 5 weeks; gas range & gas dryer, 6 mos., \$100 ea.; GE washer, \$40. Benson, 268-9727.
- ZIG-ZAG sewing machine w/many attachments, port. w/case, \$40. Schuler, 294-3252.
- BUNDE B-flat clarinet, \$75; ¾ size violin, \$95; E flat alto saxophone, \$110. Traeger, 298-0728.
- FOOTBALL SHOES, 10½, \$10; speakers, 2 Utah 15" in box, \$75; HO train, track, accessories, \$30; Scout uniforms, size 14 shirt. Shepherd, 299-9066.
- 2-BDR. MOBILE HOME, new, forced air gas heater & new carpet, \$1600. Barton, 265-8607.
- WESTERNFIELD camping trailer, sleeps 4, \$150 including mattress. Swayze, 268-5222.
- TYPEWRITER, Sears President by Smith Corona, 12" carriage, port., w/case, \$45; record stand w/swivel base, \$8. Philbin, 266-4942.
- BICYCLE, 3-spd., 20", front & rear brakes, \$25; minibike, \$95. Hart, 299-8832.
- REFRIGERATOR, GE, 15 cu. ft., top freezer, \$55; bicycle, girl's adult size, \$30. Randall, 299-3935.
- SORREL MARE, well-trained as using ranch horse, gentle, good disposition, no bad habits, good pleasure horse for child or adult. \$150 firm. Sherwin, 344-1911.
- MOTOR'S auto repair books & Motor's truck repair books, 1956-1966; shop repair manual for 1955 GMC. Ludwick, 255-0289.
- TR-4 SERVICE MANUAL & engine parts. Svensson, 898-3078.
- IF MAN on Hwy No. 10 still has dog harness and cart for sale, please call Arnold, 898-1467, after 6.
- SEPT. 1956 *National Geographic* Magazine. Houston, 255-4658.
- FLYING CLUB MEMBERSHIP AVAILABLE, join & fly 1969 Cherokee 180D, fully IFR, 15.00/hr, & 1969 Cherokee 235C, 19.00/hr, low initiation fee. Gorin, 298-3100.
- DRIVER of the greenish yellow vehicle who bashed the fender & headlights of my '62 Mercury in the Bldg. 800 lot Aug. 2. Two witnesses are helping me identify you. Call me and avoid hit & run driving charge. Roy, ext. 4235.
- SET OF SNOW CHAINS for VW. Maak, 282-5402.
- EXPERIENCED young man for heavy yard work, Saturdays only. Mohart, 256-9866.
- Chev. Belair 4-dr., PS, factory air, \$800. Dunn, 255-9213 after 5:15.
- '65 VW transporter bus, 13,000 miles on new engine. Swiss, 265-5346.
- '67 VW sedan, \$750. Burger, 299-8626.
- '53 FORD 4-dr., 6-cyl., auto., \$50. Berg, 266-2058.
- '65 SAAB 2-dr. special, 4-spd., Michelin tires, new battery. Moore, 268-9658.
- '70 VW & '57 VW sedans; utility trailer. Fenimore, 298-8052.
- '69 FORD econoline window van, stereo, 4 brand new heavy duty tires, below book. Dodd, 299-6330.
- '63 ECONOLINE VAN, low mileage on rebuilt engine, new tires-brakes-clutch-kingpins-alignment-lifetime battery, \$635, or motorcycle. Watterberg, 294-6759.
- '55 CHEVROLET 2-dr. sedan, std. trans., Hoagland, 282-3825, no calls before Aug. 24.
- '67 FORD Fairlane stn. wgn., 289 V8, std. trans., power lock differential, new paint, \$850. Brinkley, 344-5334.

FOR SALE REAL ESTATE

- 4-BDR., LR w/corner fp, family kitchen w/built-in range & oven, AC, garage, 5¼% loan, \$3000 down, balance on REC. Shipley, 298-2433.
- 2-BDR., den w/fp, \$6000 CTL, \$104 PITI, open house, Aug. 19-20, 1-5 p.m., 4604 Pershing SE. Grandjean.
- 4-BDR. home, 1¼ baths, hw floors, 2-car garage, den, excellent schools, 6300 Loftus NE. Bertholf, 299-8549.

FOR RENT

- OR SALE, unfurnished 3-bdr., 1½ baths, fp, patio, heated garage, refrig., stove, AC, near schools, NE Heights, walled back yard. \$215/mo. Rex, 299-6264.
- NICELY FURNISHED DUPLEX, no pets, attached garage, utilities paid, \$150/mo. 420 Rhode Island SE. Dodson, 255-0265.
- MOBILE HOME, 3-bdr., furnished, Conchas Lake, by night or week, near water. Getz, 299-4865.

LOST AND FOUND

- LOST — Ladies' lg. square-shaped sunglasses, 7 keys on ring, safety deposit box key. LOST & FOUND, tel. 264-2757, Bldg. 832.
- FOUND — Men's sunglasses w/bold frames. LOST & FOUND, tel. 264-2757, Bldg. 832.

WANTED

- USED E-FLAT alto saxophone in good condition, for beginner, school band. Garcia, 898-3422.
- TEACHER at San Antonito in Sandia Mts. wants small house near the school. Souder, 282-3121.

Water Carnival Tomorrow

HERB FILUSCH (9213) is the newly elected president of the Coronado Club board of directors. John Malmstrom (AEC) is vice president, George Horne (5413) is secretary, and Dick Coughenour (4115) is treasurer. Other board members are Shirley Dean (50), Jake Gonzales (7143), Bill Fay (AEC), Jack Merillat (3240), Herb Pitts (100), Julian Lovato (7624), Max Newsom (1534) and Bud Wheeler (3251).

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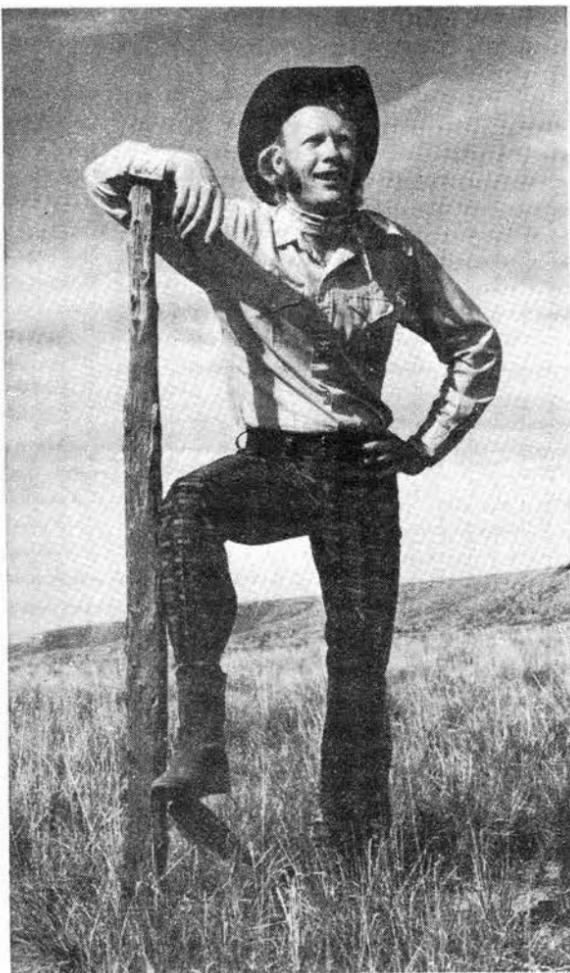
HAPPY HOUR TONIGHT will feature oriental food on the buffet line and the Country Establishment on the bandstand. Special prices will be in effect from 5 to 10 p.m. Denny Gallegos will entertain in the main lounge from 9 to midnight. Next Friday, Aug. 25, Frank Chewiwie will make the happy music while fried shrimp tops the buffet menu. On Friday, Sept. 1, the Saints will return to the Club bandstand.

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TOMORROW is water carnival time at the Club. The twin pools open for recreational swimming at 11 a.m. From 12:30 on, the afternoon will be filled with swim competition of all kinds for the kids -- races, diving contests, underwater distance swimming, diving for pennies, and a watermelon push. Kids love this kind of stuff. Medals and ribbons will go to the top six winners in each event. There will be a clown act and diving exhibitions. Cokes will sell for a nickel, beer for a dime, and the snack bar will be open all day. A Happy Hour bar will also be in operation. Admission is free to members and families.



PRETTY GIRLS, clowns, swim competition for kids and Happy Hour prices are all part of the Water Carnival set tomorrow at the Club. Dorothy Sanchez (AEC) and Ken O'Keefe, CC Aquatic Club coach, urge you to bring the entire family.



OKLAHOMA! one of the first and one of the best of musicals with the big sound comes to, of all places, the Kimo Theatre under the auspices of the Music Theatre. Ron Halbgewachs (5422) is one of the principals in the role of Will. Play runs Aug. 25-26, Sept. 1-2, and 8-9; reservations on 242-8749.

TOMORROW EVENING, Family Vaudeville Night will feature an outstanding group of young people who call themselves "Black Voices Community Choir." A program of singing and dancing is planned. People who have seen this show say it's great. The movie will be the classic "Lassie Come Home" with Elizabeth Taylor and Roddy McDowell. Super sandwiches will be available and Happy Hour prices will start about 6 p.m.

* * *

NEXT SATURDAY, Aug. 26, will see a Soul Session and Swim Party Extravaganza at the Club. This is the ever-popular Soul Session with a couple of added wrinkles -- two bands (Scorpio and Brass Monkey) will alternate making the rock sounds in the ballroom while the twin pools see much leaping and cavorting. Happy Hour prices will be in effect from 8:30 to 12:30. Admission is free to members, guests pay \$1.

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TRAVEL NEWS -- The Spain-Portugal tour group will get together Tuesday, Aug. 29, at 7:30 p.m. for a pre-trip briefing, according to Bud Wheeler (3251), Club travel director.

The Mazatlan trip, scheduled Oct. 16-23, is filling rapidly. About 25 seats are left. If you are interested in this one, pay a \$50 deposit at the Club office right away.

Response to the Rio de Janiero travel

package announcement has been excellent, Bud says. He expects all 160 seats available to be filled. The trip is scheduled Feb. 18-25 and costs \$502. Again place your \$50 deposit at the Club office as soon as possible.

The bus trip to El Paso Oct. 21-23 may be in trouble, Bud says. Response has been slow. Cost of this one is about \$55 which includes tickets to the Lobo-UTEP football game. "We are not asking for deposits as yet," Bud says, "only an indication of interest." If you plan to go, call the Club office.

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JUNIOR BOWLERS will organize for the coming season at a meeting Sunday, Aug. 20, at 12 noon at the Club patio. All interested boys and girls, age 15 and under, and their parents (Club members) are invited. Refreshments will be served.

To The Gates

Sandia's Out-of-Hours Course Catalog for Fall '72 is now out. If you're interested in taking courses, pick up a copy at any Gate. It will not be distributed by mail as in past semesters.