



NEW LOOSE-LEAF telephone directory will look like this. Angie Gurule (3410) and Bob Morris (3417-3) had roles in its production. Distribution will be in February.

New Look to Phone Book

It's new, blue, and loose-leaf. In February, Sandia Laboratories employees will begin receiving the new company phone book which will feature quick replacement pages.

The book will use a standard three-ring loose-leaf binder in place of the previous plastic spiral binder.

"We expect this format for the telephone book to save about \$70,000 over three years," says Bob Gillespie, supervisor of Technical Information Division I, 3411. This is figured on the basis that the entire directory will not have to be reprinted as it is now two or three times a year. Within the organizational section, individual replacement pages will be promptly issued as changes occur. The alphabetical section will be reissued in toto as needed, probably about once a year. Anticipated life of the binder, even with heavy usage, is over three years.

Issuance of the new directory will coincide with changes of most telephone numbers at Livermore. Effective Feb. 22, Livermore numbers will be dialed directly (as at Sandia-Albuquerque).

The general change in the telephone book was proposed by Tom Heaphy (3450) and Bill Carstens (3410); Angie Gurule (3410) helped with production; Bob Morris and Yale Knox (both 3417), layout and production; Dick Watkins (8323), Livermore output; Larry Keegan (9415-2) and others, data processing and programming.

HOW TO MOVE THAT SWIMMING POOL—This huge tank of water was propelled down Sandia's sled track at 640 mph by two Talos rockets generating 130,000 lbs. of thrust. A missile nose cone at the end of the track pierced the canvas membrane on the front of the tank and passed through the water, simulating water impact. Test was conducted by Track and Guns Division 7325. Dean Kuehl was test engineer.

LAB NEWS

Vol. 23, No. 2

January 29, 1971

SANDIA LABORATORIES · ALBUQUERQUE NEW MEXICO & LIVERMORE CALIFORNIA

Sandia QA

SNAP-27 Generator on Apollo 14 Moon Launch

On board the Apollo 14 moon expedition this weekend will be another SNAP-27 nuclear generator, the result in part of the work of a group of Sandians. Although Sandia is phasing out of its role in SNAP of technical direction, Quality Assurance is still in the picture. At the request of AEC's Space Nuclear Systems Division, Sandia has agreed to direct the program of quality assurance and product acceptance for AEC. Involved are space radioisotopic thermoelectric generators for use on future Apollo, Pioneer, Viking and Transit missions.

Bob Harner is project leader for the Quality Assurance team, initially made up in December 1967 of Bob Hannigan, Dale Pipher and Dusty Rhoads. Recently Dale Pipher moved to another assignment, and during the past year Jim Brewer, Clarence Carter and Alex Ruff have joined the group. It is located in Product Acceptance Division 7414 under Walt Westman.

Since the generators are very expensive and only a few are required, normal QA routines cannot be followed. Seldom is there sufficient time, nor can the project afford to reject a part after fabrication and build

another one. Therefore, Sandia works closely with the SNAP contractors to assure an adequate Quality Program, and a QA team member is present at a supplier's plant during critical manufacturing and assembly processes.

Success of the QA methods is demonstrated by the continuing high performance of the SNAP-27 generator left on the surface of the moon by astronauts of Apollo 12 in November 1969. For more than a year, the generator has powered an array of instruments, operating beyond its power and lifetime objectives. It is producing about 10 watts above its 63.5 watt design power level.

In the SNAP-27, spontaneous radioactive decay of the plutonium-238 within the fuel capsule generates heat. A thermopile assembly of 442 lead telluride thermoelectric elements converts this heat—1480 thermal watts—directly into electrical energy. There are no moving parts. The unique properties of plutonium-238 make it an excellent isotope for use in space nuclear generators. At the end of almost 90 years, plutonium-238 is still supplying half of its original heat.





by BILL BRISTOL
Credit Union
Manager

Credit Union Reporter

This is the first of a regular series of Credit Union reports to appear in the LAB NEWS as part of the goal to keep the membership informed on (1) how your credit union operates and who makes it operate, (2) changes in the laws, regulations and policies affecting your credit union and (3) matters relating to consumer credit, purchasing and protection. Earl Simonson (4122) is chairman of our Education Committee and welcomes your suggestions for topics you would like to see covered in this column.

* * * *

Annual Meeting

Twenty-two years ago, the first annual meeting of the Sandia Laboratory Federal Credit Union was held. With President Virgil Harris presiding, the board made this report to members present: Assets - \$1033; loans - 11 for \$1016; shares - \$1069; members - 69. The first year's operation showed a net loss of \$77. The number of members present at the meeting was not recorded.

On Jan. 21, 1971, the twenty-third annual meeting of the Credit Union was held with President Bill Prekker presiding. The 1000 members attending represented what is believed to be the largest stockholders meeting ever held in New Mexico. The phenomenal growth of the Credit Union was reflected in the Financial Statement: Assets of \$13,001,326; 7442 loans totaling \$10,442,746; 8042 members with shares totaling \$10,774,310 and a net income of \$645,315 for 1970. Sandia remains the largest of New Mexico's 138 Credit Unions and its rank among the nation's 12,921 Federal Credit Unions—53rd in 1969—will probably improve.

After the introduction of the Board,

committee members, and the Credit Union staff, the order of business continued with the election of three Board Members and one Credit Committee member. Bill Prekker (4122), Joe Maldonado (4614), and Clarence Sandy (7453) were re-elected to the Board and Molly Raisen to the Credit Committee. Following the business session, drawings were held for the door prizes; two portable color TV sets. The lucky and happy winners were Robert Manhart (1612), and Henry Williams (4212).

On Jan. 22 a Special Meeting of the Board was held to elect officers and appoint committees for 1971. Elected officers are Bill Prekker, president; Jack Westbrook (9411), vice president; Joe Miller (4122), secretary; and Bill Bristol, treasurer. The remaining board members are Bill Olheiser (4511), Ralph Humpy (2633), Bill Funk (8230), Alan Pope (9300) and Earl Simonson (4122). Appointed committees are Supervisory Committee, Karl Waibel (4117), chairman; Operations Committee, Joe Miller (4122), chairman; Executive Committee, Bill Bristol, chairman; and Educational Committee, Earl Simonson (4122), chairman.

* * * *

Legislative Action

In 1970 two bills amending the Federal Credit Union Act were signed into law by President Nixon. The bills represent probably the most important changes since the passage of the original Act in 1934. The old Bureau of Federal Credit Unions, an agency within the Department of Health, Education and Welfare, was abolished and the National Credit Union Administration was established as a separate agency in the Executive Branch of the Federal Government. This action places the Federal Credit Union regulatory agency on a level with the agencies that oversee banks and savings and loan associations.

The second bill established Federal Share Insurance for Credit Unions; this insurance provides ironclad protection against loss of savings up to \$20,000 in all qualified Credit Unions. Sandia was one of the first to receive this protection, and it became effective Jan. 4, 1971. With the passage of these two bills, Credit Unions have finally come of age and are now recognized as a substantial part of the nation's financial community.

* * * *

Charge Account Foul-Ups

Are you having a hassle over your charge account? Take heart. The Federal Trade Commission has proposed a trade regulation rule along these lines:

—Prohibit continued billing by the store for disputed charges until the facts have been checked and explained to you.

—Give you the right to be notified before a creditor sends out any adverse credit information about you.

—Require a creditor to post payments on your account the day they are received.

—Require the refunding of any excess payments unless you prefer having them credited to your account.

—Require monthly bills to be mailed to you at least 21 days before finance charges or late charges start running.



PLAN SYMPOSIUM—Discussing publication of papers for the forthcoming ASME-SESA symposium are, from left, Elmer Leslie (1214), general chairman; John McKiernan (2336), ASME national vice president; Bill Alzheimer (1517), program chairman; and Dick Bice (7000), national ASME board of honors. The meeting is scheduled Feb. 11-12 at UNM.

'Experimental Mechanics' Symposium Scheduled Feb. 11-12 at UNM

"Experimental Mechanics" is the theme of a symposium scheduled Feb. 11-12 at the University of New Mexico. Aimed at cutting across unrelated fields of scientific discipline, the symposium will emphasize experimental approaches such as applying engineering techniques to problems in medicine and biological research.

The 11th annual symposium is sponsored by the New Mexico Sections of the American Society of Mechanical Engineers and Society for Experimental Stress Analysis plus the UNM College of Engineering.

Elmer Leslie (1214) is the general chairman, Bill Alzheimer (1517) is program chairman, and a number of Sandians are members of the symposium committee while others will be featured in the program.

Sessions will be grouped into four categories—composite materials, experimental biomechanics, optical measurement, and one miscellaneous session called "Experimental Potpourri."

Sandians and the papers they will present include:

Lynn Barker (5161), "Laser Interferometry in Shock Wave Research"; Paul Van Dyke (8231), "Photographic Diagnostics as an Engineering Tool"; Phillip Stanton (2314), "High Velocity Cone Impact Modeling Study"; Herbert Sutherland (5163), "Studies of Fiber Reinforced Viscoelastic Materials"; Douglas McGovern (1213), "On the Use of Modeling in a Structural Response Problem"; Richard Elrick (5225), "A High Speed Photographic Technique for Time-Resolving Blowoff Debris."

Serving as co-chairmen of separate symposium sessions will be Bob Reuter (1541), "Composite Materials"; and Olden Burchett (5225), "Experimental Biomechanics."

Serving as chairmen of various symposium subcommittees are Gene Copeland (7523), administration; Fred Cericola (7522), publicity; John Dishuck (1651), finance; Bill Gardner (1500), proceedings; Ralph Wilson (4220), hospitality; Don Williams (7234), banquet; and John Postlethwaite (1555), registration.

A copy of the program or registration information can be gotten from Mr. Postlethwaite on tel. 264-1853.

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Sandian Elected Chairman

Barney Goncher (8236) has been elected to a one-year term as chairman of the Alameda/Contra Costa Joint Apprenticeship and Training Committee (JATC) for machinists.



This committee establishes selection procedures, standards, and training, and it authorizes advancement in the apprenticeship program upon completion of on-the-job training and related training. The committee also helps settle apprentice/employer problems.

A graduate of Ohio State University, Barney received his BS degree in personnel and industrial management and an MA degree in industrial relations and corporation finance from the University of Buffalo.

He joined Sandia in Albuquerque in 1956, and was assigned to the training staff. In 1960, he transferred to Livermore's Security organization as a staff training specialist. He currently works in the Training and Benefits Division at Livermore and serves as secretary of Livermore's apprenticeship committee. Barney is also a part-time faculty member at Chabot College in Livermore.

'Science for Secretaries' Course at Livermore

Jean Langston, secretary for Physics Research Directorate 5200, will conduct a course entitled, "An Introduction to Science for Secretaries" at Sandia Laboratories Livermore during the first week of February. Jean is a Certified Professional Secretary and has been instructing secretaries in Albuquerque for the past two years.

The course at Livermore will provide secretaries with some knowledge of the scientific disciplines and will cover chemistry, mathematics, physics and electronics. Evelyn Foote, supervisor of Secretarial and Clerical Development Section 8217-1, is coordinating arrangements for the sessions.



SPECIAL AWARD from the American Cancer Society to Livermore Employees' Assistance Plan (LEAP) gets looks of approval from (l to r) 1970 LEAP Committee chairman Alec Willis (8351) and co-chairman Ralph Cozine (8131). The award was given in recognition of LEAP as fund-raising program (only one other corporation in the Bay Area has a similar plan). Employees at Sandia Laboratories Livermore pledged over \$1660 (or about \$2 per contributor) to the American Cancer Society this year.

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How to See Hawaii

Tour Islands By Bike, Camper, Auto

To a number of vacationing Sandians it wasn't how do you get to Hawaii, but how do you go when you get there.

"All our travel was by bicycle except for a half-day mountain hike," says Val Black (8153), advisor of Livermore Explorer Post 906, who accompanied nine teenage scouts on a camping tour of the Islands. "We covered about 500 miles during 16 days—300 miles on the 'big island' of Hawaii and 200 on Oahu.

"Our airplane luggage consisted of 10 cardboard boxes, each containing a bicycle, a small plastic tent, and other camping equipment and supplies. Since we camped out the entire time and cooked most of our meals, transportation over was our only big expense. We took along a good part of the food, both for the convenience of having what we wanted when we wanted it and because food is cheaper here than there.

"Even the planning was unusual. First a schedule involving selection of camp sites, menus, and points of interest was worked out. Because we carried everything on our bikes, detailed supply lists were necessary. Meanwhile, to prepare us physically, many one, two- and three-day bike trips were made, including a 75-mile round trip to the top of Mt. Diablo and a 170-mile jaunt from Yosemite National Park to Livermore.

"All of us feel that cycling gave us a better chance to meet the people. At every stop, natives would gather around, especially the children, looking over our 10-speed bikes which are rare once you get out of Honolulu.

"When you spend the day covering 40 miles, you get a closer view of your surroundings. The sudden change in the landscape was very noticeable—in a short distance you might change from rain forest to near desert.

"Usually we slept out, except on the windward side of the islands where we put up our plastic tube tents. The highest camp was up at the volcanoes, at 400 feet, and was similar to camping in the tall eucalyptus trees on the Peninsula. But much of the time we were right on the beautiful sandy beaches."

* * * *

Coralyn McGregor (8231) and her husband also camped on their Hawaii trip, but they traveled in a camper van on each of three islands—Maui, Kauai and the "big island" of Hawaii. "We would fly in, and then by prior arrangement the local camping outfit would pick us up with a fully equipped van," explains Coralyn. "After stopping for ice, we'd head for a little store to buy papayas, mangos, canned mai-tais, and, of course, macadamia nuts.

"We had planned most of the things we wanted to do before leaving home. With the van, we could stop and stay at places as long as we wanted. When we got to a little town, we'd get out our bible, 'Hawaii on \$10 a Day,'



HAWAII CALLS—"Way to go!" says Mary Witek (8325), left, as she accepts a \$500 certificate entitling her to a Hawaiian vacation for two. Mary held the winning ticket for a raffle sponsored by the Livermore Valley Chapter of the American Businesswomen's Association for local scholarships. Mary Monser (8256), treasurer of the chapter, makes the presentation.

and choose an interesting restaurant. We tried to sample foods typical of the many cultures that have contributed to Hawaiian life.

"Each night we could hear the surf. It would sound different, depending on whether we were camping in a little cove or on a beach where the surf could roll in off the ocean. One night our camper van was directly under a papaya tree. We were impressed with how very clean the beach parks are; in fact, we would see the grounds being raked early in the morning.

"A tropical storm hit us on the big island. We were miles from any place, with no other campers around, and the rain was coming down in buckets. Figuring it would pass on, we wore our swimsuits and windbreakers, and just got wet and stayed wet. Later we found we had spent the day and night directly under the storm. It never developed into a hurricane, but just spun itself out right over our heads. I'll always remember how beautiful the night was before the storm began—almost a sensuous thing. The ocean was an inky blue/black color, but stark white where the waves crested, and so transparent that you could see the black sand under the surging water. All colors were heightened by the light coming through the low storm clouds."

* * * *

Ralph Jaeger (8231) and his wife and Esther Rickert (8256) and her husband selected a package arrangement to see the Islands, under which airfare, accommodations, and rental car were included in one lump sum. "What made this ideal," says Ralph, "was there was no mileage charge on the car. For 15 days we traveled as far as we wanted, on four different islands, and covered over 800 miles. Our aim was to see and enjoy the culture and scenery in outlying areas and we did."

Crawford MacCallum (5231) is a physicist by profession, a community catalyst by accident. By any definition, Old Town Studio is a community asset, a part of Albuquerque that influences the cultural scene to a degree out of proportion to the studio's size or budget.

Crawford is ultimately responsible for paying the bills of Old Town Studio, and he is thus the pivot point of its activities. Since August 1965 the tiny 50-seat theatre has presented 77 productions—many controversial, many experimental, many originals by New Mexico authors, and all professionally performed.

More about Old Town Studio later. Currently Crawford is launching another experimental project involving a troupe of seven bilingual actors who will tour elementary school playgrounds in the north and south valley on Saturday afternoons starting next month. They will work on a platform in front of a truck and perform an English-Spanish adaptation of the old story about the four musicians of Bremen. Crawford wrote the adaptation (he's fluent in Spanish too) and is directing the production.

The project is sponsored by the Albuquerque Arts Council and Old Town Studio. Performances will be concentrated in the model cities area.

With banners flying and the public address system on the truck blaring "Viva La Huelga," the troupe will arrive at the scheduled time at the playground, make a big production out of setting up the stage platform, joke with the audience and draft a few volunteers to be banditos in the performance.

Crawford is very excited about the production and about the project.

"Kids are the world's greatest audience," he says, "and this will be a fun production all the way—a medicine show with bright colors and costumes and, hopefully, a lot of audience participation. We want to promote the idea that theatre is fun and anybody can do it."

Fun is the primary reason Crawford devotes the bulk of his leisure time to Old Town Studio. Essentially, it is a non-profit educational institution with a board of directors. It grew out of a production in 1964 called "Happenings"—a series of blackout improvisational sketches which could be called a forerunner of television's "Laugh-In" format. It received great local reviews and changed the direction of local theatre from "safe" conventional productions to almost "anything goes."

Crawford was one of the actors in "Happenings" and helped change the old building in Old Town into a theatre. Seats, a stage, sets, lights, box-office, etc., all were needed.

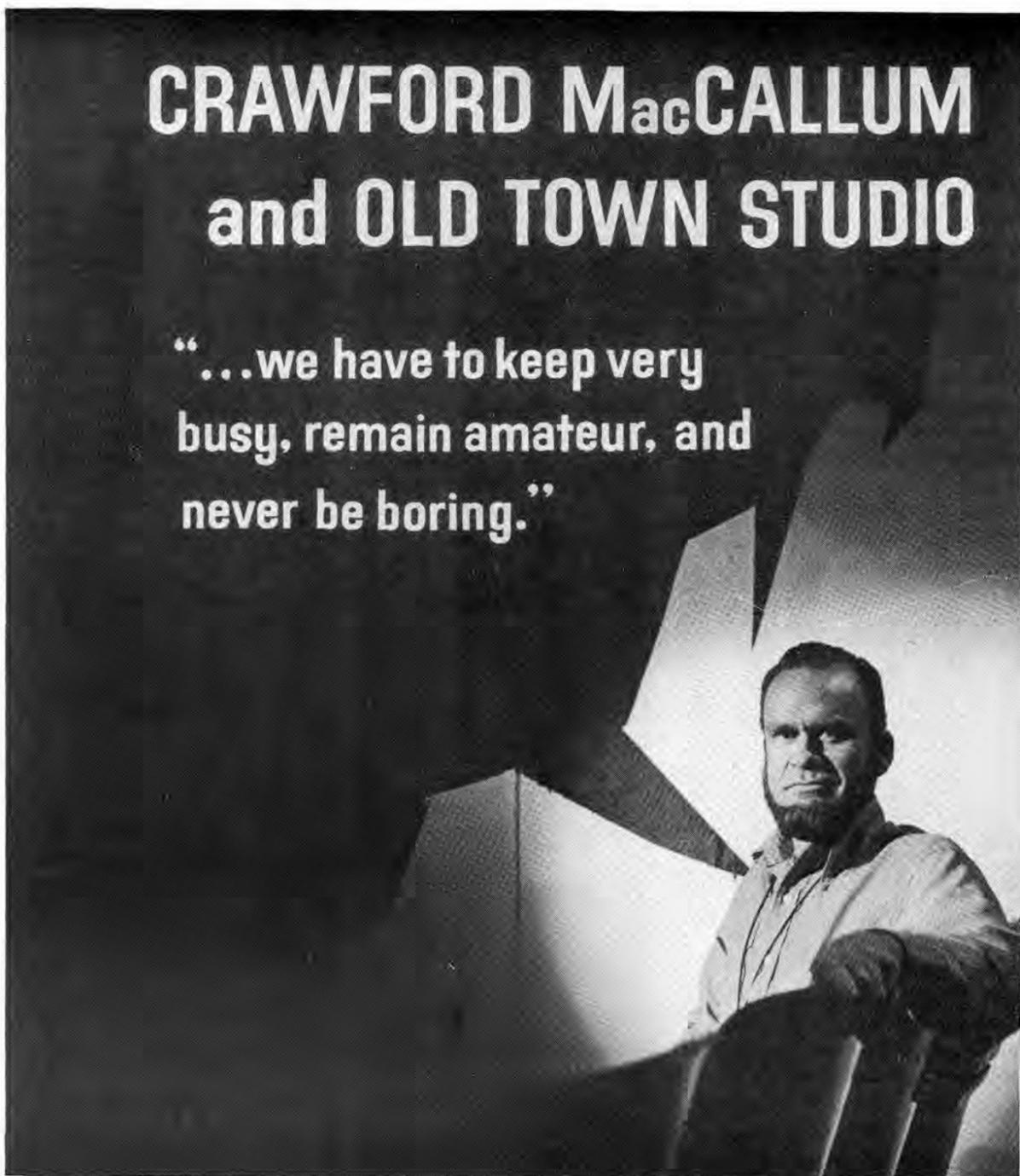
"After 'Happenings' closed," Crawford says, "it sort of fell to me to keep the Studio going. This was an accident. I had no ambitions to run a theatre."

Since then, Crawford has paid the rent. If a play makes money, then it is used to finance the next production. Except for the board of directors (Crawford is president and holds the title of producer), there is no Old Town Studio organization. Anyone with an idea can approach Crawford about using the facilities.

"It is a place for the performing arts," he says. "We have no rules about who can do what how—except that it should not be

CRAWFORD MacCALLUM and OLD TOWN STUDIO

"...we have to keep very
busy, remain amateur, and
never be boring."



boring. Folk music, baroque music, cool jazz, abstract dance, farce, children's theatre, classical drama, modern drama, melodrama, psychodrama, experimental theatre, modern comedy, guerilla theatre, poetry readings, actors' workshops, pantomime—all these have taken place."

Tonight, for instance, the Old Town Studio is presenting "The Wager" by Mark Medoff, an instructor at New Mexico State University. Other productions by the same author have been well-received by Old Town Studio audiences. This one is a comedy with psychological insights. Curtain is at 8 p.m. and the production will run through Sunday. Call 242-4602 for reservations.

Forthcoming productions include "Faust" to be performed by the "Theatre of All Possibilities," a dramatic group headquartered near Cerrillos. Production date is Feb. 6-7. This will be followed by "Dracula" on Feb. 24-28 and March 3-7.

April 1-4 will feature "The Birds and Boys," a series of short plays and sketches by Harold Pinter, Tennessee Williams and others. Director of the show will be John Gardner (3421), who has contributed a number of productions to Old Town Studio. In the early days of Old Town Studio, John's work kept the doors open.

"The frightening thing about playing to a small audience," Crawford says, "is that to pay the rent we have to keep very busy, remain amateur, and never be boring. In the near future we anticipate continuing much as we have in the past. Much depends on what Albuquerque sends us in the way of directors, actors and audiences."

Cornell Teaching Stint For Dick Schwoebel

Dick Schwoebel, manager of Ceramics and Surface Science Research Department 5330, left this week for Cornell University where he will be on a teaching assignment during the second semester.



During the term he will teach a course in solid state physics and will work with graduate students in the surface science area. He will also become acquainted with the university's materials science program. Cornell is one of 10 schools in the country to receive a large grant from the Advanced Research Projects Agency for building up a broad program in this field.

Dick received his doctorate at Cornell in 1962 and has also been a Sandia recruiter at the school.

Moon Eclipse on Feb. 9

A total eclipse of the moon will occur Tuesday, Feb. 9, starting at 10:52 p.m., according to Grover Hughes (7374). Totality of the eclipse will occur at 12:04 and end at 1:27 a.m. Grover says that occultation (a star disappearing as the dark moon passes in front of it) should be particularly apparent. This will be the first time since October 1968 that a total eclipse of the moon has been visible from Albuquerque.



SAFETY POSTERS produced by Felix Padilla (4544), left, and Cliff Pecha (4513) were used throughout Maintenance and Development Shops areas during 1970. Felix draws the cartoons, Cliff provides the lettering and both contribute to the brainstorming which creates the idea.



BILL MAHAFFEY, chief film editor in Division 3454, recently was awarded the degree of Master of Photography by the Professional Photographers of America, Inc. The degree represents the topmost level of professional attainment. Bill's degree is the first ever awarded solely on the merit of his cinematography and editing of industrial films.

Sympathy

To Fidel Gonzales (4515) for the death of his father in Las Vegas, N.M., Jan. 5.

To Gerrit Hof (2626) for the death of his wife in Albuquerque, Jan. 25.



MOTOCROSS TECHNIQUE is demonstrated here by Chuck Peeples (4221), a member—along with several other Sandians—of the New Mexico Motocross Club. Club is presenting a program of races on Sunday, Jan. 31 near Volcano Cliffs development on west mesa. Races begin at noon, cost \$1.50, kids 12 and under for free.



H.C. DONNELLY (left), Manager, AEC/ALO, and President Hornbeck examine printed circuit board with Dwight Ink, Assistant Manager of Office of Manpower and Budget, Executive Office of the President. The Washington visitor spent the day here recently being briefed on Sandia programs and technology.

Take Note

Don Cotter, a former Sandia director now on leave of absence, has been appointed Acting Deputy Director of Advanced Research Projects Agency. He continues to serve as Director of ARPA's Overseas Defense Research Office.

* * * *

Kate Young, who works in the Technical Library, was so fired up by the organization Christmas project to help poor children (and their families) living on South 10 that she is now collecting books for the kids. Story books are one of their more pressing needs, and Kate hopes to get enough to set up some sort of library at the village community center. Do you have any you can contribute? The audience runs from ages 6 to 13. Call Kate on ext. 7376 for more details or drop books by her office in the library or at the LAB NEWS office, Rm. 100, Bldg. 802.

* * * *

George Elliott (3251) and Gary Peterson (5133) were recently appointed members of the State Technical Education Advisory Committee by the State Supervisor of Trade and Technical Education. The five-man committee met last month to consider teacher qualifications for technical education. At the meeting, George was elected chairman.

* * * *

Sandians interested in participating in the annual postal pistol and rifle matches, co-sponsored by the National Rifle Association and the National Recreation Association, are asked to contact Dick Vivian, tel. 264-4355.

* * * *

Wayne Sebrell (1544) will be installed in April as chairman of the Central District of the New Mexico Square Dance Association continuing a reign by Sandia employees in the top offices.

During the 1970-71 year, Bill Caskey (1553) has been chairman of the 300-member organization. Assisting him are Wayne as vice chairman and Marty Wempe (4542), secretary-treasurer.

* * * *

"Continuum Criteria for Spallation" will be presented at the 5100 Staff Seminar Feb. 2 by Lee Davison (5133). Jerry Berglund (5162) will discuss "A Finite Difference Approach to the Problem of Combined Wave Propagation and Structural Motion for Thick Shells" on Feb. 9. The seminar meets on Tuesdays at 8:30 a.m. in rm. 201 of bldg. 806.



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FIRST PRIZE for a scanning electron photomicrograph was awarded Phil Apodaca (5315) during the recent Third Annual International Metallographic Society meeting. Magnification depicts effects of oxidation on carbon-carbon composites.



\$100 CHECK was donated to the New Mexico Zoological Society last week by members of the Albuquerque Motor Sports Club. Frank Hibben, society chairman, accepted the donation from (left) President Jack Strascina (4221) and Jeff Kahn (5322). The money, raised by the 25 members from rallies and other special events, may be used to replace some of the animals lost at the zoo during recent sub-zero temperatures.

Statisticians Organize New Professional Group

Robert Easterling (1643) is president of the newly-organized Albuquerque Chapter of the American Statistical Association. Jerone Deverman (7425) is membership chairman.

Purpose of the organization is to provide a forum for discussion and exchange of ideas between statisticians and others interested in statistical practice. The chapter plans to meet for monthly luncheons, bi-monthly seminars and for other special programs. The group also plans to promote interest in statistics as a career among students and to provide program speakers for high school mathematics clubs.

Anyone interested in joining the new organization is invited to contact the membership chairman.

Now That I'm Retired

Did you know that Sandia Labs now has nearly 750 retired employees? That's about 10 percent of the present population of active employees. And the number of people in this group will grow significantly in the next five years.

The LAB NEWS is interested in retired Sandians and, in particular, would like to know what persons who have retired have learned from their experience with retirement. Most of us go through life repeating to ourselves "If

I knew then what I know now"; when we're fortunate or smart, or both, we occasionally can learn from the experience of others.

What has been your experience with retirement? What's difficult or different from what you expected? Are you bored, busy, depressed, happy? If you were retiring a few years from now, how would you prepare for this new way of life? Write to us, and LAB NEWS will publish letters which seem to have widest applicability.

Anti-Smoking Campaign Draws Fire

The LAB NEWS hardly ever goes to press without some chop at smoking, but we confess to an occasional reservation about just how effective our campaign has been. The two smokers in this office continue to puff away with total indifference to our dire picture of what's going to happen.

But somebody out there has reacted to what he terms our anti tobacco propaganda. Here is his letter to us:

To: The Editor - Sandia Lab News
From: G.R. Case - 2652
Subject: Lab News' Anti Tobacco Propaganda

I have read with interest, your articles and other propaganda concerning the evils of tobacco smoking. Being a smoker myself and also a volunteer worker in the Drug Abuse Education Center, the subject of tobacco abuse has been of interest to me for some time. I wish to commend you first of all, for recognizing in your December 18 issue, that tobacco is a drug and excessive tobacco use is a form of drug abuse. I would question, however, whether the Lab News' efforts in the tobacco area have really been overly effective. The massive propaganda carried out in the news media has certainly caused some people to quit and others not to start, but cigarette sales figures indicate that these are fairly few in number. While I have no figures for Sandia Labs, I would venture from personal observation that the same thing is true here as well.

I do have some suggestions, however, which would, I think, have a positive effect although I admit they are somewhat bold.

1. Since non-tobacco smokers are better health risks, why not have them pay less health and life insurance premiums?
 2. If tobacco is a dangerous drug, why in the hell do we allow it to be sold on the Laboratory premises?
 3. While I think it would be unrealistic to ban tobacco use all over the Laboratory, I would submit that a no smoking rule could be effectively enforced in such places as auditoriums, conference rooms, the library, and other more or less "public" areas.
 4. Provide through the medical directorate a limited number of mild tranquilizers or other drugs prescribed either by one's own physician or by a company physician for those suffering the pangs of nicotine withdrawal.
 5. If there is sufficient employee interest, form some "AA" type noon-hour groups for those who have been wanting a little more moral support in their efforts to quit.
- I am sure others in the Lab can come up with additional suggestions.

These are provocative suggestions, and we'd be interested in your reaction to them. Send us a note telling us how you feel about them, especially number 5. (The author, Glenn Case, asks that he *not* be called.) If enough people are interested, it's possible that something along these lines might be organized.

Events Calendar

Jan. 29-31—"The Wager," Old Town Studio, for reservations tel. 242-4602.

Jan. 31—Apollo 14 mission launch, KOB-TV, 4:30-6 p.m.; Bell System Family Theatre presents "Highlights from Ringling Bros. and Barnum & Bailey Circus," KOB-TV, 9-10 p.m.

Feb. 1—Audubon Film Series presents "Acadian Reflections," UNM Popejoy Hall, 8 p.m.

Feb. 2—"Adaptation/Next," Popejoy Hall.

Feb. 4-7—YWCA trip to Las Vegas, Nev., and Death Valley.

Feb. 5—Apollo 14 lunar landing and moon walk, KOB-TV, 6-6:30 a.m. and 11 a.m.-4 p.m.

Feb. 6—Apollo 14 moon walk and lift off, KOB-TV, 7:30-10:30 a.m. and 3:30-4 p.m., 5:15-5:30 p.m. docking.

Feb. 6-7—Theater of All Possibilities presents a newly-adapted Goethe's "Faust" at Old Town Studio, tel. 242-4602.

Feb. 9—Bell System Family Theatre repeat of "It Couldn't Be Done," KOB-TV, 7-8 p.m.; Apollo splashdown, KOB-TV, 5:30-7:30 p.m.

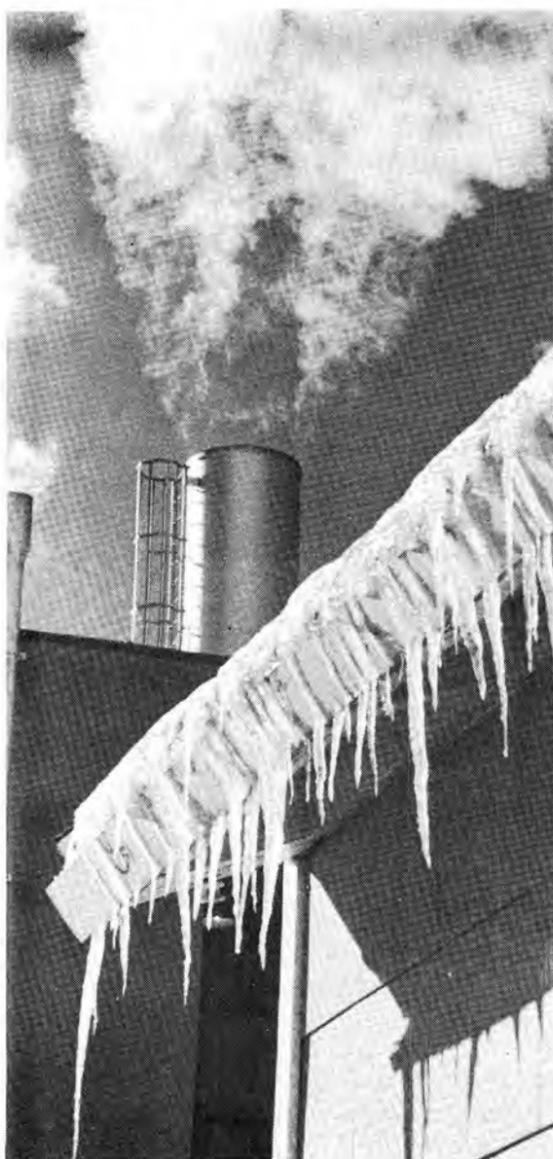
Retiring



WILLIAM WHITE
7512



MANUEL SILVA
4514



THE BIG FREEZE

The storm of early January is just a memory—except for the plumber's bill, the heating bill, and the inconvenience caused to almost everyone by the city's all-time low temperatures.

It was late on Saturday, Jan. 2, when the wind-driven snow began to fall, and the mercury fell with it. By Sunday morning things looked pretty serious. Supervisors in Bob Flaxbart's Plant Maintenance Department 4510 showed up that day to evaluate the situation, and as early as 4:30 a.m. on Monday crews arrived to dig paths through drifts on sidewalks, and salt both sidewalks and tech area streets.

At noon on Sunday Southern Union Gas asked Sandia to switch from natural gas to oil for operation of the steam plant which supplies heat to all of the buildings in Tech Area I, the hospital and other major military buildings on Sandia Base. Sandia Laboratories customarily has on hand 1 1/2-million gallons of oil (a three weeks supply), stored in tanks at the south end of Main Street.

By the end of the week, steam plant personnel estimated that 170,257 gallons of oil had been used.

In December, the five boilers in the steam plant generated a daily average of 3 1/2-million pounds of steam. On Jan. 6, output for 24 hours was 5,109,620 pounds of steam.

Difficulties individuals had in getting their cars started in the sub-zero temperatures were multiplied about 300 times for men in the Motor Pool. Sandia has that many cars, forklifts, trucks and other vehicles and they are all parked outdoors. Ten motor pool employees began their task at 7 a.m. several days running to get a head start in starting the vehicles and replacing damaged components.

The severe and prolonged cold caused the water to freeze in a few pipes located in inadequately heated attic areas.

Throughout the cold spell, men of Sandia's Security organizations performed extra activities connected with the storm. From early calling of emergency maintenance crews through the helping of stranded employees with stalled cars in the parking lots, security inspectors maintained extra alertness for hazards to employees and plant facilities.

Many sprinkler systems froze, leaks occurred, and alarms were numerous. The guards answered the alarms and reported all hazards to maintenance crews. They even spread salt on the sidewalks at tech area entrances and checked parking lots for autos with lights left on.

The men who patrol remote test areas in Coyote Canyon and Area III made their appointed rounds in sub-zero temperatures without incident.



Speakers

J.M. Worrell (1721), "Metritzation of Locally Separable Spaces," and with H.H. Wicke (on leave), "Extension of the M-Space Concept," American Mathematical Society Meeting, Jan. 21-25, Atlantic City, N.J.

W.S. Saric (9341), "Nonlinear Kelvin Helmholtz Instability" and "Nonlinear Resonances in the Motion of Rolling Reentry Bodies"; Irving Auerbach (9328), D.F. McVey (1543), and D.D. McBride (9328), "Correlation of Experimental Carbon and Graphite Ablation Data for Reentry Vehicle Nose Tip Application," AIAA 9th Aerospace Sciences Meeting, Jan. 25-27, New York City.

R.A. Lefever (5154) and D.H. Anderson (9114), "Temperature Dependence of the Nuclear Magnetic Resonance of Cr53 in Antiferromagnetic Cr2O3"; F.M. Bacon (2612), "A Spectroscopic Investigation of a Pulsed Vacuum Arc with One Electrode Coated with a Hydrogen Occluding Thin Film," American Physical Society Meeting, Feb. 1-4, New York City.

J.W. Nunziato (5161), "The Bulk Response of Viscoelastic Solids," Winter Meeting of the Society of Rheology, Feb. 1-3, Salt Lake City.

Bruno Morosin (5152), "Structure of Dimeric Methyl (propynyl) Beryllium-Trimethylamine"; with R.W. Lynch (5152), "A Novel Furnace for High Temperature Single Crystal X-Ray Diffraction Studies" and "Structural Studies on Anisotropically Expanding Oxide Materials," American Crystallographic Association Meeting, Feb. 1-4, Columbia, S.C.

Al Goodman (1224), "Some Things That the Future May Bring," Mile High Optimists Club, Jan. 7, Albuquerque.

W.S. Saric (9341), "Experimental and Theoretical Investigations of the Stability of Liquid Films," Workshop in Transpiration Cooling in 3-Dimensional Flow Fields, Jan. 5, San Bernardino, Calif.

L.P. Bradley (5245), "Subnanosecond Jitter High Voltage Switching by Streamer Control," Simulator Design Symposium, Jan. 26-28, Washington, D.C.

N.J. DeLollis (5333), "High Strength Versus Stress Relief in a Structural Bond"; with Orelia Montoya (5333), "Outdoor Aging of Adhesive Sealants," SAE Automotive Engineering Congress and Exposition, Jan. 11-15, Detroit.

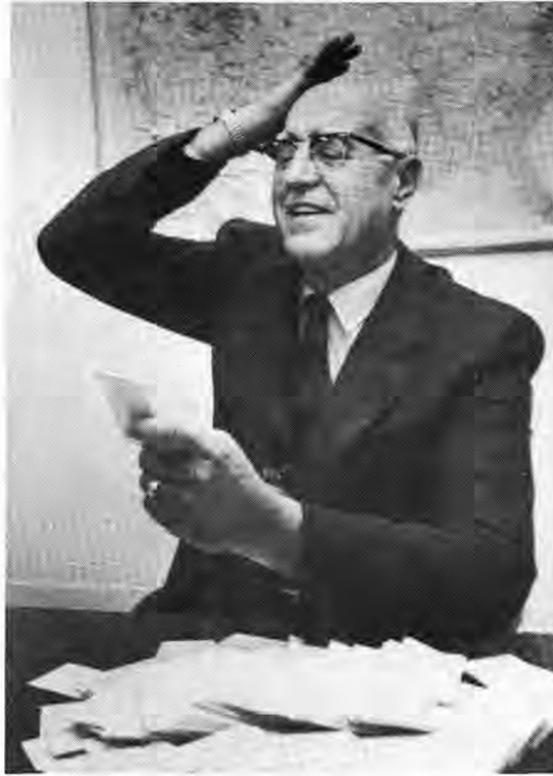
A.F. Veneruso (1213), "Realization of Near Time-Optimal Feedback Controllers," UNM Graduate Research Colloquium, EE Department and Computer Sciences, Dec. 15.

J.M. Hueter (3144), "Creativity and Engineering," UNM ASME student chapter, Nov. 10; "Creativity—Choice or Chance?" Printers Association of New Mexico, Nov. 12, and Albuquerque Lions Club, Dec. 1; "Value Engineering," UNM Engineering College, Nov. 13.

J.N. Johnson (5133), "Dynamic Yielding Under Shock Wave Compression," North Carolina State University and University of Kentucky, Dec. 3-4.

J.P. Brannen (1741), "Use and Misuse of Kinetic Models in Biomathematics," "Computerized Biomodeling," and "Some Consequences of Computerized Biomodeling," Iowa State University Biomathematical Seminars, Dec. 8-9, Ames.

J.F. McDowell (2651), "A Quality



"WHAT IS SO RARE as a day in June?" When Security Education Division 3512 headed by Percy Wyly recently issued a handy-dandy plastic ice scraper incorporating a security message and a 1971 calendar to all employees, the calls started coming in asking if Percy was playing Nero and fiddling with the calendar. His calendar showed a June 31 date. President Hornbeck and Small Staff members decided to delegate all responsibility for running Sandia to Percy on that date. Frank Moon (3510) shows Percy the memo in photo at right. Percy says that employees may work either Thursday, June 31, or Thursday, July 1. In the meantime, monthly paid employees can count on getting their paychecks on Wednesday, June 30.

Assurance Program for Semiconductors"; K.D. Marx (8341), W.H. Sullivan and R.L. Ewing (both 1548), "Dielectric Conductivity at High Dose Rates," Conference on Transient Radiation Effects on Electronics, Dec. 8-10, Gaithersburg, Md.

J.T. Schamaun (1544), "Structural Analysis of Carbon and Graphite Filament Wound Heatshields for Reentry Heating Environment"; J.H. Biffle (1542), "Microstructural Analysis to Determine Elastic Material Properties of a Filament Wound Graphite Composite Having Orthotropic Constituents"; T.R. Guess (5314), "Material Design Concepts for Filament Wound Graphite-Graphite Heatshields"; O.J. Burchett (7362), and others, "Holographic Interferometric Studies of Carbon Composite Cylinders"; R.A. Baker, D.E. Bishop, and G.C. Stoker (all 7361), "Ultrasonic Characterization and Computerized Analysis of Graphite Billets"; Irving Auerbach (9328), "Correlation of Experimental Carbon and Graphite Ablation Data," Conference on Continuum Aspects of Graphite Design, Nov. 9-12, Gatlinburg, Tenn.

D.C. Bickel and M.G. Vigil (both 7343), "Blast Simulator Instrumentation Study," Second Conference on Military Applications of Blast Simulators, Nov. 2-5, Dahlgren, Va.

J.E. Powell, A.R. Phillips, and H.L. Kefauver (all 5223), "The Use of a Time-Shared, On-Line Computer to Support Basic and Applied Radiation Research"; J.G. Kelly (5223), L.D. Posey (5226), and J.A. Halbleib (5223), "A Magnetic Compton Spectrometer for High-Intensity Pulsed Gamma Ray Environments," 1970 Nuclear Science Symposium, Nov. 4-6, New York City.

E.L. Patterson (5223), "Photographic Study of a Plasma Focus Device"; T.P.

Wright (5231), "On the Laplace Transform of Solving a Moving Boundary Problem"; A.J. Toepfer (5241), "Finite Temperature Relativistic Electron Beam Equilibria," APS annual meeting of the Division of Plasma Physics, Nov. 4-7, Washington, D.C.

A.B. Draper (7450), "Coordination and Surveillance of Calibration Activities in a Decentralized System," First Cal Poly Measurement Science Conference, Nov. 6-7, San Luis Obispo, Calif.

N.F. Sinnott (7222), "A Digital Output Roll Stabilized Gyro Platform for Sounding Rocket Attitude Monitoring and Control," AIAA Second Sounding Rocket Vehicle Technology Conference, Dec. 7-9, Williamsburg, Va.

P.R. Wilkes (9327), "Sandia's Marine Sediment Penetrometer," Albuquerque Geological Society, Dec. 15, Albuquerque.

M.R. Scott (5222), "The Application of Invariant Imbedding to Characteristic Value Problems," Fourth Hawaii International Conference on Systems Science, Jan. 12-14, Honolulu.

R.G. Easterling and R.R. Prairie (both 1643), "Combining Component and System Information"; I.J. Hall and R.R. Prairie (both 1643), "Applications of Prediction Intervals in Reliability Work," annual meeting of the American Statistical Association, Detroit.

Forthcoming Colloquia

Feb. 3, Dale Meade, University of Wisconsin, "Toroidal Plasma Research"

Apr. 7, Maxime Faget, NASA Manned Space Flight Center, Houston, "Space Shuttle Concepts"

Bldg. 815 Auditorium

Authors

R.C. Knauer (5152), "Mossbauer Effect in SnTe-GeTe Alloys," Vol. 33, No. 5, PHYSICS LETTERS A.

R.C. Powell (5514), "Thermal and Sample Size Effects on the Fluorescence Lifetime and Energy Transfer in Tetracene-Doped Anthracene," Vol. 2, No. 6, PHYSICAL REVIEW B—SOLID STATE.

J.P. Van Dyke (5151), "Relativistic Energy-Band Structure of Mg₂Pb," Vol. 2, No. 6, PHYSICAL REVIEW B—SOLID STATE.

D.M. Schuster (5314) and E. Scala (Cornell University), "Properties of Whisker Composites," published in the book, WHISKER TECHNOLOGY, A.P. Levitt, Ed., (John Wiley and Sons, New York, December 1970).

F.W. Bingham (5232), "Delayed-Coincidence Study of O⁺ + Ne Collisions at 50-200 keV," Vol. 2, No. 4, PHYSICAL REVIEW A.

D.W. Braudaway (7452), "Truly Transportable Standard-Cell Air Bath," Vol. IM-19, No. 4, IEEE TRANSACTIONS ON INSTRUMENTATION AND MEASUREMENTS.

G.J. Lockwood (5235), "Total Cross Section for Charge Transfer of Noble-Gas Ions N₂," Vol. 2, No. 4, PHYSICAL REVIEW A.

N.J. Magnani (5531), "Stress Corrosion Cracking of Mulberry," Vol. 26, No. 10, CORROSION.

F.C. Perry (5225), "Thermoelastic Dosimetry of Relativistic Electron Beams," Vol. 17, No. 9, APPLIED PHYSICS LETTERS.

R.E. Whan (5522) and G.W. Arnold (5111), "Lattice Expansion and Strain in Ion-Bombarded GaAs and Si," Vol. 17, No. 9, APPLIED PHYSICS LETTERS.

P.J. Roache (9343), T.J. Mueller and C.R. Hall (both University of Notre Dame), "Influence of Initial Flow Direction on the Turbulent Base Pressure in Supersonic Axisymmetric Flow," Vol. 7, No. 12, JOURNAL OF SPACECRAFT AND ROCKETS.

Photochemical Laboratory Produces Low-Cost Tooling and Parts, Fast

Photopolymers—plastics sensitive to light the way photographic film is—are the basis for a new chemical milling technique developed by Photochemical Laboratory 4221-1. The method makes possible the low-cost production of tooling and parts.

To make a part using the technique, a drawing of the piece is first conventionally photographed to make a photographic film negative. The light-sensitive layer of the plastic, masked by the film negative, is exposed to light. When dunked into a sodium hydroxide caustic solution, the exposed parts of the photopolymer are etched away.

This chemical milling of the plastic can produce either finished parts—fluidic elements, cams, mechanical and electrical programming discs, gears, gaskets, etc.—or a template from which other parts in different materials can be machined.

Templates generally are made by hand by a machinist working from an engineer's drawing. A flat steel plate is inscribed with a pattern identical in shape to that of the finished product and the machinist then cuts it out. The photopolymer template is produced more quickly and for less cost.

In use, the completed template is placed in a rigid frame and its pattern traced by a pantograph operator using a special stylus. Mechanical linkage from the stylus controls the movement of a power tool; the tool then cuts the desired pattern from a plate of steel, aluminum, or other material. The technique is particularly useful in the production of printed circuit boards. The pantograph can either enlarge or reduce the design.

With the proper use, photopolymer materials have proven to be very durable. At Sandia, for instance, more than 100 printed circuit boards were routed from a single photopolymer template without visible wear in the master.

"Major advantages of using photopolymers for templates are the speed and economy with which they may be



STAGES in the photochemical production of a printed circuit board are displayed by Jac Constant (4221-1). At left is a film negative of the master drawing, in the center is a template made from photopolymer, and in the upper right is a printed circuit board ready for installation of components. The new technique using photopolymers and chemical etching is described in the accompanying article.

produced," says T.A. Allen, supervisor of the Photochemical Laboratory. "Experience at Sandia has demonstrated that a completed photopolymer part or tooling can be ready for use within an hour after receiving the artwork master."

Western Art Exhibit Next for 802 Foyer

A \$50,000 traveling exhibit of art from the National Cowboy Hall of Fame and Western Heritage Center in Oklahoma City will go up in the display area of Bldg. 802 on Feb. 8 as the presently popular Process Development Laboratories goes "on tour."

The display of contemporary Western themes includes watercolors, oils, drawings, and three bronze sculptures. Gordon Snidow (3417) and former Sandian George Marks will be among the artists represented. The exhibit will hang until Feb. 22.

The current display of examples of challenging jobs performed by the development laboratories will begin a tour of Bldg. 805, 892, and 840. The idea for the exhibit came from Ralph Wilson, manager of Development Department 4220; each lab prepared its own display.

Promotions

Lugarda Abeyta (3341) to Administrative Clerk
Donald Miller (8271) to Model and Instrument Maker
Donald Sadler (8271) to Model and Instrument Maker
Celso Sanchez (4511) to Office Machine Repairman
L.C. Trujillo (7512) to Staff Assistant Technical
Walter Young (8271) to Model and Instrument Maker

Death

Florencio Jaramillo, a janitor in Custodial Division 4515, died Dec. 31 after an illness. He was 55.

He had worked at Sandia Laboratories since June 1959.

Survivors include his widow, three daughters, five sons and eight grandchildren.



NAME OF THE GAME IS VOLLEYBALL, and the call is out for more players, female that is. League play starts mid-February, continues into April at Base gym after work. Pirouetting young lady here executes difficult arabesque shot, a winner, to obvious consternation of opponents. Want to play? Call O.J. Foster on ext. 7775.

Service Awards

20 Years



Michael Adams
3520



Juvenal Baca
7252



Robert
Crompton
3520



Willard Flowers
4213



Fred Gonzales
7532



Bonifacio Griego
4212



James Hiser
3520



William Huff
7451



Ramon
Lamberson
1526



Richard Lopez
4221



Keith Mead
5322



Helen Melancon
4151



William Meyer
1590



Chad Miller
7222



Jack Miller
4137



Guadalupe
Mireles
4623



Vivian Montoya
3520



Lillie Padilla
4514



Dale Pipher
7414



Henry Roy
4337



Jennie Spann
4233



Henry Strauss
4312



Marshall Tippy
3351



Alma
Vandeveld
7412



20 YEARS SERVICE with Sandia Labs will be marked Feb. 5 by Jack Sublett (7650). Because the number of service award pictures is becoming too large (50 would appear in the next issue), this photo feature in LAB NEWS is being discontinued, although names will continue to be listed. Portraits will be taken on same service anniversaries as before however, and a 5x7 framed photograph will be presented to employees observing 15, 20 and 25 years service.

15 Years



Almon Alberts
7613



Virginia Barrett
7650

AEC Personnel Changes



Dickason

Don Dickason, Deputy Area Manager of the AEC/ALO Sandia Area Office for the past six years, will become director of the ALO Security Division on Feb. 28. He replaces W.C. "Bill" Roussel who will be a special assistant to the Assistant Manager for Administration until his expected retirement on April 2.



Ford

The position of SAO Deputy Area Manager will be abolished.

JUDSON FORD, former director of AEC/ALO's division of Industrial Relations, is retiring. He has served with the Federal government for 28 years and has been in Albuquerque since 1951. Extremely active in the community, Judson has participated in many civic causes and is also known for his work with local theatrical groups. He plans to remain in Albuquerque and, among other activities, will serve as president of the Tennis Club of Albuquerque during 1971.



Rudolph Walter
4373



John Wiesen
100



Sheldon Bliss
3300



John Hutton
9227



Woodrow Key
7424

10 Years



Jacob Young
4252

Kent Johnson 4231, Arthur Arenholz 9428, Leo Savitt 3455, Enid Morton 4151, Paul Heppner 8172, Percy Wyly 3512, and Don Swanson 8182.



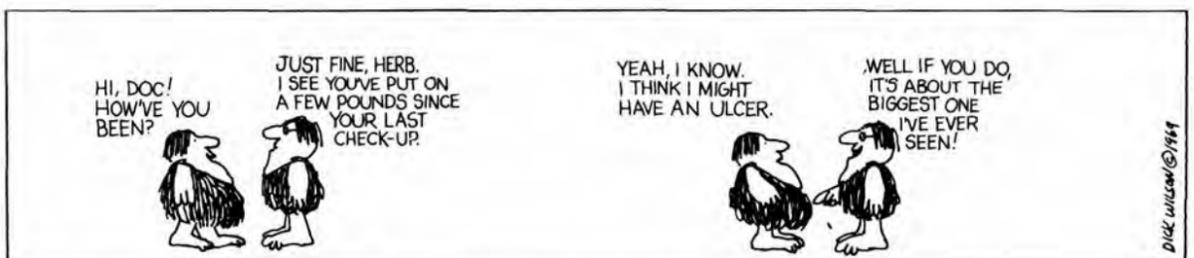
Samuel McAlees
9513



Paul Scates
1641



Lemmie Shew
7433



Labs Issues Policy Statement on Air Pollution Control

At recent public hearings on air pollution control regulations for the city, Ted Sherwin, manager of Public Relations Department 3430, stated Sandia's position on the subject. Excerpts from the statement:

"Clean air is important to Sandia Laboratories.

"As an employer of technical personnel, Sandia is in a position to evaluate the relative importance of factors considered by out-of-state candidates for employment. During the past five years Sandia has brought into New Mexico as employees 735 technical and professional graduates, recruited from campuses throughout the United States.

"Most employers now agree that life style and environmental factors are as important to

professional employees nowadays as income by itself. Sandia's experience supports this conclusion. Recruiting in competition with industrial laboratories and other research institutions from all over the United States, we have been very successful. Despite some obvious advantages of working in more densely populated metropolitan areas, university graduates have shown a strong preference for Sandia because of the quality of life in New Mexico.

"Air quality is important to Sandia Laboratories for other reasons, too. (In outdoor testing activities) . . . there is a direct relationship between the clarity of the atmosphere in the test area and the observable detail on film or through telescopes. It is of interest to note that our Tonopah Test Range,

north of Las Vegas, Nev., where high speed aircraft drop tests are conducted, and which has been valued for its clear air and visibility, is now being threatened by occasional smog moving in from the west coast.

"Sandia's policy is and has been to avoid any activity which would degrade the environment, particularly the air around us. (And) Sandia stands ready to use its technological know-how and scientific capabilities . . . (by) such activities as conducting tests, developing monitoring instrumentation and developing standards of pollution level and acceptability. In addition, we pledge full cooperation in any public education program which may be undertaken to gain support for and compliance with the standards agreed upon."

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CLASSIFIED ADVERTISING
Deadline: Friday noon prior to week of publication unless changed by holiday.
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1. Limit: 20 words
2. One ad per issue per person
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

GREEN, cocoa & white plaid Early American occas. chair, Scotch - guarded, 1 yr. old. Erlandson, 296-7351.

VICTORIAN washstand, oak, tilting beveled-glass mirror, towel bar, drawer, storage space, \$125. Oglesby, 344-6331.

ALUMINUM sun screens for 4-dr. stationwagon, set of 7 designed for Plymouth, may be adaptable to others, \$15. Joseph, 299-6989.

PUPPIES, AKC reg. German Shepherd, champion pedigree, weaned. Sandoval, 298-8887.

COLLIES, AKC show quality, 3 females, sable & white, \$75, terms. Rhoden, 296-2473.

GIRL'S bike, 24" wheel, \$10. Mazzio, 298-2438.

BATHROOM sink, white, \$15. Shipley, 298-2433.

PIANO, Grand Console, Early American style, used very little. Farley, 298-0208.

TYPEWRITER, Remington Quietriter, port., \$35. Fortman, 256-2105.

TRAIL BIKE, \$125; ski boots, buckle type, \$12. Peterson, 256-7514.

PORT. HI-FI stereo, 3 speaker phonograph, silvertone, \$35. Gonzales, 268-9912 after 5.

GIUITAR, Kimberly, compression tremelo, dual adjustable pickups, electric, \$25; 2 Intl. Travelall wheels w/8:45x15 snow tires, \$15 ea. Shepherd, 299-9066.

'68 BSA 650, 11,000 miles, extras if desired. Bartlett, 299-4861.

FENDER JAZZ bass, \$275; Fender solid state bassman amp, \$300. Mikkelsen, 3421 Dakota NE, 268-1485.

ELECTRIC GUITAR & amplifier; Zenith hi-fi record player. Martinez, 344-2238 after 6.

BASS GUITAR, Vox Panther w/case, \$85; 100-watt Teneyck bass amp, \$235. Schreiner, 268-4159.

SKIS, Kneissl Red Stars/SL/205 cm, Nevada toe & heel, \$110. Pinkham, 299-9241.

'70 HONDA 175cc motorsport. Harrell, 282-3251

BLOND cocktail & end tables, \$30; Slenderette machine, \$50. Grimes, 299-2548.

POODLES: toy, black male; miniature silver female; snow skis, 2 pr., 1 w/bindings; Jungle gym. Johnson, 298-7356.

GERMAN MUSIC BOX beer stein, \$18; Japanese Samuiri sword, \$35; Japanese rifle, \$25; want old daggers & knives. Smitha, 299-1096.

KITCHEN TABLE & chairs, formica; boy's spider bicycle. Fenimore, 298-8052.

STEREO speakers, corner enclosure type, solid walnut trim, \$75 for pair. Stirbis, 299-5363.

PAIR black dress safety shoes, size 10-D, \$3. Mills, 299-2130.

S&W revolvers, 2" barrels, .22 & .38 calibers; 30.06 Winchester model 70 w/scope. Wilson, 282-3225.

GAS power lawn mower, Sear's, \$40. Pitti, 256-1629.

TV, port... 18" Zenith w/stand, new \$177, sell for \$99.95; oriental coffee table, \$35. Browning, 299-6384.

OR TRADE: ham gear — model 14 typing reperf, TD, 2 JAV TU, 2 ea. 150 VDC power supplies, coax-RG8 & 58, misc. parts, microphone, phone patch. Mills, (1) 636-2087.

BICYCLE, lt. blue, Stingray, 3-sp., \$20. Fox, 299-9031.

SEWING MACHINE; tape recorder; record player; Nesco roaster; VW snow tires; trumpet; 6' unicycle; supercharger for MGTD, TF, Hansche, 296-1387.

SKIS, Head std. 220cm, never used, \$75; .270 Savage LH bolt, 3x9 power scope, case & sling included, \$150. Linn, 282-5257.

PUPPIES, Cocker Collie cross. Kutac, 298-7024.

SKIERS' warm-up pants, stars & stripes, large, never worn, \$25; skis, Head Masters, 205 cm, \$30; Cubco bindings, \$10. Shunny, 265-1620.

2 PALOMINO COLTS, 8 mos. & 1-1/2 yrs. Heath, Bosque Farms, 636-2181.

DINING TABLE, 4 upholstered chairs, \$50. Tolmie, 296-4332.

TYPEWRITER, Royal manual portable, \$25. Leighton, 299-3590.

MOTORCYCLE, '69 Honda CL350, \$495; stereo component system; 72 watt receiver, speakers, BSR turntable, \$260. Robert, 898-0491.

150 FEET UF3 conductor cable, No. 10 plastic coated for direct burial. Miller, 282-3189 after 6.

GOLF CLUBS, 1, 2, 3, 5 wood, 3-9 irons & putter. Michele, 243-5174.

MOSRITE 12-string solid body guitar w/case, make offer or swap for good Flamenco guitar. Swiss, 265-5346.

2-1/2 HP gasoline engine, 6-1 gear reduction, 600 rpm, no carburetor, \$10; child's size 8 Beckwith's English riding breeches, \$4. Bassett, 898-1840.

REPAIRABLE HONDA 50 motorcycle; 2 pr. skis; children's sleds; toboggan; 3 complete twin beds; comb. desk/chest/bed. Hunter, 268-7014.

DIAMOND, emerald cut, 1.1 ct. w/4 baguettes, sell for less than 1/2 Foggs appraisal. Zaluga, 344-1564.

TWO TON capacity drop center trailer axel w/hubs, new bearings, new races, wheels, U-bolts, 63" track, \$40. Campbell, 268-8445.

POOL TABLE, AMF, 7.5' x 4' playing surface, \$175. Snidow, 298-6163.

CARS & TRUCKS

'68 CHEVY Biscayne, factory air, low mileage, below book, asking \$1325, make offer. Browne, 344-9873.

'55 OLDS Holiday coupe, AT, PS, PB. Buchanan, 256-1879.

'68 COUGAR GT, white w/black vinyl top, 390 cube, 4-sp., PS, disc brakes, 50,000 mile warranty, \$1999. Cox, 268-6979.

'62 CHEVY, 4-dr. Belair, 327 V8, AT, factory air. Hurt, 282-3675.

'66 FORD Fairlane 390, 4-sp., Clark, 296-8668 after 5.

'65 FORD sport coupe, V8 Fairlane, 4-sp., \$700. Murray, 344-5289.

'61 CHEVROLET station wagon, V8, factory air. Hall, 299-3594.

'62 CORVAIR Monza 4-dr. sedan, AT, \$350 or make offer. Hughes, 2916 Avenida Nevada NE, 299-6674.

'62 COMET, 4-dr., 6-cyl., stick shift, 50,000 miles, \$445. Morgan, 299-2850.

'67 CHEVROLET Caprice wagon, 327 engine, PB, PS, 3-sp., trans., AC, luggage rack, power tailwindow, 34,000 miles, woodgrain side. Fisher, 299-9235.

'70 MUSTANG Grabber, 302 V8, 3-sp., AC, wide ovals, \$2700. Little, 255-0558.

'62 FORD Galaxie, 352 std., new brakes & paint — black over peach — \$295; '61 VW, new paint, \$495. Brinkley, 344-5334.

'60 FORD Galaxie, AC, AT, \$350. Bachand, 299-5167.

'63 MERCURY 4-dr., PS, PB, AC, R&H, elec. rear window. Stixrud, 298-0478.

REAL ESTATE

ROBERSON, 5-1/4 FHA, 3-bdr., 1-3/4 baths, DR, fp, utility rm., built-ins, carpeting, drapes, AC, landscaped w/lg. patio, near Collet Park School. Filusch, 299-5932.

3-BDR., 2 bath, approx. 1500 sq. ft., 2-car garage, lg. kitchen, formal DR area, dishwasher, disposal, dbl. oven, washer/dryer, refrig., drapes, \$21,550. Stanley, 299-7169.

5-BDR. HOME, 2 baths, lg. den, hobby shop, attached garage, cfa heat, carpeted, AC, landscaped, NE, \$21,550. Hammons, 296-1142.

2 ACRES in Belen, irrigated in alfalfa & fruit trees, electricity, phone & gas to property, \$2000 total. Gonzales, 877-6745.

6 ACRES in the heart of the Jemez Mountains. White, 296-3842 after 5:30.

WANTED

HARMONIC DISTORTION ANALYZER. Stoker, 299-7221.

USED PIANO to be refinished & repaired, approx. \$100. Jeffs, 268-3154.

TRADE cornet for guitar. Murray, 344-5289.

GIRL to share apt. in NE heights. Martinez, 298-4958.

LATE MODEL typewriter, port. or std., manual or electric. Davies, 265-7283.

BABYSITTING for children 2-9, no more than 3, area bounded by Menaul, Tramway Blvd., Constitution & Juan Tabo. Eads, 296-4660.

LARGE TENTS, 10x13 and larger for church group. Shepherd, 255-2396 after 6.

BABYSITTING for working mothers, vicinity Eubank & Constitution. Thomas, 296-6415.

LIVE in Holiday Park area near Mount Everest & Golden Gate? Alternate driving with me. Harrison, 296-3235.

CAR POOL from vicinity of Parsifal & Candelaria. Lauger, 296-3197.

WOODEN FILING CABINET. Beck, 299-7225.

LOST AND FOUND

LOST — Red address book, gold cuff link, Rx safety glasses w/ brown & metal frames, gold ball stud earring for pierced ear, Rx safety glasses w/black & metal frames, billfold, green & red earring, Rx glasses, Rx safety glasses w/black frames, keys on ring w/initial on chain, ski pants, black notebook, lg. key w/loop on ring, U. of Texas '64 class ring, dangling earring w/3 triangles, 4 keys in beige leather case, gold ring w/2 pearls, brown portfolios w/papers. LOST AND FOUND, tel. 264-2757. Bldg. 832.

FOUND — Old class picture from Lawrence Park, Pa., brown leather coat button, vari-colored bracelet, keys on ring w/yellow ball, Rx glasses w/brown & metal frames in black case, earring w/silver cages & turquoise stones, Rx bifocal glasses w/grey frames, 2 keys on ring attached to clip w/12" chain, black tobacco pouch, black plastic earring, black glove w/red lining, brown glove, keys in black leather case. LOST AND FOUND, tel. 264-2757, Bldg. 832.

Coronado Club Activities

Club Announces Mazatlan Tour

The Coronado Club announces "Adventure in Mazatlan"—a fabulous eight-day travel package to the west coast of Mexico and one of the world's greatest resort cities.

Dates of the tour are April 20 through April 27. The price—\$189 per person—includes the works, according to Chet Fornero (4337), Club travel director.

"This is the best vacation deal yet," Chet says. "The \$189 includes first-class transportation via Frontier 727 jet, airport to hotel transportation, a welcoming cocktail party, seven nights at the Playa Mazatlan Hotel, breakfast and dinner there each day, a special 'Fiesta Night' with extravagant entertainment and free drinks, and all hotel tips (except lunch and bar)."

A minimum of 125 persons is needed to make the package feasible. Only Coronado Club members are eligible but *all* AEC and Sandia employees including retirees are eligible for Club membership. Annual dues are \$25.

Playa Mazatlan Hotel is located right on one of the finest beaches in Mexico. It is a first class luxury resort hotel. Available in the Mazatlan area are activities such as deep sea fishing, water skiing, skin diving, scuba diving, parachute rides, surfing, island and



Kathy
Pitts
(1733)

Soul Session Tomorrow

Something new will be added to Soul Session tomorrow night at the Coronado Club. Pete Gallegos (2335), entertainment director, reports that the ballroom has been outfitted with strobe lights for special effects during some of the fantastic rock numbers of Freeman Lacey and the Mark IV. The lights were first used during the teen go go last December.

"The strobes add a little excitement," Pete says, "as if we needed any more for Soul Sessions. Tomorrow's event will stick with our successful formula of a great band, happy hour prices all evening, and free admission for members."

Soul Sessions start at 8:30, end at 12:30. Fee for guests is 50 cents.

TONIGHT, of course, is Friday night and that means another happy hour at the Club. Joe, longtime bartender in the main lounge, was telling the north end crew the other night that, if anything, happy hours are getting better.

"We always get the regulars," Joe says. "It's a fact that we have the best bar in town, but it seems to me that we're getting more new people—a younger crowd. They dig the buffet and the music. I guess the kids of our charter members are old enough now to really use the Club facilities. Anyway, the mini-skirts are something else."

The MARK IV will be making the happy music tonight while the Club's kitchen staff spreads the fried chicken buffet. The buffet costs \$1.25 for adults, \$1 for kids.

MEXICAN FOOD will be the buffet feature for next Friday, Feb. 5. The Top Hats will be on the bandstand.

WILDMAN Bob Banks and the red Yamaha electronic organ will make the happy music on Friday, Feb. 12. Smilin' Jim Noonan, Club manager, will spread his famous chuckwagon roast beef on the buffet.

HAPPY HOURS start right after work on Fridays with special prices in effect until 9 p.m. The buffet is spread from 6 to 8 p.m. while the band plays for dancing from 6 until 9 p.m. Then the troops move to the main lounge where Yolanda Adent and piano entertain with a sing-along until midnight.

AN AMERICAN HERITAGE stage show will be combined with a classic comedy film on Saturday, Feb. 13. The Fiesta Singers will perform along with the Albuquerque Music Club and present a variety program of songs and dances. Emphasis will be on American composers.

After the stage show, the old Bob Hope, Bing Crosby, Dorothy Lamour classic "Road to Morocco" will be shown along with two chapters of the Bela Lugosi serial "The Phantom Creeps." Happy hour prices will be in effect and steak sandwiches and hamburgers will be available. Admission is free to members and families.

bay cruises, horseback riding, bicycle riding, golfing, tennis and guided tours of the city and nearby mountain villages.

Chet first announced the trip at a slide-show meeting of the Bahamas tour group. Three of the group signed up on the spot. Frank Loomis (retired), one of the first to register, has stayed at the Playa and reports that the facilities are excellent. He says the weather in Mazatlan in April will be great—temperatures around 85 degrees and the ocean temperature about 75 degrees. The big fish will be running.

Since the meeting, 43 people have signed up for the trip.

"We can take a maximum of 140," Chet says, "and it's a first-come, first-served situation. A deposit of \$50 per person should be paid at the Club office right away and the remainder of the fee should be paid by March 15."

The \$189 price is based on double room occupancy. For singles, the price is \$202.

SAFETY GLASSES



ARE FOR YOU AND EYE