



THE BUSES are coming, the buses are coming! Right into the Tech Area! They'll be stopping at the Tech Area cafeteria to unload and load passengers morning

and evening. See page two for a complete rundown of the six Sandia specials.

LAB NEWS

VOL. 25, NO. 15

JULY 27, 1973

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

Goggles, Windows, Light Gates Arise From PLZT Invention

A recently patented optical filter which uses PLZT ceramic is now employed in three devices under development at the Labs:

- for operators of military vehicles, goggles that offer protection from the eye-damaging flash of a nuclear explosion
- for crew members, an aircraft window that also offers protection from flashblindness and thermal burn as well
- for a page composer for an optical (holographic) computer memory, an array of tiny shutters or light gates.

All three are being developed under DOD contracts.

The patent on the PLZT variable density optical filter, a key component in the three devices, was recently issued to AEC in the names of Sandia inventors Tom Cutchen, Gene Haertling, Jim Harris (all 2521) and C.B. McCampbell (2310).

Haertling is also the inventor of PLZT, a transparent, lanthanum-modified, lead-zirconate-titanate ceramic whose optical properties can be controlled by application of voltage to a thin plate of the material.

In the filter, a thin slice of the PLZT is sandwiched between two crossed polarizers similar to those used in Polaroid sunglasses. Virtually no light passes through this sandwich until an electrical voltage is applied to metallic electrodes on the surface of the ceramic. When the voltage is removed, the ceramic returns to its normal unswitched

state, in which the passage of light is blocked.

The nuclear flashblindness goggles, being developed for the Army, furnish the wearer with an "electronic blink" that cuts off the peak brilliance of damaging flashes of light. The goggles can be switched from transparent to opaque within 50 millionths of a second. They return to a transparent state automatically when light levels drop to a non-hazardous value.

Light transmission through the goggles in their "on" state is about 21 percent, compared to 15 percent for U.S. Air Force regulation sunglasses. They can be stored for long periods of time and switched off and on repeatedly without degradation of their optical properties.

Flash hazard is detected by photodiodes located between the goggle lenses. The diodes are part of a circuit which switches the goggles to their opaque state when the light intensity exceeds a pre-set value.

Power supply for the system consists of a 5.4 volt battery, DC-DC converter and electronics. When fully miniaturized, it will displace less than two cubic inches and weigh about two ounces, exclusive of the battery. The battery can operate the goggles for about 200 hours.

The goggles may be adapted for welding or other uses, and a "Dial-a-Shade" circuit has been designed which permits the user to select the maximum level of light to be transmitted through the goggles. Continuous

transmission levels, corresponding to welding shades No. 5 through No. 12, can be switch-selected.

(Continued on Page Four)



GEORGE LAGUNA (2521) displays prototype of a ceramic light gate. An array of 256 of these tiny shutters will serve as an information input device — page composer — for an optical (holographic) computer memory.

CU Bulletin Board

What Has Dark Glasses, An Accent, & Gets 6.3 MPG?

An Italian movie star at the wheel of his 365GTB Ferrari of course. Thus states, at least in part, a rather interesting document entitled "Control of Air Pollution From New Motor Vehicles and Engines." It is included in the Federal Register, runs to a couple dozen pages, was compiled by the Environmental Protection Agency, and lists — among other data — gas mileage on just about every 1973 vehicle known to man.

Here's a sampling: (engine displacement given within parentheses) Gremlin (232) 18.0 mpg; Audi (114) 14.2 mpg; Jaguar V12 (326) 7.5 mpg; Valiant (225) 14.5 mpg; Plymouth Fury (360) 9.7 mpg; Pinto (122) 17.9 mpg; Torino (351) 8.2 mpg; Ford F-100 PU (360) 9.9 mpg; Chevelle (307) 12.8 mpg; Catalina (400) 10.0 mpg; Eldorado (500) 8.1 mpg; IH Travelall (401) 10.1 mpg; Toyota Corona (120) 18.5 mpg; VW sedan (97) 21.7 mpg.

Mileage data was acquired by EPA incident to certification of '73 vehicles for exhaust emissions. If you're interested in finding out what kind of mileage you should be getting on your new Maelstrom Super 8, the complete document can be checked in LAB NEWS office.

Don Sharp Awarded Two Patents

Don Sharp, supervisor of Hybrid Engineering Division 2432, was recently awarded two patents for work performed for Western Electric Company while he was a research leader in microelectronics processes.

Both patents were granted for innovations in method of electroplating and deposition of conductive metal films on tiny microcircuit substrates. Both patents relate to techniques which reduce or eliminate chemical pattern etching and reduce the need for pollution control methods. Both inventions were made in conjunction with M.A. DeAngelo.

The first was called "A Method of Preparing at Least One Conductive Form" and the second "A Method of Electroplating Discrete Conductive Regions."

Don was a research leader at WE's Engineering Research Center at Princeton, N.J., for seven years. He holds eight other patents. He joined Sandia two years ago.



Bus Notes

As of last Monday, city and charter buses load and unload within the Tech Area. The change is designed primarily to make bus riding more attractive to more Sandians, secondarily to ease traffic congestion on the streets around the Area. Each bus stops at the Bldg. 839 cafeteria, which is now a terminal point for the Area III shuttle. The Safety and Security people (in 9500) get the credit for implementing the change.

* * * *

The Belen bus, now following a route on the west side of the river, has raised its passenger load from an average of 10 or so to about 30. The bus will eventually cross the Rio Grande on the new freeway, but for now it has to be Rio Bravo — a 16-ton bus crossing the 10-ton load limit bridge at Isleta seemed a bit foolhardy.

* * * *

The City continues to have problems in finding the buses needed to serve the Far East area and the South Valley-North Valley-Downtown area. At this point the latter, a feeder system into a Sandia-bound express, appears more promising than the former. The

Transit company points out that they can't at the moment serve both areas and would prefer to get a route established in the Valley rather than a fifth one in the Heights. Four new 19-passenger buses are on order; once they're in operation, the equipment squeeze may not be quite so tight.

* * * *

Per some requests from mountain area residents, John Southwick (9532) has checked out the feasibility of a "great circle route" — from Zamora Road and Rincon Loop to Sedillo Hill, north on 44, then west past Sandia Knolls to Sandia Park, then back down 10/14 to 66 and into the Base. The times are prohibitive so we're back to a "Sandia Knolls on in" route. Two carriers have been contacted thus far — negotiations as to equipment, fares, and schedules continue.

* * * *

Live near Montgomery between Carlisle and San Pedro? Interested in bus service? If so, LAB NEWS would like your name and organization in case a shift in current routes would make serving that area a possibility. Send a note to Bruce Hawkinson, Div. 3162.

Please Clip and Save

Current Sandia Commuter Bus Schedules*

SANDIA #1 Girard & Central	7:00	SANDIA #2 Carlisle & Central	6:54	SANDIA #3 San Pedro & Montgomery (then north & east)	7:15
Girard & Indian School	7:05	Carlisle & Menaul	6:59	Louisiana & Osuna (then loop via Penn)	7:20
Carlisle & Candelaria	7:10	Carlisle & Comanche	7:05	Louisiana & Arroyo del Oso	7:24
Louisiana & Candelaria (east on Candelaria)	7:20	Louisiana & Comanche	7:12	Louisiana & Montgomery	7:26
Wyoming & Menaul	7:25	Morris & Comanche	7:21	Louisiana & Zuni	7:35
Wyoming & Central	7:33	Morris & Lomas	7:31	San Pedro & Kathryn	7:40
SANDIA #4 University & Indian School	7:14	LOS LUNAS Simon Neustadt's	6:55	BELEN Garley's, Belen	6:41
Washington & Indian School (then south; loop around Estrellita)	7:20	Valencia "Y"	7:02	Ranchers Bank	6:45
San Mateo & Constitution (loop around Mark Twain School)	7:26	Johnnie's Shell	7:03	Belen Butane	6:50
Louisiana & Constitution	7:33	Peralta Post Office	7:09	Los Chavez Baptist	6:55
		1st National Bank, Bosque	7:15	Mt. States Oil (Fina)	7:03
		Isleta Bridge	7:20	Los Padillas & Coors	7:15
				Romero's Conoco	7:17

*Bus stops at any corner along city routes, only at stops along others.



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Area 505 264-1053
ZIP 87115

In Livermore Area 415 455-2111

john shunny is editor

&

don graham ass't. editor

bruce hawkinson writes
as does norma taylor while
bill laskar takes/makes pictures

&

in livermore lorena schneider does all

Speakers

G.E. Laramore (5151), "Elastic and Inelastic Low-Energy Electron Diffraction (LEED) from Crystalline Solids," Esso Research Laboratory Seminar, May 30, Linden, N.J.

G.W. Gobeli (2441) and E.D. Jones (5214), "Sandia Four Beam Laser System"; J.B. Gerardo and A.W. Johnson (both 5212), "Associative Xenon Laser at 1730°A"; M.J. Landry (2441), "Technique for Automatic Data Reduction of Holographic Interferograms," IEEE/OSA Conference on Laser Engineering and Applications, May 30-June 1, Washington, D.C.

M.L. Merritt (1150), "Characteristics of Shock Waves in Water Near Underground Explosions," Conference on the Environmental Effects of Explosives and Explosions, May 30-31, Naval Ordnance Laboratory, White Oak, Silver Springs, Md.

T.B. Sherwin (3160), "Internal Communications," Seminar on public relations, City of Albuquerque department heads, May 30.

Events Calendar

July 28 — Statewide Bicycle Conference, PERA Bldg. Santa Fe, 10 a.m.; open to public.

July 29 — NM Mt. Club, Lake Catherine via Windsor Trail, Gulf Mart, 8 a.m.

July 29 — KHFM Opera of the Week, "Le Rossignol" and "L'Enfant et les Sortilèges," 6:40 p.m.

Aug. 1 — Santa Fe Opera, "The Merry Widow"; Aug. 4 — "Der Fliegende Hollander"; Aug. 3, 8 — "Le Rossignol/L'Enfant et les Sortilèges"; Aug. 9 — "Owen Wingrave," American Stage Premier.

Aug. 2 — Annual Pecos Celebration: Saint Persingula Fiesta, Old Pecos Bull Dance, Jemez Pueblo.

Aug. 4 — Santo Domingo Fiesta, Summer Corn Dance, Santo Domingo Pueblo.

Bill Robinson Receives PhD



Bill Robinson (8112) was awarded his PhD degree in applied mechanics recently from the University of California at Davis/Livermore. Course work was done under Sandia's Educational Aids Program. His thesis was "Shear Waves in Layered Composites."

After joining Sandia/Livermore in June 1964, Bill worked in the applied mechanics organization in performing structural analysis of RV's and developing analytical methods. He was promoted to his present position as supervisor of Analytical Mechanics Division 8112 in May 1969.

Bill received both BS and MS degrees in civil engineering from Colorado University in 1959 and 1962 respectively. From 1962-64 he took advanced courses at Columbia University and received a professional degree in engineering mechanics.

Take Note

Al Alford (8412) has been appointed deputy grand exalted ruler of the Elks California-central district for the upcoming year. A charter member of the Livermore-Pleasanton lodge and its ruler during 1968-69, he has held various offices both at the local and state level. Last year he was district chairman of the Elks National Foundation. In his new position, he will oversee some 10 lodges with a total membership of over 8500.

* * * *

Jack Berkey of Design Definition Division 8431 received a BS degree in business administration and operations management recently from California State University at Hayward. His course work was completed under Sandia's Educational Aids Program over a three and one-half year period. Jack previously received his AA degree in machine design drafting from Stockton College in 1960.

* * * *

John Lindman (8183) scored a hole-in-one on the 185 yard 13th hole at the Sunol Golf and Country Club during a recent Sandia tournament. A member of SEGC for the past five years, John is also a member of the Las Positas Golf Course Men's Club.

Sympathy

To Ken Henry (8344) on the death of his son in Winter Park, Colo., June 20.

To Bob Schultz (8412) on the death of his mother-in-law in Livermore, June 22.

To Dick Myers (8412) on the death of his mother-in-law in Indianapolis, Ind., June 24.

Congratulations

Mr. and Mrs. Steve Haney (8341), a son, Stephen Eric, June 22.

Mr. and Mrs. Roy Lee (8441), a son, Timothy Shung-Yen, June 27.

Diane Burge (8265) and Greg Atwood, married in Castro Valley, June 1.



100TH MEETING OF THE LIVERMORE ZIPPER COMMITTEE was called to order recently with a special gavel befitting the occasion. Membership has changed since formation of the committee in 1959, but its purpose continues to relate to neutron generator requirements for SLL/LLL weapon systems. Shown are (from left) committee advisor Prof. Larry Ruby (UC/Berkeley); present chairman Bob Dougherty (2411) and vice chairman Bob Remillard (LLL); original chairman Don Gregson (8150); and present SLL member Jim Gibson (8151).

LIVERMORE NEWS

VOL. 25, NO. 15

LIVERMORE LABORATORIES

JULY 27, 1973

Students Work At Labs During Summer

Thirteen students are working at Sandia/Livermore this summer as Youth Opportunity Trainees. The summer employment is offered to help make possible the students' return to school in the fall. Most have completed high school and some their first year of college.

Among the trainees are two June graduates from Livermore High School, Colleen Ford, a typist clerk in Accounting Division 8213, and Absalon Gagaza, a laboratory helper in Metallurgy Division 8313; both recently were awarded \$100 scholarships by the local Lion's Club.

Colleen, who will attend U of C at Santa Cruz, has also received a \$900 State of California Educational Opportunity Grant and is being included in this year's "Who's Who in American High Schools," which makes her eligible for a third scholarship of up to \$1000. Absalon plans to major in business administration and banking at California State University in Hayward and has received three other scholarships — the Holcomb-Lowe Memorial Scholarship of \$200, the Philipino-American Organization of the Livermore/Amador Valley of \$100, and a California State scholarship of \$144.

Both worked at the Labs during their senior year in high school under the Work Experience Education Program (WEEP). Under this program students attend school half days and work half days, receiving two units of academic credit for the work experience. Other WEEP alumni currently Youth Opportunity Trainees include Melda Basurto, a laboratory helper in Metallurgy Division 8313; Grace Caldera, typist clerk in Engineering Services Division 8433; Rogacian Del Castillo, reproduction equipment operator in Engineering Services; Marlyn Fortes, typist clerk in Systems Control Division 8161; Michael Patterson, helper in Model Shops Division 8421; and Adam



SCHOLARSHIP RECIPIENTS Absalon Gagaza and Colleen Ford, at Sandia for the summer, discuss their college plans for the fall.

Sandoval, storekeeper in Materials Management Division 8256.

Leslie Allison (8313), Louise Hara (8431), Edward Shepard (8312), Jolyn Tasto (8314), and Yvonne Tillman (8261) are also in the YOT program.

Students who have completed at least one year at a junior college and are working at SLL this summer under the Student Development Aid program are draftsman trainees Jose Alvarez (8431) and Johnny Ellison (8254) from San Joaquin College; electronics laboratory trainee Pio Winston (8413) from Laney College, and plastics laboratory trainee David Dhew (8423) from Merritt College. •Is

Caution: Biking May Be Hazardous To Your Health

At the risk of appearing ambivalent on the subject, LAB NEWS in this article addresses a not-so-fun aspect of cycling: bike safety — or lack thereof. We still like bikes and biking, but any clear-eyed perspective will discern certain hazards inherent in cycling.

Item: Alan Swain (1642) took up riding on doctor's orders for his bad back. On his second day of bike commuting, he took too sharp a turn out of his driveway and he and bike parted company. Immediately thereafter, his chin and the pavement had a forceful encounter.

Item: Archie Farnsworth (9311), also on his second day of bike riding to work, started to cross Zuni just east of Wyoming and never made it. He was broadsided by a car, fortunately acquired only bruises and a sore foot. (And a busted bike.) He attributes the accident to inexperience.

Item: "Certain bicyclists are the current major traffic hazard on KAFB. Riding down main streets at low speeds, they block traffic. Cars behind logjam, and then try to squeeze into the adjacent (left) lane of traffic, causing many near misses. Please don't plead that bicyclists have a right to the streets . . . in any city, vehicles travelling at speeds sufficiently low to impede traffic are diverted to less-travelled streets . . . Driving below, as well as above, the speed limit is hazardous . . . why not request the Provost Marshal (in the name of safety) to lay out routes and provide exits for cyclists?" s/ Jerry Hurley (1612). (Ed. Note: We have, many times. "We" is the Sandia Bicycle Association.)

Item: Laura Garcia (2432) borrowed a friend's 10-speed, thinking she might later buy one for commuting and riding around. She picked up speed, reached for the brakes (rather unhandily situated on racing handlebars), lost her balance, toppled, and scraped a leg. Laura hadn't been biking since childhood.

We pick up the knack of riding a bike as a child and, once learned, it's generally a faculty we have for life. Even if you haven't ridden for years, you can probably mount a bike and take off — it's simple. But consider: you're not a lithe teenager any longer and your center of gravity has probably shifted over the years. Furthermore, a 10-speed bike with hand-brakes and thin tires is different from your old Iver Johnson with the New Departure coaster brake. From a human engineering standpoint, the 10-speed leaves much to be desired — brakes are awkwardly positioned, the gear changing system generally requires one hand to be taken off the handlebar, and yet another complication is added if you choose (as most serious cyclists do) to use toe clips on the pedals.

All of which suggests that you not leap into the saddle to ride to work the day after you get your 10-speed. Ride around your neighborhood or uncongested area a few miles each day until the manipulation of the controls becomes second nature. Adjust the height of the saddle — most Sandia bikers exert undue effort by not having the saddle high enough. Recommended height (from saddle to lower pedal) is 1.1 times your inseam, which means that your leg is virtually fully extended at the bottom of a pedal stroke. (Admittedly, a high saddle may not be totally consistent with safety.)

Then, and perhaps most important, scout out a route to work that scrupulously avoids arterials to the maximum possible extent. Or, in other words, find a route through residential areas. It must be force of habit or the death wish that prompts the few cyclists we see on them to use streets like Eubank or



PSYCHO-CYCLIST (No. 2) — This time our manic cyclist decided that the shoulder on an arterial — Eubank Blvd. — was wide enough for him plus two-abreast autos traveling 40mph and faster. Legally he's got every right to be where he is, but there's such a thing as being "dead right," which could apply here.

Wyoming. Your residential route may not be the most direct, but the addition of another half mile or mile to your bicycle journey is a small price for maintenance of body integrity — staying in one piece. Incidentally, the Bicycle Map of Albuquerque, which outlines low-traffic bike routes, is again available in the LAB NEWS office for 65 cents. •js

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JULY 27, 1973



Continued from Page One

Goggles, Windows, Light Gates

The goggles are planned for use by people at Sandia involved in general purpose and specialized welding, and in the application of metallic coatings by flame spraying.

The PLZT aircraft window, being developed for the Air Force, consists of four wafers of ceramic arranged in a mosaic pattern to form a 6 x 8-inch window. The window uses the goggle's PLZT sandwich and power supply to protect the aircrew from thermal burn and flashblindness.

The light gate array, under development for DOD, is a linear arrangement of 256 tiny shutters packed into an area 1.3 inches long. Since each shutter can be switched off/on at rates from 20,000 to 100,000 times per second, the array can store at least five million bits (20,000 x 256) of information per second. The array would serve as an information input device — page composer — for an optical (holographic) computer memory.

The light gate array not only stores a large amount of information in a very small area, but also has a high black-white contrast ratio (1000 to 1 has been obtained with the present prototype) and can be switched on and off many times without degradation of the ceramic. The prototype, for example, has been cycled 34 billion times without fatigue.

In addition to these devices, Sandia researchers have demonstrated that the PLZT filter can be used to protect silicon and conventional vidicon tubes from light damage; the filter can also be used as a fast shutter in high speed cameras.



TRANSPARENCY of PLZT material is demonstrated here by Tom Cutchen and Jim Harris (both 2521). The segments will be assembled into an aircraft window together with sensors and circuitry that enable the window to turn opaque so that the aircrew is protected from thermal burn and flashblindness. They were fabricated in Sandia's Ceramics Shop (7122-1) under the direction of Gary Snow (2521) and Bob Dungan (7120).



GOING FIRST CLASS sums up what we have here. Art Machen, shown with wife Virginia, retired from Sandia in '68 and elected to follow the cruising life. Working 3-1/2 years full time he constructed "Gopherwood," a 35-foot, fiberglass hulled



craft powered by two marine diesels. The boat cruises at 8 knots, thus far has made an eight-month journey down the Mississippi. The Machens are now on their way to the San Juan Islands off the coast of Seattle. Need a cabin boy Art?

Retiree Report

The Literary Life

Franklin Barnett retired from the Labs Technical Manuals Department in January 1965. He and his wife Joan have made Prescott, Ariz., their home, where they lead a varied and busy life. If Franklin isn't gardening his two acres, he might be working on a wood carving, excavating an Indian ruin, or writing a book.

The wood carvings, including a 10-foot totem pole, spice cabinet, bench, cupboards and wall hangings, incorporate designs from southwestern Indian pottery and Spanish Colonial items with inlaid turquoise.

Franklin has written nine books since he retired. Two were published in 1968: *Birds on Rio Grande Pottery*, published by the Albuquerque Archaeological Society; and *Viola Jimulla: The Indian Chieftess*, a biography of a chieftess of the Prescott Yavapai Tribe for 25 years. In 1969 *Tonque Pueblo* was published and, in 1970, the Museum of Northern Arizona published *Matli Ranch Ruins*, a report of excavation by the Barnetts of ruins of the Prescott Culture.

Franklin's latest book was published in late May by the Museum of Northern Arizona at Flagstaff. It's a report of their excavation of a small ruin near Prescott, entitled *Lonesome Valley Ruin*. Also on the Museum's press is *Fitzmaurice Ruin*, a report of the excavation of a 26-room Prescott Culture ruin near the Barnett's home. To be published this fall are reports of two excavations in New Mexico, *San Ysidro Ruins* and *Sandstone Hill Ruin* in Quemado.

Northland Press in Flagstaff is publishing Franklin's *Dictionary of Prehistoric Indian Artifacts of the American Southwest*, which contains 250 photographs of artifacts and their descriptions. The Barnetts will be in Albuquerque in October, in conjunction with the publication of this book, for an autograph party hosted by Enchanted Mesa.

* * * *

Will Be Watching For Curves

Everett Massey retired in July 1972. In addition to substitute teaching during the school term and fishing, "at least one day a week" during the summer, he is an umpire for the Amateur Softball Association. He has been invited to umpire at the National Championships at Stratford, Conn., Aug. 17-24.

"I have been assigned as umpire to the



FRANKLIN BARNETT in his museum at home in Prescott.

Women's Fast Pitch Tournament," Everett says. "This is the first time a New Mexican has been invited to officiate at the Nationals, and I'm honored by the invitation."

To warm up, Everett will be in action at the District Tournament, July 27-29, and the State Tournament, Aug. 3-5, to be held in Albuquerque.

* * * *

Beware The Step Ladder

Charlie Runyan, who retired from Sandia in January 1972, spent a year traveling around the deep South in his mobile trailer rig, then camped for several months on Padre Island off the coast of Texas before returning to the old homestead in Albuquerque.

About a month ago, he was removing some lumber from storage on the rafters of his garage when the small step ladder he was using suddenly collapsed.

Charlie suffered a broken jaw, wrist and leg plus assorted bruises and abrasions. After a week in the hospital, he's recovering remarkably well (another three weeks for the casts should do it) at home.

* * * *

It Takes Nerve

Retiree Earl Shannon has written another book on his specialty. It's called *Dowsing and Its Association with Geological Science and Neurophysiology*, and it picks up where his earlier *Water Witching: My Experiences and Findings* left off.

In the earlier book, Earl described his 20

years of experience with locating water and minerals by means of a forked rod, a centuries-old technique that has proved itself countless times. "Even so," says Earl, "it's never been 'proven' in the scientific sense, so many people believe dowsing is some kind of occult art. The point I make in the second book is that dowsing undoubtedly has a scientific explanation even though we may not have discovered it yet."

Earl's experience and research lead him to believe that the secret lies in the electrochemical nature of the human body, specifically its nerve and muscle cells. When these enter a magnetic field, such as that surrounding a fracture zone (an anomaly in the earth's crust which generally contains concentrations of minerals or water), the cells react enough to cause movement by the dowsing rod.

Both of Earl's books are available from him at his home at 3329 Monte Vista NE. If you're interested in the books or the topic, drop by.



DOWSER DOWSING — Earl Shannon shows how it's done. He generally uses the wire rod; some dowsers prefer forked branches. Earl's books indicate that the rod material is immaterial.

Variable Annuity Unit Value

August	1.660
July	1.683
Average 1972	1.737

AGREED — Ernie Peterson, head of Labor Relations Department 4220, signs for the Laboratories as Maxine Stephenson (7631), president of Office and Professional Employees Union, and Glenn Haycock (7518), president of Metal Trades Council, look on. Agreements reached with both unions extend to July 1976.



WITH THE ENERGY CRISIS all around and requests for information pouring in, Technical Library Reference and Periodicals Division 3144 set up a special Energy Resource Reading Room for Sandians. The center in Bldg. 804 contains an up-to-the-minute bibliography plus articles from current newspapers, periodicals and journals and some basic reference works catalogued by type of energy — nuclear, coal, gas, oil, etc. The collection continues to grow. Reference Librarian Danny Seager helped assemble the material.



UNM PHYSICS STUDENTS toured Sandia's Area V reactor facilities recently. Here Bob Jefferson (5222) explains operations of the ACPR and SPR II reactors and the Hermes II Flash x-ray machine.



Take Note

Interested in body language, yoga, loom weaving or speed reading? Well, then, how about woodworking, welding, winemaking or watercolor painting? These are but a few of the dozens of choices of Albuquerqueans who sign up for courses in the University of New Mexico Community College this fall. The courses are non-credit and therefore not included in the Sandia Educational Aids program, but almost anyone will find one or more courses guaranteed to add zest to living.

The complete pocket-size catalog, available in the Technical Library or from the Training and Education Department, Bldg. 832, lists the courses by interest groups — arts, crafts and music, the business world, college prep, do it yourself, humanities and sciences, languages, recreation and sports.

Registration begins Aug. 18, closes Aug. 24. Most classes begin about Aug. 28 and run 10 to 15 weeks.

* * * * *

Three Sandia secretaries have been added to the ranks of Certified Professional Secretaries. Wanda Hubbard (5160), Dolores Streater (1230/1240) and Virginia Podvin (9536) were successful candidates for the CPS Certificate. The CPS program, sponsored by the National Secretaries Association, involves a course of professional study and completion of a two-day certifying examination in secretarial skills and business practices.

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The ride on the narrow-gauge railroad from Chama to Antonito features a genuine smoke-puffing steam locomotive and is lots of fun. The 60-mile track over Cumbres Pass runs through some of New Mexico and Colorado's grandest scenery. Copies of a brochure on the Cumbres & Toltec Railroad giving schedules, prices, and other information are available in LAB NEWS office, (802/100).

* * * * *

"High in the Himalayas," a color film obtained by Bill Stamm (7543), will be shown at 12:20 p.m., Bldg. 887, room 121, on Aug. 1. Winner of a "Golden Eagle" award and Toronto Film Festival Honors, the film covers a mountain climbing expedition led by Sir Edmund Hillary which terminated atop 21,000-foot Mount Taweche. The showing is outside the Tech Area, and anyone interested may attend.

* * * * *

Lynn Rigby of Systems Reliability Division 1642 recently was appointed chairman of the Quality Motivation Technical Committee of the American Society for Quality Control.

As a major arm of the national organization, the 40-man Motivation Committee sponsors speakers, papers and new developments in the area of work motivation. It will produce a bibliography, a book of selected readings and a handbook on quality motivation. The group conducts most of its work by mail, but meets three times a year at national and regional conferences of ASQC.

* * * * *

Jim Noonan, former Coronado Club manager for Szabo Food Service from January 1968 through January 1973, died during heart surgery July 13. He was 43.

Survivors include his widow, two sons and a daughter.

892 East, Where Life Can Now Be Beautiful

"Office landscaping" is the term used to describe the new 11,000 sq. ft. layout in the high bay wing of Bldg. 892. Now occupied by Quality Assurance organizations of the 9500 directorate, the entire space is open and carpeted. Work areas are divided by colorful panels, files, desks, planters and coat rack valets.

Shades of brown, orange, maroon, green, blue and yellow blend with repainted white desks with formica tops. Light level is high, noise level is low, and the "bull pen" effect just isn't there. It is an extremely attractive area and cost was less than for conventional construction.

Decision to construct a second floor in the east bay area of Bldg. 892 was made in April 1971 by the Building and Facilities Planning Committee. The move of the 9500 organizations into the area would consolidate their activities and allow the last phase of major modifications to Bldg. 880 to proceed.

Initial planning called for a standard occupancy layout — floor to ceiling partitions and typical government-gray furnishings. Along the way a number of people suggested that the "office landscape" concept might be appropriate for this new area. Basic idea of the office landscape is to remove partitions which divide functions in order to improve communications, operational efficiency and general visual appearance.

Plant Engineering 7500 had been considering such a concept for some time and, since the Bldg. 892 area met the requirements of open space, suitable occupancy, and low initial construction cost, it was decided to proceed with a trial installation.

Planning Division 7551 under Sam Johnson prepared layouts, selected the new style partitions and coordinated elements of the job.

Interior design, including such items as color selection, choice of carpet, upholstery fabrics, type and location of artificial plants and accent pieces was performed by Bob Sharp (7551).

The soon-to-be occupants were helpful and enthusiastic. Joe Teresi (9514) provided necessary information about lab and shop functions which are located on the first floor below the new area.

Mack Deaton (7551) analyzed work-flow requirements and worked with future occupants to prepare the space layouts.

Overall planning and layout functions took more time than a standard job would have because of the newness of the concept and delays in locating appropriate commercial products and furnishings. All of the desks, chairs, files and cabinets used in the new area were painted and refurbished by inmates of La Tuna Prison near El Paso under Sandia contract.

Problems during design and occupancy ranged from developing a method for ready access through carpeted areas to underfloor power and telephone ducts, to finding a way of getting the 12-ft.-long 600 lb.-rolls of carpet to the second floor. Coordinating occupancy with the delivery of furniture, potted plants, valets, chalkboards, carpet, etc. was a major task.

Cost of office landscape in this area (where a newly constructed space was being occupied) was slightly less than that for standard occupancy. The most expensive item was the carpet, but its cost was offset by economies resulting from the non-use of resilient floor tile and interior partitions. Additional savings will accrue when future moves are made since interior walls will not have to be torn down. The few dividers used



RECENTLY COMPLETED, this attractive new office in the old east high bay area of Bldg. 892 houses the Quality Assurance organizations of the 9500 directorate. Carpet, colorful panels, artificial plants and newly-painted office furniture are part of the open and informal layout.

are free standing, not attached to floor or ceiling.

Janitors in the new area have switched from a mop to a vacuum but report that cleaning is easier. People who live in the big area take pride in it and are very careful about what falls on the carpet.

Will future areas at Sandia be converted to office landscape?

The Buildings and Facilities Planning Committee says "yes" but only in conjunction with other required modifications. Then the decision will be based upon an evaluation of the functions being performed, type of building construction, availability of utilities and size and shape of the space itself. • dg

But Is It Shakespeare?

An engaging and sprightly drama entitled "A Cry of Players" is being offered this and next weekend, Thursday through Sunday, at the Adobe Theatre in Corrales. Glenn Elliott (2341) and Bill Carstens (3151) have supporting roles in the play, which deals with the early manhood of W. Shakespeare — or so it appears. Call 898-3323 for reservations.

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LAB NEWS
JULY 27, 1973



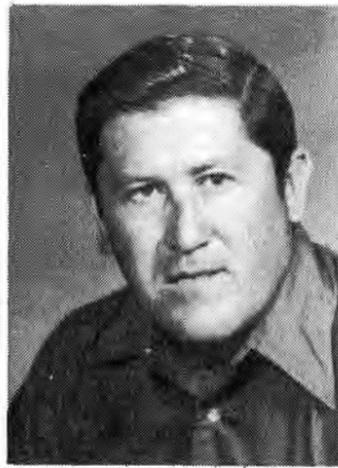
RETIRING from Sandia Labs are Larry Smith (5644), front, and 1 to r, Ralph Gustin (7631), Robert Whitford (2432) and Charles Bray (7111).

MILEPOSTS

LAB NEWS July 1973



Jack Hansen - 7200



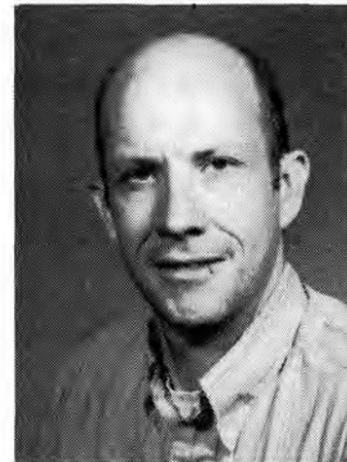
Herminio Molina - 7518 10



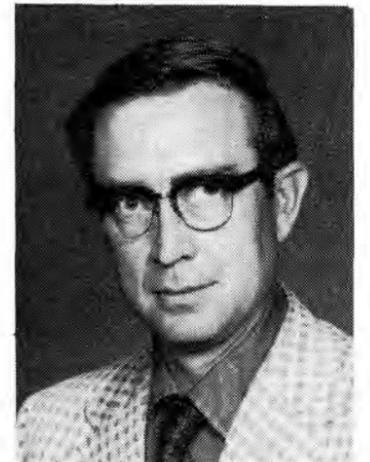
Hesa Yano - 8442 15



David Webb - 1542 20



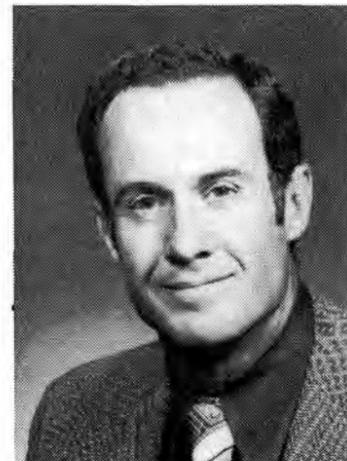
Tom Looby - 1116 10



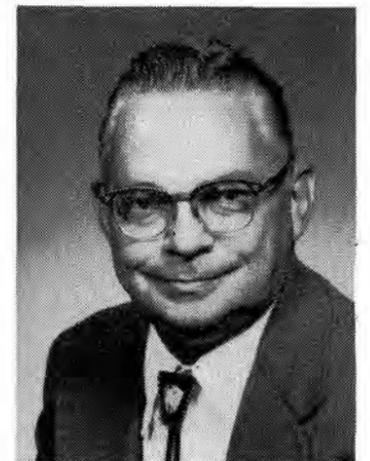
Tommy Priddy - 1542 10



Tonni Nunley - 8362 10



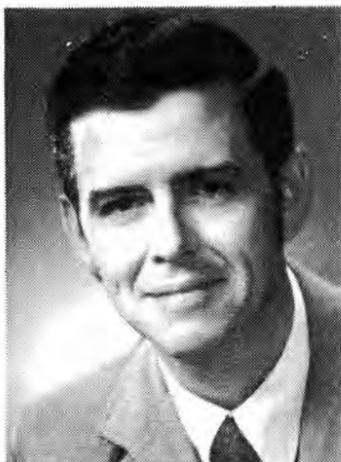
Fred Johnson - 3321 15



Donald Fitchhorn - 7615 25



Ray Leri - 8265 15



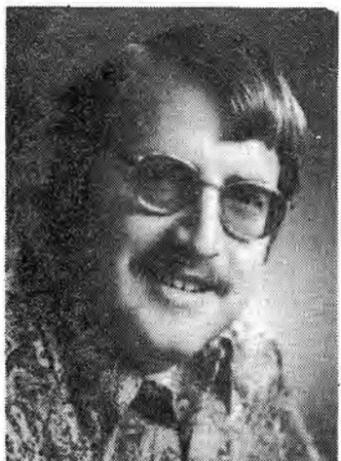
John Daniel - 8265 15



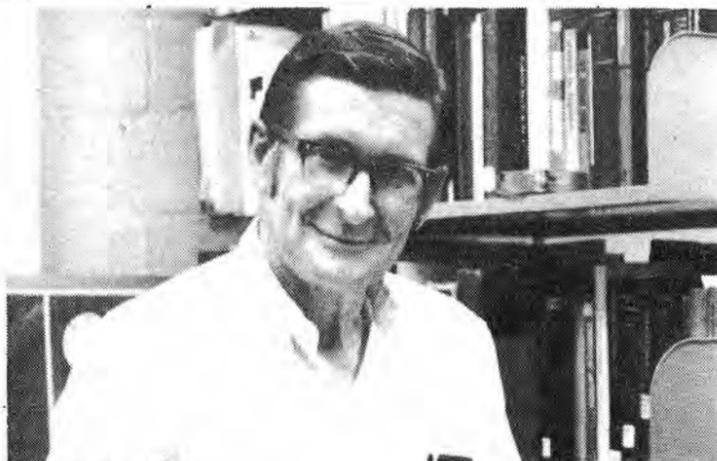
Leon Seibel - 8363 10



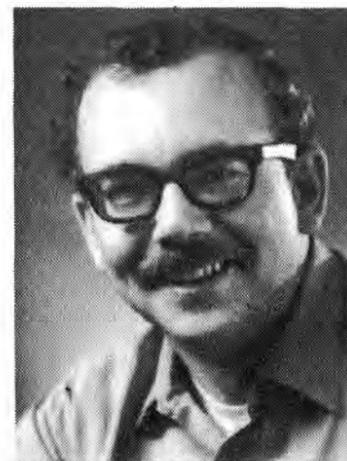
Dolores Chavez - 9551 10



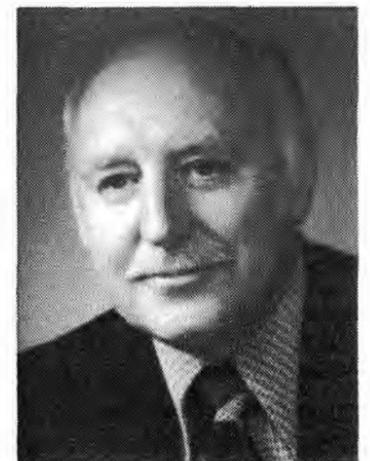
Jerry Henderson - 8362 10



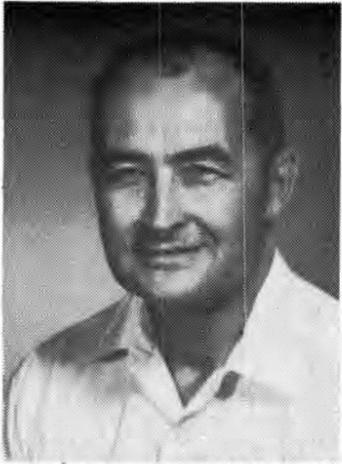
Larry Smith - 5644 20



Mike Rogers - 8344 10



Jim Spirup - 8261 15



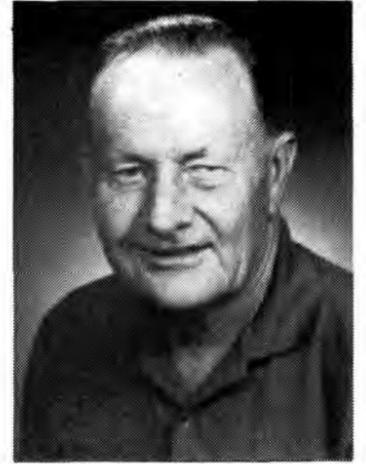
Robert Armstrong - 1612 25



Gene Forsythe - 2344 15



M. R. Gutierrez - 5533 15



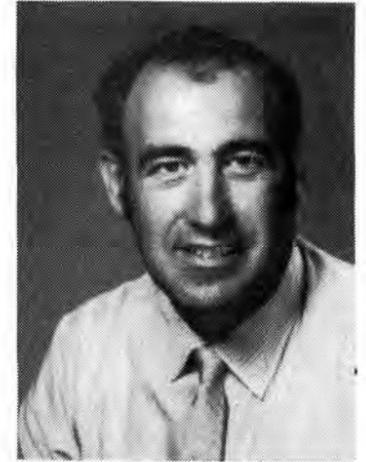
John Doyle - 7221 25



Robert Spence - 9471 25



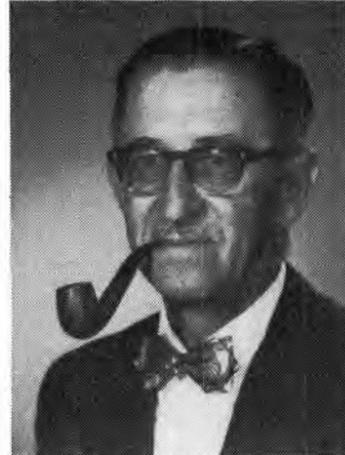
Raye Knoff - 7631 20



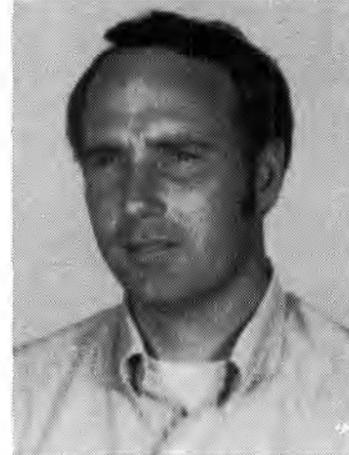
Richard Oliveira - 1115 15



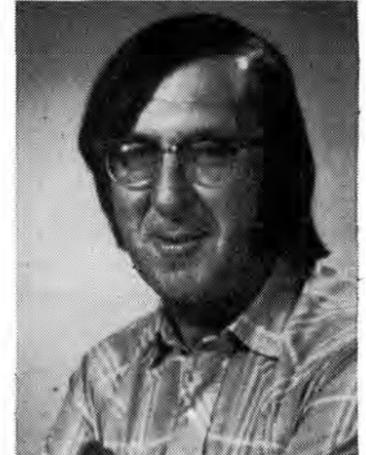
B. G. Edwards - 1131 20



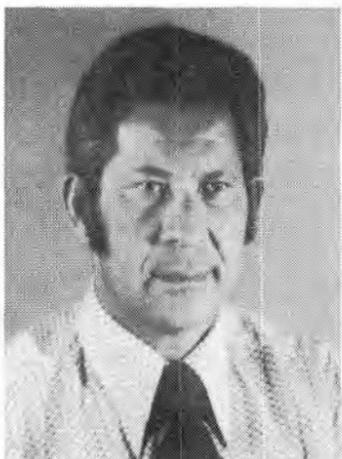
Arthur Porter - 7221 25



Gerald McCorkle - 9472 10



Jerry Pierce - 7333 25



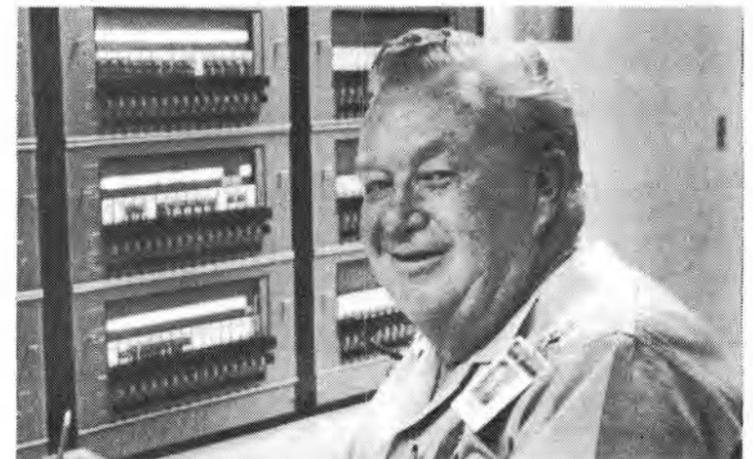
Robert Schowers - 9472 25



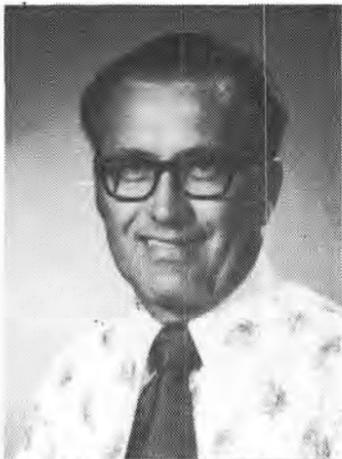
Paul Mathews - 7623 15



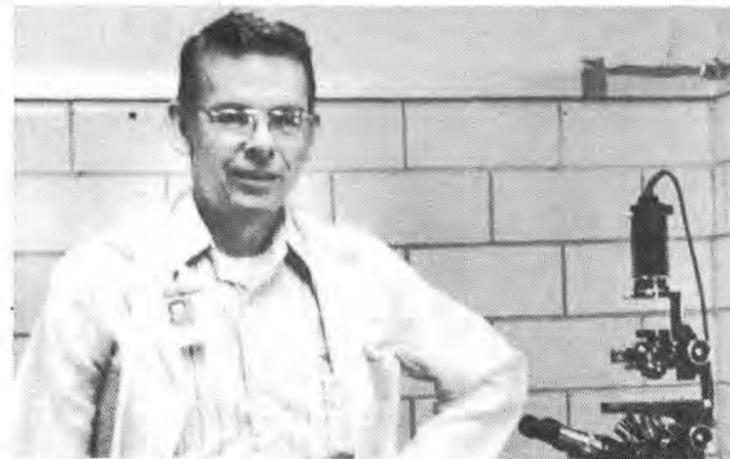
Gordon Hansen - 1115 15



Frank Gillespie - 9550 15



Daniel Murphy - 9485 15



Dick Dillon - 5251 15



Kay Savage - 7518 10



George Urish - 7624 10



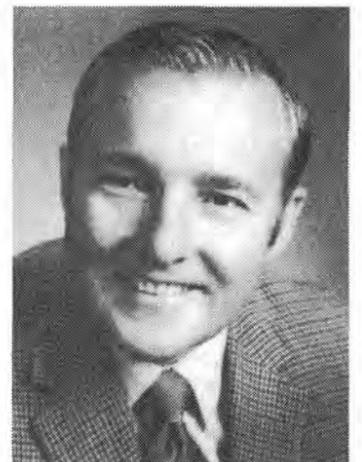
Tom Brumlene - 8184 15



Ann Michele - 7500 20



Hanloy Quock - 8441 15



Jim Smith - 8254 15



Don Skinrood - 8413 25



John Marion - 8332 15



Chuck Stockley - 8443 20



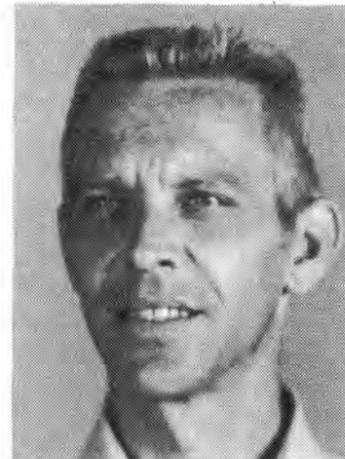
Jose Pecos - 4154 15



George Kinoshita - 1535 20



Ralph Kelley - 8182 20



James Van Meter - 9471 15



Mike Lovato - 8257 25



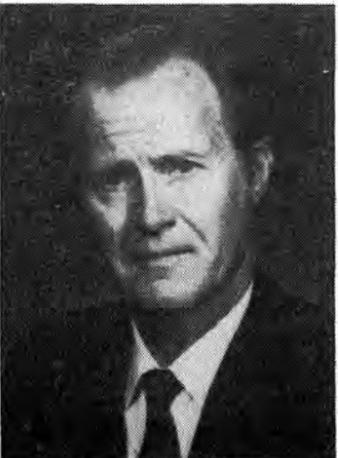
Jim Carrell - 8168 20



Marie Dremalas - 8213 10



Glenn Folkins - 1525 20



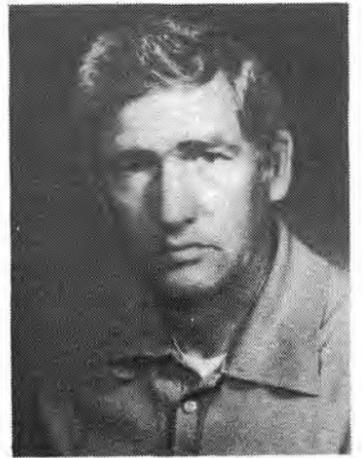
Carl Denney - 1126 20



F. G. Higgins - 7322 15



Roger Williams - 3147 25



Robert Ault - 9331 20

Recreation Notes

FUN & GAMES

Tournament Results

SGA (Women): Scotch Foursome low gross winners were Pat Anderson (9425) and Jerry Smith (2442); low net winners were Clara Gearhart (3141) and Ralph Campbell (3148). Pat Anderson also won the low gross event in the Belen Short Course tournament while Betty Chappell (AEC) captured the low net. Betty Chappell was the low gross winner in the Par 3 Winter Play for 1973, and Lillian Mancuso (3321) took the low net honors.

Table Tennis: Awards to winners of Sandia Labs Table Tennis Association tournaments were made last month. Team members Keith Treece (2342), Dave Northrop (5313), Dick Precit (9481) and Ernie Sandoval (7144) were winners of the Fall Team tournament. Keith won the singles and the partnership of Keith and Bill

Gutscher (former Sandian) took the doubles in the Sandia Invitational. Class A and Class B singles winners were Bill Roady (5642) and Dan Murphy (9485), respectively. In the final tournaments of the year, Championship Singles winner was Paul Longmire (1511); Championship Doubles — Paul Longmire and Ray Reynolds (1531); and Class A Singles — Fred Cericola (9342).

* * * *

Allen Asselmeier (2111), a member of the Bear Canyon Golf Association, won the group's Annual President's Cup Tournament. Playing in A Flight on the Arroyo del Oso course, Allen shot a 36-hole net 135.

* * * *

Sandia Runners Ass'n. — Chairman Dennis Mottern (5533) is working on the first

SRA newsletter, which will be sent to all registered members now about 75. He plans to include in it an accurate map of the various running courses. Speaking of which, Dennis reports several "record" times on three courses: Jim Tollison (AEC) has run the 2.8 in 16:38 and the 3.8 in 22:55, while Joe Abbott (2114) has done the 3.5 course in 23:15. These times will be posted on the SRA bulletin board in the gym, and some thought is being given to a display board on which members could, if they wished, post their times (presumably the good ones) over the various distances. The board would probably reflect three brackets — open, age 35 to 44, and age 45 plus. To get accurate times, SRA hopes to promote several stopwatches which could be checked out to members.

Congratulations

To Mr. and Mrs. Larry McCollum (7121), a daughter, Alicia Diane, July 13.

JUNK • GOODIES • TRASH • ANTIQUES • KLUNKERS • CREAM PUFFS • HOUSES • HOVELS • LOST • FOUND • WANTED • & THINGS

CLASSIFIED ADVERTISING
Deadline: Friday noon prior to week of publication unless changed by holiday.
A maximum of 125 ads will be accepted for each issue.

RULES

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.

MISCELLANEOUS

- EARLY AMERICAN** loveseat, \$40; black vinyl recliner, \$40; green vinyl low swivel chair, \$20; dishes, service for 6 w/lots of extras, \$18; school desk, \$5. Cockerleas, 256-7570.
- TWO CHAIRS**, turquoise upholstery, \$30 ea. Smith, 299-6873.
- GOLD NYLON RUG**, 10'x11½', \$30; brown swivel rocker & footstool, \$50; maternity clothes, sizes 10-12; baby clothes. Eckelmeyer, 296-2148.
- HEATHKIT** stereo pre-amp & 2 amplifiers; U.S. Navy officers uniforms, best offers. DeWerff, 298-1029.
- YOUTH BED** w/mattress & guard rails, \$20; Port-A-Crib, less mattress, \$10. Verzi, 299-7028.
- INDIAN** oil paintings; several old swords; .22 rifle; tile coffee table; Early American twin sofas. Smitha, 266-9977.
- CAR TOP** luggage carrier, 4'x-7'x10" deep, weather tight, \$15. Coalson, 298-0061, 9801 Robin NE.
- EXTRA TINY** lt. apricot toy poodle male puppy; kitchen cabinets, 3 lower, \$25. Graham, 298-7005.
- 8' CABOVER** Scotsman, 6-sleeper, elec. water pump, 4-burner stove/oven, 75 lb. ice box, 35-gal. water capacity, \$695. Dawson, 865-7927.
- COLOR TELEVISION**, RCA 21" console, Early American, \$159. Mayer, 255-1565.
- GOLF CLUBS**, 1970 Haig Ultra irons w/lt. wt. steel shafts, D2 swing weight, \$100. Mottern, 298-6251.
- 16" WESTERN SADDLE**, \$175; hackamore w/reins, \$20; ranch oak bunk beds, \$20; hassock style camp potty, \$3. Hansen, 898-3173.
- TV**, 19" B&W Magnavox, cherry wood cabinet, \$35; unfinished wood utility cabinet, \$10. Young, 256-9158.
- '72 FALCON** MOBILE HOME, 14'x70', 3-bdr., 2 full baths,

- shag carpet, AC, unfurnished, in family section park near Base, \$1500 down, take over pmts \$113/mo. Lewis, 298-2877.
- WROUGHT IRON** bunk bed w/box spring & mattress, \$50; adjustable dress form, \$8; wide mouth Mason jars, ½ retail price. Hart, 266-6811.
- NMMI** uniforms, approx size 18; set of Encyclopedia Brit.; twin bed, complete. Phelps, 344-0441.
- REFRIGERATOR**, Westinghouse, white, 7 cu. ft., \$35. Savitt, 268-0158.
- DRESSER**, chest of drawers, bed table, maple finish; ceiling light fixture, antique brass; dinette table w/6 chairs. Randall, 299-3935.
- KODAK** 35mm Camera, \$35; SW Philco radio, \$30; 19" B&W TV, working, \$30. Wilson, 268-6287.
- MAG'S**, Appliance dish 1 pr., 5 lugs w/nuts, 14"x7", orig. cost \$98, want \$50, (Ford or Merc.). Sly, 299-3141.
- AIR CONDITIONER**, window type, Sears Coldspot, 10,200 BTU, used 3 months. Auerbach, 296-1489.
- EARLY AMERICAN** loveseat, end tables, coffee table. Watterberg, 294-6759.
- COMPLETE DARKROOM**: Omega A2 enlarger, printing computer, paper safe, dryer, filters, trays, etc., \$350 invested, sell for \$200. James, 294-6837.
- CAMPER SHELL**, factory built for 6x8' bed, paneled, lights, \$200. Burns, 268-1306.
- TELESCOPE**: 4½' Equatorial mount reflectory, 900 mm focal length, 45x-300x, 24 mm finderscope, \$100. Gravning, 265-1398.
- 15' KAYAK**, dbl. naugahyde, plus accessories, never used, make offer; hockey equip., 2 sticks, gloves, shin pads, Bauer skates, size 6. Hale, 268-6957.
- ALUMINUM** 3' window, \$3; lavatories; exhaust louvers; wood door, \$3; Garrard stereo changer, \$15; bird cages, 1 stand, \$3 & \$5. Newman, 299-2729.
- DOUBLE** sliding glass shower doors w/complete hardware; child's playpen. Caffey, 296-3320.
- GROVES** Prestige Magnum bow, 47 lb., & accessories; swap for Remington BDL or Ruger model 77 .30/06 or .270 in

- same condition. Gonzales, 242-6264.
- ELECTRIC GUITAR**, Guild, thin hollow body, Bigsby tailpiece, fitted case, Standel all solid state amplifier w/Hammond reverb. Collier, 294-5437.
- CABOVER CAMPER** fits lwb, Telstar jacks, many extras, consider good shell trade-in, \$800. Stuart, 298-4290 after 5.
- .30-06 RELOADING** DIES, Pacific, 2 piece, cost \$13.50, sell for \$6. Ristine, 298-8383.
- CARPETS**, 8x10 rubberback, gold & avocado green oval; beige curtains & 10 yds. avocado material. Sandoval, 265-4075.
- UNITRON** TELESCOPE, 2.4 inch refractor altazimuth mount, tripod, 3 eyepieces, erecting prism. Smith, 298-7365 after 5.
- PLASTIC** swimming pool, 22' diameter, 4' depth, complete w/filter, \$125. Pope, 255-6702.
- SINGER** sewing machine, portable, straight stitch, \$40; aluminum outdoor clothes dryer; lady's figure skates, size 7½; Bissell carpet sweeper. Stoever, 266-6439.
- BIKE MAP** of Albuquerque, cheap, 65¢; books of all kinds, on sale at lunch time, for South 14 Village Project, LAB NEWS, 802/100.
- SEARS** CABINET model swing needle sewing machine, 6 yrs. old, completely renovated, zig-zag w/full set of cams, \$150. Jercinovic, 255-8027.

TRANSPORTATION

- '67 **EL CAMINO** pickup, AT, R&H, \$550. Hawkinson, 281-5239.
- '70 **FORD LTD** Brougham, 4-dr., vinyl top, V8, PS, PB, AC, AT, AM/FM stereo, radial tires, 25,000 miles, \$2200. Miller, 344-7725.
- 14' **BOAT**, 35hp motor & trailer, heavy duty tilt trailer, windshield, boat cover, elec. start, skis, etc. \$625. Perryman, 247-8485.
- '67 **FORD** 3/4-ton, lwb, 390 V8, AT, \$1250. McConnell, 255-2488.
- '69 **OLDS** 442, loaded. Roth, 877-4997.
- '69 **TRAVELALL**, 4-wd, new clutch & rear end, book price. Church, 281-3853.
- '71 **HD Sportster** XLCH. Cowan, 266-0786.
- '67 **BOAT**, MOTOR & TRAILER, \$795; 16' fiberglass, trihedral hull, completely overhauled

- 9.8 hp, Mercury Model 110 motor, Shoreline trailer, all accessories. Larrabee, 255-1815.
- GIRL'S 24"** bicycle, \$25. Dumistra, 299-9278.
- '65 **PONTIAC** Tempest, AC, R&H. Blaine, 299-1036.
- 8' **CAMP SITE** cabover camper, used one night, w/tie-downs & extras, mounted on '72 Cheyenne Super ½-ton Chevy, sell together or separately. Jones, 299-1658.
- '68 **HONDA** CB350, adult owned & ridden, 13,500 miles, needs rear tire, \$395. Schkade, 293-7453.
- 3-SPD. **BICYCLE**, Man's 26" Sears touring lt. wt., coaster brake rear, caliper front, \$40. Womelsduff, 299-6269.
- '63 **FORD** wagon, 8-cyl., PS, \$350. Mares, 724 Indiana SE, 256-1584.
- '69 **MOTORCYCLE**, 125cc Mojave (Wards), 5000 miles, \$125. Shoemaker, 869-2775.
- '69 **FORD** Galaxie 500, 2-dr. sport coupe, AC, PS, PB, new engine & paint, below book. Harper, 298-0146 after 5:30.
- '72 **MODEL** 411 Volkswagen, Michelin tires, vinyl top, AM/FM stereo radio, 4-cyl. Fletcher, 298-2142.
- '66 **FORD** Fairlane 500, 8-track stereo w/base 48 speakers, Hurst Indy shifter, AT, 14" chrome rims (reverse), 289 cu. in. engine, factory air, \$550. Fitzgerald, 296-1341 8 a.m. - 2 p.m.
- '72 **FORD** Ranger pickup, ½-ton, 16,600 miles, 360 V8, AT, PS, lwb, overload springs, 700x15 6-ply tires & more. Houghton, 1413 Guaymas NE, 299-3386.
- '68 **FORD** Custom 500, V8, PS, AT, AC, R&H, \$850. Gammill, 266-4659 after 5.
- VW BUG** without body, rebuilt engine, \$150. Fenimore, 298-8052.

REAL ESTATE

- MOSSMAN** 3-bdr., pullman baths, extra lg. paneled den, carpeted except den, 1950 sq. ft., 5¾% FHA loan, lg. lot, brick & stucco. Cowham, 298-4249.
- 3-BDR., den w/fp, brick, 1756 sq. ft., lg. cul-de-sac lot, sprinklers, appraised at \$34,000, 8408 Del Mar Ct. NE. Bechtel, 299-2107.

HOMESITES in Corrales, 1.4 acre view lots, underground utilities included. Forsythe, 299-2785 or Reed, 299-7425.

FOR RENT

- 3-BDR. **HOUSE** w/den or study, util. rm., lg. storage shed, ref. AC, refrig & range, landscaped, SE, \$180/mo. Weston, 255-1196.
- LEASE 3-bdr. house, 1¼ bath, covered patio, trailer access, \$190/mo., available 9/1/73, first & last plus \$100 DD, no den. Bartlett, 299-4861.
- 3-BDR. **MOBILE HOME** at Conchas Lake by weekend, week, or month. Getz, 299-4865.
- 2-BDR. **APARTMENT**, unfurnished, in new brick triplex, carpeted, drapes, range, refrigerator, no pets. Piraino, 255-5126.

WANTED

- TRADE** 450 Ducati dirt bike for an older VW. Roth, 877-4997.
- GARAGE DOOR**, single w/mounting hardware. Latta, 299-9380.
- 2 or 3-BDR. furnished apt. for Aug. only. Sektnan, 293-7961.
- CANOE**. Loescher, 296-3154 or Schwengel, 266-7089.
- BUY OR RENT** surveyor's transit, any make. Vandevender, 298-5097.
- RUMMAGE** for rummage sale by Chaparral Figure Skating Club, call 298-5503, 299-9033, 294-7169 or 266-6889 for pick up of items. Karnes.

WORK WANTED

COLLEGE STUDENT handyman, general maintenance, small additions, re-roofing, experienced, references available. Netz, 281-3607.

LOST AND FOUND

- LOST** — Rx sunglasses in black case, man's yellow gold watch w/stretch band. **LOST AND FOUND**, tel. 264-3441, Bldg. 832.
- FOUND** — Lg. round sunglasses, small key, lg. white & gold hoop earring, man's dark gold plaid sport jacket. **LOST AND FOUND**, tel. 264-3441. Bldg. 832.

Coronado Club Activities

**Soul Session Manana;
Annual Meeting Aug. 6**

HAPPY HOURS — Tonight, the Prisoners will be loose on the bandstand, Oriental food will be spread for the buffet and Denny Gallegos will entertain in the main lounge. Something special in the way of entertainment will be featured next Friday, Aug. 3, when Los Guapanqueros, mariachis, will entertain in the patio area starting at 6:30 p.m. Ernie and the Saints will take over the main ballroom for dancing from 7:30 to 10:30, and Denny will hold the lounge from 9:30 until midnight. German food will be spread for the buffet. On Friday, Aug. 10, Wildman Bob Banks will make the happy music, Roman Italian food will be spread for the buffet, and Ed Shoaf will entertain in the main lounge.

* * * * *

TOMORROW sees the return of Soul Session with the Rockets set to blast off at 8:30 p.m. Happy Hour bar prices will prevail. Admission is free to members.

* * * * *

ANNUAL MEETING of Coronado Club members is scheduled Monday, Aug. 6, at 8 p.m. New board members will be elected for the coming year and operations of the past year will be discussed.

Nominated for the board are Pete Gallegos (2336), Dick Baughman (5154), Bill Swartz (9424), Bill Davis (4151), Leo Apodaca (AEC) and Shirley Dean (9000).

Free refreshments will be served following the meeting.

* * * * *

TEENAGERS should enjoy the monthly bash set Thursday, Aug. 9, from 7:30 to 10:30. Backseat Boogie will be plugged into the bandstand. Frank Ragan of KQEO will be master of ceremonies. Member parents should pick up tickets for their youngsters.

**'EXERCISE HINTS -
DONT RUN OR JOG
OUT OF YOUR CLASS...**



Rosie Jennings (7331)

Henry Monteith (9344)

TRAVEL NEWS — The Club announces two new travel packages — a Caribbean Cruise Jan. 4-11, 1974, and a trip to Hong Kong April 7-17, 1974.

The cruise is a great vacation buy for sort of a delayed Christmas present for yourself and the spouse. Here's the way it works: Fly DC8 jet from Albuquerque to San Juan, Puerto Rico, and there board the RHMS Amerikanis and cruise in luxury to La Guaira (port of Caracas, Venezuela), Grenada, Barbados, Guadeloupe, St. Thomas and back to San Juan and home.

The package includes inflight meals and beverages, three gourmet meals plus midnight buffet daily aboard ship, topnotch entertainment on board, sightseeing and a luncheon in San Juan and round trip transfers between airport and ship in San Juan.

The trip is open to members and guests. Prices start at \$503 per person (double occupancy) depending on cabin choice. Deposits (\$100) are being accepted at the Club office now. Final payment due Oct. 5. The trip is limited to 150 persons.

The Hong Kong package (at \$671) includes DC-10 jet, inflight meals, beverage

and movies, accommodations for nine nights at the luxurious Hyatt Regency hotel in Kowloon with breakfast daily with a choice of restaurants for dinner in the evening. An arrival party, a Chinese banquet, and a farewell cocktail party are scheduled. The Club has space for 100 members only. Deposits of \$100 are being accepted now.

In the meantime, there are a few spaces left on the Mediterranean Cruise scheduled Oct. 14-29. The week in Majorca and a week on the RHMS Queen Frederica starts at \$699. More details at the Club office on all three trips.

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Sympathy

To Ira Honeycutt (7113) on the death of his mother in Albuquerque, July 5.

To Paul Plomp (7146) on the death of his father-in-law, July 9.

To Dwight Allensworth (5131) on the death of his mother.

To Horace Montoya (7111) on the death of his mother-in-law in Albuquerque, July 18.