New Uranium Logging Probe Looking Good to Mining Industry

SANDIANS working on the development of a new neutron generator probe to detect and assay uranium deposits lower the instrument into a bore hole at an exploratory site in Wyoming. From left are Dal Jensen, Lucien Rice, Bill Stephenson and Rollie Bernard. Also involved are Jerry Smith, Ed Jacobs, Mike Heiser and Ron Brooks. All are from various organizations in 2000.

Field exercises in the boondocks of Arizona, Texas and Wyoming are proving the worth of a new pulsed neutron logging probe for the uranium mining industry. The instrument, developed by Product Engineering Division 2355 under Hugh Bivens, detects and assays uranium in exploratory bore holes.

The probe, 70 mm in diameter and 3.4 metres long, uses a pulsed neutron generator to create bursts of 14 MeV neutrons (100 pulses per second) which "thermalize" and cause fission in uranium deposits. The fission neutrons are detected and counted as an indication of the amount of uranium present in the bore hole.

"The probe can assay uranium with certain limitations," Hugh says, "and the uranium industry is reacting favorably. We have more requests for well logging than we care to handle. We are still in the development stage, working with a bench-built prototype."

The tool now commonly used by the uranium industry for well logging counts gamma rays, which is another way to determine the presence of uranium. However, the gamma probe has two limitations. It cannot discriminate between uranium, thorium and potassium 40, all of which are naturally radioactive and emit gamma rays.

A more serious limitation is that the gamma probe is affected by a geological situation called disequilibrium, where the radioactive decay of uranium creates "daughter" products — bismuth 214, radon and lead 214 — which can remain in a formation after the parent uranium is dissolved and carried away by ground water. In this situation, the gamma probe indicates uranium where none exists.

(Continued on Page Two)

LAB NEWS

VOL. 28, NO. 17 AUGUST 20, 1976

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

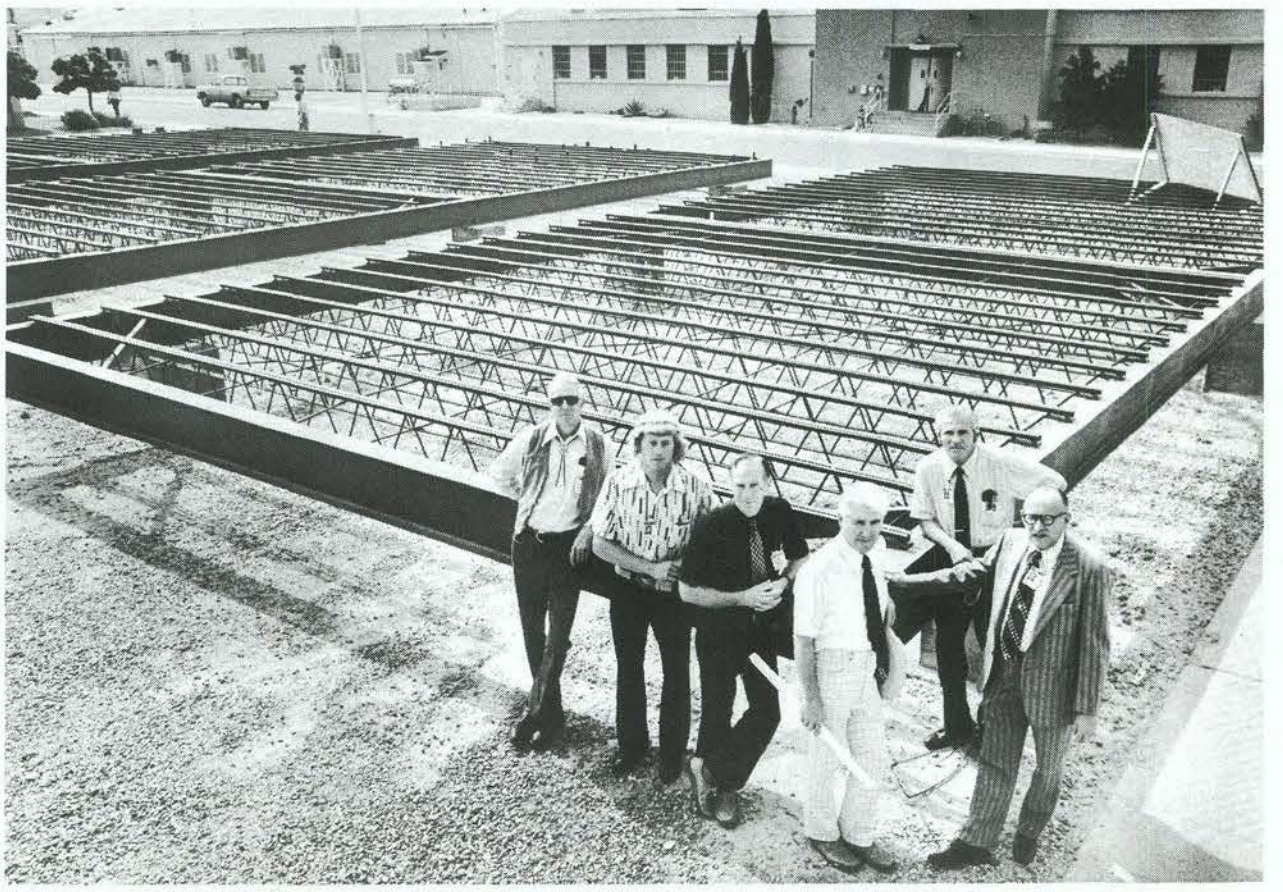
Transportable Buildings Will Ease Sandia 'Space Crunch'

Since Jan. 1, 1976, 363 new regular employees — the majority of them technical staff members — have joined Sandia Laboratories at Albuquerque. This has created what Plant Engineering people are calling "the space crunch." Every available nook and cranny of the Labs is being used to provide space for these new employees.

In Areas I, V and Coyote Test Field, contractor crews are placing steel beam foundations and connecting utilities for 29 new "transportable" buildings, each containing 1680 sq. ft. of floor space, which should be installed by the end of October. Sandia is acquiring these buildings to ease the crowding. Many employees will move from 805, 806, and 807 to provide laboratory space in these areas.

The transportable buildings will help solve the immediate office space problem at Sandia. They will be used on an interim basis until permanent office and laboratory space is constructed.

Planning Division 9751 under Sam Johnson is responsible for layout and occupancy of the buildings. "We hope to have the transportable buildings occupied and follow-up moves started by the end of the year," he says. "Moving is always traumatic, but so far it's been going smoothly. We appreciate the cooperation and helpful attitude of the groups involved."



"THE SPACE CRUNCH" at Sandia will be eased with installation of 29 new transportable buildings at various locations in Areas I, V and Coyote Test Field. Plant Engineering people involved in the program are Ed Downing (9742), project engineer; Jay Holton (9742), mechanical project engineer; Charlie Champe (9742), mechanical design; Sam Johnson (9751), Planning Division; Don Knott (9742), Design Division; and Harry Pastorius (9740, Design Department. Not shown: Carroll Lowe (9742), electrical designer. Installation of the new buildings should be completed by the end of October.

Afterthoughts

Sign of the times--We noted this item by Sam Johnson (9751) in the "9700 News Notes": "Space Crunch--Personnel informs me that 162 new hires were cleared during June and July... We are clearing storerooms and utilizing any available space possible, most of it categorized as substandard, to make a spot for these people. The new hires and their supervisors have been so understanding and agreeable that it appears we've reverted to the 'good old days' where the staff is more interested in the quality of the job than the quality of the space."

* * *

Let there be metric--Bill Leisher (5233) sends two clippings from an English newspaper. An R. T. Lee writes to the paper: "Why, if God did not intend man to go metric, did He provide him with ten digits on his two hands?" To which H.C.W. Davis replies: "While agreeing whole-heartedly with Mr. R. T. Lee, I would like to add that our Creator--through an unfortunate oversight when considering our formation--failed to have us born with a decimal point. This sad fact has caused almost complete frustration among many of our weaker brethen."

* * *

Sport in California--Vacationing on the beach in Coronado, Calif., early this month, we witnessed a "triathlon," which turned out to be a sort of updated (and abbreviated) version of the decathlon. The hundred or so entrants first lined up astride 10-speed bikes, the gun was fired, and off they went on a 4-mile race. Crossing the finish line, the entrant immediately dropped the bike, quickly removed his or her shoes, and ran across the beach into the crashing surf. The objective here was to swim around a buoy some 200 yards out and return to the beach. Emerging from the surf, the entrant then undertook a 1-mile run along the beach to the finish line. The great equalizer in the triathlon was the 400 yards in the cold, rough water--much coughing and sputtering and looks of pain as the swimmers staggered ashore. The winner's total time for the 3 events was something like 27 minutes, but most finished in 35-40 minutes.

* * *

Common sense in an uncommon degree is what the world calls wisdom.
-- S. T. Coleridge *js

HUGH BIVENS (2355) at a uranium exploratory site in the boondocks of Wyoming, some 30 miles north of Wamsutter. (Where's Wamsutter?)

Continued from Page One

Uranium Probe

The Sandia probe detects only the fission neutrons of uranium.

"The problem now," Hugh says, "is determining the correction factors to accurately assay the uranium deposits. Detection is no problem but many factors affect assaying — bore hole diameter, presence of water in the bore hole, formation porosity, neutron absorption cross section of the formation, thin vs thick deposits of uranium and the percentage of uranium present in the mineral deposit. Much work remains to be done in these areas."

ERDA, encouraged by initial results, has funded the project at $440,000 in FY '77 to develop another prototype probe with a more powerful neutron tube and a longer operational life. Tube and probe technology, when completed, will be transferred to private industry. The tube work is underway in Tube Development Division 2354. Dick Volk is project leader.

In the meantime, Hugh's group is modifying the prototype probe, planning more field exercises to evaluate the probe and analyzing data to pinpoint the correction factors.

Ed Richardson (2533) did the mechanical design of the present probe. Johnny Ulibarri (9622) is project draftsman.

General Electric Neutron Devices Department, St. Petersburg, is supporting the development program under Sandia contract.

LAB NEWS

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SANDIA LABORATORIES

An Equal Opportunity Employer

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LIVERMORE, CALIFORNIA
TONOPAH, NEVADA

**Editorial offices in Albuquerque, N.M.
Area 505 264-1053
ZIP 87115**

In Livermore Area 415 455-2111

*john shunny is editor
&
don graham ass't. editor*

*bruce hawkinson & norma taylor write
bill laskar does picture work
so does russ smith
&
lorena schneider reports on livermore*

Events Calendar

Aug. 20 — Benefit for the N.M. Composers' Guild, two musical adult theatre pieces, U of A, Stage 2, 8 p.m.

Aug. 20-22 — Barn Dinner Theatre, "Sunshine Boys," 281-3338.

Aug. 20-22, 27-28 — Civic Light Opera, "Promises, Promises," 344-2317.

Aug. 20-22, 26-29 — Corrales Adobe Theatre, "Streetcar Named Desire," 898-3323.

Aug. 21 — Concert by Taiwan's Chi-Chiang Youth Band, Coronado Center, 6 p.m.

Aug. 22 — Chamber Orchestra of Albuquerque, music of Ives, Haydn, & Schubert, First United Methodist Church, 4th & Lead SW, 4 p.m.

Aug. 22 — Maxwell Museum Association tour of Ward Minge home, 277-4404.

Aug. 24, 31 — KNME-TV, American Indian Artist series, 8:30 p.m.

Aug. 24 - Sept. 26 — Barn Dinner Theatre, "Love on a Rooftop," 281-3338.

Aug. 28, 29 — Indian Pueblo Cultural Center, "Grand Opening" Arts and Crafts Fair.

Aug. 30 — KHFM Radio 96.3 FM, poetry of T.S. Eliot, 7 p.m.

Sept. 4 — N.M. Mt. Club, Crest Loop walk, Western Skies, 9 a.m., 898-7966.

Take Note

Sandia's Director of Purchasing Larry Conterno is Chairman of the New Mexico Minority Purchasing Council, which now has 30 members representing private industry in this state. The Council was chartered by the National Minority Purchasing Council in January of this year.

* * *

The Albuquerque Montessori School is holding an open house on Sunday, Aug. 29 from 2 to 4 PM at 1334 Wyoming NE. The school is a non-profit parent operated organization. Board president is Bill Brown (5162).

* * *

Bob Kern, former Sandia Comptroller was recently promoted to Executive Vice President with the Teletype Corp.

* * *

Dick Hodges (3171) will instruct a 12-week after hours photography course starting Sept. 16. The class will meet Thursdays from 7 to 9 p.m. at Dick Kent Photography, 2115 Menaul NE. For further information, call Dick at 296-6897 after 5.

LIVERMORE NEWS

VOL. 28, NO. 17 LIVERMORE LABORATORIES AUGUST 20, 1976

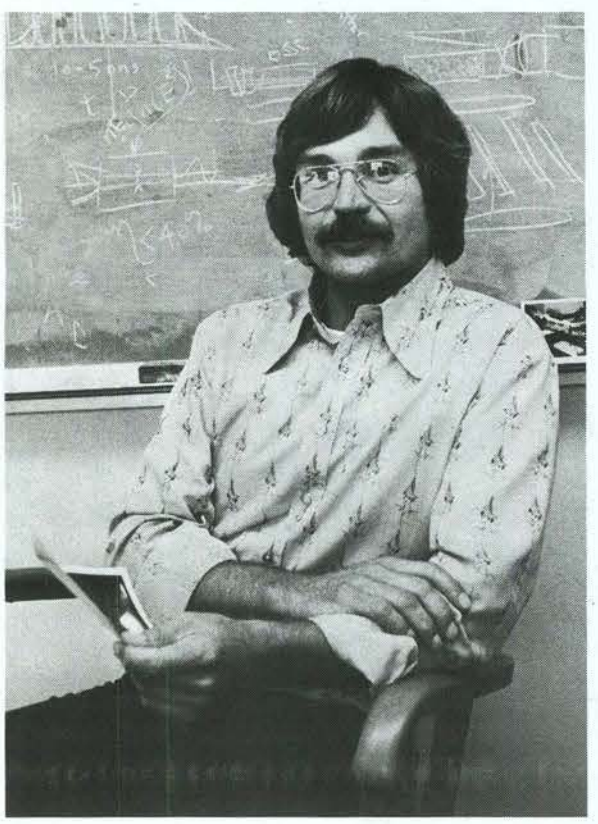
College Professor Here for Summer

"A great learning experience, a super program I can't say enough about." That's the way Dennis Zallen, assistant professor in the Department of Mechanical Engineering at New Mexico State University, describes the Faculty Participation Program under which he has been working at Sandia/Livermore this summer.

Conducted jointly by ERDA and the Associated Western Universities, the program is part of ERDA's effort to encourage scientific and technical information exchange. Through the program faculty members in technical fields work at the various ERDA laboratories, broadening the perspectives of their disciplines.

The first such program participant at SLL, Prof. Zallen has been investigating with Hugh Coleman (8115) how to optically characterize particles emitted from a coal-fired combuster. The work is done in conjunction with a project involving laser diagnostics. He has also been setting up an analyzer system for exhaust gas emissions.

"My specialty is combustion research," says Prof. Zallen. "I've been brought up to speed in one particular area — lasers and diagnostics — and gained a good view of some current trends. It's been a good summer."



AT SLL THIS SUMMER, Prof. Dennis Zallen of New Mexico State University.

SCHOLARSHIP recipients (from left) Ben Tutor (8257), Laurie Rodriguez (8312), Tikki Barron (8213) and Lora Crawford (8256).

Scholarships to 4 SLL Young People

Once again, Sandia/Livermore is sponsoring a Youth Opportunity Program to provide summer jobs for young people in the local area who need financial help to continue their education. Nearly 200 job vacancies have been filled by these students since the program's inception in 1965.

Students working as Youth Opportunity Trainees at SLL this summer are laboratory helpers Joanne Emerson (8334), Doralene Janssen (8312) and Laurie Rodriguez (8312); typist clerks Tikki Barron (8213), Diane Blake (8261/8252) and Bonifacio Burdios (8161); reproduction equipment operator Paul Black (8433); stockkeeper Lora Crawford (8256); library helper Darryl Darden (8266); data processing clerk Karen Dias (8323); machine shop helper Raul Lopez (8423); and trades helper Ben Tutor (8257).

Of these 12 YOTs, four have been awarded scholarships to pursue their studies this fall.

Laurie Rodriguez, who plans to major in medical technology at the University of the Pacific, was awarded Valley Memorial Hospital and American Business Women's Association (Los Positas Chapter) scholarships while Tikki Barron, who enters San Jose State College in September, received a General Electric/Vallecitos scholarship. Both girls have also been awarded various California educational grants.

Ben Tutor of Brentwood High School is the recipient of a four-year scholarship award to the University of Hawaii where he will major in marine biology.

Lora Crawford received two American Business Women's Association scholarships, one from the Livermore Valley Chapter, the other from the Los Positas Chapter. A trainee under Sandia's Work Experience Program last year, Lora plans to major in science at the University of California at Berkeley in the fall.

Speakers

Jim Shelby (8334), Invited Paper: "Permeability and Diffusion in Vitreous Silica," Special Silica Symposium sponsored by Northern Ohio Chapter, American Ceramic Society, March 26, Cleveland, Ohio.

John Vitko (8334) and Cornelius Coll (8321), "Comments on the Vibrational Spectra of Hydrogen in Vitreous Silica," American Physical Society meeting, Atlanta, Ga., March 29-April 1.

Harry Saxton and Steve Robinson (both 8314), "Hydrogen Embrittlement of Container Materials," First Annual ERDA Information Meeting in the Hydrogen Energy Program, Brookhaven National Laboratories, April 26-27, Upton, N.Y.

Rand German (8312), "The Strength of Controlled Density Metal Powder Compacts," International Powder and Bulk Solids Handling and Processing Conference, sponsored by Powder Advisory Board, May 11, Rosemont, Ill.

John Brooks (8314), Invited Presentation: "Effects of Minor Elements on the Weldability of Austenitic Steels," American Welding Society Conference, May 12, St. Louis, Mo.

Jack Dini and Rudy Johnson (both 8312), "Adhesion of Electrodeposited Coatings on U-Ti and Mulberry"; Larry Weirick, Rudy Johnson and Jack Dini (all 8312), "Corrosion and Protection of Uranium Alloy Penetrators"; and Larry Weirick, "High Strain Rate Mechanical Response of Buttress-Grooved Tensile Specimens Which Had Undergone Corrosion Testing," High Density Alloy Penetrator Materials Conference, May 24-27, Charlottesville, Va.

Charles Hartwig (8342), "Probing Vitreous Silica through Raman Light Scattering from Dissolved Gases" and "Site Analysis of Hydroxyls and Hydrides in Vitreous Silica as Assessed by Raman Light Scattering"; Larry Rahn (8342), "Raman Scattering from H plus- and He plus- Ion Implanted Silicon Carbide"; and Ted Dellin (8342), Dan Tichenor (8344), and Ed Barsis (8342), "Surface Compaction in Irradiated Vitreous Silica," American Physical Society meeting, Atlanta, Ga., March 29-April 1.

Rand German (8312), "An Electron Concentration Approach to Predicting the Activated Sintering of Tungsten" and "Identification of the Dominant Sintering Mechanism Through the Surface Area Reduction Kinetics," and John Smugeresky (8312), "Deformation Behavior in Be,," 105th Annual Meeting American Institute of Metallurgical Engineers, Las Vegas, Nev., Feb. 23-26.

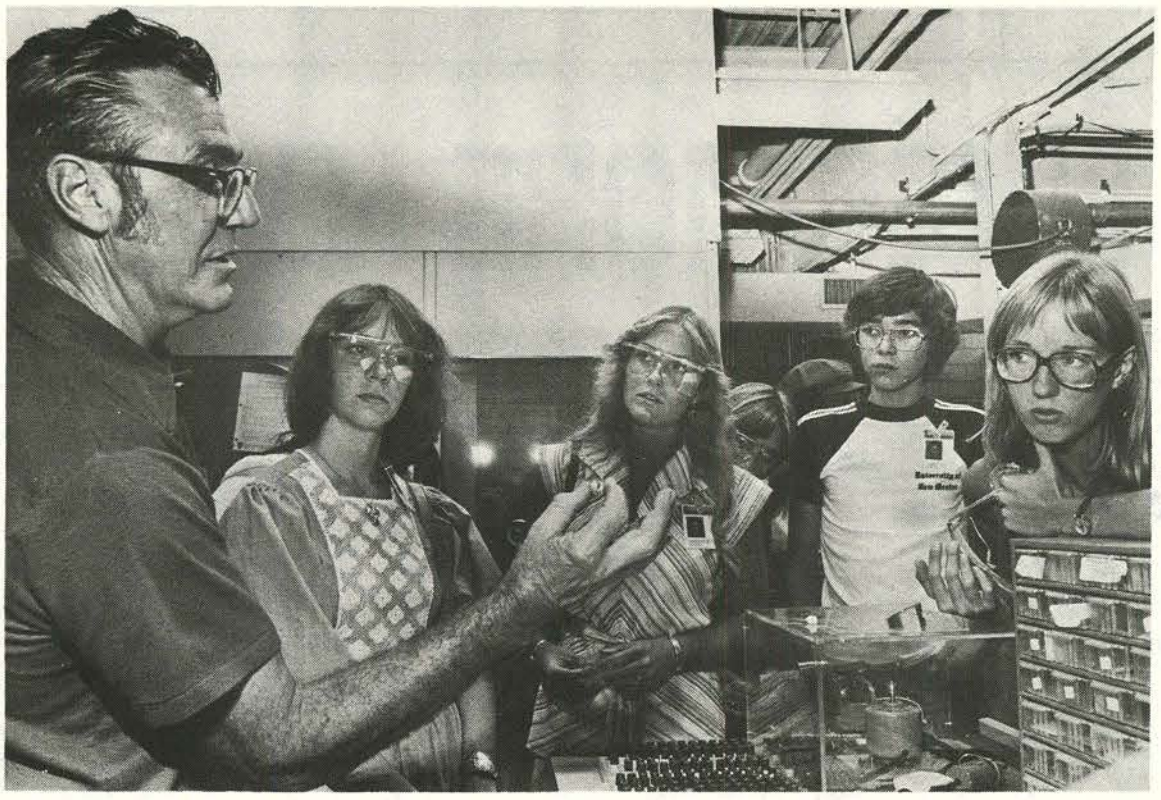
John Smugeresky (8312), "Recent Be Studies at Sandia/Livermore" and "Electron Microprobe Studies of Fe and Al Distribution in Be," and Ben Odegard (8314), "Effect of Oxide Content and Grain Size on the Mechanical Behavior of Beryllium," WESTEC 1976, Los Angeles, Calif., March 8-10.

Wes Estill (8314) and John Smugeresky (8312), "Relation of Iron, Aluminum and Silicon Layer Thickness to Electron Microprobe Beam Size," Seventh ERDA Conference on Surface Studies, Los Alamos, N.M., March 9-12.

Jim Bartel (8313) and Steve Robinson (8314), "Energy Programs at SLL," Sacramento Valley Chapter of American Society of Metallurgy, Sacramento, Calif., Jan. 15.

Jack Wilson (8413),"Metrication," San Ramon-Amador Valley Exchange Club meeting, Pleasanton, Calif., April 15.

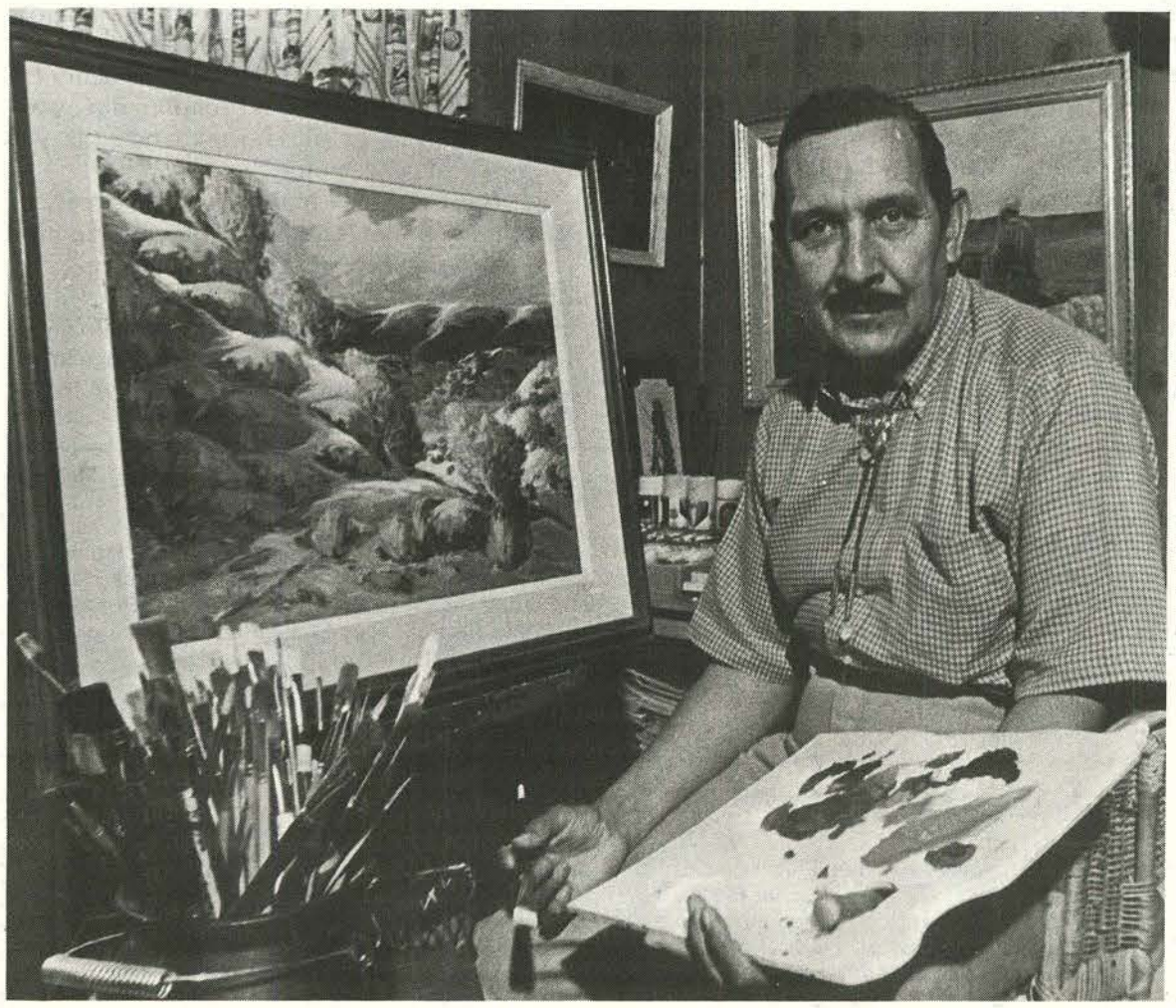
Steve Robinson and Anton West (both 8314), "Status of. ERDA Hydrogen Compatability Program," First World Hydrogen Energy Conference, University of Miami, Miami Beach, Fla., March 1-3.



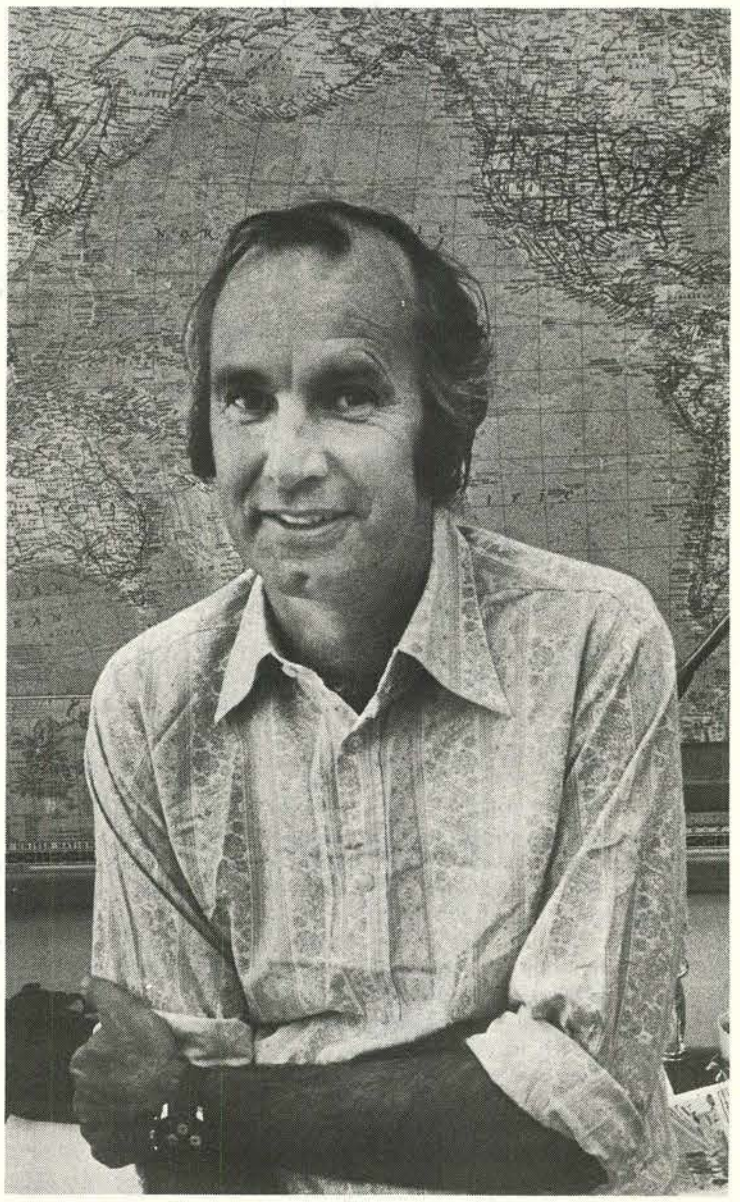
TONY SHANNON (3647) discusses fabrication of miniature gears with Youth Opportunity Trainees Lucy Smith (1140), Barbara Stepka (3140), James Salas (3733) and Jana Reynolds (1140) during a tour of Laboratories facilities last week. Forty young people participated in the YOT program this summer. They will be leaving the Labs in a few weeks to continue their education.

CLASS IN "True Position Dimensioning for Machinists" was conducted this week by Chuck Arning (9615) and Bob Holloway (9623) for 50 representatives of local suppliers. Class met evenings at the Coronado Club for two weeks. John Lewis of Purchasing Division 3715 was class coordinator.

sandia PEOPLE Report



FELIX PADILLA (3421) displays his acrylic painting, "Old Mountain Trail," which recently was awarded second place honors in the Tri-State Arts and Craft Exhibit at Carlsbad. In addition to his large realistic landscapes, Felix creates the cartoons for the back page of the LAB NEWS.



BRYAN ROBERTS, senior lecturer in mechanical engineering at the University of Sydney, Australia, has joined Parachute Systems Division 1332 for his sabbatical leave. He will perform unclassified parachute research. A specialist in aeroelasticity, Bryan made contact with the Labs at AIAA conferences where "the Sandia blokes stand out."

Career Planning Workshop Offered

In planning your career, aptitudes are important. But attitudes play a greater role than you might think. That's the major theme of a recent pilot workshop developed by Al Artiaga (211), and assisted by Joe Danclovic (4231).

Says Al, "The workshop is designed for Sandians who are ambitious, who are interested in getting ahead, who are willing to work at it — but who aren't quite sure of where they want to go, or how to go about it.

"Don't get me wrong — we can't tell anyone what he or she ought to get into. We can administer and interpret various interest inventories which can help people realize their own strengths, limitations, desires, needs.

"More importantly, we can help people learn how to set their own goals. And this is where attitudes come in. You see, many Sandians are convinced that simply taking a number of courses somewhere is the way to get ahead. So they work hard and earn lots of credits. But nothing much happens in terms of advancement. So they become bitter toward themselves — or Sandia." Pertinent courses completed are not the only factor a supervisor considers. Other things such as job performance, attendance, and previous experience have a bearing on an individual's opportunities.

The workshop attempts to counteract feelings of bitterness or frustration by developing in the participants a realistic appreciation of the opportunities available at Sandia and on the outside.

"And then," Al continues, "we try to help them get moving by assisting them in developing a basic career plan."

"Really," summarizes Joe, "it's a matter of getting people to realize that it's their own responsibility to set goals, that the most influential person in career planning is the one whose career is at stake."

The workshop will continue at Albuquerque on a trial basis through the fall. Each workshop meets for ten weekly two-hour sessions after work. Enrollment is limited in number but not by rank. If you're interested, contact your Personnel Representative. For more information, call Al Artiaga at 4-9481.

NICK MAGNANI (5831) shows the cedar lined interior of this dresser, which he designed and built.

Sandian Designs, Builds Furniture

"About this time every summer I start thinking about a winter woodworking project," says Nick Magnani, supervisor of Chemical Metallurgy Division 5831. Nick does more than just think about it. The Magnani home has a number of beautiful and unusual pieces of furniture — results of past projects.

"I like to make furniture different from what I could purchase," Nick says. "I play around with the design until I have a pretty good idea of how it will look, although there have been times when I've been uneasy until the job was completed. And I really enjoy the woodworking part of it. I like to try different types of wood or combinations of wood and metal." Nick has converted half of his garage into a shop.

The master bedroom has an unusual pedestal style dresser made from walnut with cedar lining and drawers, and trimmed with aluminum. The wood has a soft hand-rubbed oil finish. Nick made a matching frame for his water bed.

He has furnished the den with a maple and naugahyde couch, butcher block type end tables, and one wall is completely filled with book shelves and cabinets, including a wine rack. Other projects include bunk beds made from ash, rosewood and aluminum occasional tables, and lamps incorporating wood, aluminum and glass.

Nick consults with his wife Louise on his designs, and in addition to the furniture being unusual, it is all extremely functional. Currently he is thinking about designing patio furniture.

His summer projects have consisted of redesigning the landscaping. The very pleasant back yard contains raised flower beds with curved retaining walls made with brick, a small pool, and railroad tie steps. Nick constructed a brick smoke house and storage units for the barbeque area. "When Nick makes the patio furniture, we'll really be able to enjoy the back yard," Louise says.

The Magnanis have two sons, Paul, age 12, and 9-year-old Chris. Nick has been at the Labs for eight years. In addition to his woodworking and gardening interests, he collects stamps and is president of the Albuquerque Breakfast Civitan Club.

PARTICIPANTS in the pilot version of the Career Planning Workshop were unanimous in endorsing it. From left, Mike Quintana (9550), Jo Ferrell (1001), Soila Candelaria (4337), Doris Mason (9631), Vadare Cornelison (3252), Karen Grant (2633), Ivory Alexander (2125), and trainers Joe Danclovic (4231) and Al Artiaga (211). (Not shown, attendee Olivia Salisbury, 4290.)

Pauline's "tortilla factory."

Earthquake

Sandian Earns 'MVP Award' For Guatamala Relief Work

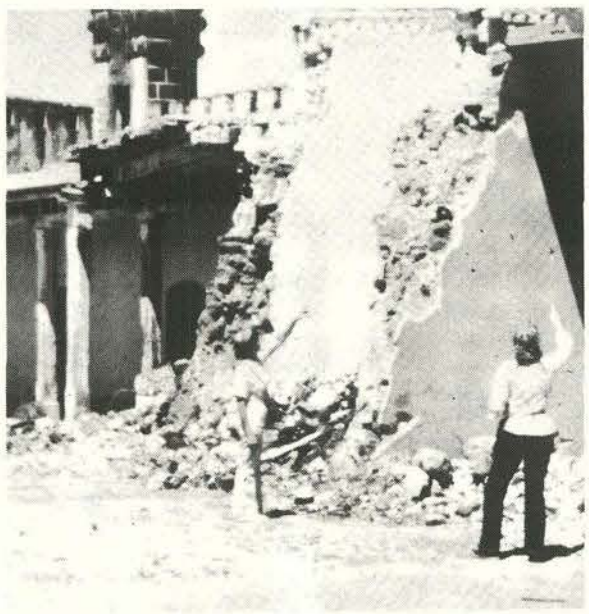
Gabby Gabaldon (4311) and his wife Pauline have returned to Albuquerque after two months of Guatemalan earthquake recovery work. They were two of the 13 New Mexicans who volunteered for the project. (LAB NEWS, May 28, 1976)

The group set up camp in the city of Chimaltenango. "We had three tents for 13 people," Gabby says. "Conditions were rough. But how can you complain when you're surrounded by such devastation? Before the quake the population of this city was 203,000. There were 13,000 killed and 34,000 injured, and the damage to the city is unbelievable."

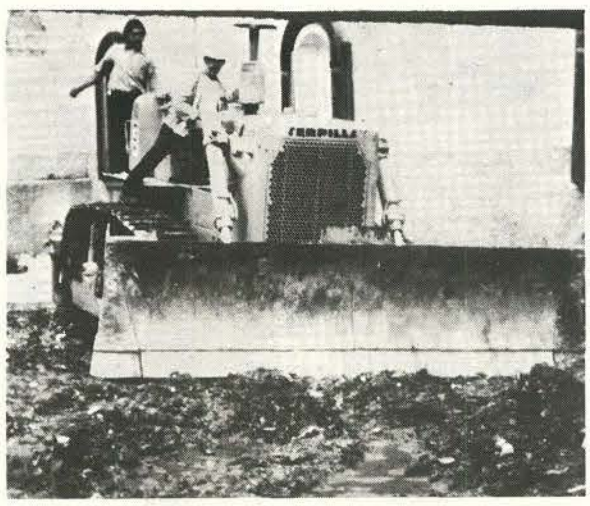
Gabby was the only qualified heavy equipment operator in the group; consequently, he spent a large amount of time clearing rubble. Perhaps his most important contribution was teaching a few local men how to operate the machinery. Padre Ronaldo Burke of the Latin American Mission Program, in a letter to Gabby's sponsor — Aquinas Newman Center — said, ". . . Gabby was invaluable whether it was house-building or tractor driving or chimney making or fixing whatever needed fixing. I think Gabby wins the most valuable player award on this team, the 'Albuquerque Thirteen'."

Part of the relief supplies included quantities of white flour which the Indian women had no idea how to use. Pauline taught them how to make bread and flour tortillas. "They knew how to make corn tortillas," Gabby says, "but when we got there they were making a sort of gruel out of flour, water, and sugar and drinking it. I think Pauline became the most popular member of our group with her 'tortilla factory'." After Gabby made an oven from scrap metal Pauline was in business.

"It was a fantastic experience," Gabby says. "You can't believe how nice the people are. With all their suffering, they're a happy, gracious people; and they speak the most delightful lilting Spanish. Our greatest asset was being able to speak the language, but the Guatemalans made it easy for those who didn't speak Spanish — they still managed to communicate."



The former Chimaltenango city jail.



Gabby and student driver. The young man's wages jumped when he learned to operate this grader — from $1.50 to $4.00 per day!

Speakers

W. Herrmann (5160), "Constitutive Descriptions for Rate Dependent Materials," EIVR I meeting, AWRE, July 6-9, Aldermaston, UK.

V.L. Dugan (5740), "An Overview of Simulation Applications In Safeguards Systems"; L.D. Chapman (5741), "Effectiveness Evaluation of Alternative Fixed-Site Safeguard Security Systems"; M.D. Olman (1233), "Application of Computerized Fault Tree Analysis Techniques in Safeguards"; H.A. Bennett (5741), "Security Force Engagement Model," 1976 Summer Computer Simulation Conference, July 12-14, Washington, D.C.

R.C. Lincoln (5444) and A.W. Snyder (5400), "Disposal in Continental Geologic Formations"; D.R. Anderson, D.M. Talbert (both 5444) and C.D. Hollister (Woods Hole Oceanographic Institution), "An International, Interdisciplinary Seabed High-level Waste Disposal Program"; R.M. Jefferson (5430), "Available Packaging and Transportation Systems," ERDA's International Symposium on the Management of Wastes, July 12-16, Denver, Colo.

A.B. Donaldson (2513), "Hot Wire Ignition of Pyrotechnic Materials"; A.B. Donaldson and A.C. Strasburg (2514), "Estimation of the Thermal Characteristics of a Bridgewire Environment by an Electrothermal Response Test"; N.E. Brown and P.K. Morenus (both 2516), "Ignition Characteristics of Boron/Calcium Chromate"; M. Robertson and E.A. Igel (both 2541), "High Speed Optical Studies of Pyrotechnic Initiation Phenomena"; E.A. Kjeldgaard (2515), "Development of a Spark Insensitive Actuator/Igniter"; A.B. Donaldson, "Consideration of the Electrical Potential in Hot Wire/Conductive Pyrotechnic Systems," Fifth International Pyrotechnic Seminar, July 12-16, Vail, Colo.

B.M. Bulmer (1333), "Flight-Test Base Pressure Measurements in Turbulent Flow"; K.J. Touryan (5260), "Stability of Slag in Turbulent MHD Boundary Layers"; R.R. Eaton (5261) and D.E. Larson (1333), "A Simple and Accurate Method for Determining Center of Pressure Coefficients for High Fineness Ratio Bodies"; R.B. Pope (5431), "Analytical Modeling and Experimental Verification of the Performance of a Low Temperature Ablative Material," AIAA 11th Thermophysics Conference, July 14-16, San Diego, Calif.

J.E. Houston (5114), "Surface Electronic Properties from Line Shape Analysis in Auger Electron Spectroscopy," Stanford University Seminar, July 16, Stanford, Calif.

R.L. Fox and R.R. Eaton (both 5261), "Investigation of Nozzles, Jets, and Channels for the Separation of Heavy Isotopes," 10th Rarefied Gas Dynamics Symposium, July 18-24, Snowmass, Colo.

J.M. Hueter (4231), "Creative Opportunities in Camping," American Camping Association Regional Meeting, Albuquerque; "Solving Problems Creatively," Parents Without Partners, Region I meeting, Albuquerque.

K.M. Glibert (1112), "Investigation of Certain Errors in Dual Photon Tissue Analysis," the 4th International Conference on Medical Physics, July 25-30, Ottawa, Canada.

R.A. Lederer (1754), "Velocity Measurements Using Laser Interferometry and Automatic Signal Processing," IEEE International Convention, May 11-14, Boston.

T.V. Nordstrom (5832), "Grain Boundary Precipitation in a Nickel-Beryllium Alloy," 9th Annual International Metallographic Society Meeting, July 25-28, Seattle, Wash.

J.B. Gerardo (5210) and A.W. Johnson (5216), "Rate Constants for Excited Species in Xenon"; J.M. Peek and T.A. Green (both 5261), "Use of Semiclassical Approximations to Evaluate Weak-Coupling Cross Sections for Inelastic Structureless Charged Particle-Ion Collisions," Fifth International Conference on Atomic Physics, July 26-30, Berkeley, Calif.

E.A. Bernard (5432) and H.B. Burress (1133), "Design and Analysis of the Sandia Laboratories Hot Cell Facility Safety Ventilation System," 14th ERDA Air Cleaning Conference, Aug 1-3, Sun Valley, Idaho.

D.P. Aeschliman (5262), "Fluorescence Interferences in Raman Scattering from Combustion Product," Rocky Mountain Section Annual Meeting, Society for Applied Spectroscopy, Aug. 2-3, Denver, Colo.

R.J. Walko (2352) and J.A. Panitz (5114), "Pulse Shape Determination by Field Electron Emission"; J.A. Panitz, "80 eV Deuterium Depth Profiles in Tungsten: The CTR First-Wall Impurity Problem, 23rd Field Emission Symposium, Aug. 2-6, Penn State University, Pa.

R.H. Marion (5846) and J.B. Cohen (Northwestern Univ.), "The Need for Experimentally Determined X-Ray Elastic Constants," 25th Annual Denver Conference on Applications of X-Ray Analysis, Univ. of Denver, Aug 4-6.

Speakers

H.C. Monteith (5411), "The Ancients' View of the Human Aura," July 22, Los Altos Kiwanis Club, Albuquerque.

H.R. Shelton (4231), "I'm OK, You're OK," July 26, Altrusa Club, Albuquerque.

G. Yonas (5240), "Review of Recent Results and Plans in Sandia's Particle Beam Fusion Program," Advisory Group Meeting on Inertial Confinement Technology Experiments, July 19-23, Dubna, USSR.

B.L. Butler (5844) and R.B. Pettit (5842), "Materials Development for Solar Total Energy," Solar Energy Program Semi-Annual Review, Total Energy Systems, July 21-23, Berkeley, Calif.

C.G. Davis (LASL), D.S. King (UNM), W.R. Davey (5166) and R.F. Stellingwerf (Columbia Univ.), "The Goddard Model Discussions"; A.N. Cox (LASL), W.R. Davey (5166) and S.W. Hodson (LASL), "Periodic Nonlinear Integrations — Where Are the Double Mode Cepheids?," Solar and Stellar Pulsation Conference, Aug. 3-5, LASL.

D.G. Schueler (5719), "ERDA - Photovoltaic Systems Definition Project - Concentrator Development Task," National Solar Photovoltaic Program Review Meeting, Aug. 3-6, University of Maine, Orono.

D.O. Lee and W.P. Schimmel (both 1343), "Focused Solar Collector Analysis with Axially Varying Input Due to Shadowing from Adjacent Collectors"; N.R. Keltner (9331) and L.W. Bickle (UNM), "Intrinsic Thermocouple Measurement Errors"; M.W. Edenburn (5712), "Optimum Operating Conditions for a Cylindrical Parabolic Focusing Collector/Rankine Power Generation Cycle," 1976 National Heat Transfer Conference, Aug. 8-11, St. Louis, Mo.

T.F. Luera (WSMR), J.A. Borders (5111) and G.W. Arnold (5112), "Studies of Radiation Damage Produced by Ion Implantation in Sapphire"; Borders and Arnold, "Potassium Depletion and Migration Induced by Ion Bombardment of Glass''; G.W. Arnold, "Thermoluminescence of Ion-Implanted SiO_2"; J.A. Borders, "Solubility Enhancement in Ion Implanted Cu Alloys"; K.L. Brower (5112), "EPR of the Lattice Damage from Energetic Si in Silicon at 4K"; S.T. Picraux (5111), "Implantation Defect Profiles in Metals by Hydrogen Decoration"; S.T. Picraux, "Disorder Analysis in Zn - Implanted Al"; S.T. Picraux and F.L. Vook (5110), "Channeling Location Studies of D in Si"; S.M. Myers (5111), J.E. Smugeresky (8312) and G.J. Thomas (8314), "Studies of Phase Equilibria in Be Using Ion Implantation"; G.B. Krefft (5112), "Ionization-Stimulated Annealing Effects on Displacement Damage in Magnesium Oxide"; H.J. Stein (5112), "Divacancy Formation by Polyatomic Ion Implantation"; R.A. Kant, S.T. Picraux and S.M. Myers (all 5111), "Precipitation of Binary Phases in Al by Sb, Cu and Au Implatation"; D.K. Brice (5111), "Differential Angular and Energy Spectra of Electrons Excited by Heavy Charged Particles," International Conference on Ion Implantation in Semiconductors and Other Materials, Aug. 8-13, Boulder, Colo.

T.J. Headley (5822), "Autocatalytic Nucleation of Omega Phase in a Beta-Titanium Alloy," Electron Microscope Society of America Meeting, Aug. 9-13, Miami, Fla.

R.R. Rye (5114), "Chemical Surface Effects in CTR Devices," Faculty Summer Institute, Aug. 9-13, Argonne National Laboratory.

W.F. Chambers and P.F. Hlava (both 5822), "Electron Microprobe Studies of Metal-Ceramic Braze Joints," 11th Annual meeting of Microbean Analysis Society, Aug. 1976, Miami Beach, Fla.

S.W. Key, J.H. Biffle and R.D. Krieg (all 1281), "A Study of the Computational and Theoretical Differences of Two Finite Strain Elastic-Plastic Constitutive Models," U.S.-Germany Symposium on Finite Element Analysis, Aug. 9-13, MIT, Cambridge.

L.W. Beckham and L.C. Bartel (both 5732), "Remote Monitoring of an In Situ Coal Gasification Process"; R.E.D. Stewart (5742), "Utilization of Low BTU Gas from In-Situ Coal Gasification for On-Site Power Generation"; S.G. Beard (5732), "Some Insights from Temperature Measurements on Recent Underground Coal Gasification Experiments," 2nd Annual Underground Coal Gasification Symposium, Aug. 10-12, Morgantown, W. Va.

F.G. Blottner (5260), "Viscous Slender Channel Flows," Specialist's Workshop on Viscous Interaction and Boundary-Layer Separation, Aug. 16-17, Ohio State University, Columbus.

T.M. Gerlach (5831), C.J. Northrup (5834) and P.J. Modreski (5831), "Magma: A Potential Source of Fuels," ERDA Committee to Study Alternative Hydrogen Sources, Aug. 13, Germantown, Md.

F. Biggs and C.N. Vittitoe (both 5231), "Mathematical Modeling of Solar Concentrators"; R.B. Pettit (5842), "Specular Reflectance Properties of Mirror Materials"; G.W. Treadwell (5712), "Design Considerations for Parabolic-Cylindrical Solar Collectors"; E.G. Kadlec (5715), "The Darrieus Vertical-Axis Wind Turbine Program at Sandia Laboratories"; R.W. Harrigan (5712), "Economic Study of Solar Total Energy," Sharing the Sun Conference, Aug. 15-20, Winnipeg, Canada.

R.W. Rohde (5832) and J.C. Swearengen (5847), "Mechanical Equation of State for Inelastic Solids"; R.H. Marion and C.H. Karnes (both 5847), "Short Time, High Temperature Mechanical Testing of Electrically Conductive Materials"; A.M. Lindrose (5847), "A Technique for Determining Relaxation Functions in Linear Viscoelastic Materials"; H.J. Rack (5832), "Ductile-Brittle Transition Behavior of Unaged RMI 38644," Second International Conference on Mechanical Behavior of Materials, Aug. 16-20, Boston, Mass.

H.J. Stein (5112) and H.A.R. Wegener (Sperry), "Chemically-Trapped Hydrogen in CVD Si_3N4: Dependence on NH_3/H_4 Ratio and on Annealing," 1976 IEEE Non-Volatile Semiconductor Memory Workshop, Aug. 17-19, Vail, Colo.

G. Yonas (5240), "A Review of the Development of Self-Focused Flows in High Current Diodes"; Mr. Yonas will also present papers for the following Sandia authors: R.A. Anderson (5814), "Study of Surface Flashover of Conical Insulators using 3 ns Risetime Pulses," and J.P. Brainard (2352), "Cathode Spot Damage in Gold Films on Sapphire Substrates," VIIth International Symposium on Discharges and Electrical Insulation in Vacuum, Aug. 17-20, Novosibirsk, USSR.

R.E. Luna, H.W. Church, L.S. Nelson (all 5443), R.M. Elrick (5842), and D.R. Parker (3311), "Combustion and Smoke Formation Following Exposure of Actinide Metals to Explosions," 16th International Symposium on Combustion, Aug. 1976, M.I.T.

J.P. Long (2644), "Sandia Interactive Graphics System - SIGS"; C.W. Gwyn (2142), "Sandia's Graphics-Oriented Micro Electronics Data Acquisition System," Symposium on the Applications of Computer Graphics in Engineering and Science, July 22-23, AFWL.

E.P. EerNisse (5133) and G.F. Derbenwick (2141), "Viscous Shear Flow Model for MOS Device Radiation Sensitibity"; W.R. Dawes and G.F. Derbenwick (both 2141), "Prevention of CMOS Latch-Up by Gold-Doping"; C.J. MacCallum (5231), "Analytical Photo-Compton Deposition Profiles"; J.A. Halbleib (5231), G.J. Lockwood (5231) and G.H. Miller (5216), "Optimization of Bremsstrahlung Deposition"; Lockwood, Miller and Halbleib, "Electron Energy Deposition in Multilayer Geometries"; F.N. Coppage (4312) and J.R. Adams (2141), "Field Oxide Inversion Effects in Irradiated CMOS Devices"; C.E. Barnes (5133), "Application of Damage Constants in Gamma Irradiated Amphoterically Si Doped GaAs LEDs," 1976 IEEE Annual Conference on Nuclear and Space Radiation Effects, July 27-30, San Diego, Calif.

Dick Thompson (9654), Ken Prestwich (5246) and Heinz Schmitt (4340)

Supervisory Appointments

DICK THOMPSON to supervisor of Project Design Definition Division III, 9654, effective Aug. 16. Dick joined Sandia in July 1960 as a draftsman. He earned an associate degree in drafting and design from Penn State. His work assignments in programming, precision graphics and computer aided design, have all been within the drafting directorate. For the past year and a half he has worked in the Administrative Systems Dept. 2620.

Using Sandia's Educational Aids Program and the University Part-Time Program, Dick earned his BS in math from the U of A, and MS in EE (computer science) from UNM. Dick's new division will assist engineering groups in design of controllers and test equipment; other work is planned with a machine-aided design definition system.

Dick is a member of the Association for Computing Machinery. He enjoys gardening and squash — "growing more than playing." He and his wife Terry have a daughter and live at 11503 Manitoba NE.

* * *

KEN PRESTWICH to supervisor of Pulsed Power Application and Operations Division 5246, effective July 16. Ken joined the Labs in June 1962, working with the plasma physics group while under Sandia's Technical Development Program. Since 1965 Ken has been working in weapons effects simulation using electron beam accelerators.

Ken's responsibilities in the newly created division of the Fusion Research Department include operation and maintenance of E-Beam accelerators as well as research associated with the E-Beam fusion program.

Ken earned his BS in EE from the University of Idaho and his MS from UNM. He served four years in the Air Force. He is a member of IEEE. Most of Ken's leisure time is devoted to sports events — track and basketball officiating and coaching. He and his wife Katherine have three children and live at 12201 Cedar Ridge NE.

* * *

HEINZ SCHMITT to manager of Systems Development Department 4340, effective Aug. 1. In 1960, following graduation from Brooklyn Polytechnic Institute with a BS in ME, Heinz came to the Labs as a member of the Technical Development Program. He worked in quality control and components organizations and received his MS in ME from UNM. Heinz earned his PhD in ME from Oklahoma State University and returned to Sandia's engineering analysis department.

In 1968 he transferred into the exploratory systems development group where he worked on various RV programs and the carbon/carbon project. He was promoted to division supervisor of this group in December 1968. Since that time he has been supervisor of development divisions in the MK12A and B61-2,5 programs. His new responsibilities include systems development for the W-80 and Pershing II programs.

Heinz is a member of the AIAA and ASME. He coaches a Little League Soccer team and enjoys playing tennis. He and his wife Barbara have two children and live at 6504 Loftus NE.

feedback

To get a response to your comments and questions about Sandia Labs, complete a Feedback form (available near bulletin boards) and return it to the Feedback administrator. The substance of questions and responses of wide interest is published in LAB NEWS.

Q. How can we get boxes for our waste computer paper and punch cards?

A. At the present time, computer operations personnel discard empty computer paper and punch card boxes into a special fenced enclosure south of the Bldg. 880 computer annex.

These empty boxes are available to those employees who have need for them by either personal pickup from the fenced enclosure or by a telephone request to the Transportation Section 3421-2, 4-8048.

Delivery of such empty boxes is entirely dependent on the availability of boxes in the fenced enclosure at the time of the request.

D.S. Tarbox - 3400

Q. Pocket calculators are no longer a novelty. They are really a necessity for a working professional member of the staff. Why not a program under which a calculator would, over a period of years, become the property of its user?

A. In spite of the fact that your suggestion may have merit, Sandia has no choice in this matter. Pocket calculators, as well as other materials, facilities and equipment purchased with government funds, are government properties for official use only. Detailed government regulations define procedures for acquisition, utilization and retirement which preclude any method of giving such items to individuals. Sandia must follow these regulations and cannot unilaterally change them.

D.S. Tarbox - 3400

Q. The recently instituted infraction penalty system which states that an employee will have days off without pay or a delay in scheduled salary increase in the event of two or more infractions in a twelve month period can only be equitable for all *Sandia employees if those offices which handle classified documents are paid an extra bonus for the risk incurred in handling such documents. This would be similar to military pilots who receive hazard pay in addition to their regular pay for hazardous duty performed.*

A. Your suggestion that employees who handle classified matter be paid a bonus for the risk involved has been considered before and found to be impractical. Such things as conscientious attendance, good safety practices, proper conduct, etc., are conditions of employment. At Sandia Laboratories security responsibilities are also a part of these standards. All individuals who have been granted a Q clearance and issued a badge have potential access to classified information and therefore are not immune from the infraction program.

A penalty system is imposed for *failure* to comply with security requirements just as a summons is issued for exceeding the speed limit ... and those who drive more than others are not paid a bonus.

Finally, if Sandia Laboratories were to give bonus pay for the degree of exposure to classified information, there would undoubtedly be similar requests for extra compensation for other special work situations.

D.S. Tarbox - 3400

Q. What are the functions of the Personnel Representatives listed on page 35 of the Sandia Telephone Directory?

A. The Personnel Representatives are available to assist all on-roll employees in a number of ways such as discussing and resolving work related problems involving supervisors and/or other employees; counseling employees relative to potential advancement and educational opportunities; advising employees relative to career paths and available job opportunities, etc. The Personnel Representatives work with line supervisors in advising them on personnel policies and procedures and in the resolution of problem cases. The Personnel Representatives are responsible for developing and implementing the Vice Presidents' Affirmative Action Plan and for advising and making recommendations to supervisors and all levels of management on matters regarding equal employment opportunities.

R.J. Edelman - 4200

Q. Recently, Sandians were routed a letter which had been originated by Mr. R.J. Edelman concerning "appropriate attire". It seems that certain male persons (while stifling a chuckle) took the order with a grain of salt knowing, of course, that this must *be directed at women. Well, I protest. Recently men in my working area have begun to wear "Bermuda" shorts to work. In my opinion, not only is this inappropriate but I personally find this offensive to my personal sensitivities, as do other women in this area. And, although a general dress code would create many inequities, I do feel that we women should somehow be spared the double standard in this matter. Can you imagine what would happen if a few of us females decided to wear our "shorts" to work?*

A. Let me assure you that the Management News Brief concerning safe and nondisruptive dress was *not* directed only at women. Both the words and the intent of the announcement were aimed equally at both sexes.

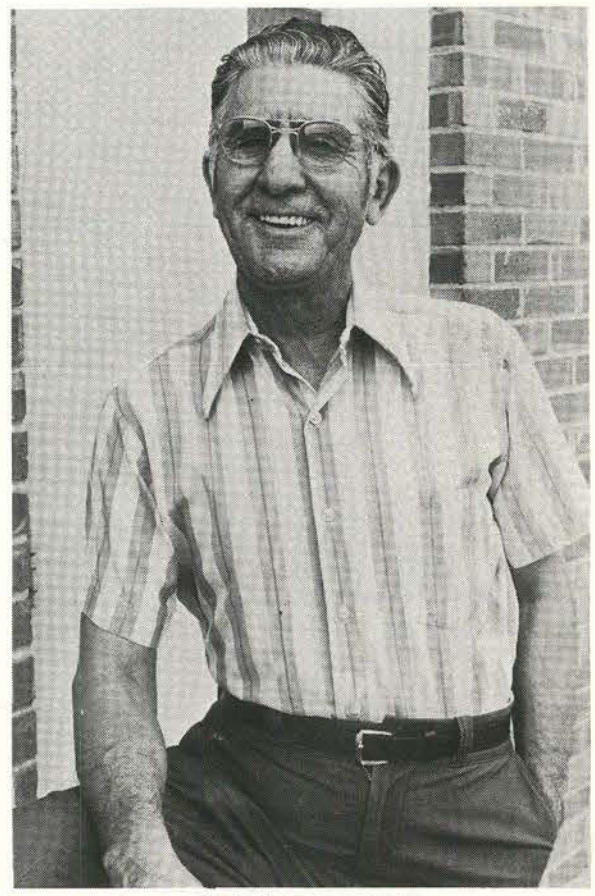
Allow me to reiterate, however, that we do not plan to make moral judgments concerning appropriate dress for either males or females. The criteria that are to be used are limited to safety and productivity. If a particular mode of dress is safe and does not disrupt the working environment it is acceptable. On the other hand, dress that might generally be considered moral but is so outlandish as to be disruptive will not be tolerated.

If you know of a situation that satisfies this criterion, I suggest you discuss it with your supervisor or your personnel representative.

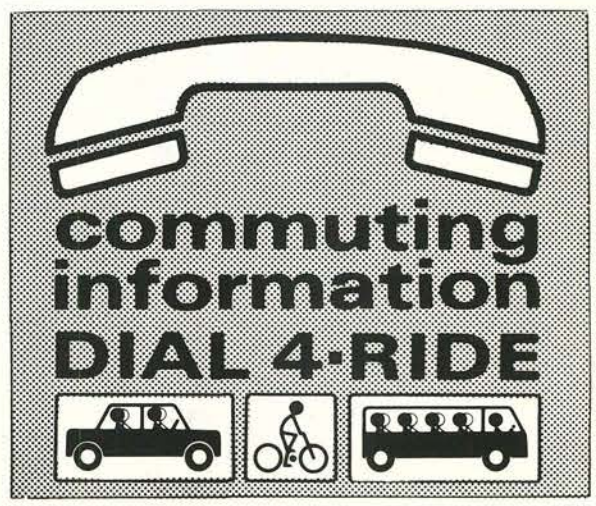
R.J. Edelman - 4200

Retiring

Ray Hooper (9552)



Jesus Lopez (3644)



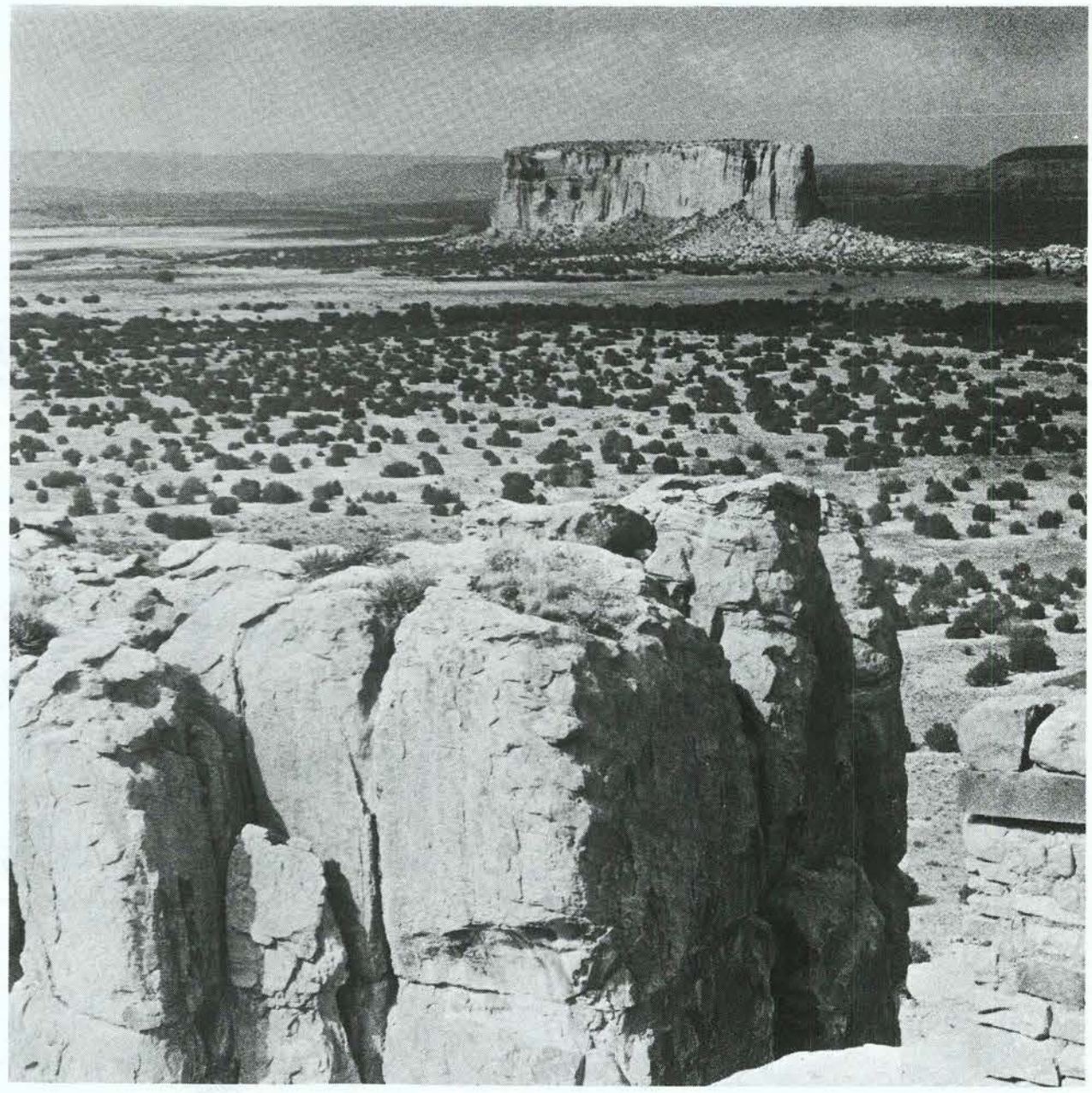
New Openings Announced In ESA Training Program

The Engineering Science Assistant (ESA) trainee program has been underway at the Labs for two years. Currently there are 20 employees enrolled in ESA training. Completion of the five-level program, consisting of on-the-job training as well as out-of-hours academic work, leads to the ESA classification. The training is equivalent to that reflected in a technical institute degree.

Announced yesterday in the *Weekly Bulletin* were 17 additional ESA trainee positions. Enrollment is through self nomination, and selections are made by the concerned division supervisor. Employees in all grade classifications are eligible to apply. Salaries of successful applicants are adjusted to comply with the entering level salary range — those whose salaries are below the entering level begin at the lower limit while those who are above enter at a higher limit. These limits are established so that grade 35's or MA 70's can enter the program with no change in salary. As the trainee progresses, appropriate salary increases are made.

Trainees work toward a specific job in a technical division. Completion date of the program depends upon the experience and academic credit with which the trainee enters the program and his or her rate of progress. Without any previous experience or credit the program normally takes five years for completion.

Employees may nominate themselves for the openings listed in the Bulletin by calling 4-2465. Additional information may be obtained from your personnel representative. Gene Bates (4232) is program coordinator.



ENCHANTED MESA, as seen from Acoma Pueblo. (Photo by Russell Smith, 3162).

Recreation Notes

FUN & GAMES

Bowling — At last month's annual meeting of the Sandia Labs Bowling Assn., Bob Statler (1133) was elected president for the coming season. Other officers: VP - Mary Ward (9622), secretary-treasurer - Sadie Knight (1115), women's rep - Dolores Schumpert (ERDA), men's rep - Wally Granfield (4330), and tournament director - Gary Miller (5842).

Association champions for the year were Dolores Schumpert (ERDA) and Leo Bressan (9532). Winners of the President's Trophy were Vickie Clarkson (ERDA) and Len Hansen (5133).

* * *

Running — The annual La Luz Trail Run takes place this Sunday, and a dozen or so Sandians are expected in a field of over one hundred. The 7½-mile run has an elevation gain of 4000 feet, topping out on Sandia Crest at 10,600 feet. You can still sign up as a late entry by showing up well before 8 AM in the Juan Tabo picnic area at the bottom of the trail.

* * *

Singing — Like to sing? Auditions for the NM Symphony Orchestra Chorus are being held on Aug. 28 and 29. Requirements: a selection of your choosing, some vocalizing, and a little reading. An accompianist will be available. Call 265-3689 for an appointment.

Vista New Mexico

Mesa Encantada

In a weather-scarred landscape of mesas, escarpments, dry washes, shallow canyons and twisted cedar trees, the sandstone butte rises 430 feet above the floor of the Acoma valley. The nearby Indians of Acoma Pueblo call it *katzimo,* "enchanted," and know it to be the home of their ancestors.

In legendary times, during migration from their mythical place of origin in the North, the Acomas established several villages. The site of one such village was the summit of Enchanted Mesa. Using a natural crevasse as a stairway, the Indians moved up and down from their homes to their corn fields in the valley.

Several versions of the tragedy associated with the mesa are retold today. One story relates how, long after the site was deserted, a retreating war party escaped to the top and starved to death rather than surrender. Adolph Bandelier, the Swiss-American archeologist, noted in his diary that during a visit to Acoma in the 1880's, he was told a story of two young boys who had climbed to the mesa top during a hunting trip. Unable to find a way down, they perished.

A more persistent story is that of the three spirit women who inhabit the mesa. Leaving only three old women at the top, the rest of the villagers descended to the valley floor to work in the fields. Without warning, a terrible storm engulfed them, making it impossible to return to their homes. They watched in awe as lightning bounced off the rock, great gouts of water erupted down its walls, and thunder resounded overhead. When the storm abated, their stairway to the top had disappeared and the three old women were stranded. Summer advanced, the corn tasseled, and periodically the three starving women could be seen looking out over the edge of the mesa. Then there were two, then one, and finally when the corn was harvested, the mesa top was lonely and deserted.

No archeological remains have been found on the mesa, but indications of Indian ceremonial visits have been found. Castañeda, the chronicler for Coronado's expedition, recorded that Acoma had been in existence long before their visit in 1540. Today, as it was in 1540, only the wind and the spirit women dwell atop the Enchanted Mesa. • nt

Sympathy

To Paul Silva (9718) on the death of his brother in Wilmington, Calif., Aug. 7.

To Ray Caster (9481) on the death of his father in Albuquerque, Aug. 7.

To Ralph Pena (9153) on the death of his mother in Los Lunas, Aug. 10.

To John Souza (4335) on the death of his mother in Fall River, Mass., Aug. 8.

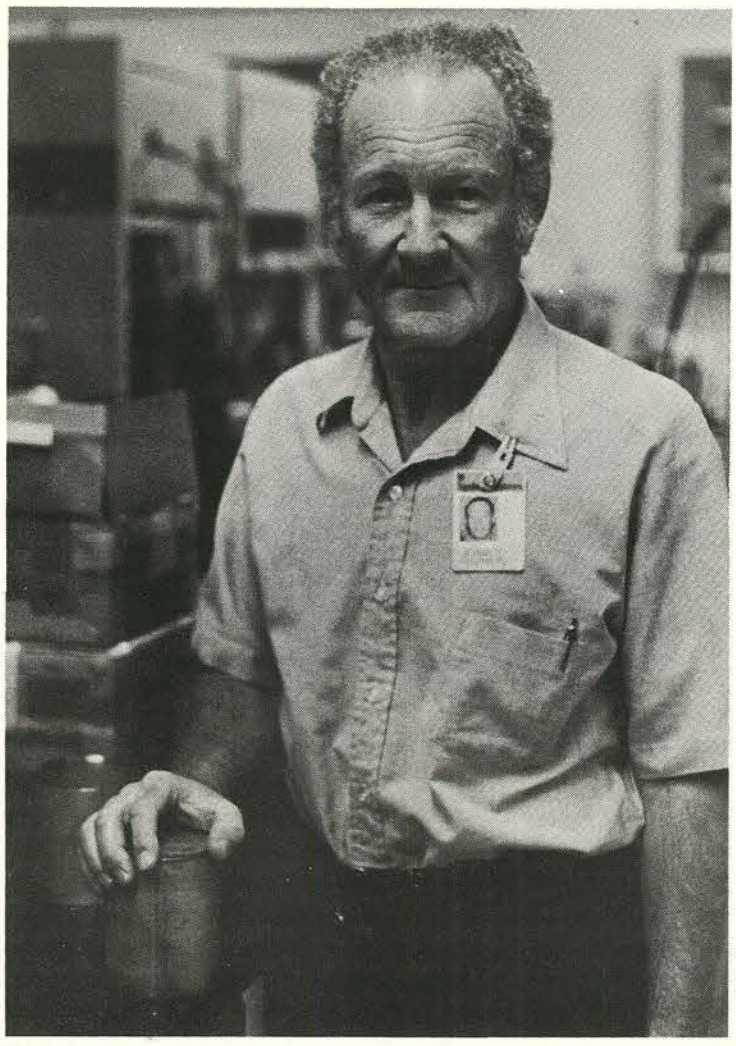
MILEPOSTS

LAB NEWS

August 1976

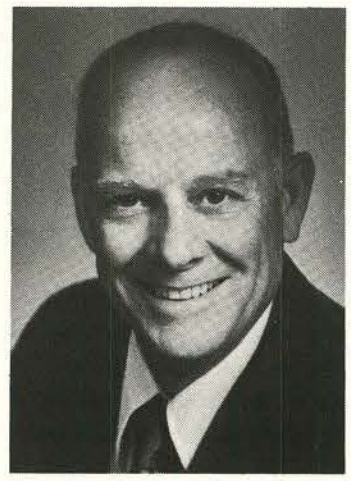
Tex Arterburn - 3645 30

Jose Llamas - 9412 20

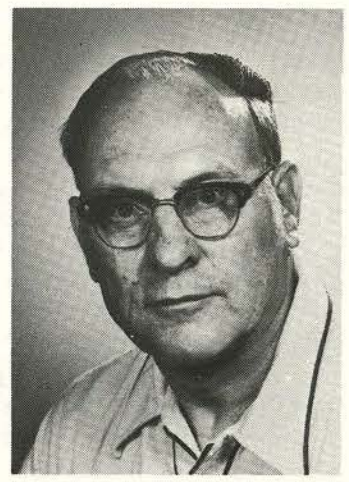


Norman Rosenberg - 2522 20

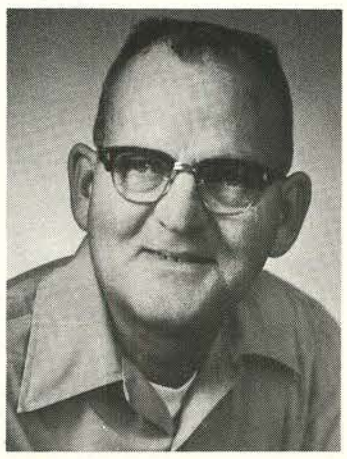
Arley Turner - 8423 10



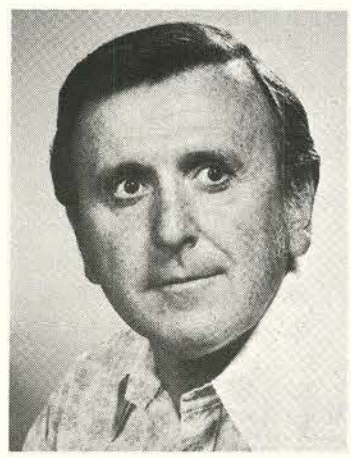
Ken Finders - 8254 25



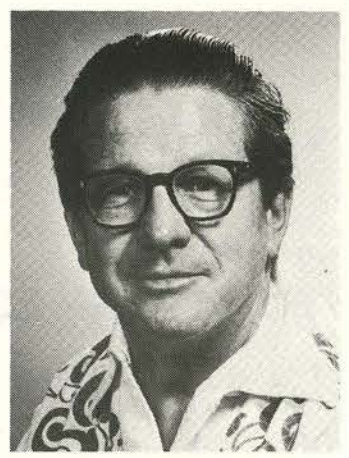
William Brion - 2534 20



Bob Piper - 8261 10

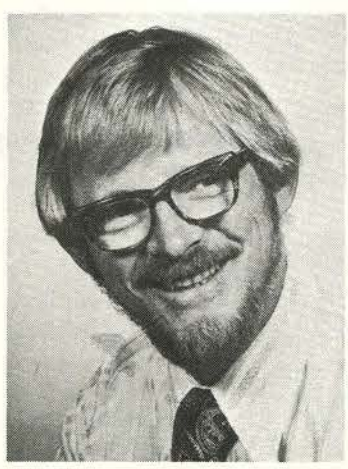


Edward Kociscin - 9622 15

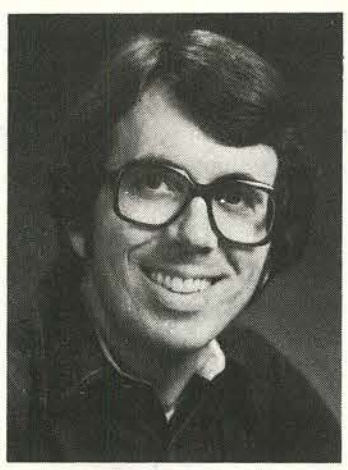


Howard Singleton - 4314 20

Don Robie - 2135 20



Tom Cutchen - 2521 10

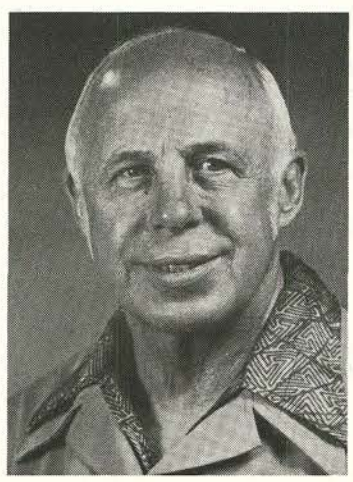


John Barnhouse - 8323 15

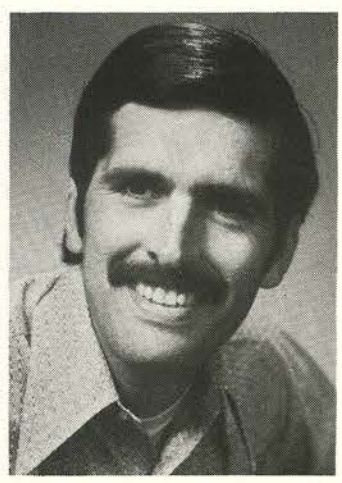
Jack Strascina - 3621 10

Peter Rospopo - 3613 30

Bill Thompson - 8254 15



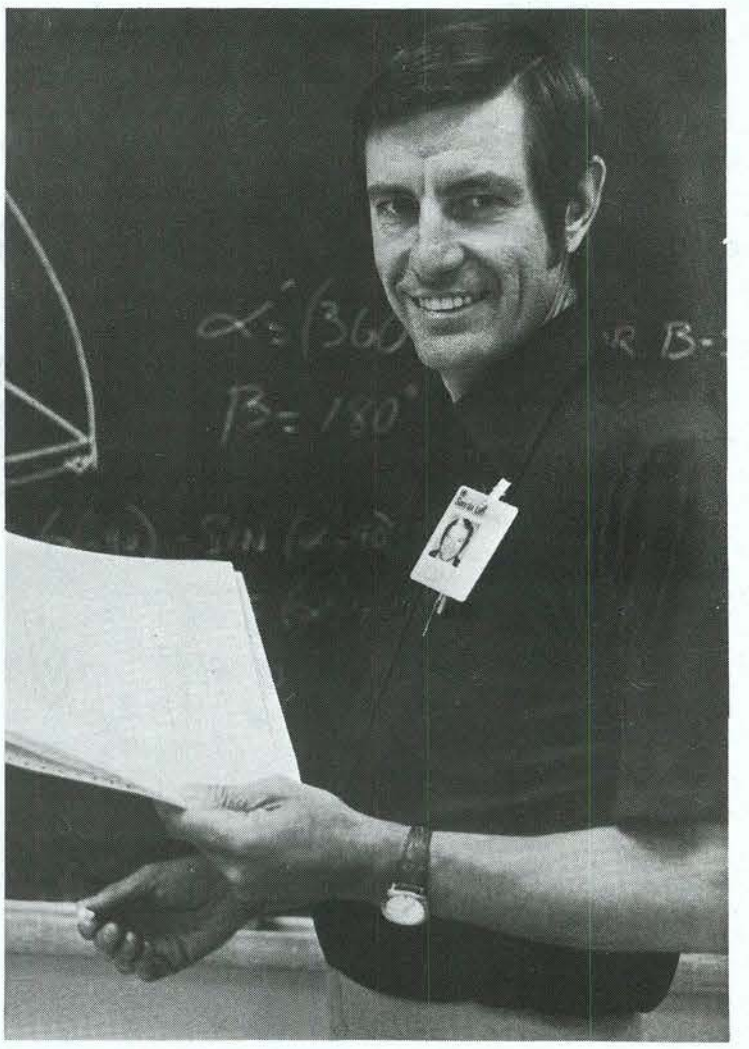
Ivan Gillett - 1211 20

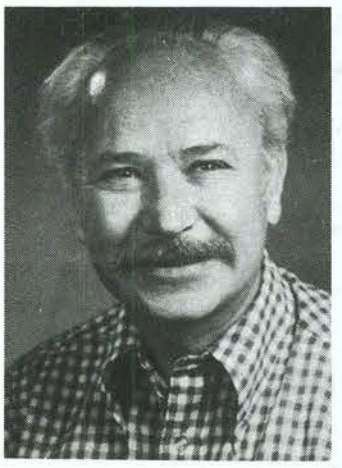


Walt Ghio - 8432 10

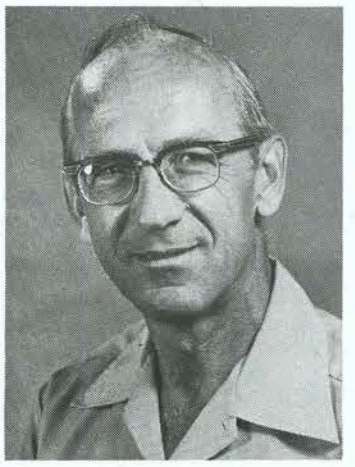
Robert Summers - 9526 25

Kay Scranton - 1116 25

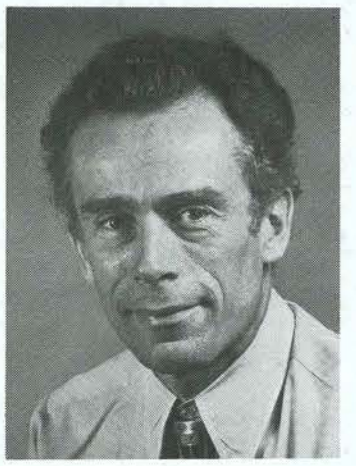




Thomas McKinney - 9532 25



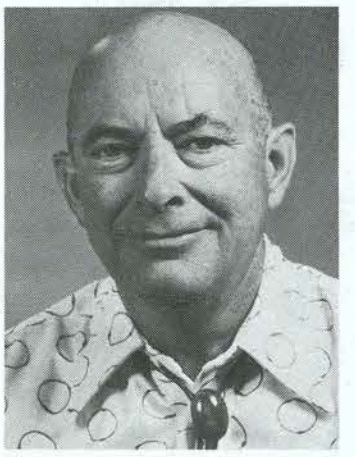
Paul Bailey - 5121 15



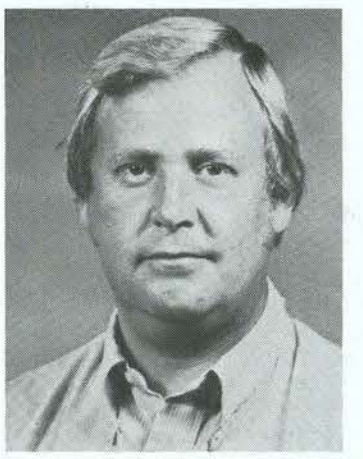
Paul Souder - 4362 20

Marv Bauder - 9424 20

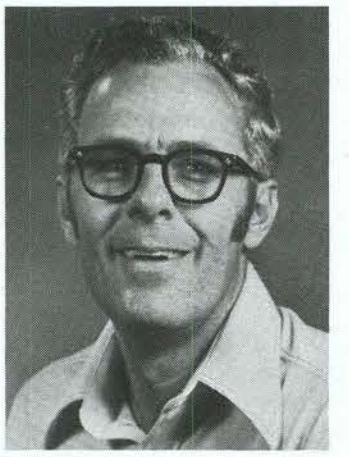
Syl Tafoya - 9332 10



John Moore - 4211 20



Samuel Bolin - 2135 10



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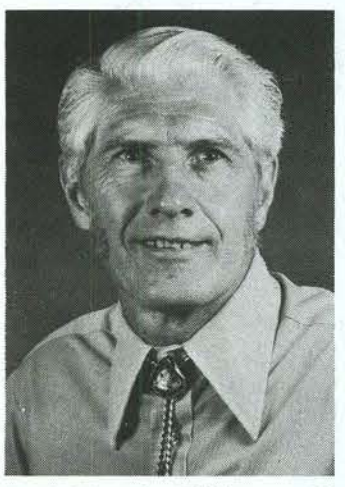

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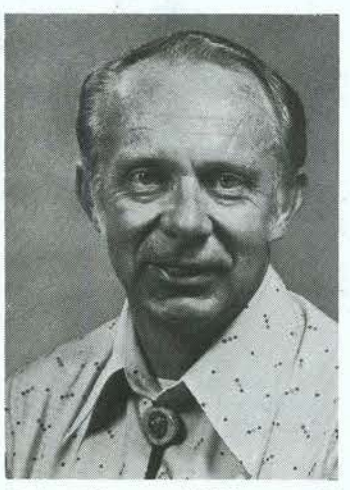

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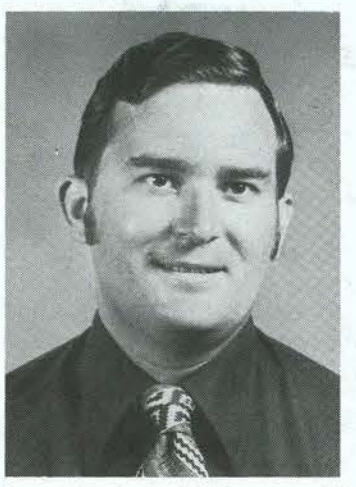

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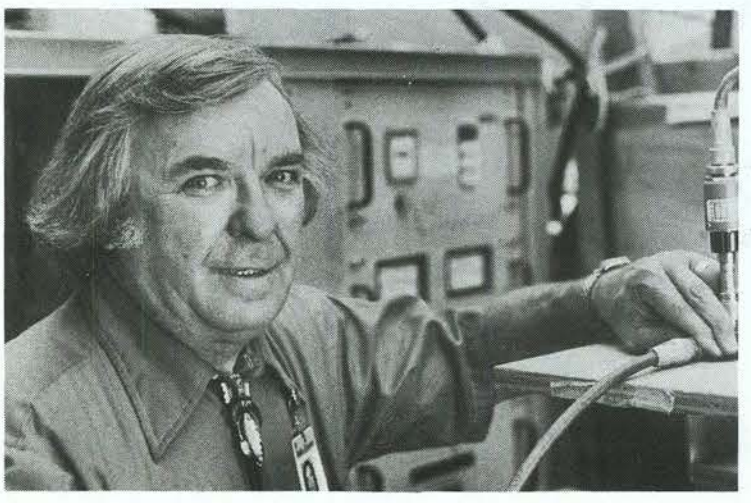

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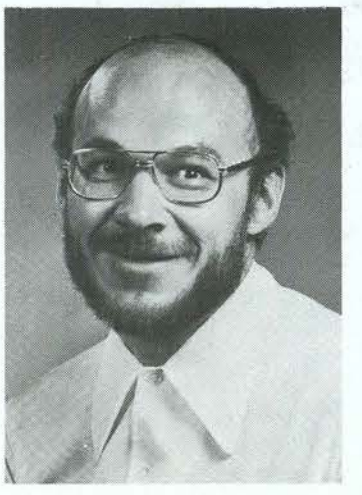

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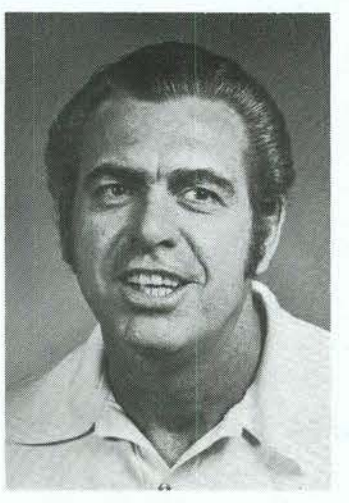

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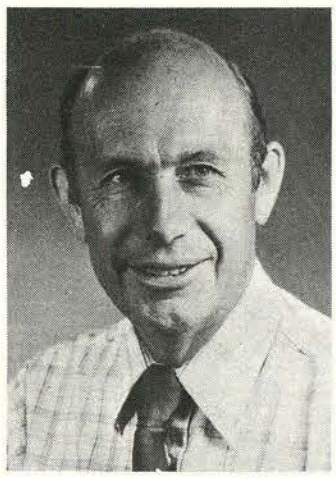

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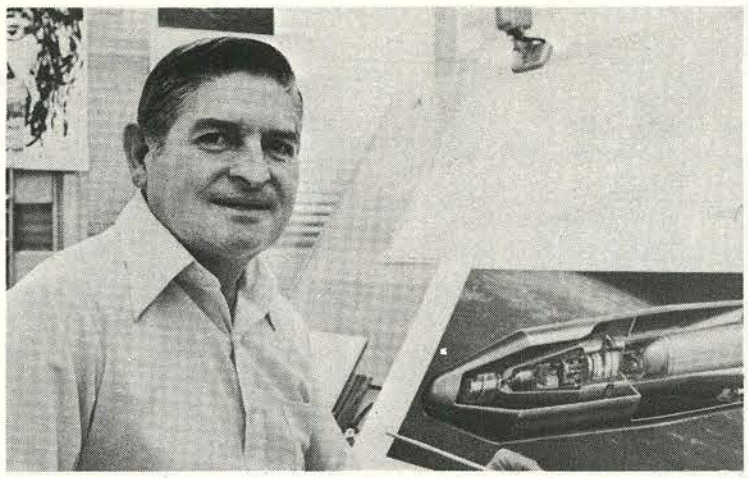

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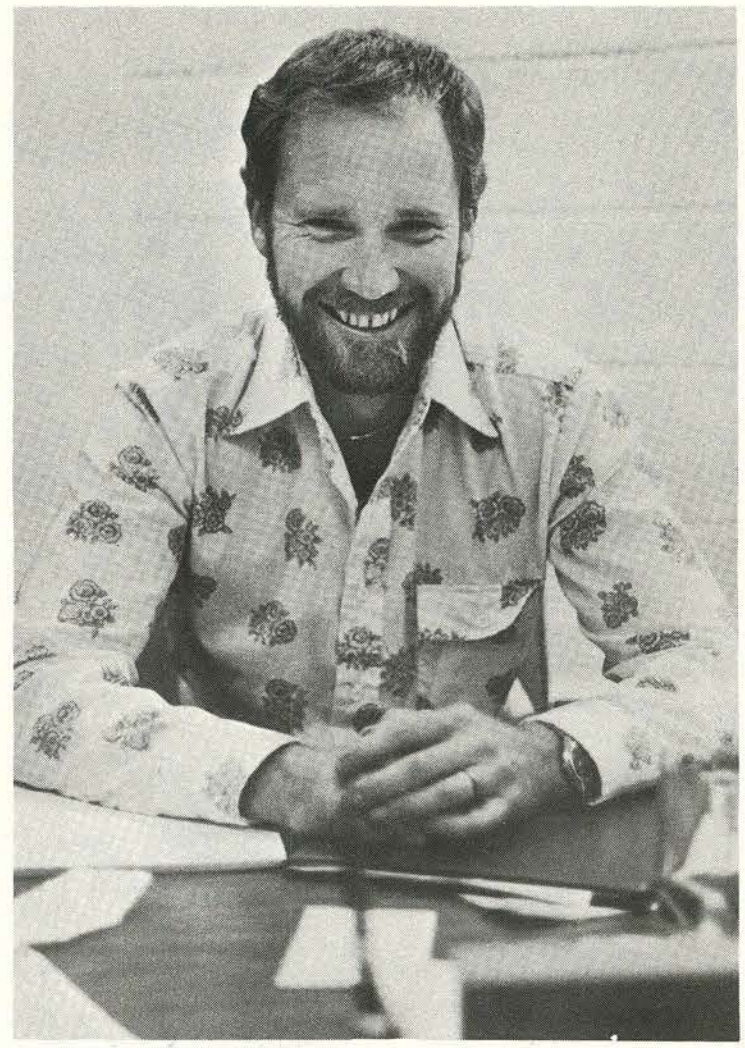

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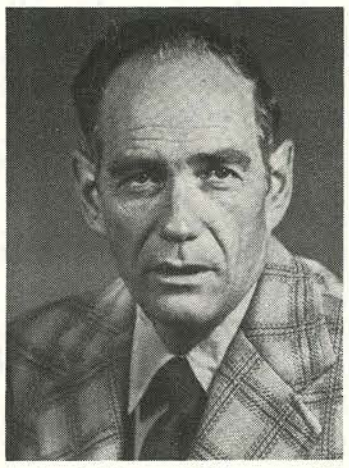

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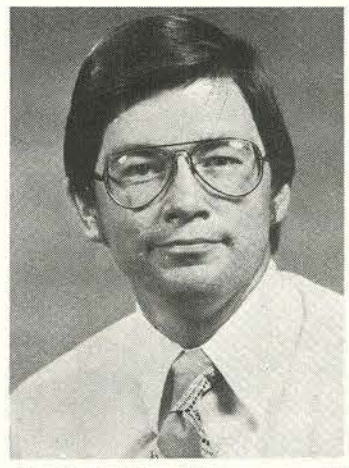

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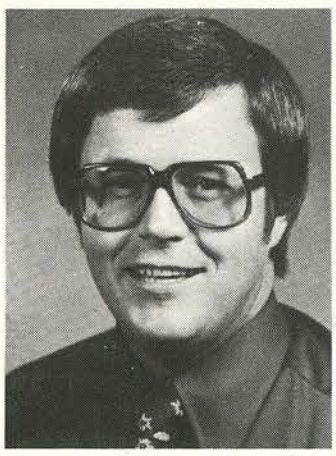

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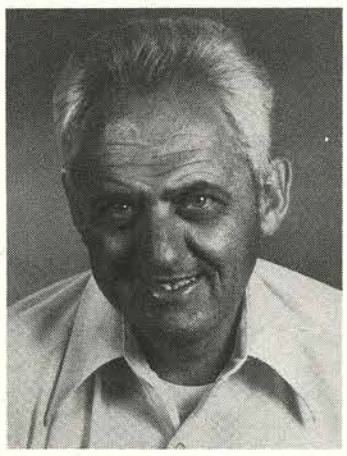

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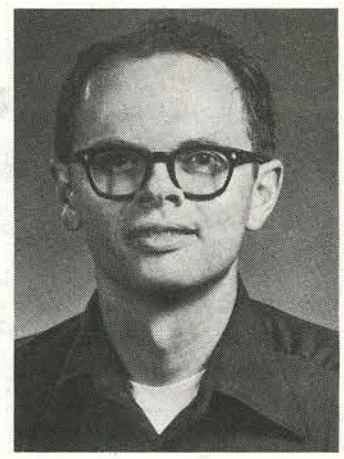

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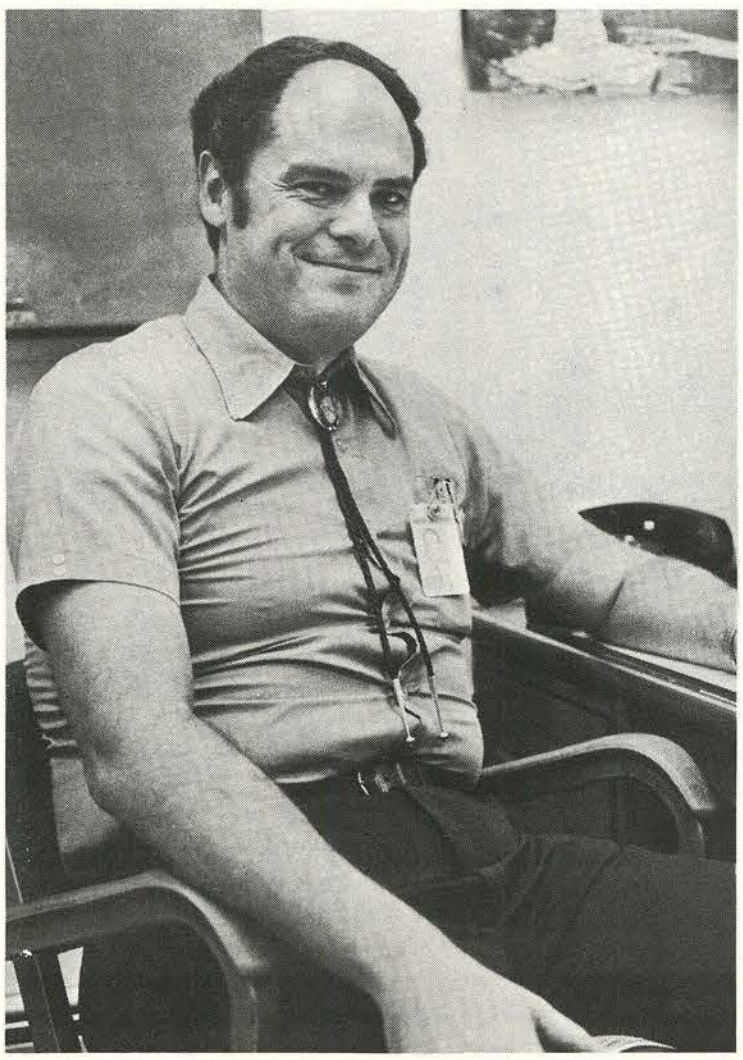

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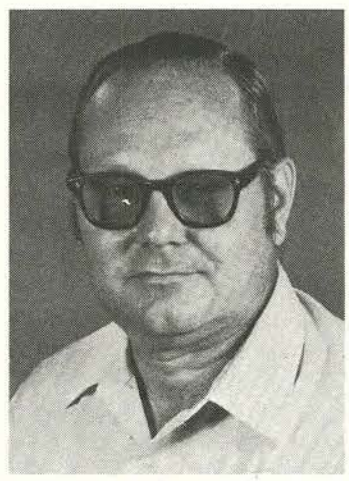

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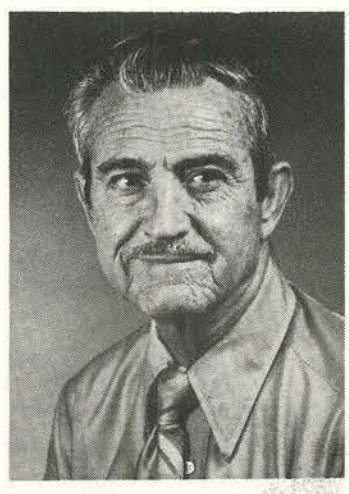

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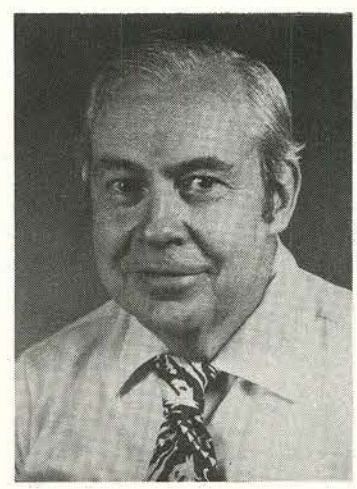

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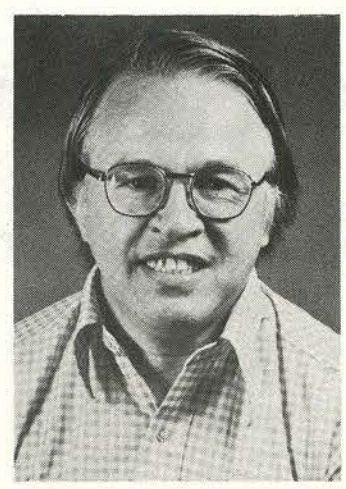

Harry Pike - 2135 20

Authors

J.M. Hoffman (5212), A.K. Hays (5215) and G.C. Tisone (5212), "High-Power UV Noble-Gas-Halide Lasers," Vol. 28, No. 9, APPLIED PHYSICS LETTERS.

W.E. Warren (5121), "Low Frequency Radiation from a Finite Flat Plate Into An Acoustic Fluid," Vol. 24, No. 1-2, ACTA MECHANICA.

P.J. Feibelman (5151) and E.J. McGuire (5211), "Tight-Binding Calculations of a Core-Valance-Valence Auger Line Shape: Si(111)," Vol. 36, No. 19, PHYSICAL REVIEW LETTERS.

B. Morosin (5154), "The Crystal Structure of the Semiconducting Form of N-Methylphenazinium 7, 7, 8, 8-Tetracyanoquinodimethanide," and "The Crystal Structure of Copper(II) Tetraammine Nitrate," Vol. 32, Part 4, ACTA CRYSTALLOGRAPHICA.

H.J. Stein (5112), "Hydrogen Content and Annealing of Memory Quality Silicon-Oxynitride Films," Vol. 5, No. 2, JOURNAL OF ELECTRONIC MATERIALS.

M. Buttram (5245), H.B. Crawley and D.W. Duke, "Observation of S* Production at 1.98 GeV/C," Vol. 13, No. 5, PHYSICAL REVIEW D.

D.F. Cowgill (2553) and R.E. Norberg, "Pulsed NMR Studies of Self-Diffusion and Defect Structure in Liquid and Solid Krypton," Vol. 13, No. 7, PHYSICAL REVIEW B.

P.H. Holloway (5825) and H.J. Stein (5112), "Quantitative Detection of Oxygen in Silicon Nitride on Silicon," Vol. 123, No. 5, JOURNAL OF THE ELECTROCHEMICAL SOCIETY.

R.T. Johnson (5155), R.M. Biefeld (5154), M.L. Knotek (5155) and B. Morosin (5154), "Ionic Conductivity in Solid Electrolytes Based on Lithium Aluminosilicate Glass and Glass-Ceramics," Vol. 123, No. 5, JOURNAL OF THE ELECTROCHEMICAL SOCIETY.

M.L. Knotek (5155), "Flash Desorption As a Surface Ion Spectroscopy for Solid Electrolytes," Vol. 123, No. 5, JOURNAL OF THE ELECTROCHEMICAL SOCIETY.

R.B. Pettit (5842), and J. Silcox, "Film Structure and Enhanced Super-conductivity in Evaporated Aluminum Films," Vol. 13, No. 7, PHYSICAL REVIEW B.

N.R. Armstrong (Michigan SU), R.K. Quinn (2516) and N.E. Vanderborgh (UNM), "Heterogeneous Charge Transfer Rates of Ferrocene Exidation in Sulfolane," Vol. 123, No. 5, JOURNAL OF THE ELECTROCHEMICAL SOCIETY.

S.E. Benzley (1282) and S.W. Key (1281), "Dynamic Response of Membranes with Finite Elements," Vol. 102, No. EM3, JOURNAL OF ENGINEERING MECHANICS.

T.A. Green (5261), "Configuration Interaction Studies of the HeH^+ Molecular Ion. III. Singlet Pi and Delta States," Vol. 46, No. 10, THE JOURNAL OF CHEMICAL PHYSICS.

A.K. Hays (5215), J.M. Hoffman and G.C. Tisone (both 5212), "Molecular-Iodine Laser," Vol. 39, No. 2, CHEMICAL PHYSICS LETTERS.

J. Lipkin and M.E. Kipp (both 5162), "Wave Structure Measurement and Analysis in Hypervelocity Impact Experiments," Vol. 47, No. 5, JOURNAL OF APPLIED PHYSICS.

T.H. Martin and R.S. Clark (both 5245), "Pulsed Microsecond High-Energy Electron Beam Accelerator, Vol. 47, No. 4, THE REVIEW OF SCIENTIFIC INSTRUMENTS.

D.E. Munson (5162) and R.P. May (8254), "Interior Ballistics of a Two-Stage Light Gas Gun Using Velocity Interferometry," Vol. 14, No. 2, AIAA JOURNAL.

K.K. Murata (5151), "Exponents for Sound Attenuation Near Critical Points in Solids," Vol. 13, No. 9, PHYSICAL REVIEW B.

S.M. Myers (5111), D.E. Amos (5122) and D.K. Brice (5111), "Modeling of Enhanced Irradiation," Vol. 47, No. 5, JOURNAL OF APPLIED PHYSICS.

P.S. Peercy (5132), "Effect of Deuteration on the Coupled Modes in KH_2PO_4," Vol. 13, No. 9, PHYSICAL REVIEW B.

J.J. Ramirez (5245), "Effect of Electrode Surface Conditions on the Self-Breakdown Strength and Jitter of a High-Pressure Pulsed Gas Switch," Vol. 47, No. 5, JOURNAL OF APPLIED PHYSICS.

J.P. VanDevender (5245), "Interaction of a High-Current Relativistic Electron Beam with a Dense Plasma," Vol. 47, No. 5, JOURNAL OF APPLIED PHYSICS.

A. Narath (5000), "Static and Dynamic Magnetic Properties of a Localized Moment: NMR of ^{59}Co in Dilute *Mo*Co and *W*Co Alloys," Vol. 13, No. 9, PHYSICAL REVIEW B.

W.J. Camp and J.P. Van Dyke (both 5151), "Confluent Corrections to Scaling in the Isotropic Heisenberg Model," Vol. 9, No. 5, JOURNAL OF PHYSICS.

G.R. Hadley, T.P. Wright and A.V. Farnsworth (all 5241), "Finite-Temperature Relativistic Fluid Equations and Scaling of High-Current Beams," Vol. 13, No. 5, PHYSICAL REVIEW A.

THE SANDIA CPS's: D. Ann Streater (1240), Bobbi Voelker (4200), Helen Walsh (5800), Jean Langston (4213), June Rugh (4213), Marla Kist (1716), Rachel Jackson (5100), Etta Moore (3431), Esther Coffman (5821), Virginia Podvin (1285), Betty Pickel (3700), Wanda Whitham (5245), and Jo Hanna (3224). Not shown: Barbara Champion (1710) and Winifred Sandusky (6000).

Secretarial Achievement

15 Sandians Now CPS's

Sandia now has 15 Certified Professional Secretaries (CPS's). "What's so special about a secretary who's a CPS?" you say. Read on.

For one thing, they've proved they're well educated — not just for typing, filing, and stenographic tasks but also in areas such as:

1) The principles of human relations and understanding of self, peers, subordinates, and supervisors; the fundamentals of one's own needs and motivations; nature of conflict; problem-solving techniques; essentials of supervision and communication; leadership styles; and understanding of the informal organization;

2) Major elements of business law - agency and sales; insurance; negotiable instruments; real property; and government regulatory legislation;

3) Applied economics; principles of management; elements of business operation; management of personnel, finances, production, and marketing;

4) Principles of financial and managerial accounting; analysis and interpretation of financial reports and statistical data; and

5) Administrative know-how; basic concepts of current secretarial procedures and office and records management; business data processing.

With that kind of background, the CPS brings a competence to the job, secretarial or otherwise, that benefits both the person and the company.

On the personal side, passing the CPS exam means greater self-confidence, more job satisfaction, and an increased desire to continue up the educational ladder. June Rugh (4213) and Marla Kist (1716) earned their CPS ratings in May. Says June, "The studying involved in preparing for the exam was hard work, of course, but it gave me a much clearer view of what makes a large organization, such as Sandia, work. And passing the exam gave me personal satisfaction. That satisfaction, I think, carries over to the job — I feel I have the knowledge and incentive it takes to get the most out of — and give the most to — the job."

The first Sandians to earn the CPS rating are Jo Hanna (3224) and Betty Pickel (3700). "I passed the CPS exam 16 years ago," says Betty, "but it's valuable at any point in your career."

Sandia management is becoming increasingly aware that the company benefits when its secretaries work toward the CPS rating. When job knowledge, performance, productivity, and attitudes are improved, the immediate organization benefits and, thus, the entire company.

That's why Sandia management supports the CPS program. Bob Edelman, Director of Personnel 4200, puts it this way:

> *Secretaries are a vital human resource at Sandia. The company is interested in assisting secretaries to improve their skills and to become more productive employees. The CPS represents significant achievement in skills and professionalism. I encourage interested employees to investigate the CPS program.*

Sandia assists anyone wishing to pursue the CPS program by offering several courses useful in preparing for the exam (see *Weekly Bulletin* dated Aug. 5, 1976). In addition, the Education and Training Department 4230 is prepared to offer additional courses as the need arises. And, if the proper approvals are obtained in advance, Sandia will reimburse tuition fees for the two CPS Review courses available through UNM's Community College. Finally, beginning this year, an employee will be reimbursed for the exam fee following certification. And the test date will be a paid absence.

More information on the CPS program is available from Bobbi Voelker (4200) or June Rugh (4213).

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ADMINISTRATOR

JULY 4, 1976

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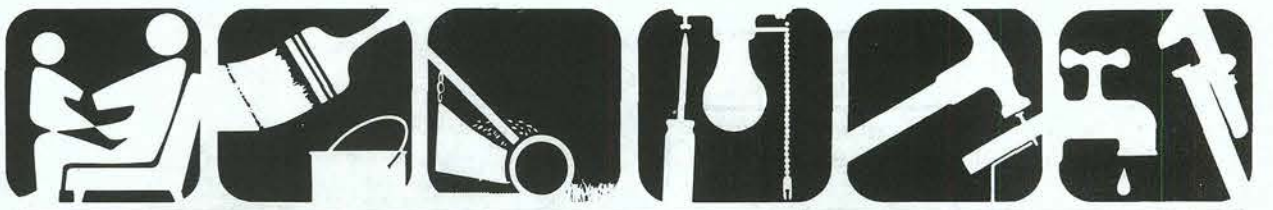
The Albuquerque Operations Office of ERDA falls under the AA for Field Operations.



HIRE THE RETIRED

Retiree job service..... LAB NEWS Bldg. 814, Rm 6

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.

RULES

1. **Limit 20 words.**
2. **One ad per issue per category.**
3. **Must be submitted in writing.**
4. **Use home telephone numbers.**
5. **For Sandia Laboratories and ERDA 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

1957 - 1964 OLDS OR PONTIAC rearend, pumpkin complete, ratio 4.88 to 1.00, 2500 street miles, $75. Marchi, 299-3653.

CRIB, full size, maple, w/mattress, $16. Rainhart, 821-3690.

TIRES: w/w, 2 Atlas E78x15, 5/32 tread left, $5 ea.; 2 Atlas F78x15, 9/32 tread, $8 ea. Caskey, 294-3218.

GM Love Seats; stroller; portable tot gate; men's ski boots, 10½. Gauster, 293-8612.

LARGE Fred Lucas Western scene oil painting, $1500 or trade for clean ½-ton pickup of equal value. Thomas, 293-9626.

SAVAGE model 10 32 cal. auto. w/holster, Burr hammer, $75. Myers, 299-2249.

WIN LOWALL, Rem. 600, Siamese Mauser, Tasco 6-18X scope, Long Mark X action; Stevens 16 ga., B.P. cal. 44 revolver. Schalles, 281-3035.

8' CAMPER, Tiltin Hiltin, 4 jacks (bolted). Baca, 877-1136.

KODAK chemical scales, .1 gram to 125 grams w/2 pans & weights, $4.50. Henry, 266-6467.

STUDENT desk lamp, indirect lighting, 22" high, large shade 17" across, $10. DeLollis, 299-5384.

CARPET, sculptured, green, 10'9" x 14'4", 2 odd pieces & padding pieces included, $50. Hlava, 265-4178.

120 BASS ACCORDION w/case; sewing machine. Johnson, 344-9369.

240Z EXHAUST SYSTEM (Manifold exhaust pipe resonator muffler tailpipe), $30; dog house, 30x40", $15; sink, vanity top, $10. Lassiter, 298-2461.

TRAMPOLINE, 6'x12' pad, $250. Oberst, 299-1224.

5 METAL folding chairs, $5 ea.; desk chair, $10. Smith, 299-7151.

CARPET, gold nylon w/pad & runner, 14'x9½', almost new, $90. Dale, 296-3094.

DRAKE T-4X, R-4A, MS-4/AC-3, L-4B, MN-2000, TV-1000-LP, TR-4, & MS-4/AC-4. Crammond, 298-2660.

WALNUT dining set, 2 leaves, 6 chairs, pads, hutch; 54" terrazzo coffee table; black vinyl arm chair. Levy, 821-2294.

FREE: 3 introductory Sq. dance lessons, Swingin' Singles, beginning Sept. 7, 7 p.m., Highland High cafeteria. Fischer, 881-9786.

TAPE DECKS: Roberts 1740X cross-field stereo, single motor, 3-spd., $150; Ampex FR-100A 7-track, 6-spd., ½ inch tape, $300. Kobs, 298-9133.

GAS FURNACE, 15,000 BTU, dbl. wall panelray, $25; unicycle, small, $10. Jones, 881-8341.

SWIMMING POOL, sand filter, Sears ½hp, 10,500 gal. pool; never used, catalog price $169.95, sell for $85. Skogmo, 898-6013.

COLT M1903 pocket model 38 ACP, $110; S&W 38-44 HD revolver, $175; Crosman CO_2 pistol & target, $40. Parks, 293-9598.

COUCH, Med. style, solid oak frame w/reversible cushions, $70; Stratolounger, green vinyl. Lawrence, 266-7226.

BEDROOM FURNITURE, sofas, chairs, dining sets, misc. Aug. 21 and 22, 9-5, 3200 Christine NE. Whitham, 836-1216.

INCLINE BENCH & weight set; 14" chrome wheels, Chevy; 4:50"x18" knobby tire. Ward, 256-0574.

LADIES solitaire diamond ring, ½ carat in 14K gold mounting, have appraisal, make offer. Randall, 821-0388.

8' PLAYBOY cab-over camper; butane stove, ice box, porta potty, 20-gal. water tank, $700. Treharn, 877-2163.

REFRIGERATOR, frost free, 2-dr. Whirlpool, $225; GE washer, $50; Sears 220V elec. dryer, $50. Duvall, 883-3735.

METAL TRUNK, 18"x32"x20" high, $10. Rowe, 883-3845.

GOLF CLUBS: McGregor tourney irons 2-9, putter, bag, $30. Harley, 898-0594.

TWO utility boxes, UTILCO body, designed for pickup body mounting, 72x16x12 & 42x-16x12, $150. Roehrig, 821-6855.

SHOTGUN, Remington Wingmaster, 16ga. pump action, Herters adjustable choke, $80. Holmes, 292-0898.

POOL TABLE, Spalding-Fisher, ¾" slate bed, accessories, $800. Johnson, 299-4689.

KITCHEN STOOLS, 24", chrome legs, wood back, 4 for $25; Coleman catalytic heater, 3-5000 BTU, $10; infant bed rail, $3. Thompson, 296-2235.

ELECTROPHONIC stereo console, BSR turntable, AM/FM, 8-track player/recorder, 4CH., 4 mos. old, $250. Bahlman, 298-7819.

BUMPER CARRIER for trail 90 motorcycle, $15; motorcycle helmet, size small, new $39, sell for $25, used twice. Wilkinson, 299-8327.

16.5 X 9.75 8-bolt Jackman wheels, power steering f250 4x4, B&D radial arm saw; Craftsman air compressor; Ford Mallory distributor. Campbell, 268-5750.

GIBSON 16 cu. ft. freezer, capacity 560 lbs. on 16.5 sq. ft. shelf area, $250; beige colored reclining chair, $20. Bunce, 821-5337.

BAGBOY deluxe golfcart, $40; swag lamps, 2 for $10; 5'x7' area rug, $30; 8½ ski boots, $5; drapes, 96"x60", $20. Chandler, 296-3323.

AKC English Springer Spaniel pups. Bolton, 265-5444.

ZIG-ZAG sewing machine w/-cabinet, $75. Fiske, 292-0747 after 5.

TRAVEL TRAILER, '73 Vacationeer, 20', tandem axles, sleeps 6, AC, has everything. Washington, 293-2237.

TRAVEL TRAILER, '73 Twilight Bungalow, 21' self contained, 9100 LaBaranca NE, Guth, 298-3548.

ELECTRIC FIREPLACE, 240V, 20,000 BTU, blower, rotating log gives fire effect, sliding screen, off-white top, black bottom, $300. Pennington, 256-9506.

CONSOLE PIANO w/bench, Behning of N.Y., mahogany solid wood sounding board, will deliver, $500. McIlroy, 8806 Aztec NE, 299-4977 or 296-7275.

CAMPER SHELL, paneled, for a short step side pickup, $125. Garcia, 243-3473.

UTILITY TRAILER, $60 or best offer; Hide-a-bed, needs upholstering, $100. Erne, 299-0565.

'73 ROADRUNNER trailer, 17', heater, oven, icebox, used twice, $2000; motorcycle trailer, 2-wheel, used 5 times, $150. Schultheis, 842-1298.

WOOD/COAL burning kitchen range, warming oven, reservoir, $300 or best offer. Copeland, 344-1133 after this weekend.

TRANSPORTATION

'70 PONTIAC Le Mans, PB, PS, AC, R&H, 4-dr., 350 cu. in. engine, below book. Zucuskie, 881-4086.

'73 F-100 FORD pickup, AT, PB, PS, AM radio, 8-track stereo, $2500. Cherino, 865-9588.

'74 VEGA, low mileage, extras, priced near book. Hart, 265-2221 after 5.

'70 PLYMOUTH Barracuda Gran coupe, many options including AC & factory installed tape player. Prevender, 299-5253.

'73 DATSUN pickup, low mileage, new tires, FM stereo, insulated shell, 4 extra tires & rims, all or part. McHarney, 265-2032.

'73 YAMAHA DT-250 street/dirt motorcycle, 3000 miles, $525 or best offer. Chapman, 292-2800.

SKI BOAT, 18' Silverline, 150 HP 1/0 Mercruiser, deep V, great in heavy sea, $3595. Gardner, 344-2547.

'68 SUZUKI XL scrambler 250, disassembled, $35. Tischhauser, 293-9768.

'67 FORD stn. wgn., radial tires, PS, PB, AT, AC, radio, $650 firm. Cranfill, 298-3194.

26" COLUMBIA bicycle, new tires, thorn proof tubes, $35. Smith, 299-7151.

'74 DATSUN 260Z, new radials, low mileage, below book, orange, black interior. Clarkson, 294-5834 after 5.

'70 PONTIAC Le Mans sport coupe, one owner, loaded, new steel belted tires, $300 under book. Lewis, 296-7896.

'74 TOYOTA 5-spd. Celica GT, PB, AC, 22,000 miles, new steel-belted radials, $3700. Marcrum, 293-5198.

'73 BMW R75/5, low mileage, fairing, Krauser luggage, lg. tank, crash bar, custom backrest. West, 255-5855.

'67 CHRYSLER Newport, 4-dr., 6 new tires, new battery. Kindschi, 256-0531.

'71 HONDA CB350, low mileage, luggage rack, shop manual, $550. Kefauver, 296-3547.

'74 MUSTANG II, AT 2.3 litres, AM/FM/tape, below book, $2600. Mattox, 296-4149.

GO-KART, 4/wheel brakes, elec. starter/battery, $350. Simpson, 293-7923 after 6.

SAILBOAT: Aquarius 23', new sails, roller furling, custom trailer, galley, head, 6HP Evinrude, sleeps 5, new price $3995. Allen, 296-6453.

'74 HUSQVARNA W.R. 6-spd. Ward, 256-0574.

'72 TOYOTA Celica 4-spd., blue w/white vinyl top, white interior, orig. owner. Fisher, 268-6633.

'70 FIREBIRD Espirit, new steel belted radials, lifetime battery, shocks, vinyl top, AC, PS, AT, PB, extras. Atkins, 298-5762.

'66 CHRYSLER stn. wgn. Scully, 299-1083.

'66 CHRYSLER Newport, 4-dr., PS, PB, AC, $295. Boveric, 255-1071.

SCHWINN Continental 10-spd. bicycle, 23" frame, 27" rims, $79. Thompson, 296-2235.

'64 HONDA 90 motorcycle, $100 as is; '69 Subaru sedan, white, front-wheel-drive, $600. Chandler, 296-3323.

'72 HARLEY DAVIDSON Sportster, SLCH, 16,000 miles, 1000cc, 63hp, best offer or trade. Weber, 266-9100.

REAL ESTATE

20 ACRES 5 miles south of Moriarty, 5" well, water at 55', electricity, $600/acre. Curry, 881-2061.

TWO adjacent lots in Bosque Farms: 1 & 2½ acres, utilities to both lots, paved road, presently in alfalfa, $8000/acre. Cooper, 869-2198.

4-BDR. brick, near Sandia High, den, 2½ baths, 2 fireplaces, lg. lot, children's pool, many deluxe extras, 2816 Penn NE, 2300 sq. ft. Browne, 294-6165 or 881-3772.

FOR RENT

4-BDR. HOUSE, walled-in yard, available Aug. 23, $299/mo. Dodson, 416 Rhode Island SE, 898-7144 after 6.

3-BDR. & DEN house, 1¾ baths, NE heights, $300/mo. plus deposit, yr. lease, avail. Sept. 1. Whitham, 836-1216.

3-BDR. HOUSE, 1¾ baths, carpet, drapes, lawn, near Winrock, Coronado, bus; $325/mo. & deposit. Brown, 299-5360.

LAKE FRONT CABIN, Vallecito Lake, 3-bdr., furnished, fp, sleeps 8, fishing, hiking, horseback riding, $30/night, $180/week, reservations. Croll, 881-7235.

WANTED

CARPOOLERS to share riding/driving from area east of Wyoming, north of San Antonio. Murphy, 4-3043, 4-5347, 821-7785.

LEITZ 28mm f2.8 Elmarit lens w/serial number greater than 2314921; to borrow Oct. 21, 1963 *Sports Illustrated* magazine. Mattox, 296-4149.

SET of encyclopedia, used but in good condition. Hymer, 298-2232 after Aug. 28.

FIFTH car pool member to fill retirement vacancy, vicinity Eubank & Menaul. Newman, 299-2729.

292 CHEVY ENGINE, any reasonable condition. Chavez, 296-2590.

UNUSUAL brands of beer cans. Chandler, 296-3323.

LOST AND FOUND

LOST — Carpenter's 18-oz. rip hammer w/clear handle; black-rimmed bi-focal safety glasses in black case, initials "PAS" on ear-piece; dark blue one-piece swimsuit.

FOUND — Sandia chrome pencil; 4 keys on metal ring; Kodachrome slide (camper); silver ring w/2 mother-of-pearl stones; small gold maple leaf with "Canada" embossed. LOST AND FOUND, Bldg. 832, 4-1675.

• CANARIES • C-CLUB • CHAVEZ • COUNTRY COMFORT • KNOCKWURST •

FRIDAY	SATURDAY
20 — HAPPY HOUR ROAST BEEF BUFFET Adults $3.25 Under 12 1.92 *Al McCahon* MIDKNIGHT SPECIAL	21 — BEACHCOMBERS BALL *Cocktails & Oysters @ 6* *Dinner @ 6:30* ERNIE & THE SAINTS Mbrs $6 Guests $6.50
27 — HAPPY HOUR GERMAN BUFFET Adults $3.25 Under 12 1.92 SOL CHAVEZ *Denny in Lounge*	28 — NOTHING WHATEVER To Do — *Do It At The Club*

MY — roast-beef-with-Al-McCahon-loving friends are ecstatic. Tonight they don't have to wait for Al later in the Lounge, and they don't have to pick up their roast beef, baked potatoes with sour cream, mixed vegetables, and beaucoup salads and then watch it all moulder until time for Al. That's because tonight Al is on from 6:30 to 8:30. For the dance, it's *Midknight Special.*

FIXED — up your costume for the Beachcomber's Ball tomorrow night? Got your tickets? Then only enjoyment lies ahead. (No, you don't *have* to eat the raw oysters. There are those of us who will help you keep them from going to waste.)

AND — mark next Friday's calendar with a Deutschmark or two. It's a German buffet with sauerbraten, knockwurst, sauerkraut, hot potato salad, other good stuff. *Sol Chavez* returns to the bandstand. And then (later in the Lounge) it's Denny, who just discovered syntax. Now he's trying to get Payroll to take out withholding.

UNYIELDING — deadline: Aug. 23 (that's Monday) for the Canary Islands trip package. Beautiful scenery out of North Africa, beautiful culture out of Spain, beautiful bodies out of Scandanavia and the British Isles. But sign up *now.*

CAVORTING IN THE KIDDIE POOL are the 1976 National Junior Olympic Water Polo Champions: Kim Jefferson, Rhonda Rozelle, Janet Dick, Kristin Schultz, Mary Benson, Sue Scott, Lisa Gerber, Val Davis, Michelle Dana and Cindy Hock. Coach is Reed Barnitz.

PRINCIPLE — of pleasure for Lobo sports spectators: follow the team out of town. Wolfpack travel packages make it easy. For example, call Nancy Sanchez (4-6443) to sign up for the El Paso trip to the UTEP game. The whole package, which includes transportation and lots more than football, costs only $66 (dbl. occ.) (deduct $10 if you're a Wolfpacker). It's Sept. 17-19, you stay at the Holiday Inn downtown, and sign up now!

NUMBER ONE - in the nation: that's our Coronado Aquatics Club Girls' Jr. Olympic Water Polo Team. And our Mary Benson was elected MVP. Don't knock the boys' team either — they came in second against some tough competition.

IS — your favorite kid a prospective bowler? Is he or she 15 or under as of Aug. 1, 1976? Is she or he a child of a Coronado Club member? Can he or she find the San Mateo Lanes (where competition will begin Sept. 11)? If so, truck her/him off to the C-Club Jr. Bowlers Organizational Meeting on Aug. 25 at 7:30. More info from Ciss Kelly at 255-8011.

ALWAYS — before, Labor Day has been Pool Closing Day. Not this year. Oh, we'll have a great Labor Day Get-together on the 6th from 11 to 6 with *Country Comfort,* 20¢ beer, other good stuff — including free swimming for any Club member. But the pools will be open weekends through September (if weather and attendance cooperate).

BE — cosmopolitan. Try an Irish whiskey highball, this week's DOW. Next week, go German with Lowenbrau.

TOTALLY — engrossing. That's Maxwell and Company, the magic act at Variety Night on Sept. 4. Totally entertaining. That's Disney's animated *Robin Hood,* the movie following the magic.

FLEXIBLE — old favorite *Satin Flame* returns to set the Teen Dance afire at 7:30 on the 26th. Parents, pick up tickets at the door or beforehand, please.

MORE INFO — 265-6791.

SANDIANS ARE REMINDED that they are authorized to voucher only the least expensive form of public transportation available while on travel status. (Actually this photo was discovered in a book returned to the Tech Library. Identify someone in it and it's yours; call 4-7841.)