



SANDIA'S Board of Directors held their annual meeting here on May 17. Seated, from left, are Donald Procknow, Joseph West, Donald Thomas, Sandia Pres. Morgan Sparks and Guy Accettura. Standing, James Herbert, Phillip Hogin and Sandia E-VP Jack Howard. Mr. Procknow is President of Western Electric.

New \$2 Million Drilling Projects Now at Labs

Four new projects funded at more than \$2 million are underway in Drilling Research Division 5735 under Max Newsom. Three of the projects are funded by ERDA's Division of Fossil Energy, and the fourth by the Division of Geothermal Energy.

Project engineer for the fossil energy projects is Charlie Huff. The projects are:

(1) *Hard surfaces for drill bits* — Applications of new hard surface materials, such as GE's diamond Compax, to drill bits will be investigated. A central problem is the bonding of the Compax to mounting studs. The program is being conducted cooperatively with GE and one or more drill bit companies yet to be selected.

(2) *Drilling fluid (mud) test equipment* — Test equipment to measure drilling fluid properties under high temperature and pressure will be designed and developed. Equipment design will be preceded by studies to learn exactly what factors — viscosity, flow properties, etc. — need to be measured to characterize mud degradation in deep oil and gas and geothermal drilling. This program is being conducted with Mud Tek Laboratories, Houston, Texas.

(3) *High temperature materials studies* — The effect of high temperature, pressure and corrosive environments on steels, elastomers

(Continued on Page Two)

LAB NEWS

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MAY 28, 1976

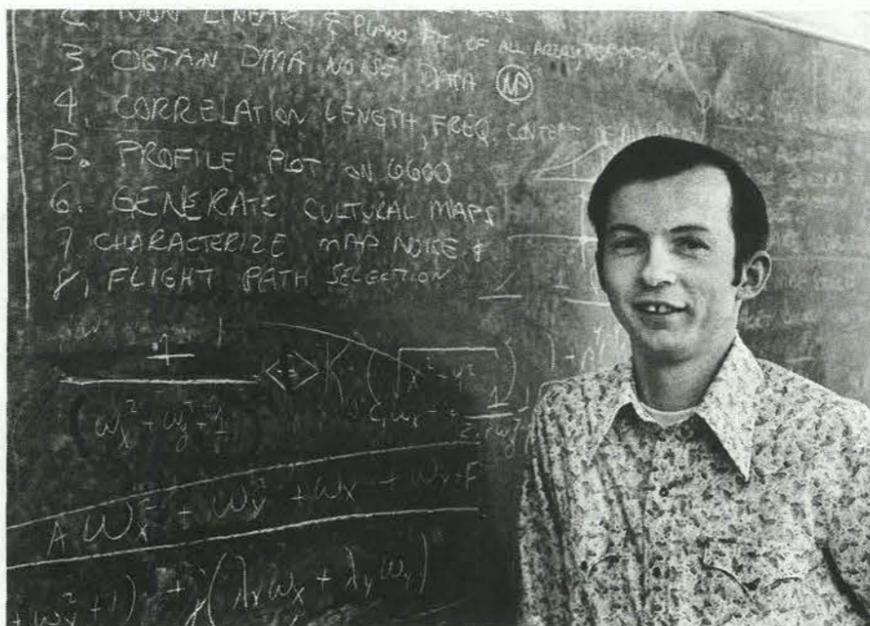
SANDIA LABORATORIES • ALBUQUERQUE NEW MEXICO • LIVERMORE CALIFORNIA • TONOPAH NEVADA

Sandia Developing New Guidance System

SITAN: it's not a new cough medicine, but rather the acronym for the Sandia Inertial Terrain-Aided Navigation system. SITAN is a new terrain-sensing guidance system that utilizes radar-derived topographical data to update an inertial navigational system (INS). Rather than taking discrete position fixes, as do similar terrain-guidance systems, SITAN operates continuously and guides a weapon system right up to its target.

Larry Hostetler of System Studies Division 1313 has performed much of the theoretical work for SITAN. "Results have been very encouraging," Larry reports. "Last fall, Exploratory Systems Division 1322 under Ron Andreas put together a breadboard SITAN and tested it aboard an aircraft over Sandia's Edgewood Test Site. The overall final error at the target was only 19 metres. It was a convincing demonstration of SITAN's potential."

The unique part of SITAN is a set of computer algorithms developed by Larry which continuously corrects errors in the inertial navigation system. Inertial systems



LARRY HOSTETLER (1313) did the theoretical work and programming for SITAN, a new concept in guidance systems.

are found in practically all navigation and missile guidance systems nowadays. The heart of the INS is several gyros (like children's spinning tops) and other motion sensing devices which enable the airplane, ship or missile to locate itself in "inertial space." Unfortunately, the INS — like a top will drift and thereby create errors in navigation.

Even with a perfect INS, there is another source of error. If an INS is started at, say, position A when in reality it was located at position B, the final error, if not corrected, will generally be greater than that

initial error. SITAN accommodates and solves both of these problems.

An example of the latter problem is when a pilot must launch a stand-off missile in bad weather or at night, when conditions of poor visibility make identification of the launch point difficult. With SITAN, features of the terrain along a pre-planned path from the launch point to the target are "memorized" by the system prior to the mission. The path can be many kilometres long and take any course — curved, zig-zag, etc. The missile is then launched near the memorized path and the INS is signaled that it is exactly at the planned launch point although in reality it isn't.

SITAN, employing a radar altimeter, immediately begins to compare the terrain features below with those in its memory, and makes appropriate course corrections. SITAN continues to make corrections throughout the flight as the missile maneuvers to avoid defenses and to seek out regions having desirable terrain characteristics. Computer simulations and field tests have shown that initial errors of hundreds of metres at launch can be reduced to tens of metres at the target using a relatively inexpensive INS.

Work on SITAN is centered in Systems Studies Division III 1313 under Tom Edrington and in Exploratory Systems Division II 1322 under Ron Andreas. Studies of the system continue and future flight tests are being planned. At its present stage of development, SITAN is a promising concept that has many potential weapon-systems applications.

Afterthoughts

Profit & loss (cont.)--The 802 bookstand thing has taken another turn. Last issue we reported the anonymous donation of \$100 to cover our ripoff losses. Now we have another handsome donation, \$50, from an equally anonymous source. The donor's note concludes: "Please see that the enclosed amount benefits our poor brothers and sisters on Highway 14..." We will, friend, we will.

* * *

Macho & motorcycles--Visiting Sandia Livermore last week, I was struck--really appalled--by the number of helmetless motorcycle riders one sees in California. In fact, the majority wear no helmets. This could be dismissed as simple asininity, but there's another dimension and it demonstrates the curious result that can arise from the efforts of well-intentioned law-makers. In the great helmet controversy, California riders raised such a ruckus that a proposed helmet law was defeated (not so here in New Mexico). But by drawing so much attention to the subject the helmet is now a Symbol: wear one and you're chicken, go without and you're a free, untrammled spirit whose daring is manifest. Very few men, especially young men, have the courage to show that they have more concern for sense than for a display of what passes for manhood, so off they go, helmetless. Given the frantic California traffic, their motorcycle casualty statistics must make grim reading. (Cycle riders: no angry notes, please. After 15 years on bikes I've concluded that those who question the wearing of a helmet probably still believe in the Good Fairy and the Easter Bunny.)

* * *

Strictly kosher--Happy birthday cablegram, from oldest son residing in Israel, found its way here though there must have been some head-scratching: Albogvergve.

* * *

Thoughts from a great creative writer--"I had grown up among engineers, and I could remember the engineers of the twenties very well indeed: their open, shining intellects, their free and gentle humor, their agility and breadth of thought, the ease with which they shifted from one engineering field to another, and for that matter, from technology to social concerns and art. Then, too, they personified good manners and delicacy of taste; well-bred speech that flowed evenly and was free of uncultured words; one of them might play a musical instrument, another dabble in painting; and their faces always bore a spiritual imprint..." --Aleksandr Solzhenitsyn *js

Continued from Page One

New \$2 Million Drilling Projects Now at Labs

and other materials used in borehole drilling will be investigated. These environmental conditions adversely affect bits, pipe, and tools, particularly hardware containing elastomer seals.

The project funded by the Geothermal Division calls for development of high temperature borehole instrumentation — logging truck and tools — for logging geothermal wells. Lyn Baker (5735) is project engineer. An advisory committee will determine what tools would be most useful to the geothermal well drilling industry. This program will be conducted in cooperation with well logging service companies.

A number of Sandia organizations will participate, primarily Departments 5810, 5820, 5830, 2320, 2110, 2130 and 2150.

These projects complement projects already underway to develop spark, chain and terra drilling bits. The hard surface drill bit program supplants existing development of a downhole replaceable bit.

Congratulations

Mr. and Mrs. James W. Hole (2326), a daughter, Kelly, May 19.

Mr. and Mrs. John D. Rupe (2326), a son, Gabriel, May 16.

PAGE TWO
LAB NEWS
MAY 28, 1976



Sympathy

To Russ Dietzel (2514) on the death of his mother in Jefferson City, Mo., May 17.

LAB NEWS

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john shunny is editor

&

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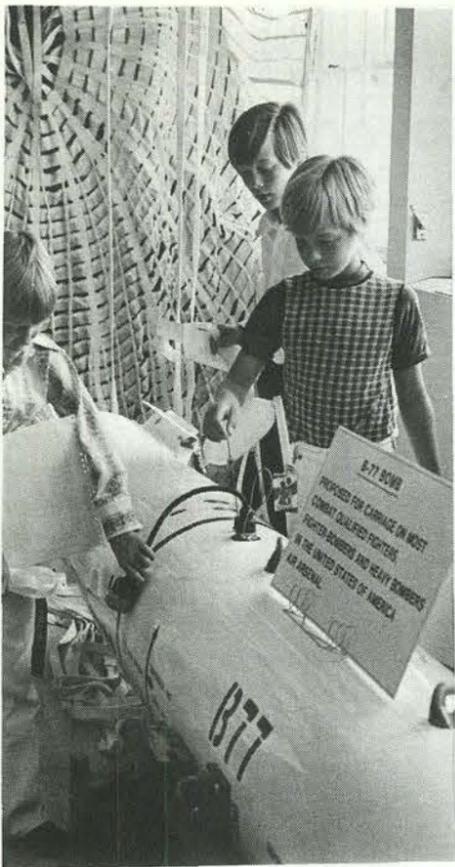
bruce hawkinson & norma taylor write
bill laskar does picture work

&

lorena schneider reports on livermore

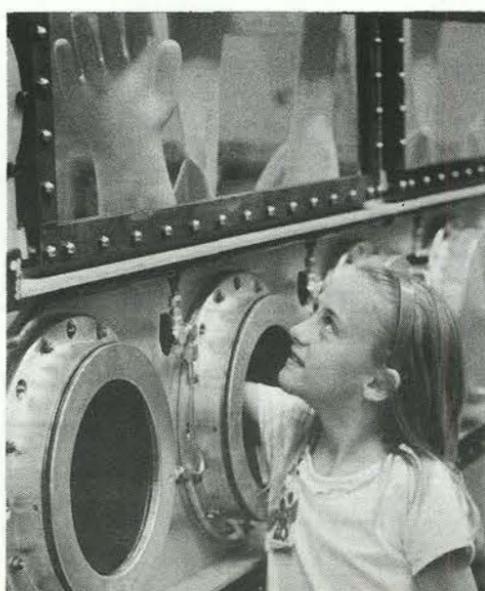
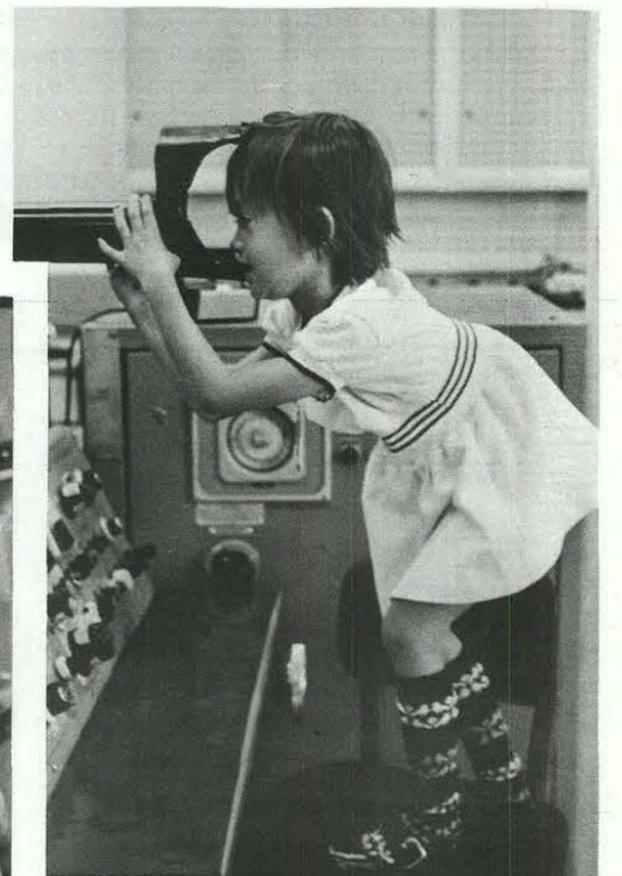
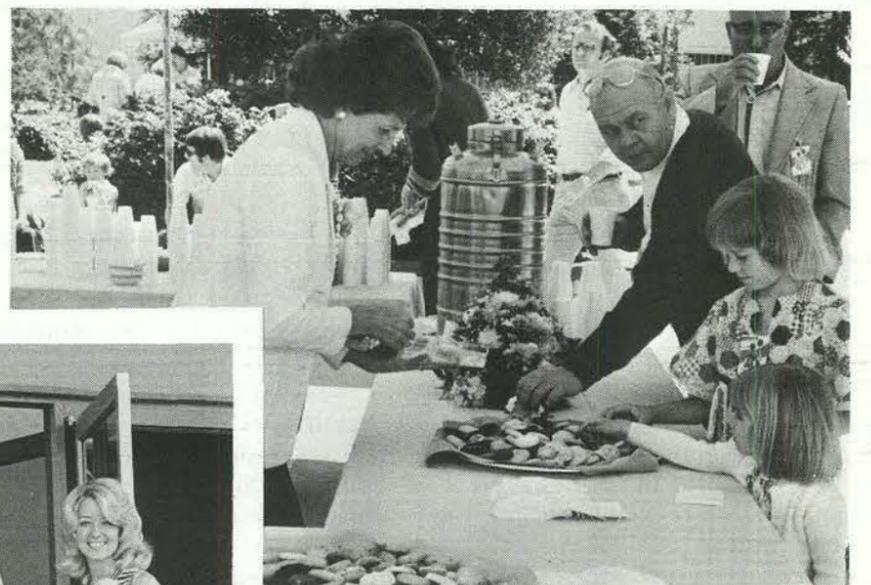


SECURITY reports that the two Mardix "Videoguard" booths have worked so well that three more are planned for installation this year — one at Gate 9 (near Bldg. 870), and two near the ends of Bldg. 893 when that building is placed outside the Tech Area. Security Inspector Earl Noel here operates the receiving end of the two booths already in place (at Gates 6 & 7). Passage through the booth is a matter of a few seconds; after gaining entrance, face the mirror, place your badge face down on the lighted glass, and when you hear the tone you can open the door and leave the booth. Sorry, no material may be taken through, but the form for administrative escort of an uncleared visitor has been redesigned so that you can escort such a visitor through a Mardix booth.



Family Day At Sandia Livermore

Over 2800 Sandians and their guests enjoyed Family Day '76 at SLL.



Guatemala Recovery Work

The Church World Service has selected 13 New Mexicans for a Guatemala recovery work project. Two of these volunteers are Gabby Gabaldon (4311) and his wife Pauline. The group leaves Albuquerque this Sunday.

Last February the earthquake that devastated Guatemala registered 7.5 on the Richter scale, and the major shock area encompassed 3530 square miles. A second quake followed two days later. Twenty-three thousand people were killed and 77,000 injured; more than a million, one of every five Guatemalans, are now homeless. Because most casualties resulted from collapsing roofs and adobe walls, the Guatemalan government is now urging reconstruction with some lighter material such as pumice blocks for walls and aluminum roofing.

"Our original plans," Gabby says, "were to help the villagers make pumice blocks, but it's the rainy season there now. Instead, we'll put up shelters with posts and aluminum roofing. After the rains stop, other crews will add the walls and complete the construction."

The New Mexico group will spend two months building these shelters in various villages. Gabby is the team leader for a group of five people who will do reconstruction in three villages. They'll be living in tents and anticipate rugged conditions. "I know we'll be doing a lot of mud-slogging," Gabby says.

Local churches are their sponsors. Gabby and Pauline are sponsored by the Aquinas Newman Center. Sponsorship includes expenses for transportation plus cost of building materials. To assure that building materials get to their intended destination, the volunteers will travel by train with the materials. The train trip takes a week.

While Gabby is constructing shelters, Pauline, a dental technician, will assist a dentist who is also from Albuquerque. "I'm sure there is much to do," Gabby says. "In one village of 1200 before the quake, there are now 780 orphans. When we return home on July 30, we'll leave behind everything except the clothes we'll be wearing — the tents, food, clothing, sleeping bags — the Guatemalans need them more than we do."

Laser Institute Sets Organizational Meeting

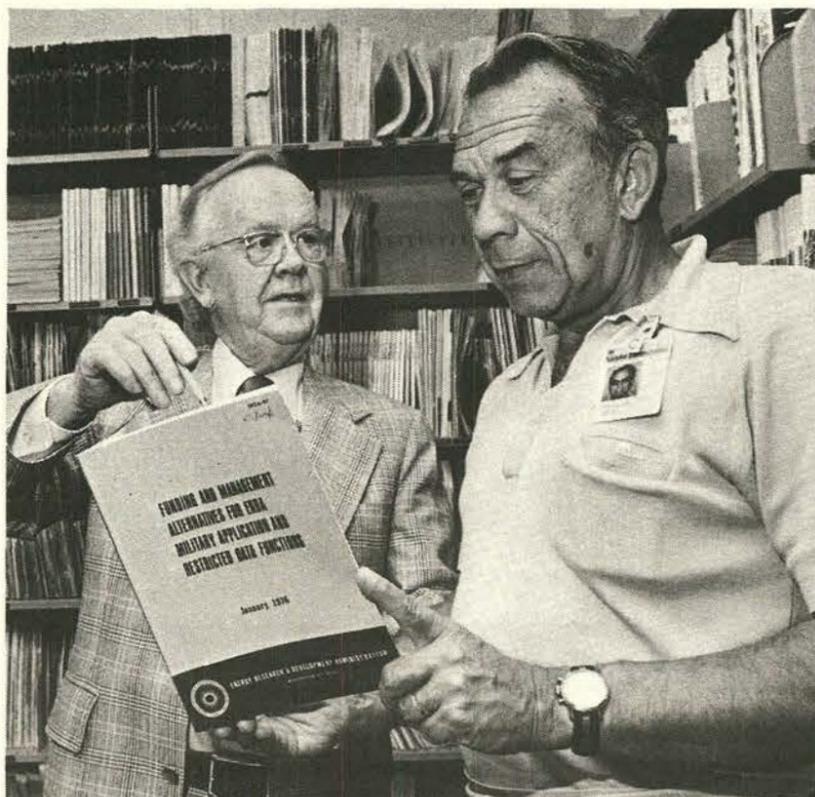
The New Mexico Chapter of the Laser Institute of America will hold an organizational meeting Thursday, June 3, at the Four Seasons Motor Hotel starting at 6 p.m.

Following dinner at 7, Dr. Reed Jensen, LASL alternate leader for laser isotope separation, will discuss LASL's laser research program directed toward simplification of the isotope separation process.

The Laser Institute is a professional organization for those involved in laser technology. Eric Jones (5214) is a member of the organizational committee.

Reservations for the meeting should be made before June 1. Call Eric, 4-8752.

ERDA To Retain Defense Programs



HOWARD STUMP (4010) & PHIL MEAD (3151) examine study which was basis of President Ford's recommendation to the Congress that ERDA retain its current responsibilities with respect to defense-related programs (see below). Copies of the study will soon be available in the Technical Library. Howard headed support staff to the Washington group that put study together while Phil was chief writer.

President Ford has recommended to the Congress that ERDA continue to handle defense-related programs. Consideration had been earlier given to transferring these programs, chiefly dealing with nuclear weapons, to DOD. Here is the full text of the President's message to the Congress:

THE WHITE HOUSE

TO THE CONGRESS OF THE UNITED STATES:

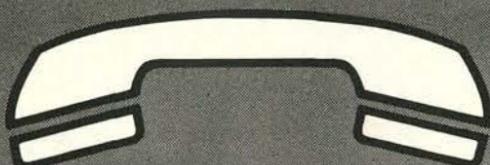
In response to the requirements of Section 307(b) of the Energy Reorganization Act of 1974, I am pleased to transmit a comprehensive report concerning the desirability and feasibility of transferring ERDA's defense-related programs to the Department of Defense or other federal agencies. The recommendations of the Secretary of Defense and the Administrator of the Energy Research and Development Administration are also included with the report.

I agree with the judgments of the Administrator and the Secretary and support their recommendations that ERDA retain its current responsibilities for funding and management of the defense-related programs. I have noted the recommendations with respect to the establishment of separate budget planning ceilings for ERDA energy and defense-related activities. I will consider these recommendations in developing my future budgets.

I agree with the recommendations of the Administrator and the Secretary that the Department of Defense should revise its nuclear weapons budget and cost reporting submissions to Congress to specify separately the ERDA costs associated with each new nuclear weapon or nuclear weapons system.

This segregation of costs will make clear to the Congress and to the public the total requirements for national defense purposes. I also agree that it is desirable to review the funding and management arrangements for the ERDA defense-related programs after two or three years of experience to see whether additional changes should be considered.

Gerald R. Ford



commuting information
DIAL 4-RIDE



ENERGY SAVINGS

COMPARED WITH USAGE IN BASE PERIOD - JULY 1972 THRU JUNE 1973
CURRENT REPORTING PERIOD ENDING APR '76

ELECTRICITY	BASE PERIOD 92276 MWH	1976 76075 MWH	17.6% SAVED
STEAM PLANT FUEL EQUIV. OIL	BASE PERIOD 224583 BBLS	1976 194143 BBLS	13.6% SAVED
VEHICLE MILES	BASE PERIOD 2468 MI	1976 2053 MI	16.8% SAVED

feed **back**

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. When will an "official" list of 1976 holidays be released? And how will Nov. 26th, and Christmas and New Years Day be handled? Will there be a Christmas shut-down again?

A. Although plans for a Christmas shutdown for 1976 have not been fully formulated, present planning is that, if there is a shutdown, it will be the week of December 27 through January 2. This would be accomplished by moving Christmas Day which falls on Saturday this year to the following Monday and New Year's Day which also falls on Saturday to the preceding Friday.

Whether the Friday after Thanksgiving (November 26) will be observed as a holiday again this year in lieu of the observance of Veterans Day has not been determined. If we do not observe November 26 as a holiday, we do plan to declare it a nonoperational day as we did in 1974 with work provided for those employees who do not wish to take that day as a day of vacation or as their 1976 "designated holiday."

The announcement on the finalization of any Friday after Thanksgiving or Christmas shutdown plans will not be made until July or August as the outcome of our forthcoming union negotiations which begin in May can have some influence on our ultimate decision.

R. J. Edelman - 4200

* * *

Q. I am drafting a last will and testament. I understand this service is available from a local banking firm or surely through an attorney, but my question is:

Could this service be made available as part of the Sandia Labs Employee Benefits Program?

A. Sandia Laboratories policy precludes providing legal advice to its employees.

The complexities and personal evaluations involved in the preparation of a will can best be served by an individual's own attorney.

R.J. Edelman - 4200

* * *

Q. My bank says Sandia is habitually late in sending the payroll computer tapes to them. Is this true?

A. It has always been Sandia's policy to handcarry our payroll to all local banks prior to payday. This deadline has never been missed. If you wish to give us further details, we will check out this claim. It is quite likely that your bank processes all its in-and-out transactions at the end of the day (or at night), so that your pay is not in your account although in the bank's custody all day on payday.

C.R. Barncord - 3200

* * *

Q. The latest issue of the Lab News carried an article on the alcoholism program at SLL. Does SLA have a similar program? If so, how can I find out about it?

A. The SLL Alcoholism Program is an integral part of the total Sandia Laboratories' Program administered by Jim Kelly (4-4154) in the Medical Department at Albuquerque.

At its inception in August 1972, a policy statement was issued to all employees and, subsequent to that, two Lab News articles were published. The Medical Department has plans to develop a brochure which will be available to all employees. Until this is available, please contact Mr. Kelly for program information.

Sheldon P. Bliss, M.D. - 3300

* * *

Q. On looking at my personal benefits statement, I noticed that Sandia pays at least \$1.00 per \$1000 coverage per month on both the basic and first supplemental life insurance policies. On the second supplemental policy, people in my age bracket pay only 20¢ per \$1000 per month, and nobody pays more than 60¢. Why the large difference?

A. The premium paid by Sandia for the Basic and First Supplemental policies includes amounts for active employees' coverage as well as funding to provide coverage under these policies for retired employees.

The Second Supplemental coverage is limited to active and retired employees under age 60. This coverage terminates at age 60 whether the employee retires or remains on roll.

Therefore, the cost of the Basic and First Supplemental is more expensive because of the high cost of funding the retirement coverage.

R. J. Edelman

Bringing Brahms, Bach & Beethoven To New Mexico

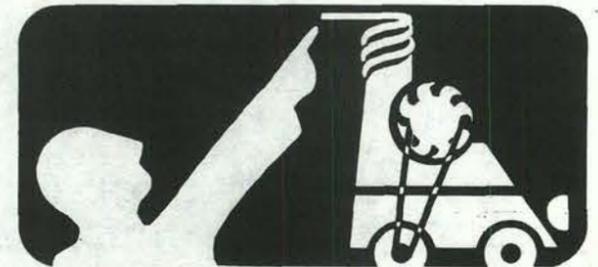
We have a new symphony orchestra in town or, more accurately, a newly named symphony — the New Mexico Symphony Orchestra, né the Albuquerque Symphony. Dick Schwoebel (5820), a director of the musical group, explained that the new title seemed a more accurate reflection of the orchestra's activities.

"Last season about half of the orchestra's performances — 119 — were out of town. They went all over — Grants, Hobbs, Silver City, Taos and many others. Eleven special programs for children were given at places like Carlsbad, on the Navajo Reservation, and Deming. It's a unique group of musicians doing something unique for the entire state — so let's call it the New Mexico Symphony."

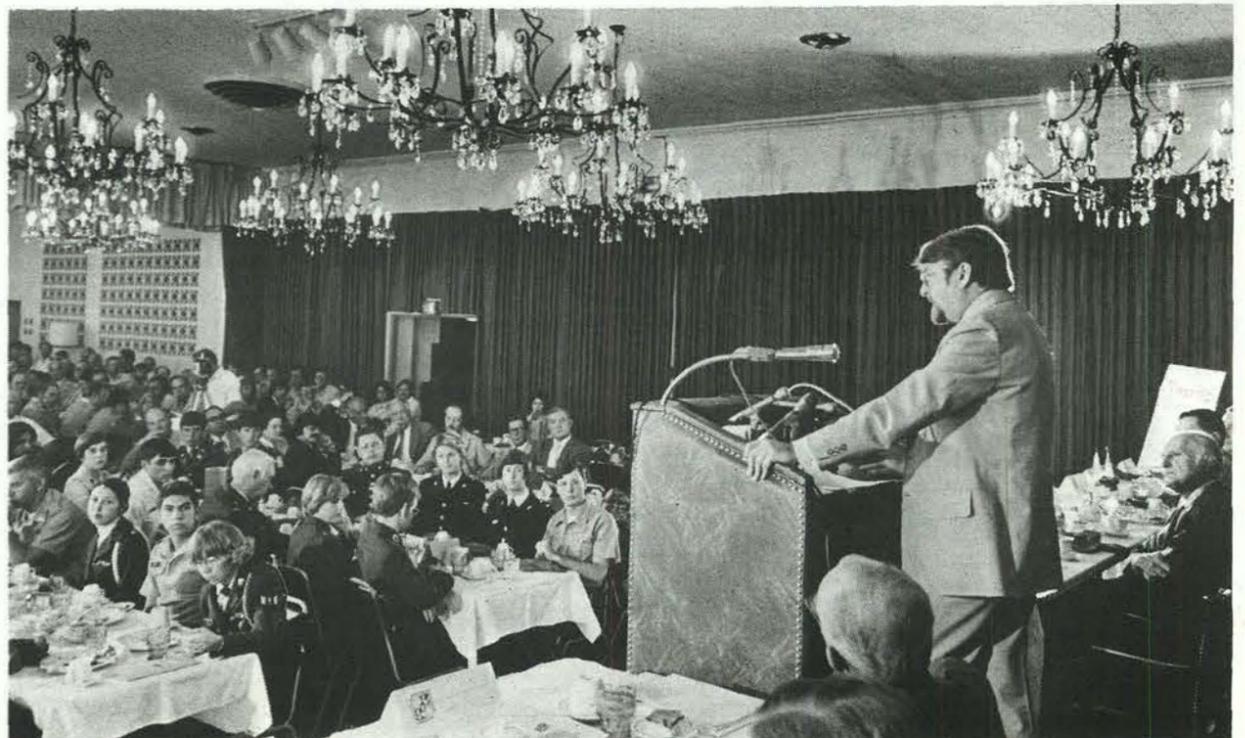
Add to this some 116 performances in Albuquerque, and it becomes clear that the orchestra is a hyperactive cultural force.

Dick and other orchestra directors are after money. They need \$135 thousand. Ticket sales cover only about half the expense. "We'd like to put some of the key musicians on salary," he says. "Now they get paid per performance and must moonlight elsewhere to get by."

Classical music may or may not be your thing. But you can add a little tone to New Mexico by sending Dick your check made out to the New Mexico Symphony Orchestra (it's tax deductible).



HAVE A PET PROJECT?
CALL US LAB NEWS
X-1053

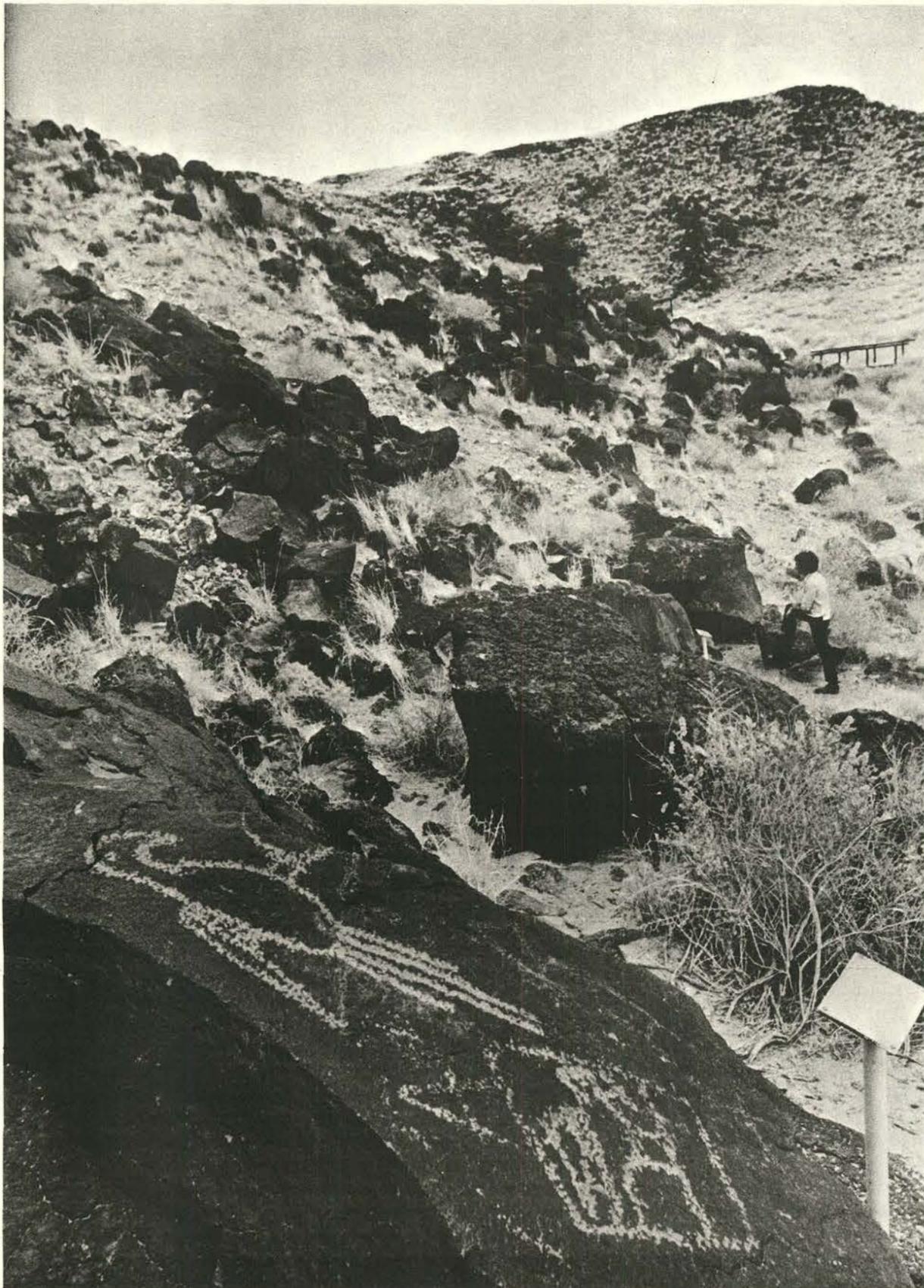


DON COTTER addressed a large group on Armed Forces Day at the Kirtland Officers Club, following introduction by Pres. Sparks. Don is Chairman of the Military Liaison Committee as well as Assistant to the Secretary of Defense for Atomic Energy. Dean Irvin (4210) arranged the visit.

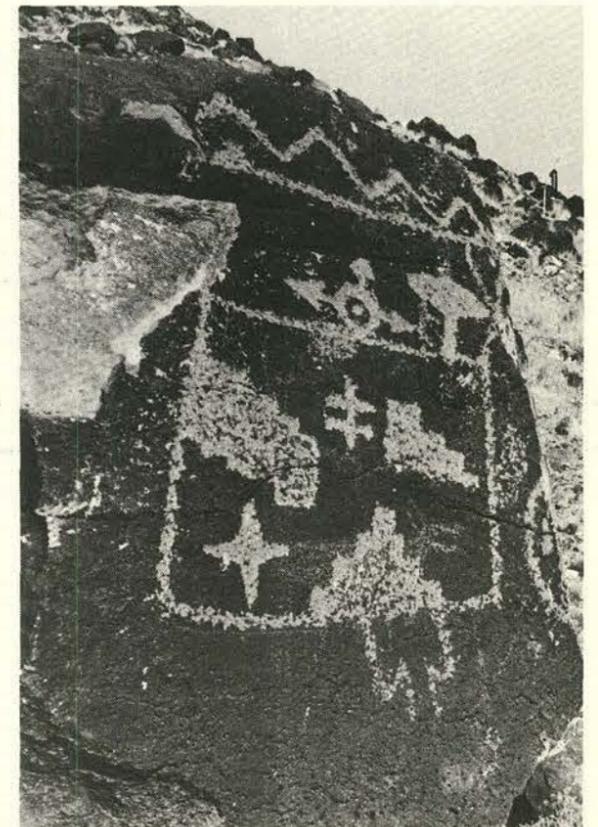
Petroglyph State Park

In New Mexico you seldom need travel far to put yourself into the past. Petroglyph Park, for example, is just a few miles from the I-40/Coors interchange. And it's peaceful, quiet, scenic — steeped with a sense of history. Disregard the tourists (it's seldom crowded) and the lizards, and you'll have little difficulty in imagining yourself a part of another time, another place.

Many of the black lava rocks, strewn along the hillside like a bored child's toys, show no sign of the human hand. But others contain a petroglyph, or two, or several. Each is a challenge — what is it? why was it carved here? what was the urge in the mind that steadied the hand that laboriously scratched that design?



PETROGLYPHS are scattered along hillside. Trails make most of them easily accessible. In the foreground, a bird, probably a parrot or macaw (according to the sign), and a second bird in a cage.



A COAT OF ARMS perhaps? Or a story inside a frame? Note the recent scar to the left of the designs — vandals see petroglyphs as targets for their pleasure.



THE SIGN is near a picnic shelter at the foot of one trail. Several other shelters (and water) are available. The City furnishes an attendant to oversee the 85-acre park and to answer questions.



DOWNTOWN ALBUQUERQUE lies just across the mesa and the river from the park. Go north on Coors from I-40 to Atrisco (left at the 7-11) and follow Atrisco to the park.

Speakers

C.L. Olson (5241), "Collectively Accelerated Ion Beams for Fusion," Meeting for a Preliminary Assessment of the Viability of Storage Ring Particle Beams for Inertial Confinement, Feb. 13, Washington, D.C.; "Collective Ion Acceleration for Pellet Fusion," CTR Seminar, March 17, Argonne, Ill.; "Collective Ion Acceleration," University of Illinois, March 19.

B.L. Butler (5844), invited paper, "Common Sense Applications of Solar Energy in the Home," Joint ASME-IEEE Meeting, April 9, Bozeman, Mont.

M.L. Knotek (5155), "Electron Probes for the Study of the Photocatalytic Properties of TiO_2 ," Colloquium-University of California, April 15, Riverside.

N.J. Magnani (5831), "Preliminary Results of the Molten Core-Concrete Interactions Study," Core-Meltdown Review Committee of NRC, April 15-16, Washington, D.C.

D.W. Bushmire (2152), "Gold Aluminum Intermetallics on Thin Film Hybrid Microcircuit Substrates," 1976 International Reliability Physics Symposium, April 20-22, Las Vegas, Nev.

L.G. Rainhart (3622), "Solar Collectors, A Challenge for Materials and Testing," NM Chapter Society of Manufacturing Engineers, April 21, Albuquerque.

L.D. Hostetler (1313), "A Kalman Approach to Continuous Aiding of Inertial Navigation Systems Using Terrain Signatures," Milwaukee Symposium on Automatic Computation and Control, April 22, Milwaukee, Wis.

M.M. Newsom (5718), "Drilling Research at Sandia Laboratories," Southwestern Petroleum Short Course, April 22-23, Texas Tech Univ., Lubbock, Texas.

R.E. Knutson and D.R. Johnson (both 2152), "Parallel Gap Welding to Thick Film Metallization"; R.F. Casper (2356), "A New Miniature High Voltage High Altitude Connector"; J.L. Jellison (5833), "Kinetics of Thermocompression Bonding to Organic Contaminated Gold Surfaces"; D.R. Johnson (2152), "The Influence of Lead Frame Thickness on the Flexure Resistance and Peel Strength of Thermocompression Bonds"; R.K. Traeger (2431), "Hermeticity of Polymeric Lid Sealants in Microcircuit Technology"; D.H. Loescher (2153), "Film Capacitors with Low Internal Inductance," Electronic Components Conference, April 26-28, San Francisco.

J.R. Freeman, M.J. Clauser (both 5241), and S.L. Thompson (5166), "Hydrodynamic Instabilities in Electron Beam Fusion Targets"; K.D. Bergeron (5241), "Magnetically Insulated Cold Fluid Equilibria in Coaxial Geometry"; A.J. Toepfer (5342), "Use of Image Restoration and Enhancement to Improve X-Ray Pinhole Resolution for REB Target Experiments"; J. Chang (5242), "Flash X-Radiographic Studies of Relativistic Electron Beam Driven Pellet Implosions"; J.P. VanDevender (5245) and R.T. Johnson (5155), "Electrical Resistivity Measurements for a PbS Fast-Opening Pressure-Activated Switch"; J.J. Ramirez (5245), "A Highly Sensitive Fast Risettime Neutron Detector for Time-Of-Flight Measurements in the Pressure of a Strong X-Ray Background," American Physical Society Meeting, April 26-29, Washington, D.C.

D.J. Gould (1754), "The Thermal Stability of Hexanitrostilbene (HNS) as Determined by Precise Measurements of Detonation Velocity"; T.M. Massis, P.K. Morenus (both 2516), and R.M. Merrill (5821), "Stability of the Pyrotechnic Mixture Titanium Hydride (TiH_x)/Potassium Perchlorate ($KClO_4$)"; J.M. Holovka (2516), "Effects of HE-Binder Interactions on the Viscoelastic Properties of PETN and RDX/Sylgard 182 Formulations," Conference on Compatibility of Materials with Explosives, Propellants and Pyrotechnics, April 27-29, Indian Head, MD.

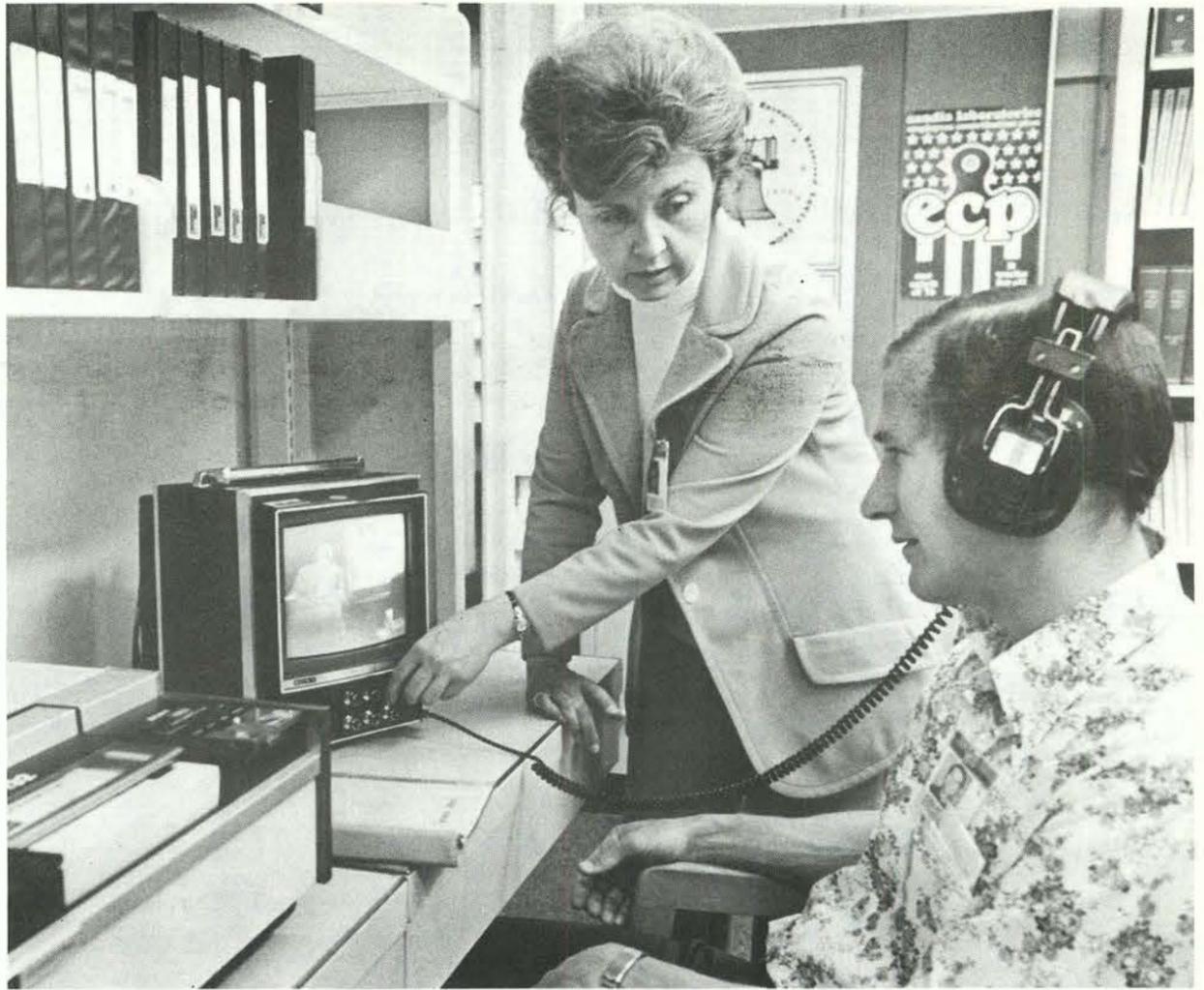
M.L. Lieberman (5731) and A.W. Mullendore (5825), "Status of the 'Chemical Studies on SYNTHOIL Process' Program," Annual Meeting of the Pittsburgh Catalysis Society, April 28-30, Pittsburgh, Pa.

R.T. Dillon (5441), "The Use of Microtest Plates to Eliminate Syntrophism and Inhibition in the Replicate Plating of Auxotrophs," Arizona Academy of Science, April 28-May 1, Tucson.

L.A. Bertram (2642), "Thermomechanics Problems in Nuclear Waste Disposal"; J.W. Nunziato (5131) and E.K. Walsh (Univ. of Fla.), "Thermodynamics and the Propagation of Shear-Acceleration Waves in Incompressible Viscoelastic Fluids," 8th Southeastern Conference on Theoretical and Applied Mechanics, April 29-30, Blacksburg, Va.

R. Pettit (5842), invited paper, "Optical Properties of Materials for Solar Energy Applications," NMIMT faculty and graduate seminar, April 20, Socorro.

D.O. Smallwood (9332), Chairman of Vibration Testing session, "The Application of Unloaded (Free) Motion Measurements and Mechanical Impedance to Vibration Testing"; D. Kuehl (1243), L. Seamons (9336), Chairman of Solar Energy session, and J. Otts (9336), "Five Megawatt Solar Test Facility," 22nd



COURSES AND COLLOQUIA. Latest addition to the Tech Library is a Video Center for listening and viewing anytime, in- or out-of-hours. Videotapes now on hand include courses in Statistical Analysis and Materials Technology; colloquium presentations by Ted Taylor, Allen Hynek, and Don Shuster (1300); and half a dozen tapes showing good (and bad) ways to make a presentation. Here Gladys Rowe (3144) adjusts the volume for Bob Stearley (1323). Members of the Education and Training Department 4230 assisted in setting up the Center in Room 5.

Annual Technical Meeting of Institute of Environmental Sciences, April 25-28, Philadelphia, Pa.

A.D. Swain (1222), "A Worker Participation Program for Job Safety," American Society of Safety Engineers Safety Seminar, May 6-7, Albuquerque.

G.E. Brandvold (5710), "Space and Marine Science Contributions to Solving Energy Problems," 13th Space Congress, April 7, Cocoa Beach, Fla.

R.P. Stromberg (5711), "Solar Thermal Electronic Generation," April 5, IEEE Southeastern Region Convention, Albuquerque.

T.F. Marker (6010), "The Oil Industry: Fact and Fiction," April 7, Heights Optimist Club.

L.P. Robertson (4232), "Brasil—A Sleeping Giant," April 8, Los Altos Kiwanis Club, and April 28, Heights Optimist Club.

R.G. Rosen (5741), "Climate Change," UNM Anthropology Dept. Colloquium, April 12.

R.M. Jefferson (5430), "Our Powerless Society," April 14, Heights Optimist Club.

R.A. Holloway (9623), "Mastering Metrics," April 15, Association of Government Accountants.

W.R. Dawes (2141), "Fabrication of Integrated Circuits," April 20, Grant Jr. High science class.

B.W. Marshall (5719), "Solar Energy Research," April 21, 9600 Technical presentation.

G.V. Barton (5719), "Science and Engineering for Women," April 28, Moriarty High School career day.

A.D. Smaier (9710), and G.F. Padilla, (3647), "Sandia's Apprenticeship Program," April 28, Moriarty High School career day.

G.L. Cano (5433), "New Mexico Energy Resources: Its Contribution to the U.S. Energy Base," Sandia Colloquium and UNM Seminar, April 14.

P.H. Holloway (5825), "Recent Developments in Detection and Analysis of Grain Boundary Diffusion," NMIMT, April 20, and Univ. of Wisconsin, April 29-30, Socorro, N.M. and Madison, Wis.

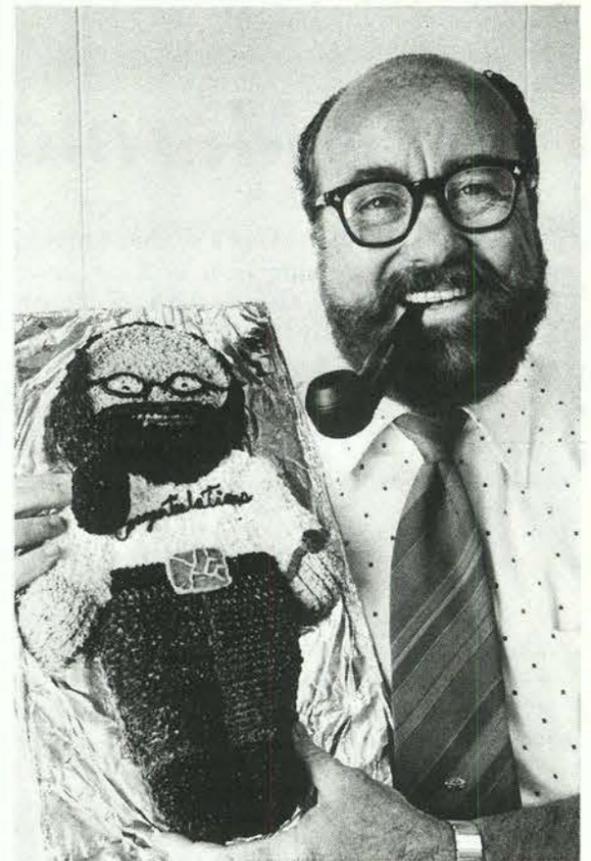
J.M. Peek (5261), "Inelastic Positive Ion Rate Coefficients Predicted by Weak Coupling Theories," Theoretical Atomic Physics Related to CTR, April 26-29, Washington, D.C.

B.W. Marshall (5719), "Photovoltaic Systems Definition Project of the ERDA National Solar Photovoltaic Program," 2nd LSSA Project Integration Meeting, April 27-28, Calif. Institute of Technology, Pasadena.

R.W. Weaver and T.P. Conlon (both 3622), "A Materials Oriented Approach to Training Plastics Technicians"; R.W. Weaver, "Fire, Plastics, and the Modern Home," SPE 34th Annual Technical Conference, April 26-29, Atlantic City, N.J.

J.A. Borders (5111), "Material Modification in Metals and Insulators Using Ion Implantation," Invited Seminar, Caltech, April 28, Pasadena.

S.L. Erickson (5821), "Composition of Thick Film



T.A. ALLEN (3623-1) was happy about his recent reclassification to staff member/section supervisor, and his counterpart looked just as gleeful. Highlight of the breaktime party was this replica of T.A. created by Dolores Aragon (3623-1). Dolores and a friend decorated the cake without the aid of a picture; Dolores described T.A. as they worked (note the Sandia belt buckle!).

Inks," BTL Meeting, April 29, SLA.

G.J. Simmons (5120), "When is a Sequence Random," Rocky Mt. Regional meeting of the Mathematical Association of America, April 30, Durango, Colo.

A.C. Switendick (5151), "Electron-Phonon Interaction and Superconductivity in Metallic Hydrogen," invited paper, 2nd Rochester Conference on Superconductivity in d- and f-Band Metals, April 30, Rochester, N.Y.

R.L. Ward (5441), "Inactivation of Poliovirus in Digested Sludge," Annual Meeting of American Society of Microbiologists, May 2-7, Atlantic City, N.J.



LAGUNA PUEBLO — The lake, for which the pueblo is named, has disappeared. The Laguna Indians' land grant dates from 1689. The present village was built

during the latter part of the 18th century. This drawing was made in 1888.

Dick Marmon Recalls Laguna Pueblo Life



Dick Marmon, supervisor of Electronics Fabrication Section 3616-2, has been with the Labs 28 years. Dick is a Laguna Indian. He moved to Albuquerque from the pueblo in 1946 to attend UNM under the G.I. Bill. After two years, his wife's illness led him to leave the university because not enough income was being realized.

His interest in education and ties with his pueblo are just as strong today as they were in 1946. About 20 years ago, Laguna people living in Albuquerque (currently 280) organized a club (Laguna Colony) to raise money to help educate their needy young people. Dick is treasurer of the fund-raising committee. "We can grant full scholarships," Dick says, "but our money is limited so we often supplement other funds. Our purpose is to help those who want to help themselves. We've paid expenses for older people to attend TVI, paid for tuition and books for part-time students and even helped out for a couple of months if someone is ill, loses a job, or has some other difficulty."

The club fields only one fund-raising event and it's extremely popular — a booth in the Indian Village at the State Fair. Reason for the popularity? Homemade bread, fried bread, chili, chili stew, tamales. "We put a lot of effort into the State Fair booth," Dick says, "but we have fun too. Two weeks before the fair, we have a picnic at the Indian Village. We call it the 'Chili Peel.' How else could we roast and peel 20 sacks of chili?"

"Our most popular monthly meeting is when the pueblo treasurer reports on investments of our uranium royalties," Dick says. "Then, we have a full house." The Jackpile uranium mine is operating on its second 20-year lease from the pueblo. A portion of the mine lies on land given to Laguna by the Spanish owners of the Cebolleta Grant, in appreciation for protection against Navajo raiders in the late 1800's. Dick's grandfather had organized a local militia to fight marauding Navajos and Apaches, and the unexpected gift of land has since provided financial stability for the tribe.

Dick's mother still maintains the family home at Laguna. He has good memories of growing up in the Pueblo. "Before my grandfather died in 1933, my brother and I hounded him for stories." Dick's grandfather came to New Mexico Territory from Ohio in 1872. He was looking for his brother "somewhere in the West." Grandfather Marmon (Robert) ran out of money in Trinidad, Colo., so he pawned his gold watch to Fred Harvey and rode the stage to Albuquerque.

Fortunately, the postmaster knew that Robert's brother was surveying near Laguna. A message was sent and the brother arrived to take Robert back to Laguna. The Rio Grande was in flood and with some difficulty they managed to get a boat to ferry them across. Robert was a greenhorn, and when they stopped to water the horses, he wasn't able to get back on his horse. A buckboard finally arrived to carry him into the pueblo.

Both brothers married Laguna girls, and Robert was accepted into the tribe as a full blood brother. In fact, he served as Governor of the pueblo during 1882-83.

One of Dick's favorite recollections concerns the woman in the pueblo who never forgot him and his brother when she made bread. "She always made us a loaf of bread shaped like a rabbit — an oval loaf for the body with a little ball of dough for the tail and a couple of ears; she marked the eyes with colored Indian corn. No matter where we happened to be, we always knew when that bread would be coming out of the oven!"

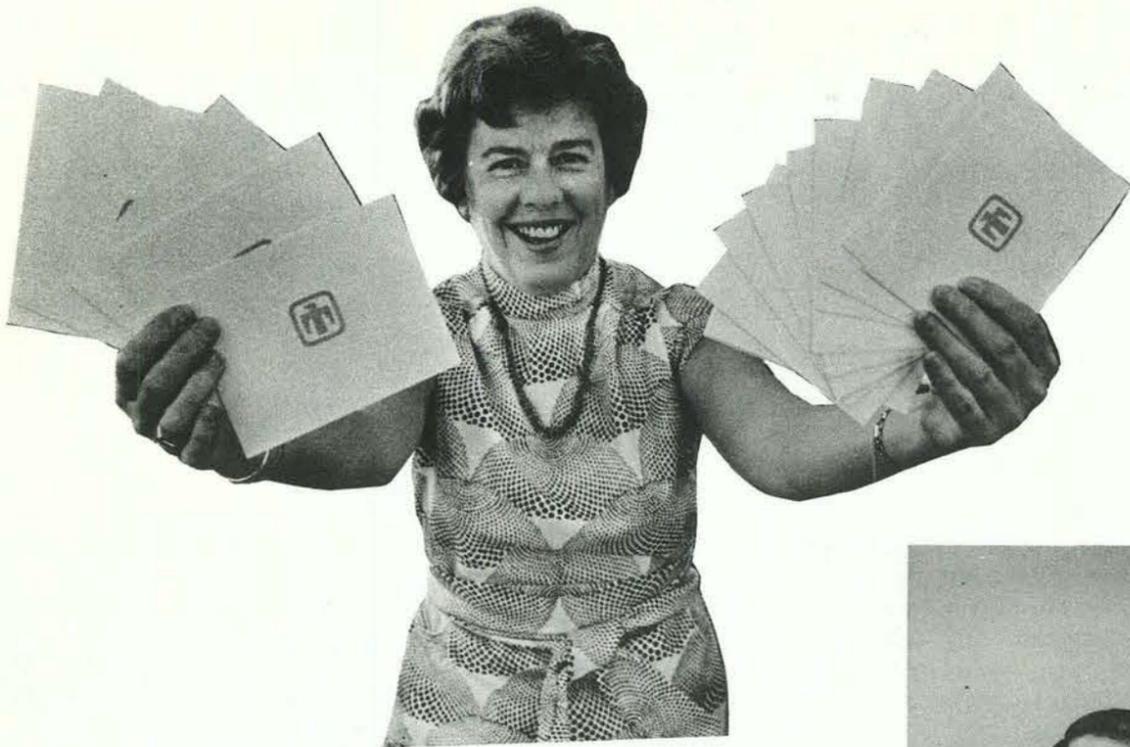
Dick attended elementary school at the pueblo and high school in Grants. "It was a 70-mile round-trip by school bus each day," he says, "but now the Laguna-Acoma High School (part of the Grants school system) is quite near."

Dick has four children — Polly Ann, a graduate of U of A and a teacher in the Albuquerque Montessori School; Richard, a UNM graduate, married, has a son and lives in Albuquerque; Jimmy, attending UNM and currently Park Ranger at Coronado State Monument; and Marguerite, a student at the University of Albuquerque who plans a career in social work.

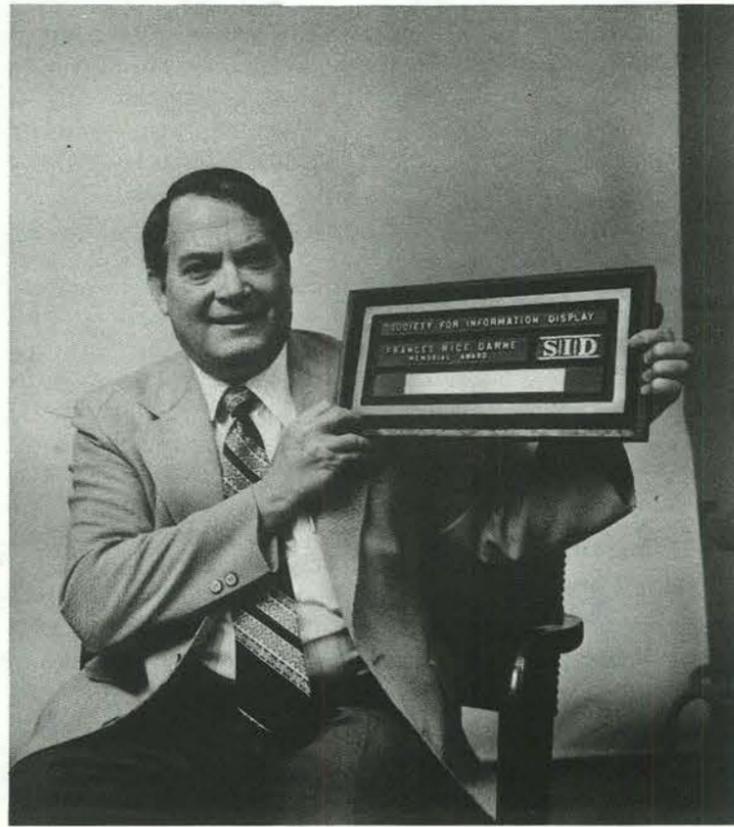
"I keep thinking about that homemade bread," Dick sighs. "One of these days I'm going to bring someone over from the pueblo and build me an horno in our back yard." • nt



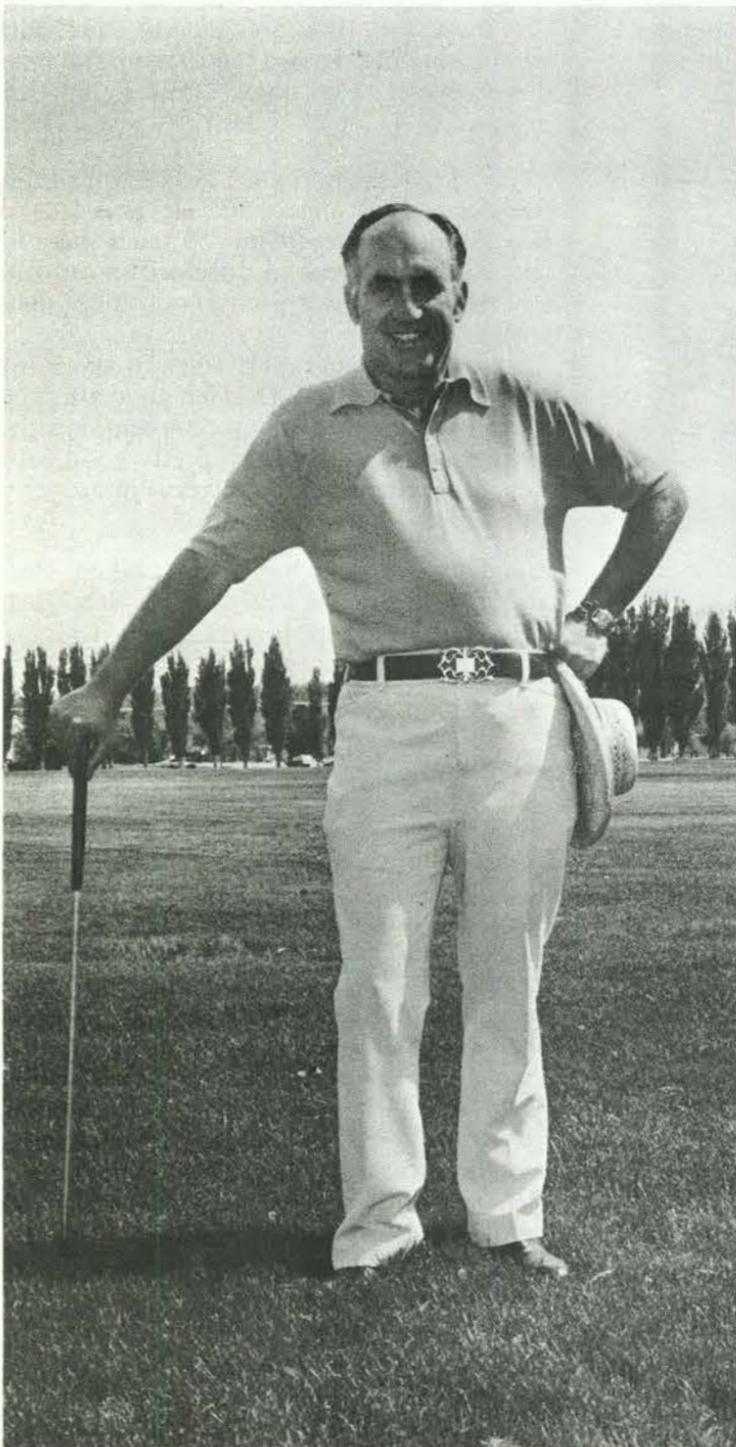
sandia PEOPLE Report



ELEANOR KELLY (4213) mailed more than 1500 invitations to retirees last week to attend the 1976 annual retiree picnic. The event is set for Wednesday, June 2, starting at 4 p.m. at the Coronado Club. Last year, 864 retirees attended.



HIGHEST HONOR of the Society for Information Display went to Cecil Land (5133) "for pioneering and continued outstanding contributions in the area of ferroelectric ceramic materials applied to optical memory and image display devices." The award was presented during an international symposium of SID held recently in Los Angeles.



WAYNE TRUMP (4231) realized the ultimate in golfing recently when he shot a hole-in-one on the fourth hole at Arroyo del Oso — 173 yards down the green and neatly into the cup. Naturally, Wayne took affidavits from witnesses and bought the beer.



"TRES PETIT" observes Monsieur M. Piquemal as he inspects circuit board from nuclear burst detector system held by Dean Thornbrough (1245). The visitor, a representative of the French atomic energy agency (CEA), was here for a bilateral data exchange on nuclear radiation survey instruments and nuclear burst detection systems. Glenn Fowler (VP-100) is on right.



SAN FRANCISCO'S Bay to Breakers race attracted 7000 entrants, including two in wheel chairs who successfully completed 8-mile cross-city course.

Eight Miles, You, Me & 6998 Others

Couple of Sundays ago, the Lab NEWS editor ran in San Francisco's annual Bay to Breakers race across the city from the bay to the ocean, some eight miles. With 7000 entries, it is the nation's most populous track event. Here are notes from his log of the event.

- Minus 1 hr. — Start area, Howard and Main, already congested. Runners, non-runners, photographers, police. Drift to rear, maybe 2000 ahead.
- Minus 30' — Cold, windy, overcast, great for runners running, not so great standing around. Sit on pavement, warmer, vista of many hairy legs.
- Minus 5' — Pack now 3 blocks long, solid, wall-to-wall, good humored but restive.
- Minus 4' — We're moving, premature start but no turning back. Shuffle speed, like church procession. Pass starting line!
- Plus 2' — Little more space, runners jogging. Front runners yelling, others do same, soon whole pack yowling. Feels like cavalry charge — terrifying to onlookers, tremendously exhilarating. Derelicts shrink back in doorways.
- Plus 5' — Well up Howard St. Passed by youngish man in wheelchair. Step over VW car keys. Runners are conglomerate — some in 60's, kids tagging after Dad, fat, thin, college types in clusters, dignified citizens, clowns, about one in four female.
- Plus 15' — Civic Center, cross Van Ness Ave. Traffic cordoned off by SF police over entire route.
- Plus 20' — Hayes Ave. Moment of truth, formidable hill, 5 blocks, looks like Al's Run with pavement. Run half way, pass wheel chair guy, decide to walk. Arrive at summit breathing hard but vital signs ok.
- Plus 30' — Haight-Ashbury. Bedraggled flower children and winos stare uncomprehendingly. Pack now spread out over mile.
- Plus 38' — Golden Gate Park — halfway mark and mostly downhill. Lovely winding route through deep forest.
- Plus 50' — GG Park. Cheers behind, here comes wheel chair, runners clap, make way, going at least 10 mph.
- Plus 60' — Sea breeze, salty smell. Must be

All Heart

A Success Story

Back in '57 when he was only thirty-three, Lew Larson (2522) suffered a totally unexpected heart attack. He was despondent even though it was fairly clear he was recovering, because he remembered the not-so-old timer in his Dakota home town who, having suffered a heart attack, spent the remainder of his life in a rocking chair on the front porch. And Lew had always been physically active.

Fortunately, Lew's doctor belonged to that breed who believed more in activity than passivity for victims of coronaries. He urged Lew to pursue some moderate physical activity on a frequent basis, like jogging every other day. The important point was frequency — Lew shouldn't go out and work up a sweat just once a week.

So Lew dutifully jogged and kept at it until the mid-60's. "It was drudgery, pure drudgery, and I could come up with all sorts



Lew Larson & Friend

of excuses not to do it," he recalls. "Then one day I realized I could get the right kind and the right amount of exercise simply by riding a bike to work. And I've been doing that now for 10 years, day in, day out, winter, summer. Passed the 10 thousand mile mark several years back." (His round trip distance is about 15 miles.)

A few weekends ago, Lew was one of 19 Sandians in the annual Bicycle Tour of the Rio Grande Valley. After 50 miles, he still felt reasonably fresh but decided to call it a day. Fifty miles is a pretty good bike ride.

Another remarkable rider in the Tour was Don Bliss (9623). Don felt good after the first fifty, so elected to make it a century ride. A hundred miles is also a pretty good bike ride, especially when the biker is in his early 60's.

To prospective but hesitant bikers, Lew and Don agree on this advice: "It's work only at first and then it's fun — give it a try."

Softball — The Thunderbirds, Sandia's women's softball team, placed second in the Southwestern Indian Polytechnic Institute's Open Invitational Tourney on May 8 and 15. Named to the All-Tournament Team were Pitcher Jenny Cordova (2326), Shortstop Beany Hall (9711), and Catcher Dora Montoya (5410). Other team members in the tournament: Rena Blaine (5000), Vanessa Brown (3153), Donna Buntent (2000), Andree Cole (3616), Marjorie Gaddy (1000), J. Hughes (1000), Edwina Kiro (5241), Judy Loving (3647), Pam Morenus (2516), Yvonne Strascina (9536), and Bonnie Vigil (1223). James Cordova (3616) coaches the team; they're currently undefeated in league play.

Horseshoes — The Labs Horseshoe Pitchers Ass'n. will hold their annual meeting June 11 at the C-Club at 4:45 p.m. Horseshoe pitching, refreshments and a short business meeting to set tournament dates are scheduled. Members and others interested are urged to attend.

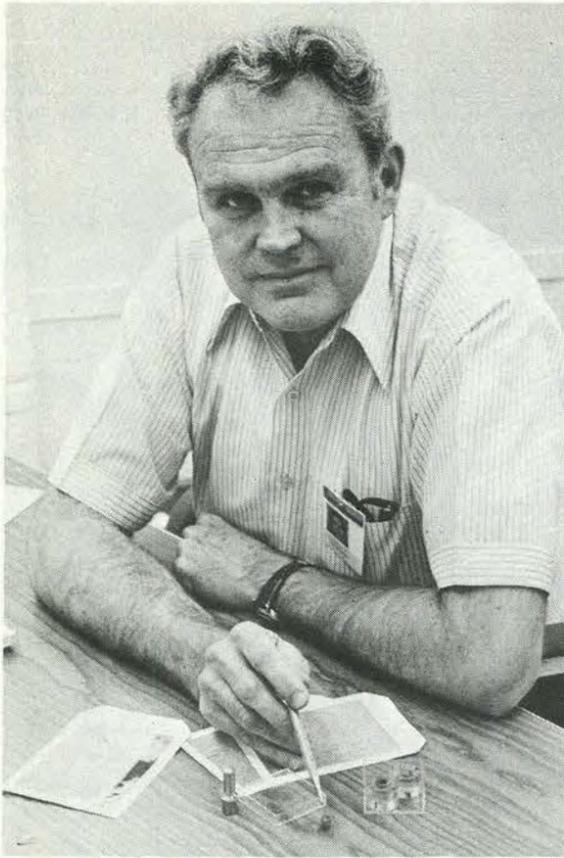
Recreation Notes

FUN & GAMES

Scuba/Skndiving — At 7:30 on June 14, Dennis Schalles (3644) will discuss "The Underwater World" at the Coronado Club. Free admission to all Sandia/ERDA employees.

Skiing — Gwen Cyrus (wife of Jack, 5715) and Miriam Schroeder (wife of Don, 2542) are recruiting candidates for the Sandia Peak Ski Patrol. Requirements: good skiing ability and first aid training. Especially needed are people who can ski weekdays since the Patrol covers the hill seven days a week. Call Gwen, 898-4038, or Miriam, 344-1011, for more details.

- Plus 70' — close. Many walking, some flaked out along roadside. Pass many youngsters, very satisfying.
- Plus 70' — Finish line backed up block or more, walk across, take own time. Get blank certificate. Observe two young finishers — complete formal dress, dinner jackets, bow ties, black shoes, plus cigars. Oldest finisher an MD of 77. Wheel chair surrounded by well wishers. Hey — that was a fun race!



ED JOHNSON (9512) is the inventor of a new kind of gas filter for use in high temperature/high pressure devices.

Gas Filter Invented by Ed Johnson

What appears to be a solid chunk of metal is actually a filter which vents gas. The device, invented by Ed Johnson (9512), recently resulted in a patent for ERDA.

Originally conceived for use in a radioisotopic thermoelectric generator to vent helium while retaining small radioactive fuel particles within the system, the filter can be adapted to a number of applications.

It is made from thin layers of metal bonded by means of a controlled diffusion technique. Complete metallurgical diffusion bonds result in what is called mass transfer or recrystallization across the bond interface. Key to the novel filter is the formation of small gas escape channels because of incomplete or partial metallurgical bonding between the thin metal sheets. This process produces a capillary-like network between the layers which allows passage of gas.

Originally designed for a high-temperature system, the filter can also be used in high pressure devices. Use of different bond control techniques allows porous passages of varying sizes to be built into the metal matrix. Channels can be placed in the filter, when required, by varying the cleaning processes for those small areas where an unbonded condition is desired.

Ed, an engineer at Sandia for 24 years, says that the device could be used in the following applications:

(1) to pass a high-temperature/pressure fluid into a plasma through the chamber wall, (2) to place a heated medium into more direct contact with heat exchange tubes, (3) to discharge gases into a fluidized bed furnace, and (4) to deliver lubricants into sleeve bearings.

Watch your p's and q's

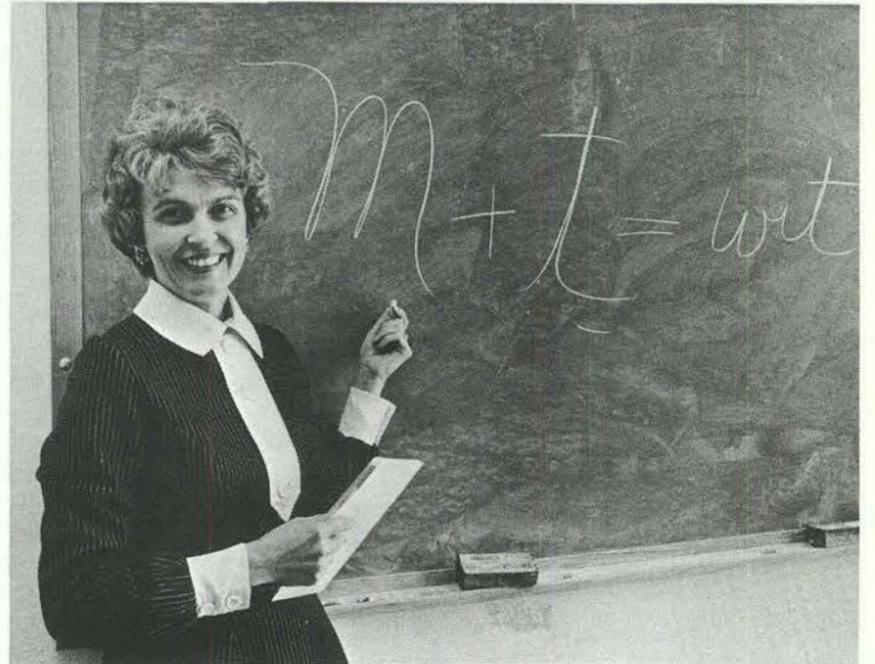
Carol Kaemper Earns Graphoanalyst Certification

Carol Kaemper (5240) has recently completed an 18-month extension course in the techniques of scientific handwriting analysis and has been recognized by the International Graphoanalysis Society as a Certified Graphoanalyst. The course was in addition to two years of private instruction.

Carol's interest in handwriting analysis relates to her college studies. She is working towards a psychology degree and feels this skill can be used as an adjunct to her studies and to later professional activities.

"Many people think that handwriting analysis is part of the occult," Carol says. "I've often been asked to do a palm reading. Graphoanalysis is simply a scientific system of identifying and assessing the character and personality of individuals through a study of their handwriting. We are trained to recognize and identify strokes in handwriting, to relate those strokes to specific personality traits and finally, to evaluate all the elements. No single graphic sign can identify a trait of personality. An analyst uses a combination of these techniques to outline a personality pattern.

"I sometimes have fun with what I call a 'cocktail party analysis' where I analyze a couple of lines of handwriting. There are six basic strokes in handwriting and the letter t is one of the best signposts. It has at least three strokes and sometimes five. For instance, the combination of determination (a strong down stroke in a y or g) with ambition (the height of the t crossing) indicates a real 'go-getter.' A sense of humor shows up in a gentle or graceful down stroke in the letters m or n. The letter p reveals whether you are argumentative



CAROL KAEMPER (5240) illustrates a basic combination in handwriting analysis: the soft down stroke on the m indicates a sense of humor. Combine that with a "sarcastic" t and you'll find a witty person.

and to what degree, and also your involvement with physical activity. An f can show if you possess organizational ability. In a quick analysis we always look for successful traits. Of course, these quick assessments are just for fun," Carol says, "It isn't fair to make an analysis based on just a few lines of handwriting.

"A complete analysis requires many pages of handwriting and about six to eight hours of the analyst's time. We are trained to give our clients as true a picture as we can, so we specify negative traits as well as positive ones. Most people are aware of their shortcomings, I find. What surprises them are their good or positive traits.

"Sometimes the initial analysis turns into a counseling session where the analyst is asked for advice or is taken into the confidence of the client because the client wants to talk things out. Most handwriting analysts feel pretty strongly about the seriousness of their work, and we adhere to a code of ethics that we feel is a necessary part of our profession."

Mended Hearts Group Works To Help Others Facing Open Heart Surgery

Frank Francis (5814) and Bill Thomas (9512) are a couple of Sandians who feel very good about the business of living. Both have recovered fully from open heart surgery. They belong to a group known as Mended Hearts of New Mexico. Members, like Frank and Bill, are walking testimonials to the skill of heart surgeons and modern medical techniques.

"Testimonial" is the key element in the organization. The group counsels people who are scheduled for heart surgery. The fact that members are alive, well and living, and probably feeling better than ever, is the message anyone facing such an ordeal wants to hear.

Members of Mended Hearts receive training for their work. In Albuquerque a surgical nurse provides the training. The

group also works with doctors and hospital organizations.

There are a couple of rules in the game. Never visit without the physician's approval. No sympathy to the patient. Self-pity is a destructive emotion. A member doesn't show his incision scars or dwell on his own illness. Positive aspects of recovery are stressed.

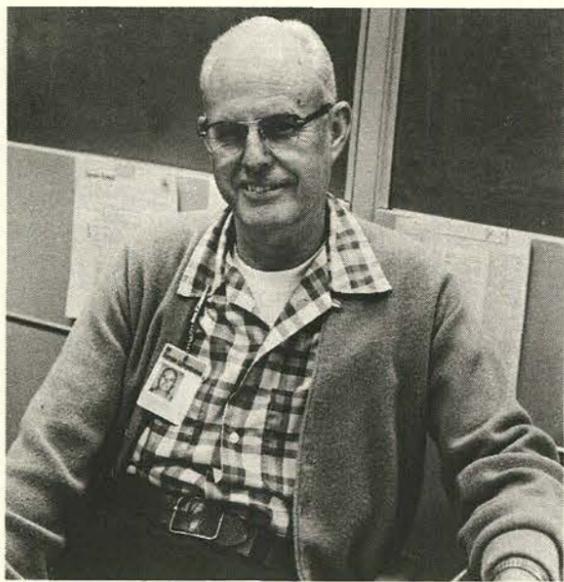
Frank and Bill find that patients often ask them questions that they would hesitate to ask a doctor.

"Just listening as a patient expresses his fears seems to help," Bill says. "We assure them that full recovery can be expected — they will be able to walk up stairs and lift heavy objects, and their only restrictions will be those that they impose."

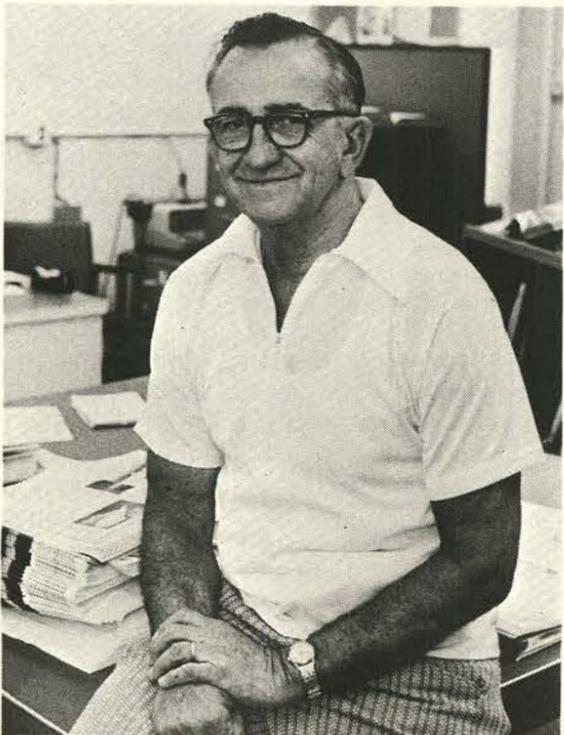
Anyone interested in additional information about the group is invited to contact either Frank, 881-1473, or Bill, 268-2565.



Retiring



Chuck Boal (2622)



Art Youtz (2514)



Tony Repetti (2355)



Henry Sellers (3644)

High Efficiencies Possible

Reactor-Pumped Laser Patented

A patent on the first laser pumped by a nuclear reactor was issued recently to ERDA. Inventors are Dave McArthur (5423) and Phil Tollefsrud (5230A).

The newly-patented laser is simple in construction, consisting basically of a metal cylinder lined with a thin coating of enriched uranium (U-235) and filled with carbon monoxide. Mirrors are located at both ends of the cylinder, which is placed in an open container of liquid nitrogen to keep the laser gas at a temperature of about minus 335°F (-204°C).

The container, with the cylinder inside, is positioned adjacent to the core of a fast burst reactor. When the reactor is pulsed, neutrons emerge from the core and strike the cylinder. Within the cylinder, the neutrons collide with nuclei in the uranium atoms, splitting each atom into two high energy atoms which then strike the molecules of carbon monoxide.

The collision of atoms and molecules elevates the molecules to an excited energy state, and when these excited molecules decay back to their normal ground state they

emit their excess energy as photons which constitute the laser light.

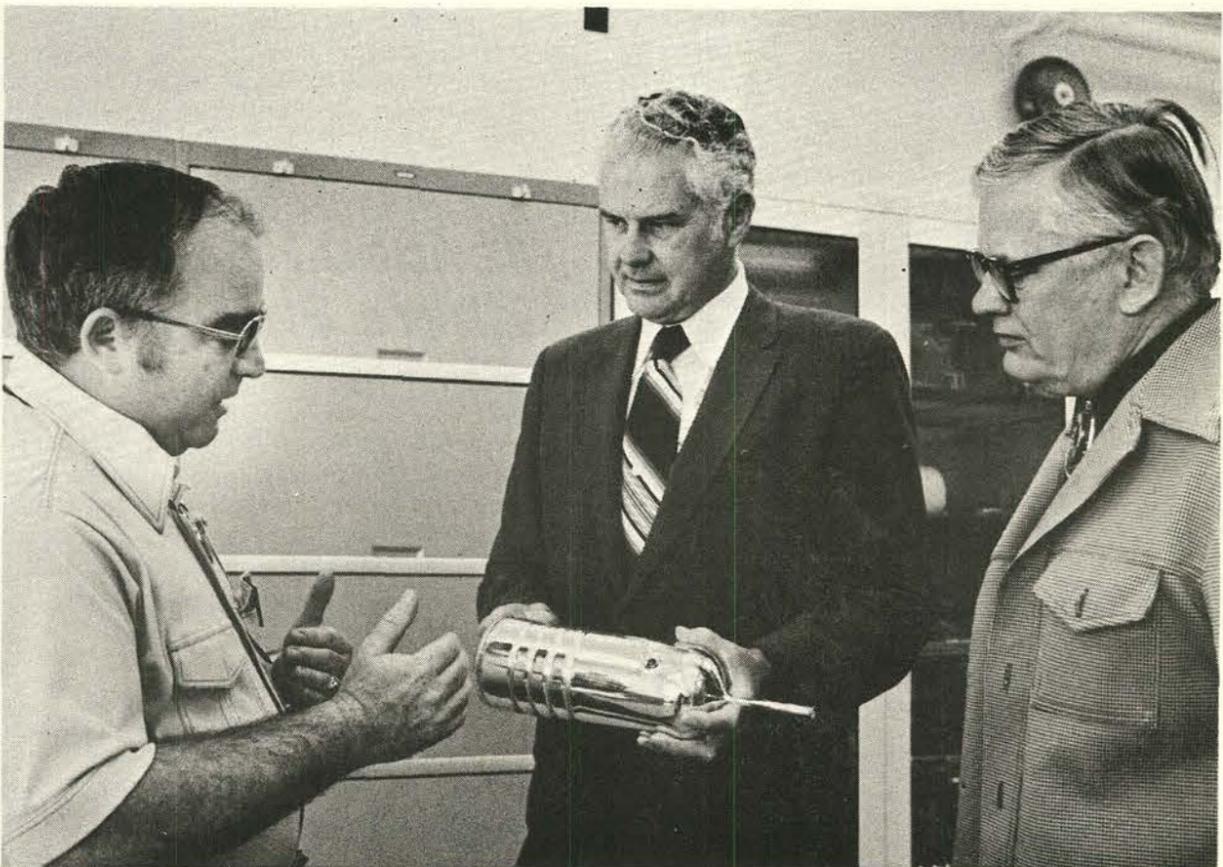
The original laser produced only two to six watts of power and was quite inefficient, with beam energy being less than one percent of the energy deposited in the gas by the fission fragments. In subsequent experiments with a more complex laser system, power has been increased to 100 watts, and research is continuing to determine if higher power and greater efficiencies up to 50 percent might be possible.

Big advantage of using a reactor to produce laser beams is that very large amounts of energy can be delivered to large volumes of a lasing medium. In addition, energy stored in the nucleus of an atom can be released more simply and efficiently than can the energy in complex power supplies being developed to pump large, conventionally-excited lasers.



DAVE McARTHUR (5423) works on new laser which is excited by a fast burst reactor. Co-inventor is Phil Tollefsrud (5230A).

PAGE TWELVE
LAB NEWS
MAY 28, 1976



ERDA's Director of Safety Standards & Compliance, Martin Biles, holds a cryogenic Dewar as Ron Snidow of Sandia's Glass Lab (3621) explains the container's glass bellows which permit expansion and contraction. Jerry Jercinovic (9540) was host to Mr. Miles during his visit, which included discussion of safety for Area V and of the results of recent tornado-impact studies.

Take Note

Keep your two-through-twelve-year-olds busy this summer. Enroll them in one of Kirtland's Child Care Centers. For two-through-five-year-olds, arts and crafts classes twice a week. For six-through-twelve-year-olds, swimming, bowling, baseball, playground games, picnics, movies, field trips, etc. Call either Center for more info: East (4-2314) or West (4-9496).

* * *

June 6 is your last chance to hear the Moving Spirit Singers this season. The last of 35 performances of "Alleluia," an award-winning musical drama based on the life of Christ, will be at the San Jose Church, 2401 Broadway SE, at 7:30 p.m. Four Sandians are in the chorus: Dora Lovato (2625), Rudy Armijo (2521), Del Guiterrez (9713), and Robert Chavez (2351).

* * *

Dean Irvin (4210) is the new president of the state-wide Reserve Officers Association. The Association has a national membership of over 100,000, with 465 in New Mexico. Dean recently retired as an Army Reserve Colonel with more than 33 years of service. Last week he arranged and hosted MLC Chairman Don Cotter during his visit here to speak in observance of Armed Forces Day. Dean hopes to increase state ROA membership during his period of office.

* * *

The Museum of New Mexico announces the opening of an exhibit, "Tiwa Art Before The Conquest," on June 5 at Coronado State Monument. The exhibit consists of the original, multicolored frescoes recovered from the kiva at the Monument in the 1930's. The murals, which depict animal and human life forms, are interpreted by Leonard Archuleta of Taos Pueblo. The exhibit is in the newly renovated museum. Coronado State Monument is located one mile from Bernalillo on State Highway 44, and is open 9-5, Thursday through Monday.

* * *

Today is the last day to win a year's bus pass by guessing the date and time the first new City bus will arrive. Forms are available in the LAB NEWS office, Bldg. 814.

Credit Union REPORTER

By Otis Cox, Chairman
Education Committee

Student Loan Program

At the May 19th meeting the Board of Directors approved a new student loan program to replace the Federally Insured Student Loan Program which was suspended by the Board last month. Under the new program loans will be made to student members with member parents or guardians acting as comakers. Interest only will be payable during the in-school period. For further information contact the Credit Union.

Safe Deposit Boxes

A member of the Board recently received a letter from one of Albuquerque's major banks announcing an increase in fees for safe deposit boxes. Their new rates are approximately 75% more than those of your Credit Union. If you need a safe deposit box, and most people do, see your Credit Union for a real bargain.



NEW TOOL proving valuable in Area III is this Iron-Oxy Lance shown here melting a tunnel through a concrete block. The Lance, fueled by oxygen, develops up to 10,000°F. at its tip (compared to an acetylene torch's 2800°F.). It's been used to split boulders for easy removal, to remove steel embedded in concrete, and in several Safeguards experiments. Left, operator Steve Zdunek of the Remote Areas Maintenance Division 9718. Note the rods inside the steel pipe which combine with the oxygen to produce heat; Lance consumes itself in the process.

Death

John Stenovec of Instrument Repair, Calibration, Electronic Inspection and Testing Division 3617 died May 16 after a long illness. He was 49.

Survivors include his widow and four children. He had worked at Sandia since March 1968.



You're Parked Where?

On Patrol in the Parking Lots

The early bird commuters begin arriving about 7:15. They park in neat rows in the outlying areas of the parking lots. After the big surge at 7:45, most of the slots are filled except those near the gates. They remain vacant for the last-minute types who arrive at 7:58, park in the slots next to the gates, and dash inside to be ready for the duties of the day at 8 sharp.

Fantasy? Of course. "The real parking lot world is somewhat less considerate," says Bill Martin, Manager of Security Standards and Operations Department 9550. "But we're now supplementing the monitoring done by individual employees with a Security Inspector, and we expect to reduce the misuse."

Sandia has six types of restricted parking areas: spaces set aside for visitors, for those on official business, for second shift employees, for department managers and large staff, for car poolers, and for those with medical restrictions.

"Security will help to check lots most working days," says Paul Pewe (9551). "We'll put tickets on unauthorized vehicles in second shift lots, in car pool slots, and in visitor lots. We'll chalk tires in the Official Business Only zones. We're even going to check out ownership of cars without decals in the visitor lots. But we're still dependent on cooperation by the majority of Sandians who park properly."

While unauthorized parking in car pool slots is infrequent, complaints are all too frequent — "slots are unused," "slots are misused," etc. For that reason, the security inspector will assist in checking slots during the morning rush hour for apparent singles. Vacant slots will also be checked out.

"The biggest single cause of vacancy is that some legitimate car pools use more than one parking space. These pools include employees who work in different geographical locations around the Labs. Each day the specified driver parks near his own location. This means that on some days the pool's reserved slot is used and on other days the pool uses open parking. To preclude the possibility of each member applying for and receiving a reserved space near his own geographical location, we are carefully reviewing the records.

"One final point: people have suggested that slots vacant after, say, 8:30 be regarded as open parking. That sounds good until you consider the consequences — problems with poolers on official business who return to find their slot occupied, for example. Even worse, we'd soon develop a cadre of 8:25 arrivers waiting for the stroke of 8:30 to pounce on a slot. All in all, in spite of the hassle, we're proud of our car pool parking program. The slots take up 18 percent of our 4000 paved parking slots but serve over 30 percent of our employees. That's wise use for prime space."

MILEPOSTS

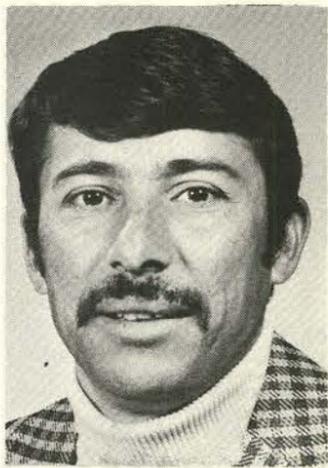
LAB NEWS

May 1976



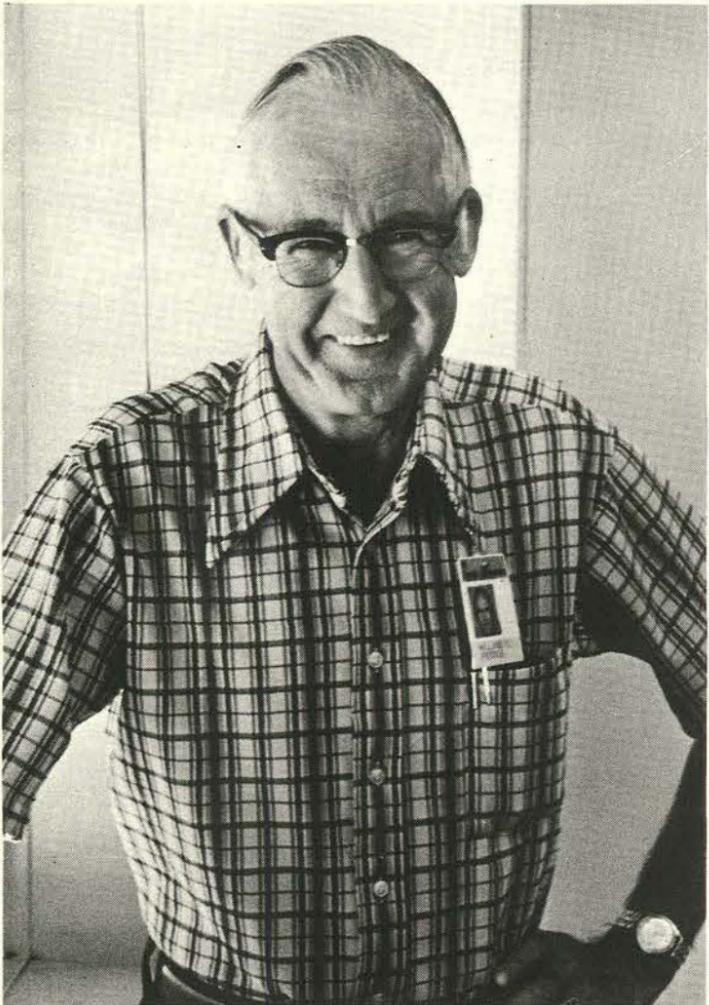
Pete Gallegos - 2328

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Carmel Chavez - 2356

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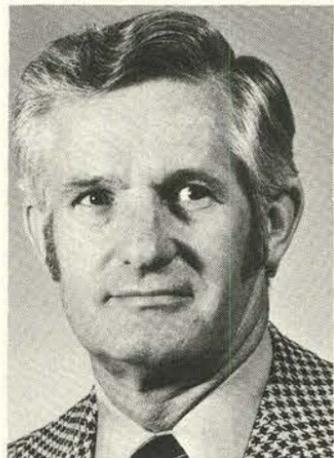
Bill Prekker - 3254

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Harry Guest - 9473

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Jim Hillman - 9515

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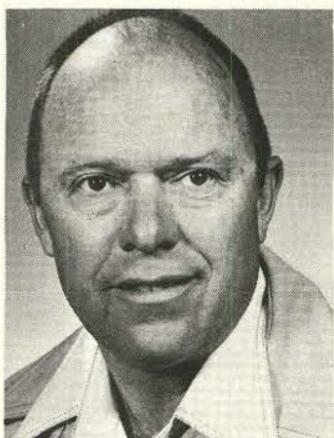
Bob Hedberg - 9425

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L.D. Hubbard - 9331

20



William Rogers - 1241

20



Gene Aronson - 2642

20



Leslie West - 1712

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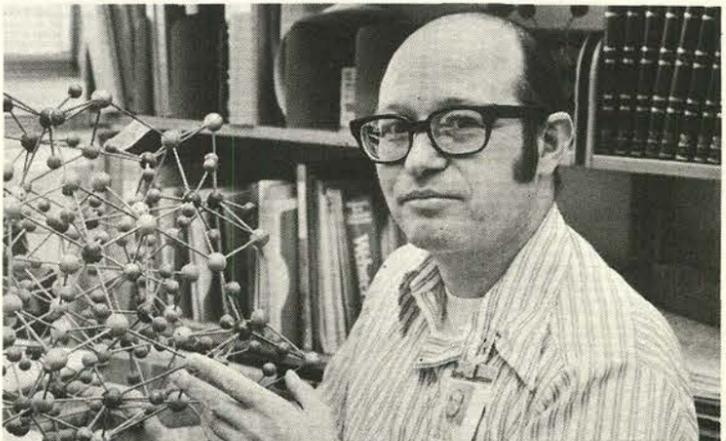
Bill Kingsley - 3310

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John Toler - 9550

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Bruno Morosin - 5154

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Marvin Morris - 5442

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William Wing - 9535

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Lloyd Melick - 1712

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James O'Neal - 9484

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5. For Sandia Laboratories and ERDA employees only.
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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

NO GARBAGE BAGS available anymore at LAB NEWS office. Sorry.

'73 SCOTT TRAILER, 15', sleeps 6, propane lamp, 4 jacks, can also be used w/battery. Rodriguez, 345-0961.

8' COMPACT CAMPER, loaded, including gas bottle, tie down clamps & jacks, \$500; consider offer for '67 Ford pickup. Harrison, 296-7880.

CAMP TRAILER, 13' Cardinal, stove, icebox, new carpet, curtains, \$750 firm. Walter, 299-2898.

DRUM SET, 4-piece w/Remo heads, plus cymbals & extras, \$275. Sisson, 296-3883.

HEADBOARD, king size, white, \$10; mirror, plate glass, 28"x44", \$20; mirror, 26"x40", \$10. Alvino, 255-6339.

10-GA. aquarium, complete set up, light, heater, thermometer, under-gravel filter, 7 fish, stand, glass shelf, \$25. Philbin, 292-1352.

TWO-HORSE or stock trailer, 15' wheels, new wiring. Houghton, 299-3386.

WEDDING GOWN, size 8, matching veil, cost \$200, sell for \$100. Branson, 881-1790.

DISHWASHER, built-in GE, \$50. Joseph, 299-6989.

LORD BYRON golf clubs, 4 woods, 10 irons, putter, bag, \$75; 5 PGA aluminum shaft woods, \$25. Wangerin, 821-1932.

SHOTGUN, Remington pump 16 ga. w/Herter's adjustable choke, \$80; grid for BBQ, round, 20 1/2" diameter, new, \$3. Holmes, 292-0898.

27' 5th-Wheel camper, lg. bdr., tub-shower, stove, gas/elec. refrig., 10,000 BTU, AC. Sharp, 299-1039.

MODEL 744 B&H slide projector w/stand, screen & slide boxes; Phone Mate. Copeland, 298-7073.

BOY SCOUT PACK; air mattress, sleeping bag, \$17; 4 pet mice, cages & gravity feeders. Nelson, 881-0148.

10 1/2' CABOVER CAMPER, self contained, jacks, \$1900; 10 sheets Geo-Pac selected birch paneling, new, \$60. Cooper, 299-7157.

folded top, \$25. Johnson, 255-5427.

SWING SET, lg. child's set w/dbl. support bars, 2 swings, slide, glide ride, & garden swing, \$35. Drumheller, 296-1023.

SINK, Eljer porcelain iron, wall-hung, complete w/faucet & drain, \$15. Trump, 299-5162.

CANON FT/QL 55 f/1.2, 28 f/3.5, 135 f/3.5; 4x5 Calumet 16"; 4x5 Speed Graphic w/Tessar lens; 8x10 tanks; Colortran converter; Ranger 9 meter. Zmiejko, 265-4927.

'73 STARMASTER 6 Starcraft tent camper, 3-burner butane stove, ice box, wardrobe closet. Riley, 869-2647.

GOLF CLUBS; First-Flight woods (1, 3, 4), \$55; McGregor tourney irons (3-9) & Wilson 2-iron, \$30; Fairway bag, \$10. Harley, 898-0594.

TRAILER HITCH for '67 to '71 Surburban, 3500 lb. capacity, \$15; 3rd seat for Surburban, \$28. Schultz, 881-7588.

SEARS rotary lawnmower w/grass catcher, used 1 summer, best offer. Prevender, 299-5253.

SHARE in 8-member flying club; '65 Cherokee 180, well equipped, IFR certified, well maintained, new upholstery. Randall, 281-3630 or 299-3935.

7 HP electronic ignition lg. Roto-Tiller w/grinder composter attachment, used 4 seasons. Cole, 296-4265.

ABOVE GROUND POOL, Sears 24' diameter by 4' deep, 3/4 HP D.E. filter, cover, accessories. Barnes, 298-8215.

BROYHILL TABLE, original antique, celery green color, \$70. Stanley, 296-7623.

HOLLYWOOD BED, mattress & box springs, headboard, frame, \$25; Apt. size Westinghouse refrig., \$25. Padilla, 877-2116.

GARAGE DOOR, 7x9', metal, 1 piece, all hardware, \$55. Schultheis, 881-7269.

DINETTE TABLE w/6 chairs, \$35. Armijo, 256-3895.

TWO WHEELS for '65 Mustang V8, w/tires, \$10. Schroeder, 344-1011.

ETHAN ALLEN, 44" round, single pedestal dining table, 2 leaves, hard rock maple, early American, 6 ladderback chairs, \$400. Nungesser, 268-8720.

BEGINNERS DRUM SET: assorted drums, some professional, make offer. Ezell, 881-4246.

BUNK BEDS, pair, \$30; lt. yellow bathroom sink, \$30; 2 girls bicycles, single speed, \$5 ea. Souder, 281-3121.

SONY TC558 reel to reel tape deck, auto reversing, 20 hrs., \$800 new, sell for \$550.

Neiswander, 293-0694.

CARPET, commercial type; screen door, 36" wide; over load springs. Daniel, 296-4231.

REFRIGERATOR, needs charge; Keystone movie camera & projector; child's desk; bar stools; ladies golf cart. Chandler, 296-3323.

DESK, steel, 30"x60", beige; glass top for same desk; 2-drawer letter-size file cabinet, tan. Schubeck, 294-5666.

FREE TO GOOD HOME: 3-yr.-old male Daschund cross, neutered, shots, housebroken. Luetze, 299-9273.

ELDERLY Underwood upright typewriter, needs small repair. Leisher, 281-5258.

TOY POODLE PUPPIES, 8 wks. old, male & female twins, AKC reg., will be very small. Davis, 298-1957.

DOBERMAN, purebred pups; misc. household items & clothing; refrig.; coal oil heater; ski boots, Iron Rite ironer. Sullivan, 344-7547.

GARAGE SALE, May 29 and 30, 9:30-5. Household items, furniture, clothing, typewriter, clarinet. 1920 Muriel NE. Bailey, 298-0517.

TRANSPORTATION

'74 MAZDA RX4, 2 dr., 4-spd., AC, AM-FM, cassette, Michelin ZX's, 13,000 miles, \$3350. Neiswander, 293-0694.

'71 BUICK LeSabre, 4-dr., low mileage, PS, PB, AC, below book, terms. Browne, 881-3772.

'67 MERCEDES BENZ 200 Diesel, 4-dr., AM/FM radio, air, new Michelin radials, rebuilt engine, 5000 miles or 5 mos. guarantee, \$3000 or best offer. Salazar, 255-1301.

HONDA '73 CB 175, 2600 miles, elec. start, luggage rack, 2 helmets. Flesner, 265-2136.

'73 PORSCHE 914, 2.0 litre w/appearance group, stereo cassette, 21,000 miles, \$5800. Lewis, 293-2458.

'75 HONDA 550 four, windjammer fairing, Bates trunk, radio, crash bars, 2 helmets, \$1700 or best offer. Armijo, 268-7645.

'66 FORD ranch wagon, 289-V8, std. trans. w/OD, AC, \$500 or best offer. Oakes, 898-0236.

'71 CHEV 3/4 ton, 4-wd, PS, PB, \$2300; '74 Gemini 125cc, dirt or street, helmet, \$275. Dain, 881-1235.

'72 LEMANS, one owner, 38,000 miles, AC, AT, PS, AM-FM radio, rally wheels, vinyl top. Harper, 256-1661 or 268-8357.

'73 OLDS LS, 4-dr., fully equipped, under book.

Johnson, 255-5427.

BIKE, GIRL'S 26", 3-spd., \$30. Alvino, 255-6339.

BOY'S 20" bicycle, Hi-Rise handlebars, banana seat. Eldredge, 881-4528.

'73 MAZDA RX2, new Michelin radials, 48,000 miles, \$2100. Stearns, 293-8209 after 5.

'62 VOLVO 4-dr. 122S, \$350. Love, 299-0956.

'65 INTERNATIONAL SCOUT 4x4, sell or trade for pickup of equal value. Romero, 265-4743.

'72 HONDA trail bikes: adult ridden, bumper carriers, CT-70, \$325; CT-90, \$350. Cooper, 299-7157.

'67 FIAT, 850 coupe, new starter, new battery, \$600. Wolf, 268-5828 after 5.

'65 MUSTANG, mag wheels, \$1095; 14' Larson boat, runabout w/Merc. 70hp, full canvas, 2-axle brake-a-way trailer, spare tire. Ristine, 298-8383.

KAWASAKI Trail Boss, 100 cc, 10-spd., \$390. Allen, 299-9075.

'71 FORD Torino, AT, AC, PS, disc brakes, 46,000 miles, \$1400. Prevender, 299-5253.

'74 KAWASAKI, 175cc Enduro, adult driven, \$480. Stanley, 296-7623.

'59 GMC SCHOOL BUS, \$1000. Chavez, 243-4825.

'71 VW Super Beetle, 4-spd. stick, \$1100 or best offer. Wood, 247-4566.

'72 KAWASAKI 500, \$600. Oscar, 865-9273 or 864-8262.

'75 YAMAHA RD-350, 600 miles, make offer. Campbell, 268-5750.

'69 TRIUMPH Spitfire MK III convertible, AM-FM radio, 47,000 miles, 30 mpg, \$1100. Harrison, 296-3045.

'59 BUICK Electra, 4-dr., full power, \$250. Ezell, 881-4246.

'73 MERCURY Capri, 4-spd., 2600 c.c. V6, 33,000 miles. Barr, 299-6169.

'74 SUZUKI 500cc motorcycle, \$595. T.D. Gardner, P.O. Box 44, Edgewood, NM, 87015.

'64 XLCH Harley Davidson Sportster motorcycle, \$1500. Shock, 877-3728.

WANTED

PERSON who enjoys outdoor work to mend fence, install gate, etc., around country place. Miller, 281-3189.

HEAVY DUTY coaster wagon for yard work & grandchildren. Stickler, 299-6843.

RENT FURNISHED HOUSE, 3-bdr., near elementary school, for visiting professor, beginning in Sept. for 9 months. Johnson, 298-4046.

SEAMSTRESS for minor alterations and for

constructing clothes from simple patterns; can alter my own patterns. Perea, 831-9623.

RADIO CONTROLS for model airplane. Harley, 898-0594.

INTAKE MANIFOLD & four barrel carburetor for 340 cu. in Dodge-Plymouth. Prevender, 299-5253.

TRADE, German Shepherd male for German Shepherd female. Gallo, 296-0112.

TWIN maple headboard; child's wooden table w/chairs. Stanley, 296-7623.

GOOD HOME for 2-yr.-old neutered male Siamese cat. Graham, 293-8823.

TABLE SAW in good shape, Craftsman or better, 9" blade or larger. Guttman, 243-6393.

DRAFTING TABLE, small 4'x4' approx. Holcomb, 255-4046.

HORSEHOES, pitching type, any style matched pairs; shop vac, wet or dry, heavy duty. Schuch, 298-9924.

OXYGEN-ACETYLENE gas welding outfit, w or wo bottles. VanDenAryle, 898-6474.

WE WILL clean out your garage for salable junk & rummage to benefit Manzano football booster club. Wilkinson, 299-8327.

MOVIE CAMERA & projector that will handle super or reg. 8mm film; spinner hubcaps for '65 Mustang. Chandler, 296-3323.

LPG bottle for camper; small stove & sink. McConnell, 255-2488.

CANOPY for side of R.V.; metal storage shed. Baxter, 344-7601.

BICYCLE, boys 16-18" McConahy, 299-3402.

REAL ESTATE

FULL ACRE on San Antonio Mountain in northern NM; unimproved, water/elec. readily available, nearby fishing & hunting, \$3200. White, 293-2219.

3-BDR. HOUSE, Princess Jeanne Area, near Sandia & schools, cash or REC to 4 1/4% GI loan. Shaut, 299-8569.

GLENWOOD HILLS South, 2450 sq. ft. 4-bdr., custom home, all brick w/thermopan, city & mountain views. Hill, 299-0019.

FOR RENT

3-BDR. HOUSE in Ashcraft addition near Winrock. 1 1/2 bath, single garage, lawn w/sprinkler system, lease only, Schwoebel, 298-4295 evenings.

3-BDR. HOUSE in Princess Jeanne Park area, fenced yard, attached garage, newly remodeled kitchen, \$250/mo. Potter, 256-1169.

LUAU • C-CLUB • JUG BAND • CIMARRONS • JIMMY CAGNEY • MAZATLAN

FRIDAY	SATURDAY
28 — HAPPY HOUR HAM/YAM BUFFET Adults \$3.50 Under 12 1.92 THE CIMARRONS <i>Denny in Lounge</i> SINGLES NIGHT	29 — SWIM POOLS OPENING DAY 11-6 GREEK NIGHT Cocktails at 6 Dinner at 6:30 Belly Dancers UP COUNTRY
4 — HAPPY HOUR GERMAN BUFFET Adults \$3.25 Under 12 1.92 Watermelon Mountain Jug Band 6:30 - 8:30 THE PRISONERS	5 — VARIETY NIGHT <i>Die Polka Schlingels</i> YANKEE DOODLE DANDY Food at 6; Show at 7 Free to Members

TWO — great attractions to Happy Hour tonight. One is the *Cimarrons*, a fine country-western aggregation to help you forget any city-eastern aggravation. Later in the Lounge is old (well, almost middle-aged) favorite Denny doing his sequel to "Flight of the Bumblebee." It's called "Deflate the Bumblebee," and it's in the key of Bee Flat, of course. All this and edibles too — baked ham, candied sweet potatoes, peas, deluxe salad table. And the pools are open till 9.

CAN — dancing to Denny, drinking to Happy Hour prices, and munching to satiation lure singles away from their desks at 4:30 today? We hope so. 50 cents at the El Dorado Room door swings it open for all Sandia/ERDA singles, Club members or not.

LIVE — it up tomorrow. It's a smashing, absolutely dashing, festival — the Swim Pools Opening Day. Take a dip, then dry out to *Country Comfort*, featuring Linda Beattie, Albuquerque's answer to Mary Hartman Twice's Best Friend. Snack Bar will be open; so will the 20¢ draft beer truck. You won't even need a ticket to make a splash.

AS — popular as the Watermelon Mountain Jug Band is, come early next



MEET DIE POLKA SCHLINGELS, including David Judd (2625 and clarinet virtuoso and standing behind bench, right foreground) and Paul McKay (5242 and trumpet tooter and holding his horn on bench, left). DPS will appear, live, in concert, at Variety Night June 5. They're a Teutonic Toni.

Friday. They're great, but they're not the only reason to make Happy Hour: sauerbraten, knockwurst, sauerkraut, German potato salad — gorge yourself royally. Then welcome the *Prisoners*. They get time on (the bandstand) for good behavior. (Pools are open till 9.)

CHEAP — season football tickets for all the Lobo home games are still on sale at the Club, thanks to Wolfpack.

AS — Monday is a holiday, the Club is closed. But pools and patio are wide open spaces.

ONE — brand new item on the Club's calendar: it's a Picnic Night, a time to get a group of friends or family together with a basket of goodies and enjoy them all on the patio. It's June 9 and every Wednesday evening after that, it's free, and it's very important that you *don't bring any glassware into the patio*.

IF — you have your tickets, then tomorrow night is the Big Night of the month: Greek food, Greek belly dancing (to professional oud player Peter Koury and drummer friend), Greek fun. (I don't know; what's a Grecian urn?)

THE — Club's Annual Luau is June 12. Roast pig, fried shrimp, mahi-mahi, and more. Like mai-tais. And Hawaiian dances by the Lum Lungs. *Tickets by the 5th*.

TWO — kinds of German beer lead off the Drink-of-the-Week schedule for June: Heineken Light and Lowenbrau Dark. Beginning the 7th, Mai Tais.

ARE — you feeling inundated? Don't fight it. Learn to enjoy the "Underwater World" at Outdoors Indoors on the 14th at 7:30. Dennis Schalles is the scuba and skin

diver who will make the slide presentation. It's free to all Sandians and ERDAnS.

PARENTS — with aquatically oriented youngsters are invited to the swim meet at the Club on the 11th at 4 p.m. and/or the 12th at 8 a.m. Different strokes for different folks, and different races for different faces.

AND — a diving match is on the boards too. It's at 6 p.m. on the 4th. You'll see every dive that can be done from a one-metre board, and maybe a few that can't.

THE — Twin Pools will be closed for the entire swimming meet and for the Retiree Picnic on the 2nd at 4 p.m. The Club Annex Pool will be open for business (or pleasure) as usual.

ONE — of the reasons to visit Variety Night is Die Polka Schingels; the other is Jimmy Cagney. He stars in a 1942 classic, *Yankee Doodle Dandy*. It's a musical biography of George M. Cohan who wrote great patriotic songs that'll give you great patriotic lumps in your throat.

IS — it your secret wish to make it to Mazatlan someday? Then sneak to the Club on June 1 and sign up for one of those fantastic package deals. Or check out the Athens Adventure or the Caribbean Cruise. But do it soon.

A — champagne-tea for the Sanado membership comes up June 8 from 2 to 5 at Sue Meyer's home. New and old (that is, current and past) presidents do — and get — the honors.

TEENAGER — and adult alike benefit from the Commonwealth discount movie tickets. Those now on sale are good through June 30.

MORE INFO — 265-6791.



KNOCKWURST • PICNIC NIGHT • SCUBA • DIVES