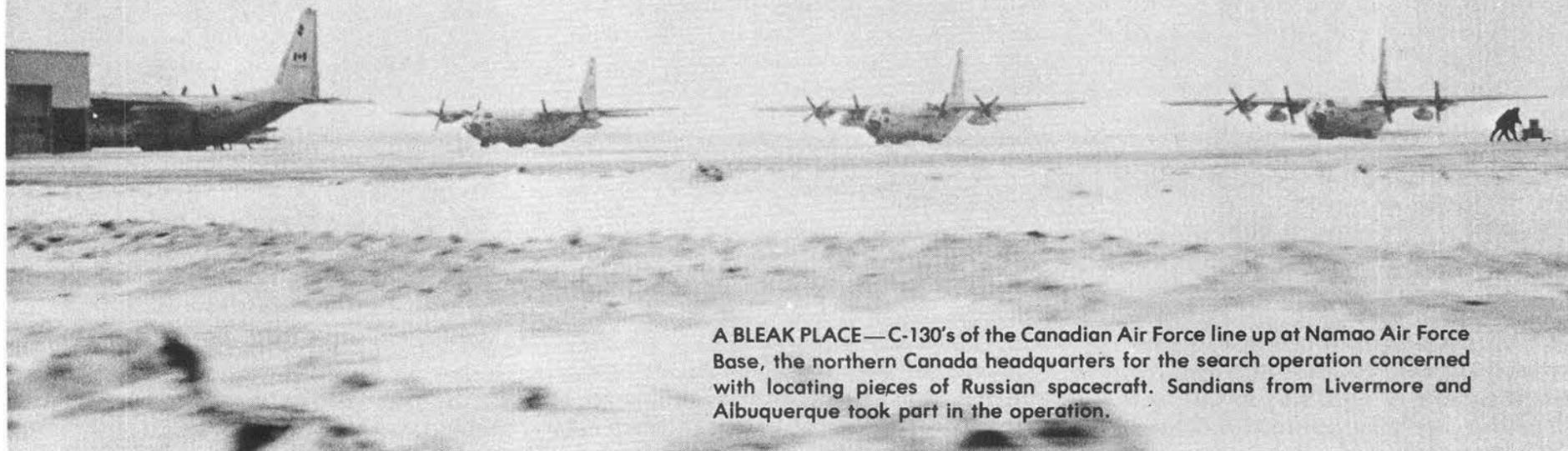




# LAB NEWS

VOL. 30, NO. 4

FEBRUARY 17, 1978



**A BLEAK PLACE**—C-130's of the Canadian Air Force line up at Namao Air Force Base, the northern Canada headquarters for the search operation concerned with locating pieces of Russian spacecraft. Sandians from Livermore and Albuquerque took part in the operation.

## Operation Morning Light

# Sandians Trace 'Unraveled' Spacecraft

It began on Jan. 24. That was the day Russia's errant spacecraft, the Cosmos 954, plunged through the atmosphere in the early morning skies of northern Canada, scattering debris over a wide area. The next day Rich Wagner of LLL, heading the Scientific Advisory Staff, invited Billy Sanders (8354) and Taz Bramlette (8131) for a briefing on the problem of locating the satellite's remains, as well as any parts from its nuclear reactor.

It was not going to be an easy search. Eyewitnesses agreed that the craft came apart as it fell—parts had to be scattered over hundreds of miles of more-or-less uninhabited terrain. The challenge: Predict where the pieces landed, or whether they had burned up in the atmosphere.

After the briefing, Taz and Billy called

Randy Maydew, manager of the Aerodynamics Department 1330, who guided them to Sam McAlees (1333). Sam in turn enlisted the aid of Harold Spahr (1336) and Mel Baer (1333), and the three of them became a sort of Albuquerque-based task force predicting where—or whether—the pieces hit the earth.

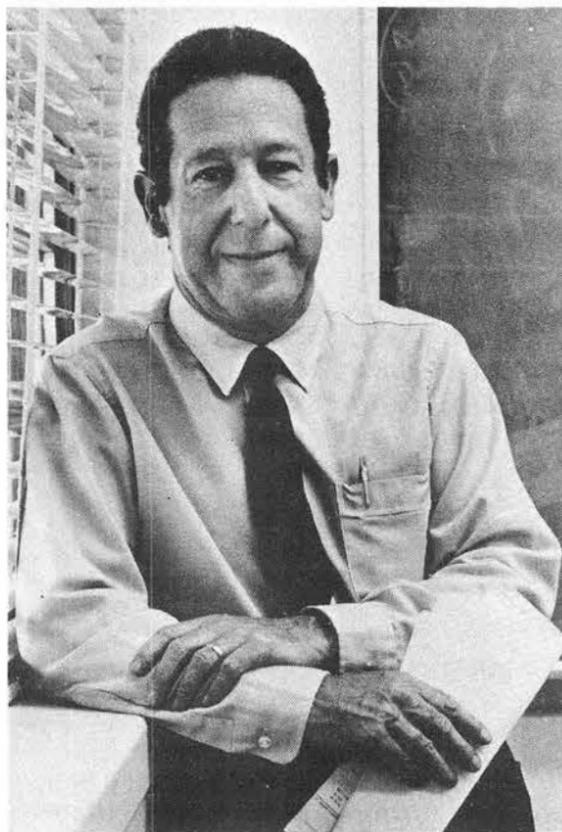
From Wednesday through Saturday, Billy and Taz channeled all the data available from the search headquarters in Edmonton, Alberta, to Albuquerque. Sam's team plugged the information into the aerodynamics, trajectory, and heating codes used years ago in studying orbital decay and other reentry problems for Sandia's aerospace nuclear safety effort. They then undertook the estimate of what must have happened.

Other labs in both countries were doing much the same, and LLL's Rich Wagner, chief of the scientific advisory staff in Edmonton, was getting all kinds of predictions. "Unfortunately, many of them were contradictory," said Billy. "So he decided to pull all the groups working on the problem into one place where they could hash it out."

Taz couldn't go; he had to be in Washington Jan. 30-Feb. 3. Billy could, and did. (While Billy packed to leave Sunday morning, wife Linda dashed around town cashing \$25 checks to cover Billy's living expenses in Edmonton).

Then the task began in earnest. Said Billy, "We started feeding data to Albu-

*[Continued on Page Four]*



Charlie Winter (400)

## Charlie Winter Heads 400 Directorate

Charlie Winter has been named director of Management Staff 400, effective Feb. 1.

In 1972, Charlie was named chairman of the Systems Planning Staff, former title of the group. Comprised of technical and administrative people usually on one- to three-year assignments, the staff is responsible for technical and administrative studies affecting the work of the Laboratories. The directorate reports to E-VP Jack Howard.

Joining Sandia in 1952, Charlie worked with an engineering projects group until 1956 when he became employee number 20 at the newly established Livermore Laboratory. He held various supervisory positions with the preliminary design organization and then returned to SLA to become manager of Systems Planning Department in 1962. For three years, on leave of absence from the Labs, Charlie served as Deputy Director of the AEC's Division of Military Application. Re-

turning to Sandia in 1969, he was named manager of the Systems Analysis Department, remaining in that job until he became head of management staff.

Born in Vienna, Austria, Charlie emigrated to the U.S. in 1938. He attended City College of New York for three years, then spent three years in the Army in WW II. After the War, he received his MS in ME from Harvard University. He is a member of ASME.

"I've enjoyed the Labs," Charlie says, "the different locations, my involvement with PAL and the small reentry vehicle program, and the interest and challenge of this job. I've been pretty lucky."

Charlie and his wife Joan have a son who is a journalist and a daughter who is a biologist. He says that his greatest enjoyment off the job is hiking in New Mexico's mountains. The Winters live in NE Albuquerque.

# Financial Policies Discussed in Seminars

Sandia financial specialists of the Comptroller's organization 3200 are currently conducting seminars on Financial Management Information. Attending the meetings are Sandians concerned with budgeting, cost estimating and financial management for all the Labs' programs and projects. To date, some 320 have attended the sessions. The seminars will continue through the end of March at Albuquerque.

Leo Arellano, supervisor of Financial Systems Division 3211, says, "the seminars present a detailed explanation of Sandia's financial management system. All Sandians involved in financial management—from supervisors to administrative assistants—are invited to attend. Each director designates attendees for his organization. Our intent is to present all available information which will make their jobs easier, and ours, too."

Subject discussed and speakers making presentations are:

"Case System Overview"—specific information concerning the financial management functions within the case system structure—Dick Coughenour (3213).

"Manpower Reporting and Loaded Salaries"—manpower reporting requirements, calculating Base-FTE (Full Time Equivalent) reporting units, effect of overtime and flex-time on Base-FTE's and calculating loaded salaries—Bob McIntosh (3211) and Pat Murphy (2625).

"Purchase Cost Forecasting"—methods of forecasting costs on Sandia purchase orders and impact of these forecasts on financial reporting—J. B. Hamlet and Elveta Patrick (both 3211).

"Work Order System/Tech Support"—how work orders are used in Sandia's Accounting Subsystem, impact on cases and organizations, and how the work order system is used in Tech Support—Dick Rogers (3241).

"Estimating and Pricing"—how to prepare estimates of costs of Sandia goods and services, the various cost elements that are used, and how to apply the rates under various circumstances—Bob Parks (3211) and Dick Schreiner (3251).

"DOE Management Information System (MIS) and Military Application(MA)

Reporting"—how Sandia's cases and work classes relate to DOE reporting, unique reporting to MA under the DOE weapons output categories—Beth Frost (3251) and Marv Guier (3242).

"Obligation and Cost Control"—relationship between budget authority and budget outlay, DOE requirements for control of commitments and cost, how DOE's Financial Plan control limits are established, and how Sandia monitors and manages costs and commitments to stay within these limits—Dick Casey (3211).

"Financial Information Reports"—data, formats, options and services available through the Financial Information Center—Alva McGuckin (3251).

"Seminar attendees are asked to critique the sessions and make suggestions," Leo says. "Comments have been overwhelmingly positive. In addition, we've identified some areas where followup sessions are required. We feel the seminars are very valuable to those who are responsible for the financial management of projects and programs and who are involved in soliciting, negotiating, developing and reporting on these projects."

## Friends of Fred Millsap Plan Benefit Dance March 14

Fred Millsap, a long-service employee in Div. 9422, is critically ill and hospitalized in Minneapolis, following a kidney transplant. Fred's son donated the kidney when his father lost the use of both kidneys after a prolonged bout with diabetes. He was taken to the University of Minnesota hospital two months ago, as the institution specializes in kidney transplants. Severe complications have slowed his recovery and necessitated further surgery, and at this writing his condition remains unchanged.

A group of Fred's co-workers have arranged a benefit party at the Coronado Club, Tuesday night, March 14, from 7 to 10 p.m. Proceeds will be donated to the Millsap family, to help pay for some of the travel and living costs they have incurred in caring for Fred. (The bulk of the medical expense is covered by insurance.)

A committee headed by Evelyn Pafford, Div. 2626, is selling donation tickets at \$1 each, which entitle purchasers to a chance on several prizes donated by local merchants. Music for dancing at the benefit party is being donated by the musical group, La Ultima.

Friends who wish to drop Fred a card may address him at University of Minnesota Hospital, Station #22, Minneapolis 55455.

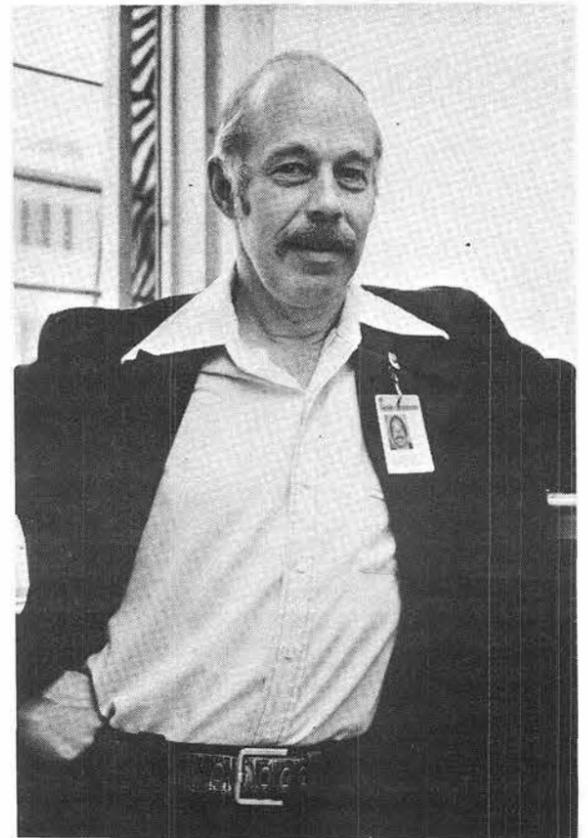
## Congratulations

Mr. and Mrs. Chuck Borgman (2336), a daughter, Corrie Christine, Jan. 28.

Mr. and Mrs. Larry Predika (1765), a son, Dec. 28.

Mr. and Mrs. Richard Byrne (3430), a son, David Michael, Feb. 7.

Mr. and Mrs. Joe Tafoya (3254), a daughter, Joclyn Rose, Feb. 6.



Bob Sonnenberg (4312)

## Supervisory Appointment

BOB SONNENBERG to supervisor of Bomb System Test Division 4312, effective Feb. 16.

Bob's 20 years at Sandia have all been with the weapons systems development directorate, where he has worked on current (Phase III), and advanced weapon systems. He has been a project leader for the past eight years.

He earned a degree in radio engineering from Valparaiso Technical Institute, a BS in EE from the Illinois Institute of Technology and has done graduate work at UNM.

Off the job, Bob enjoys bow hunting and wilderness hiking. His current activities are connected with the restoration of "a very dilapidated horse farm." Bob lives in the South Valley.



EVERYBODY knows Dick Malone, head of DOE's Sandia Area Office, and one reason (aside from being a nice guy) is that Dick has been here at Sandia since 1952. And now Dick is leaving, retiring. If you want to say "so long," drop by the Tech Area cafeteria next Friday morning the 24th, starting at 9. Dick will be presiding over the coffee and cake.

## LAB NEWS

Published every other Friday

SANDIA LABORATORIES

An Equal Opportunity Employer

ALBUQUERQUE, NEW MEXICO

LIVERMORE, CALIFORNIA

TONOPAH, NEVADA

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so does russell smith

bruce hawkinson & lorena schneider report livermore

## 1300: Exploratory Weapons Systems

THE BASIC MISSION OF 1300 says Director Don Shuster, "is to keep the shelf stocked with weapon options. Instead of responding to requests from military planners for specific weapons, we try to anticipate their requirements—to have feasible options available when they need them."

**CURRENT AND FUTURE PROJECTS.** "The key elements in all our projects are the safety, security, survivability and military utility of nuclear weapons. Project Forward Look, one of our current major programs for the DoD, philosophically embodies all these elements. We've been asked to look at nuclear weapons deployments for the next 10 years. To do that, we're studying the opposition, matching their plans and capabilities against our own strengths and weaknesses. And we're cranking in other potential problems—terrorists, dissident groups and potential political changes and their implications in foreign governments. Our largest current program is the extended range bomb. We expect to complete that project in FY 78 and then we'll move into other areas suggested by Forward Look and other studies now underway.

"Working with the DoD, we're defining our own current and anticipated problems. Out of all this, we'll develop a menu of solutions—concepts for new components, new weapons, new weapon subsystems. Once the conceptual studies are completed, the most promising designs will be built and tested—taken to the stage where we can judge their feasibility and military utility."

Tracing the history of exploratory systems from the 1960's (before a directorate of that name existed) Don Shuster notes some of the advanced concepts that made it—that now appear in the U.S. weapon arsenal. Two examples are the laydown weapon and the miniature fuzing and firing systems (which permitted development of small reentry bodies like those used in the Poseidon and in other MIRV weapons). Many of the ideas incorporated in the safe/secure trailer program also came out of 1300.

"Whenever concepts are converted to hardware, actually built and tested, 1300 has responsibility for overall system development. We set the design goals, establish schedules, resolve problems dealing with subsystem tradeoffs—but the components and subsystems are often developed and perfected by other directorates. We do our own design and development work in the fields of aeroballistics, aerothermodynamics, parachute systems and aerodynamic simulations—and we provide this same service for the Labs at large. One of our recently completed projects was the parachute system for the B-61 bomb.

"In exploratory work," Don concluded, "you have a great many ideas that must wait for their time to come. For example, we're taking a hard look right now at what we're calling intelligent weapons. It's been conceptually attractive for at least 10 years



DON SHUSTER, Director of Exploratory Weapons Systems 1300, displays model of extended range bomb—directorate's largest current program.

to build weapons capable of monitoring their own state of health from production to retirement—and of providing their own security monitoring and warning systems. Until the advent of microelectronics and microprocessors, however, the systems required to do that would have been too heavy, too bulky and have required too much power.

"With microprocessors, you have the added advantage of being able to change the mission, constraints and operating instructions of a weapon by reprogramming rather than by rebuilding or replacing the logic modules.

"In broadest terms, the intelligent weapons concept might make it possible for future warheads to monitor their location as well as their continuing state of health. They could be programmed to detonate only in specified areas of the world (and that location could be changed by reprogramming). In terms of security, they could monitor their own movements, check the credentials of the person moving them, remember who the person was—and in the event of unauthorized movement they could disable themselves and sound the alarm. If they were attacked while in storage and disabled or degraded in any way, they could report the attack and assess the damage. And, on a continuing basis, by measuring the degradation of many individual components, microprocessors could signal potential decreases in overall reliability long before any individual components failed."

### Sympathy

To Billy Weinbecker (9582) on the death of his mother in Boston, Feb. 1.

To Ves Harker (1765) on the death of his father in Quincy, Ill., Jan. 28.

To Roy Hart (3422) on the recent death of his father in Oklahoma.

To Irwin Stewart (9712) on the death of his father in Mitchell, Neb., Feb. 4.

To Marshall Berman (5411) on the death of his father in Detroit, Mich., Jan. 31.

## New Decals, New Badges Coming Up

Believe it or not, it's been five years since Sandia badges were issued. New ones are necessary, and the process of issuing them starts Feb. 27.

A schedule will be issued by Sandia Security designating location and hours of operation of a photographer's booth. The booth will be moved to various buildings through March 24. Employees must bring current badges and ID cards. Badge exchange will be made when all photographing is complete.

Also, re-registration of all employee-owned vehicles operated on KAFB is necessary. After April 1, the Air Force will not honor the present decals at the gates. Operational Security Division 3432 will handle the re-registration entirely through interoffice mail. Here's the way it will work:

Everyone who currently has a KAFB registered vehicle (including motorcycles and bicycles) will be sent a registration form. The employee completes the form, checks it, and returns it to Division 3432. A form must be filled out for each vehicle operated on Base. Division 3432 will then send the employee new decals. As in the past, the decals are to be placed on the left side of the vehicle's front bumper—left meaning the left side of a driver sitting behind the wheel.

All old KAFB decals are to be removed before placing the new ones in position.

"Through an agreement with the Air Force, Sandia continues to administer vehicle registration for employees," says Paul Pewe, supervisor of Security Administration Division 3431. "By running our own one-time (and continuing) registration program, we avoid the USAF requirement for an annual re-registration."

An Employee Bulletin to be issued next week will carry full details of the re-registration. Paul urges all Sandians to complete the forms quickly and return them to Division 3432.

## 20 Years Ago

Active in promotion of projects of the Tennis Club of Albuquerque are C. H. Bidwell (1454) and H. S. "Hup" Wallis (7131).

The two presently are working on the forthcoming pro exhibition at UNM's Johnson Gym which will feature Lew Hoad of Australia, Pancho Gonzales of Los Angeles, Tony Trabert of Cincinnati and Pancho Segura of Ecuador.

\* \* \*

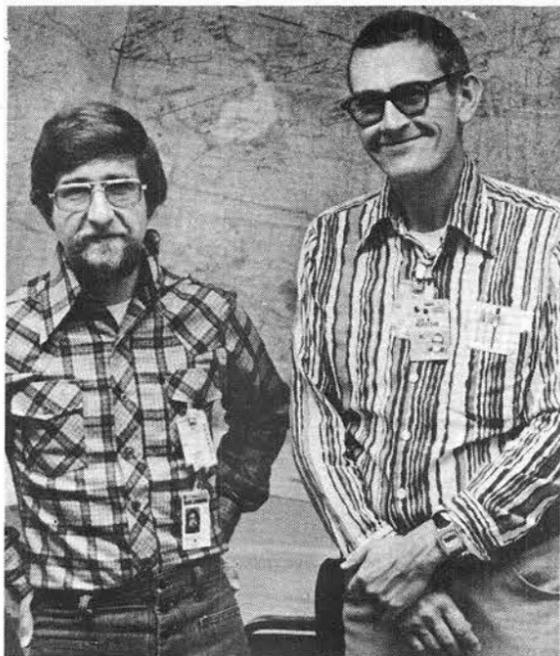
Members of the Sandia Laboratory Federal Credit Union voted a 5¼ per cent dividend totaling \$126,765 at their annual January meeting. New board members are W. E. Prekker (6021), and J. J. Michnovicz (2462). Those re-elected were R. J. Blount (4151), L. E. Lamkin (7300), J. T. Dempsey (6021), Gertrude Byrne (7225), D. S. Tarbox (2440), D. J. Hillard (4113) and R. W. Whitson (5521).

# LIVERMORE NEWS

VOL. 30, NO. 4

LIVERMORE LABORATORIES

FEBRUARY 17, 1978



SEARCHERS Billy Sanders (8354) and Ira Morrison (LLL)

## Congratulations

Glenda Plake (8150) and Jim Muir (8181), married in Livermore, Dec. 10.

Mr. and Mrs. Bob Carling (8313), a son, Christopher Robert, Oct. 18.

Mr. and Mrs. Curt Cofield (8183), a daughter, Jessica Ward, Nov. 11.

Mr. and Mrs. Roy Lee (8327), a son, Anthony Shung-Cheung, Nov. 17.

Pam Andrews (8212) and Rene Drumtra, married in Livermore, Jan. 14.

Mr. and Mrs. Bill Forbes (8265), a daughter, Melanie Beth, Jan. 31.

## Sympathy

To John Brengle (8185) on the death of his sister in Albuquerque, N.M., Jan. 16.

To Ken Byrne (8168) on the death of his mother in Seattle, Wash., Jan. 10.

To Rudy Grund (8257) on the death of his father-in-law in Atlantic, Iowa, Jan. 18.

To Stan Serpa (8256) on the death of his mother-in-law in Modesto, Calif., Jan. 28.

To Regina Kamp (8161) on the death of her step-mother in Livermore, Feb. 5.



CONGRESSMAN Carl Pursell, (Rep. Michigan), right, on a national tour of laser fusion facilities, changed his schedule to include a visit to Sandia Livermore for briefings by VP Tom Cook on SLL's combustion research activities. A member of the House Committee on Science and Technology, Congressman Pursell was accompanied by Larry Killion of DOE's Laser Fusion Division.

*Continued from Page One*

## Sandians Trace 'Unraveled' Spacecraft

querque by phone early in the morning and kept it up till late evening—data in, plug it into the codes, run it through the computer, get the answers back, shift the search patterns, get more data, and repeat the cycle.”

\* \* \*

Such a task is, of course, highly technical—Sam dropped esoteric terms at approximately the same speed that the spacecraft apparently dropped components.

For the layman, then, here's a simplified version of what was happening over the last few weeks:

•During the craft's dying orbit, tracking data from the South Pacific, Hawaii, and the west coast of Canada provided data points—altitude (from about 56 nautical miles down to 45 nautical miles), velocity (about 26,000 fps over the South Pacific, 25,000 fps over western Canada; for reference 25,000 fps is just over 17,000 mph), and course (over Great Slave Lake). It was these data points that LLL's Bell and Morrison used to predict the line along which debris would fall. Incidentally, the next orbit would have been further south, but not over New York City as some of the media stated.

•The spacecraft weighed about five tons, and its main body was covered with a thin metallic skin, probably an aluminum, titanium, or steel alloy.

•This skin would disintegrate as it melted, due to slow atmospheric heating—slow because the angle of reentry was so gradual, probably about 2/100ths of a degree (as opposed to a reentry vehicle's 20 to 40 degrees). Mel was key man here; he performed the aerothermal calculations that explained loss of the metallic skin.

•At these high altitudes, the spacecraft would have been tumbling. This action was modeled in both the trajectory and heating calculations.

•As the craft encountered ever denser air, it began “unraveling.” That is, it began losing pieces. Each loss, of course, affected the trajectory of the main body.

•Where the pieces landed depended on their beta, that is on the ratio of weight to drag coefficient times area. (Beta is a measure of how rapidly objects slow down when flying through the atmosphere.) Over the weekend, some 200 trajectories were run to get the best match with the tracking data over Canada. With the trajectory starting conditions and a main object beta estimate of 100, Sam's team recreated a flight from the last tracking point to the surface. “Nothing very close,” reported the searchers.

•Then came good data on winds the

morning of the reentry. Once winds were cranked into the equations, predictions were within a few miles of craters formed by pieces of the craft. Success!

“By this time,” said Billy, “Wagner was relying increasingly on Sandia. McAlees and his people were fantastic—first of all because they had the experience and codes, second because they always did the best they could with the limited, and sometimes inaccurate, data we were providing them. No questioning, they just kept on making ever more accurate approximations of the answers we needed.

“We were all working at a fever pitch up there. But the guys in Albuquerque, especially Harold, kept plugging away, hour after hour, day after day.”

“You almost have to know how to do it,” said Sam—a considerable understatement. “We were using three different Sandia codes. Fortunately, the Computer Operations Dept. (2630) gave us maximum priority on two CDC 6600's. We kept them pretty busy. We kept Harold pretty busy too—like 90 hours a week.”

\* \* \* Billy didn't get a chance to do much sightseeing in Canada. “Too busy,” he said, “but I'm not sure I would have wanted to anyway—temperatures at night were about 25 below. It warmed up during the day though, sometimes all the way to zero.

“Our LLL, Aerospace Corporation, and Sandia staff was either at headquarters, a hangar at Operations Headquarters for the Canadian Air Force at Namao Air Force Base, or at a motel in Edmonton.”

Billy was involved with debriefing the two men, Mike Mobley and John Mordhurst, who found a major piece of the craft on the ice of the Thelon River. “They were excellent witnesses—we learned a great deal from them that helped us improve our data input and thus narrow the search. They were involved in a wildlife study and, contrary to some media reports, did not resent being ‘interrupted by civilization’—they weren't recluses at all. In fact, I helped make them feel at home with a tour of our work area and they were very interested, full of questions.”

Billy came home to Livermore for a few days in early February, but he was eager to get back to the action on the fifth; after all, 20 or 30 possible “hits” remained to be checked out, and one of those could be the reactor core. Then too, “I got pretty involved. It was a great experience. And Sandia really came through. As the Canadian Air Force people put it, ‘Those Sandians are extraordinary!’”

Canadians are pretty good at understatement too.

## Livermore Speakers

Ken Hicken (8423), "Resistance Forge Welding," San Francisco Section meeting, American Welding Society, May 25, Berkeley, Calif.

Jim Miller (8351) and Bob Kee (8352), "The Structure of Hydrogen-Air Laminar Jet Diffusion Flames: Free Radical Distributions and the Role of HO<sub>2</sub>," American Chemical Society, Reaction, Mechanisms, Models and Computers meeting, Mar. 20-25, New Orleans, La.

Dave Ottesen (8313) and Chuck Hartwig (8342), "Radiation-Induced Hydroxyls and Hydrides in Hydrogen Impregnated Vitreous Silica"; Carolyn Kramer (8313), "Low Temperature Sintering of Iron Oxide"; and Ray Mar, Taz Bramlette, Jim Bartel, Ben Mills and Monte Nichols (all 8313), American Ceramic Society Meeting, Apr. 26-27, Chicago, Ill.

Ray Mar and Taz Bramlette (both 8313), "Thermochemical Energy Storage and Transport Program," American Nuclear Society Meeting, June 13, New York, N.Y.

Steve Robinson (8314), "The Role of Selective or 'Brush' Electroplating in Future Hydrogen Storage and Transmission Systems," American Electroplaters' Society Conference, June 28, Los Angeles, Calif.

Bill Hoover (8314), Invited Speaker, "Graphite/Aluminum: An Evaluation of State-of-the-Art Material," Aerospace Corporation Symposium on Recent Developments in Metal-Matrix Composites, Apr. 21, Los Angeles, Calif.

Pete Witze (8352) and H. A. Dwyer (UC/Davis), "Impinging Axisymmetric Turbulent Flows: The Wall Jet, the Radial Jet, and Opposing Free Jets," International Symposium on Turbulent Shear Flows, Pennsylvania State University, Apr. 18-20, University Park, Pa.

Bill Ashurst (8352), "A Numerical Simulation of Turbulent Mixing Layers via Vortex Dynamics," International Symposium on Turbulent Shear Flows, Pennsylvania State University, Apr. 18-20, University Park, Pa., and at a Numerical Fluid Mechanics Department Seminar, Naval Research Center, May 12, Bethesda, Md.

Reggie Mitchell (8351), "Numerical and Experimental Investigation of Laminar Methane-Air Diffusion Flames," UC/Davis Mechanical Engineering Department Seminar, Apr. 28, Davis, Calif.

Bob Kee and Jim Miller (both 8354), "A Split Operator Finite Difference Solution for Axisymmetric-Laminar Jet Diffusion Flames," AIAA Third Computational Fluid Dynamics Conference, June 27, Albuquerque, N.M.

Dan Hartley (8350), "Laser Probe Experiments and Modeling Studies of Hydrogen Diffusion Flames," Bay Area Conference on High Temperature Science and Technology, Apr. 28, Livermore, Calif.

Arnie Andrade (8424), Jim Hopwood (8423) and Bill Abel (Bendix/KC), "Update on Microhm Testing Technology," Fall Meeting, Institute of Printed Circuits, Sept. 25-29, Chicago, Ill.

Monte Nichols (8313); G. S. Smith, Q. Johnson and M.



**WORK EXPERIENCE PROGRAM EMPLOYEE** Antoinette Ruiz (8314) is a finalist in the National Society of Professional Engineers college scholarship competition and the recipient of an award from the local SPE chapter. A Livermore High School senior, Antoinette plans to major in bioengineering next fall at the University of California. Sandia members of the SPE scholarship selection committee include Mike Chiesa (8121), Carolyn Kramer (8313), Susan Roche (8342) and Mike Soderstrand (8159).

E. Kahara (all LLL); and R. L. Snyder (Alfred University), four presentations: "Power Identification by X-rays: I. An Overview and a Goal, II. Criteria for Pattern Evaluation, III. The Quality of Current Standards, and IV. Use of Your Data by Others," 1977 American Crystallographic Association meeting, Michigan State University, Aug. 7-12, E. Lansing, Mich.

Harry Dwyer and Billy Sanders (both 8354), "Numerical Modeling of Unsteady Flame Propagation," Sixth International Colloquium on Gas Dynamics of Explosions and Reactive Systems, Aug. 22-26, Royal Institute of Technology, Stockholm, Sweden.

Bill Hoover (8314), "The Philosophy of Composite Materials Toughness Testing," AIME Orange County Chapter Meeting, Apr. 21, Los Angeles, Calif.

Bill Ashurst (8352), "Equilibrium and Transport Estimates for Hydrogen and Helium via Lennard-Jones Fluid," Seventh Symposium on Thermo-physical Properties, sponsored by American Society of Mechanical Engineers and National Bureau of Standards, May 10-12, Gaithersburg, Md.

Walt Bauer (8347), "Molecular Processes at Solid Surfaces: Surface Chemical Problems in Controlled Thermochemical Reactors," invited presentation, Joint Chemical Institute of Canada and American Chemical Society Conference, May 29-June 2, Montreal, Canada.

Sheridan Johnston (8352), "Supersonic Channel Flow with Mass, Momentum and Energy Addition"; John Didlake (8366), "Non-Fourier Melting of a Semi-Infinite Solid"; and Bob Cattolica (8351), F. Robben (LBL), and L. Talbot (UC/Berkeley), "Temperature Measurement from Rayleigh Scattering," Sixth Canadian Congress of Applied Mechanics, University of British Columbia, May 30-June 3, Vancouver, Canada.

Bob Schmieder (8342), "Laser Spark Spectroscopy for Combustion Diagnostics," IEEE/OSA Conference on Laser Engineering and Applications, June 1-3, Wash., D.C.

Steve Robinson (8314), "Selection of Structural Materials for Hydrogen Storage and Transmission Applications," invited speaker, Materials Science Colloquium, Argonne Center for Educational Affairs, June 4, Argonne, Ill.

Stu Keeton and Pat DeLaquil (both 8321), "Conflict Simulation for Surface Transport Systems," 18th Meeting, Institute of Nuclear Materials Management, June 28-July 1, Washington, D.C.

Dennis Siebers (8124) and Prof. R. Viskanta (Purdue University), "Thermal Analysis of Some Flat Plate Solar Combustion Designs for Improving Performance," AIAA Thermal Physics Conference, June 27-29, Albuquerque, N.M.

Ron Stoltz (8314), "Improvement in Sulfidation Resistance of Commercial Alloys," First International Conference on Materials for Coal Conversion and Utilization, sponsored by DOE, National Bureau of Standards, Oct. 11-13, Washington, D.C.

Dan Tichenor and Ken Henry (both 8144), "Ultrasonic Low-Pass Spatial Filtering," IEEE Ultrasonics Symposium, Oct. 26-28, Phoenix, Ariz.

Bill Ashurst (8354), "Vortex Growth in a Moving Corner with Compression," and Steve Margolis (8322), "Time Evolution of a Packed Bed Thermocline," 30th Anniversary Meeting of the Division of Fluid Dynamics, American Physical Society, Nov. 21-23, Bethlehem, Pa.

Walt Bauer (8347), Ken Wilson (8347), Charles Bisson (8322), Leroy Haggmark (8341) and R. J. Goldston (PPPL), "The Role of Blistering in Surface Erosion of Tokamak Devices"; Ken Wilson, George Thomas (8347), and Walt Bauer, "The Response of Plasma Sprayed Beryllium to He<sup>+</sup> Bombardment"; George Thomas and Ken Wilson, "Microstructure of High-Dose Multiple Energy He<sup>+</sup> Implanted Stainless Steel"; and Mike Baskes (8341), "Computer Simulation of Helium-Assisted Bubble Nucleation," American Nuclear Society Winter Meeting, Nov. 27-Dec. 2, San Francisco, Calif.

Dan Hartley (8350), "Advances in Laser Diagnostics for Combustion Research," Materials Research Symposia Series, Institute for Materials Research, National Bureau of Standards, Dec. 12-13, Gaithersburg, Md.

Bob Carling (8313), "Vapor Pressure Measurements on the Hydrates of Magnesium Chloride," 174th Annual American Chemical Society meeting, Aug. 28-Sept. 2, Chicago, Ill.

Roger Everett (8158), "A Comparison of Flight Test Results and 6-DOF Calculations Using the Incremental Coefficient Method for Store Releases from the F-111 Weapons Bay," Fourth JTCG Aircraft/Stores Compatibility Symposium, Oct. 12-14, Fort Walton Beach, Fla.

Rudy Johnson and Jack Dini (both 8312), "Joining by Electroplating: Another Technique for Producing Aluminum/Copper Transition Joints for Electrical Apparatus," Tenth Annual Connector Symposium sponsored by the national Electronic Connector Study Group, Oct. 19-20, Cherry Hill, N.J.

## Retiring



Joe Buchler (8256)

## Livermore Authors

Carl Melius (8341) and W. A. Goddard, S. P. Walch, A. K. Rappe and T. H. Upton (Cal Tech), "Methanation of CO Over Ni Catalyst: A Theoretical Study," JOURNAL OF VACUUM SCIENCE TECHNOLOGY, Vol. 14, No. 1, p. 416.

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# feed *li*back

*Q. Isn't it about time we did away with reserved parking for car poolers? After all, this was originally done to save energy and Sandia is apparently not interested in this anymore; e.g., the janitors work until 9:30 p.m. keeping the lights on in most buildings, and I haven't been anywhere where the temperature was less than 72° [remember 68°?] It also seems to me a lot of the car pool slots are never occupied.*

A. Sandia is interested in energy conservation. If your building is above 68°, I hope you'll contact Plant Engineering to correct it. Our janitor schedule aims at efficiency and minimum disruption. Lights are turned off when the work is completed.

Our interest in energy conservation is tempered by consideration of the individual's privacy. We hope home thermostats are not set above 68°, and we might wish more employees drove 4-cylinder, gas-conserving autos. But we don't intrude into these private matters. We make buses as convenient as possible but don't take a role in the decision to use them.

We make parking available to encourage pooling. The most recent change reduced the number of spaces reserved for pooling—and we will change that number again according to demand. The present car pool system has some drawbacks, but its administrative simplicity commends it. It doesn't take a lot of Security's manpower (as did the previous system), and most employees readily understand the basic groundrule: you must have two or more people in the car when you park it in a car pool slot.

(Incidentally, we recognize that the parking facilities west of Bldg. 832 haven't kept pace with the population movement toward the northern edge of the Tech Area. Expansion of this parking area was recently completed, and paving is now scheduled.)

W.J. Howard — 2

*Q. At two colloquiums this week Bldg. 815 was absolutely frigid. I sat under one vent near the front that put out cold air for most of the performance. Why?*

A. The condition of cold temperatures in the theater, Building 815, was checked by Plant Maintenance. The problem was found and was due to the radiant heat from the sun causing the heating outdoor air controller not to switch to the heating mode, even though the outside air temperature was below the control set point. As an immediate correction, the set point of the outdoor heating control was lowered to account for radiant heat effect. Final correction will be the relocation of this control to the north side of the building.

R. E. Hopper—9700

*Q. I find the CDC Fortran manual for the NOS time-share system to be rather poorly indexed and generally difficult to comprehend. Other casual users have the same difficulties. Can Sandia write or have*

*written a simplified manual in layman's language?*

A. We agree with you that the index to the NOS FTN reference manual leaves much to be desired. However, the manual assumes that the user already has a knowledge of Fortran and merely needs the manual to confirm a particular detail or usage of the language. There are a number of good books on Fortran which provide greater detail and many pertinent examples. Call Gary Shepherd at 4-1450 for books and references. He will be glad to help you.

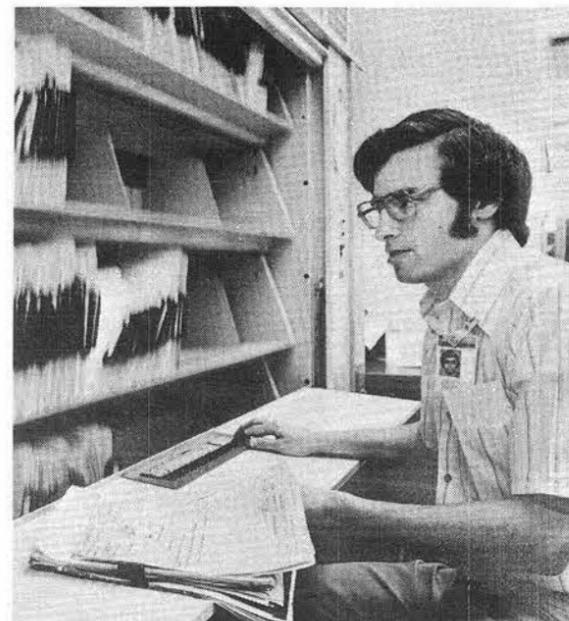
Unfortunately, we just do not have the manpower to write an in-house version of NOS Fortran User's Guide, nor do we have the budget dollars to contract for such a job.

L. E. Hollingsworth—2600

*Q. What's the logic behind giving employees a subscription to "Retirement Living" while they are working, and don't have any use for it, and then cutting it off when they retire and could use it?*

A. For many years Sandia conducted group pre-retirement counseling sessions to assist employees in planning for their retirement. However, these sessions were discontinued because employees were not interested. At that time Sandia provided employees age 55 and over, a membership in the American Association of Retired Persons and a subscription to "Retirement Living." Both offer useful information which can be helpful to employees in planning for their retirement. Sandia does not continue these subscriptions for retirees because of cost considerations.

F. P. Prange - 4100



SANDIA'S CREDITORS have reason to appreciate work done by these people. They're in Payment Processing Division 3254, and this is where the bill paying process begins. Stacks of mail arrive daily 1-1 about 30,000 to 40,000 pieces of paper each month. Four clerical trainees—Dorothy Curtis, Shanna Cernosek, Porfie Gonzales and Donna Cox—open the mail, sort, and match up

purchase orders with receiving reports and invoices. Kay Matijevich is messenger for the group and Joe Tafoya is the file room's senior clerk. In these pictures Dorothy Curtis opens a portion of the day's mail; Shanna Cernosek files reports, while Joe Tafoya checks out a purchase order on a whirling rotating file.

## Fun & Games

**CCWGA**—That stands for Coronado Club Women's Golf Association and, for the coming season, CCWGA has a number of events planned. Tuesday next, Feb. 21, a membership cocktail party is being held at the C-Club from 4:30 to 6:30 p.m. All women golf enthusiasts (employees & retirees of Sandia and DOE) are invited. Next, the Association is offering golf lessons starting Saturday, Feb. 25, at the Sunport on Girard SE, beginners at 10:30 a.m., intermediates at 1:00 p.m. The lessons go for five consecutive Saturdays, cost \$22.50. If you're interested, send your name, organization and extension to Dot Calloway, Org. 2611, and indicate your preference for beginner or intermediate lessons.

Reba Garrison (1320) and Dot Calloway (2611) are president and VP of CCWGA. Contact either for additional membership information.

\* \* \*

**Skiing**—An interesting item in *der Sitzmarker* notes that this is the Sandia Peak Ski Area's 40th birthday, making it one of the oldest ski areas in the country. Started by Bob Nordhaus and several other members of the Albuquerque Ski Club, the area was originally called La Madera and featured a home-made rope tow that hauled skiers to the now flat area at the top of Lower Diablo. There it made a left turn (no mean trick with a rope tow) and ascended a few hundred more feet. For today's skiers who regard a chair lift without a foot rest as crude, riding a rope tow would be a revelation. Incidentally, Bob Nordhaus can still be seen skiing the Sandia slopes, gracefully demonstrating that the sport is not entirely the province of teeny boppers and hot doggers.

\* \* \*

**Biking**—We were intrigued by an ad in *Time* for something called the "Bikebug" and sent for literature. It's a 2-cycle internal combustion engine that weighs 11 pounds and you hang it on the front fork of your bike "...in minutes." A roller applied to the front tire then provides the friction drive. "Pedal up to a few miles per hour, pull the engagement lever to drop the driving roller against your front wheel and you're on your way." The 22cc develops .8 hp and you can cruise at about 15 mph. We've earlier remarked here that mopeds may have pedals but, weighing 60 or more pounds, are a long stretch from being usable in their bicycle mode—the pedals are used chiefly for starting the motor. But the relatively light weight of the Bikebug would permit most cyclists to continue cycling when they wanted to, using the motor as a booster on hills or in the wind. Besides, Bikebug is a lot cheaper than a moped: \$175.



Down at Georgia Tech they're already predicting the era of spray-on clothing. And the head of the Textile Engineering Department says we won't be able to see the difference between the spray-ons and the woven kind. If all goes well, underwear and utility clothes will soon be manufactured using a sophisticated spraying process instead of weaving, spinning or stitching. We were reassured to learn that the intent is to spray synthetic chemicals on mannequin-like forms. Somehow we didn't think we could stand still for anything more direct—especially on cold mornings.



INVENTORS John Andersen (5433), Robert Kindley (4342) and John Flanigan (9655) display sections of two inventions, both part of Sandia's Advanced Nosetip Test (ANT) program. The inventions are a spring-loaded spin ejector and a nosetip locking device. Background drawing shows multiple nosetip configuration carried into space by a Minuteman I missile for reentry testing. Not shown is Gene Harty (4342), co-inventor of the nosetip locking device.

### Advanced Nosetip Program

## Two Patents Awarded for ANT Devices

Two patents were recently awarded DOE for inventions stemming from Sandia's ANT (for Advanced Nosetip Test) program. Purpose of the program is to test a series of nosetip designs and materials during actual reentry with identical reentry atmospheric conditions.

For the tests, a Minuteman I missile is fitted with four reentry vehicles, each with a different nosetip design and material composition. The RV's are ejected and spin stabilized from the missile prior to reentry.

One patent was awarded for the spring-loaded spin ejector device. Mated to each RV, this adjustable device allows sequenced or simultaneous release while imparting the same spin rate to each vehicle. A single spring provides both ejection force and spin force. A second spring provides the force to separate the

electrical connections between missile and RV. Both springs are triggered by explosive bolts.

The second patent was awarded for a nosetip locking device that is strong enough to survive high dynamic loading during reentry. It also provides for blind-mating high-quality electrical connections for a large instrumentation array and for interchanging various nosetips on any one reentry vehicle.

Inventors of the nosetip locking device are John Anderson (5433) and Gene Harty (4342). John also invented the spin ejector device working with co-inventors John Flanigan (9655) and Robert Kindley (4342). The ANT program is centered in Exploratory Systems Division V 1323 under Don Rigali. Marlyn Sterk (1323) is project leader.



WARREN BRONSON of Remote Areas Maintenance Division 9718 has this dream. It has to do with Base drivers who won't let Warren and his vehicle into a line of traffic. So mechanic Bronson put back together this 21-ton armored personnel carrier out in Coyote Canyon where the APC had been knocked around a bit in some explosives tests. Turns out to be a handy work horse in the Canyon where it hauls cable, pulls trucks out of the mud and generally intimidates other vehicles. Look for it and Warren some evening on your way off Base.

# Women In Non-Traditional Jobs

**The Job:** ESAT - Engineering and Science Assistant Trainee, Systems Safety Technology Division 5432.

**The Responsibilities:** Learning to assist researchers in all aspects of nuclear power safety. Requires working knowledge of physics, math, electronics and the ability to operate a variety of power tools.

**The Job Holder:** Barbara Stearns. Last year Barbara bid on an ESAT opening in her division and got the job. On Oct. 1 she began a five-year program of on-the-job training and self study that will lead to the equivalent of a two-year Tech Institute degree.

Married and the mother of five children, Barbara has worked at Sandia off-and-on since the '50's. Her first job was as a typist in Field Test. She was 18 and just out of high school. Then she married. After three years (in her own words) she "retired for 17 years to raise a family," the oldest now over 20 and the youngest 5 last Christmas. To get rehired, Barbara took training on her own to qualify as a keypunch operator.

"The jobs leading up to this one were interesting," Barbara says, "but they were repetitious. I felt the need for variety—in terms of both work space and assignments. This job certainly provides that. It's a constant learning process, all day, every day—and the self study courses take a lot of outside time. I didn't have math in high school, so algebra and geometry are real challenges. Fortunately, I have wonderful co-workers who are willing to help me out.

"I'm involved in a number of practical training projects, too—most of them tests involving the accidental loss of reactor coolant. Right now we're studying the synergistic effects on reactor cable of radiation, heat, steam and caustic spray—and I'm also working on some electrical fire tests on cabling to measure the effectiveness of fire retardants and protective coverings."



BARBARA STEARNS (5432 - ESA Trainee) works on test setup used to measure effects of radiation on nuclear reactor cabling.

Asked what's been the most difficult adjustment in her new job, Barbara thought a moment: "Overcoming my own traditional mental sets," she says. "Sometimes I ask myself, 'What am I doing? This is a man's work.' But that's kind of old fashioned. I enjoy the work, do it well and I think I'm learning to be a real help. I worried at first that I might not be strong enough to handle some aspects of the job. But there's plenty of work to do that doesn't require great physical strength. I let the men do the heavy lifting. In a very practical sense, I'm not in any kind of physical competition on this job. And," she adds with a smile, "I'm not offended if one of the men opens the door for me, either."

## Women Needed to Accept Challenge

Affirmative Action Division 3511 is headed by Mary Quigley, a determined and pragmatic woman whose interests are more in results than in theories. Her goal is equal employment opportunity for everyone—for the minorities, the handicapped, the disadvantaged. And she doesn't sit around the office waiting for good things to happen. On behalf of the Labs, Mary and members of her staff visit schools, counsel employees on career development, explore job potentials and possibilities throughout the Labs. Right now, they're concentrating on encouraging women to enter non-traditional jobs.

"It's an uphill battle," Mary says, "because the stereotypes of women as secretaries, librarians, clerk typists or administrators are difficult to break down. But Sandia's policy is unequivocal: women will not be excluded from any job for which they are qualified—or which they can become qualified.

"We're working to get more women into jobs traditionally filled by men. More

women are graduating from technical schools—and we're hiring them to work at the Labs. We're also finding ways to be more responsive to women who want to pursue non-traditional jobs—women who are willing to take classes out-of-hours to indicate interest, to become apprentices, to devote themselves to the long-term training programs required to become technical staff assistants and craftspeople."

"It isn't easy to change jobs," Mary Quigley says, "or to be the first woman to enter an all-male career field. But we have a lot of women at the Labs who say it's worth the effort.

"The law says the world must change for women," Mary concludes, "but the law can only provide the opportunity. It's the women who accept the challenge who actually change things."

For more information or an appointment for career counseling, contact Mary Quigley at 4-6602 or Hazlett Edmonds at 4-9481.

Not so many years ago, the career paths for most women were clearly marked—and they led to the production-line or to the secretarial desk. Women taught, nursed, typed, ran routine tests in laboratories. Time and growing cultural awareness have broadened the scope of career opportunities for women, opening up a variety of areas formerly filled almost exclusively by men. To meet moral and legal mandates, employers like Sandia now seek out women for non-traditional jobs. They recruit



BEANY HALL (9710 - Electrical Apprentice) inspects electric motor sent in for repair under watchful eye of Journeyman Jack Carnohan.

**The Job:** Electrical Apprentice, Plant Maintenance 9710.

**The Requirements:** Learn to lay out, modify, repair and maintain plant electrical systems—also to test, diagnose and correct malfunctions in systems, circuits and components. Indoor and outdoor work required in all kinds of weather with exposure to dirt, dust, heat and cold. Work performed in standing position with intermittent bending, climbing and kneeling, frequently exerting moderate physical effort and occasionally lifting up to 60 pounds. Some hazard occasioned by work on ladders and with high voltages.

**The Job Holders:** Beany Hall and Rosie Montoya.

BEANY HALL came to the Plant Maintenance Electrical Apprentice program after several years of trying. Beany went to work for Motorola in Phoenix right out of high school and was enrolled in the company's electronic technician training program. But cutbacks at the plant led to her layoff.

Beany went back to school—to the San Juan Basin Area Vocational Technical School in Cortez, Colorado (where she had gone to high school). A year later she completed her program and received a certificate as an Electronic Technician.

Jobs were hard to find then, and she worked one summer renting out boats at Lake Powell. In 1975, one of her instructors at Tech School recommended her to Julian Sanchez (9000 personnel rep) and Chuck Wells (9718) who were on a recruiting trip for Sandia. They contacted Beany, explained the apprentice program, encouraged her to apply.

Beany, who described herself as having a basic mechanical ability, likes the apprentice program—especially her current assignment which is learning to repair electrical motors. Outside interests include softball (she plays second base for the Kistler-Collister Chaparrals), racketball and bowling. But softball is her favorite.

Asked if she wouldn't prefer an office job, Beany scoffs at the idea. "I couldn't stand the confinement," she says.

women graduates from technical schools, encourage women to bid on on-job-training programs in engineering and science.

Jobs in the crafts—as electricians, laser technicians, engineering and science assistants, are obviously not for everyone. So what kind of woman chooses to do something different—and why?

We talked with five Sandia women, all in non-traditional jobs, who help provide an answer to that question. •cec



ROSIE MONTOYA (9710 - Electrical Apprentice) checks voltage. Journeyman instructor is Mason Writtenberry.

ON THE SURFACE, there's not much correlation between Rosie Montoya's background and her current job as a third-year Plant Electrical Apprentice. In parochial high school she studied Latin for four years, French for two—with lots of speech, debate, history and literature thrown in for good measure. She has a B.A. degree in Cultural Anthropology from Adams State College in Alamosa, Colorado.

"When I got my B.A.," Rosie says, "I was out of money and tired of school. I moved to Denver. There wasn't any work in my field, so when a friend suggested the electrician's apprentice program, it sounded like a good idea. I'd always enjoyed working with my hands. But the union in Denver had no provisions for women in their program, so I dropped the idea temporarily. I drifted for awhile after that, and then moved to Albuquerque."

In 1975 (after teaching English as a second language to Native Americans and counseling at the high school level), the Electrician's Union in Albuquerque told Rosie about Sandia's "Apprentice Outreach" program. She applied, was interviewed and accepted.

As one of the first two women accepted, Rosie reports that the program is a challenge and a satisfaction. "Despite traditional attitudes," she says, "this is the kind of program that women can handle as well as men."



HELEN AGATS (9562 - Craftsman) winds a bobbin for a prototype transformer.

**The Job:** Craftsman (9562), Coil and Transformer Shop

**The Requirements:** Working with design engineers developing and fabricating prototype transformers.

**The Job Holder:** Helen Agats. Helen came to Sandia in 1955, a refugee from the harsh winters of Pennsylvania which aggravated her daughter's asthma. Enroute to Tucson, Helen stopped at Sandia on the suggestion of her supervisor at Western Electric's Allentown plant. (She has yet to see Tucson.)

A licensed beautician, Helen worked at Western during WWII, grinding cathodes and heating and sealing vacuum tubes. Her dexterity, precision and ingenuity impressed her supervisor there, as they impress those for whom she works at Sandia.

"I like to do things that are creative with my hands," Helen says. "At home I'm always busy. My husband and daughter have always told me I'm too fussy—but things have to be neat and orderly or I'm not happy."

Those character traits carry over into her work at Sandia, manifesting themselves in miniature transformers and toroidal resistance coils (some smaller than the head of a pin).

Helen likes challenges. "One day I had a call from a design engineer," she recalls. "He asked if I could make a transformer with a triangular core. 'We never have,' I told him, 'but I'm sure we can.'"

Helen admits, however, that there are limits to creativity. "Once when I was a hairdresser," she relates, "a woman who weighed 250 pounds came to me to have her hair styled. She didn't say, 'Make me beautiful,' which might have been possible. What she said was, 'Make me look thin!'"

Helen and her husband Fred have been married 39 years and have four grandchildren. Their daughter, now a PhD in Educational Anthropology (and asthmatic no more, thanks to New Mexico's beneficent climate) lives in Jenkinstown, PA, the wife of a Philadelphia Public School principal.



GINA NOACK (5244 - ESA) guides pin-hole camera into position for laser alignment on diode assembly of Proto I.

**The Job:** Engineering and Staff Assistant 1, Electron Beam Research Division 5244.

**The Requirements:** Assistant to PhD researcher. Must be familiar with lasers, high voltage power supplies, vacuum systems, pinhole cameras and pinhole arrays. Skill also required in drafting, electronics and machine shop work.

**The Job Holder:** Gina Noack. Gina was recruited last year at Texas State Technical Institute in Waco when she completed a two-year degree program (A.A.S.) and graduated as a Laser and Electrooptics Technician.

"I've always been mechanically inclined, always able to work with my hands," Gina recalls. "As a kid, I was right there whenever by dad worked on cars or did carpentry or maintenance. Fortunately, he had the patience to let me help."

Gina and her husband, Don, were married in Hawaii. "With no real training," Gina says, "all we could get were blah jobs—and we got tired of those in a hurry. Don really understood my unhappiness with office work, so we moved back to Waco where we both had family and where the cost of living was low enough that we could both go to school."

"Lasers fascinated me and I enjoyed my training, but I really had trouble with the electronics lab work," Gina pauses. "The problem, I think, is that girls just aren't encouraged to work with their hands enough. I can't imagine how I'd have gotten through the course if my dad hadn't worked with me as much as he did."

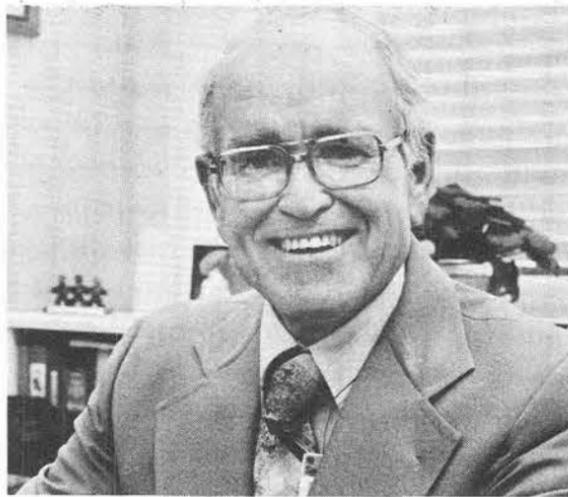
Gina is the first woman technician in Division 5244. But that's nothing new to her. She was only the second woman to get through the laser program at TSTI.

What are the opportunities for women with technical training? "Absolutely first class," says Gina. "When I graduated, I had offers from three companies, including Sandia. Any woman well trained in a technical field today can go far."

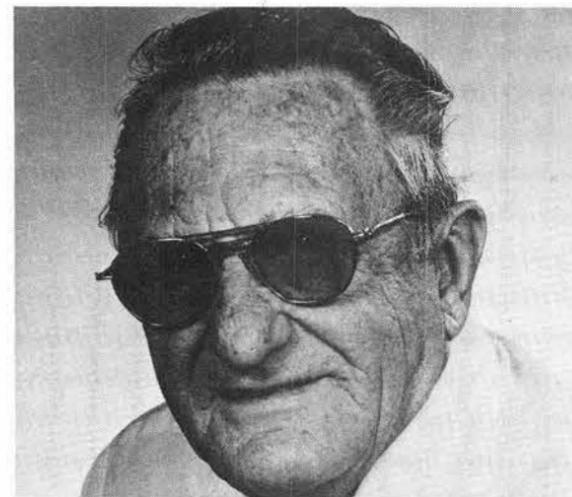
# Retiring



Ken Seaver (4114)



Jim Kenagy (9580)



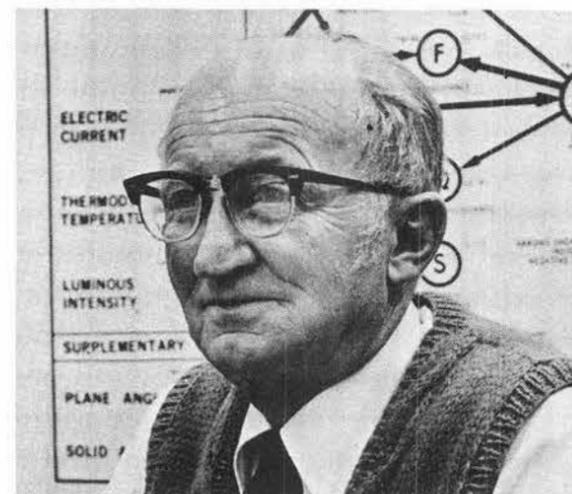
Jay Andrews (9571)



Mike Zownir (9581)



Les Balint (2553)



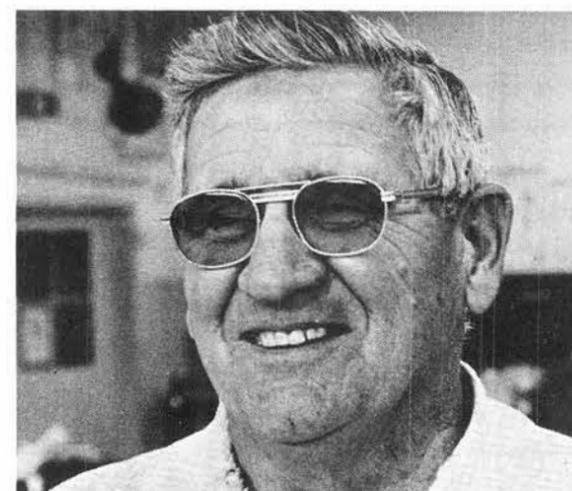
Don Bliss (9636)



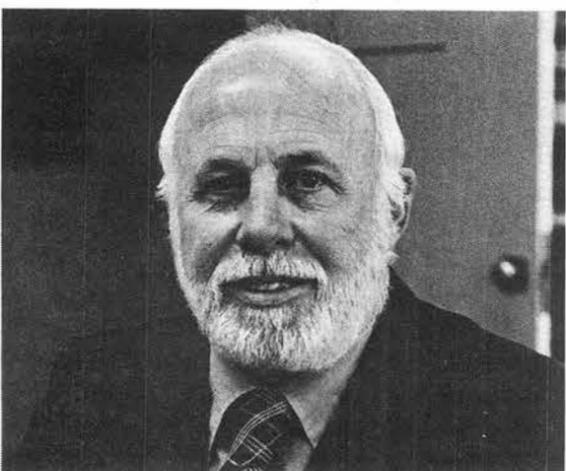
Arlene McCarty (3732)



Willard Koone (5833)



John Cotch (9713)



Ivan Gillett (1211)



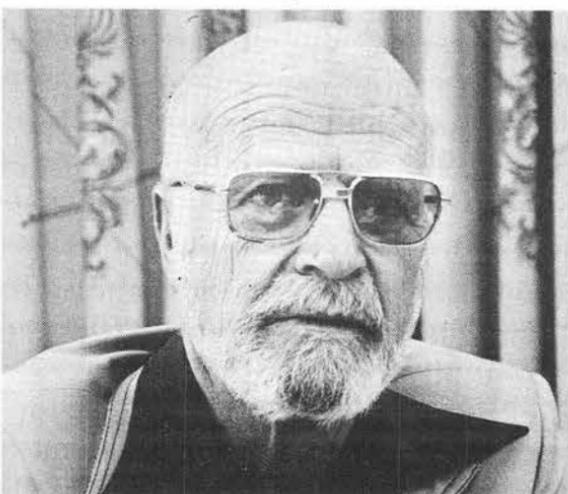
John Flanigan (9654)



Jack Miller (3727)



Frank Delnick (9651)



Sheldon Bliss (3300)



Ben Jolliffe (9625)

## Take Note

The Sandia Chapter of National Property Management Association will meet Feb. 23 at the Officers' Club West, KAFB. Guest speaker, Hugh Leenhouts, assistant manager for logistics at DOE/ALO, will discuss "Conservation and Alternatives." Invited guests are members of the Northern New Mexico Chapter of NPMA and the National Contract Management Association. Persons interested in attending the meeting are welcome. The meeting begins at 6 p.m. with dinner at 7. Reservations should be made by Feb. 20 with Patti MacPherson (3411), 268-8925, or Barbara Brown, 264-9810.

\* \* \*

Retired Sandian Dolly Harris has some free books for WW II veterans of the 20th Corps and the 350th Fighter Group. She has one copy each of the "20th Corps (Army), Its History & Service in World War II," and the "350th Fighter Group (12th Air Force) in the Mediterranean Campaign from November 1942 to May 1945." Dolly says the books are free to any member of these units. Give her a call on 255-6577.

\* \* \*

Will Ouelette (5167) is the newly-elected president of the Sportsmen Concerned for New Mexico. Other Sandians elected officers recently include Leo Klamerus (5432), vice president; Ken Maurin (2141), secretary; Walt Haskell (1712), treasurer; Steve Breeze (9652), board member; Dennis Berry (5412), newsletter chairman; and Wayne Cyrus (9573), program chairman.

The group is concerned with hunting, fishing and the environment. Will invites anyone interested to a meeting Tuesday, Feb. 21, at 7:30 p.m. at the American Legion Post No. 49, 11005 Central NE.

\* \* \*

President Sparks last week handed out 17 United Way Silver Awards honoring Sandia organizations which qualified with 75 percent of their employees contributing to ECP at the Fair Share level (one hour's pay per month). The awards were presented to 1210, 1220, 2320, 3160, 3240, 3440, 3520, 3530, 4110, 4140, 4340, 4360, 4370, 5340, 9510, 9520, and 9654. (To be eligible, an organization must have 20 or more employees.)

\* \* \*

Watercolorist Doug Ballard (9351) is featured at the State Fair Fine Arts Gallery this month along with two other artistic members of the Ballard family, his wife Pat, also a painter, and his son Steve who creates jewelry. Largely self-taught, Doug's favorite subjects are mostly Southwestern—Indian pueblos, ghost towns, crumbling adobes and the like. The Gallery is open daily except Monday.

\* \* \*

*Pitch*, newsletter of the New Mexico Symphony Orchestra, carries an article about Michael Butteri (3732) and the scholarship fund she has set up in memory of her late husband, Florio, who played

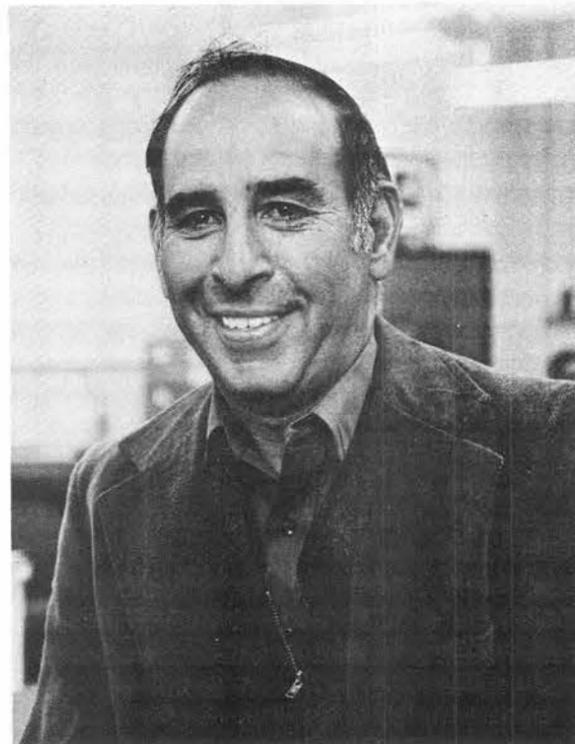
## Gabby Gabaldon To Retire— Take Up Foreign Career

Gabby Gabaldon (4311) is retiring the end of this month. But forget the rocking chair because Gabby and his wife Pauline are off to begin a new career.

Two years ago, the Gabaldons spent two months doing earthquake recovery work in Guatemala. Through recommendations by various agencies sponsoring their first trip to Central America, the Gabaldons were asked if they would like to return to Latin America as part of a cultural exchange program. Called "Communicating for Understanding," the program is sponsored by the Bureau of Educational and Cultural Affairs of the U.S. Department of State.

After careful consideration, they accepted. Gabby has been with Sandia for 30 years and is eligible for retirement. Their first tour in the exchange program is for two years—six months each in Guatemala, Argentina, Chile and Brazil. However, before their departure in September, Gabby and Pauline will spend some time in Washington, D.C. and San Francisco in training.

Their South American contacts will be established through a number of agencies, including the World Church Service, the Latin American Missionary Program and CARE, as well as the U.S. Embassy or Consulate in each country. Gabby will be working in mechanics and construction



and will help set up training schools. Pauline will give marriage and birth control counseling.

"We're really excited about it," Gabby says. "We won't receive a salary, but our expenses will be paid. We met so many fine Latin Americans two years ago that we're anxious to return. And, because of what we saw before, we know we have something to offer."

violin in the orchestra for 25 years. The \$5000 scholarship fund is aimed at string students in the music department at UNM who also play in the Symphony; additionally, Mr. Butteri's violin has been ceded to NMSO for one-year awards of the violin to promising string musicians.

\* \* \*

A DOE release states that firms are being invited to bid on construction of the nuclear safeguards security lab (the "heavy" lab going in south of Gate 10). "The research laboratory will be a three-story building... The annex will be a single story building with concrete and masonry-bearing walls and steel joist roof." Cost is estimated between \$4 and \$4.5 million. The lab will be used in the development of secure transportation technology, including rail, truck, and air. Bids will be opened about March 14 and work on the facility should be completed 450 days after the contractor gets the go-ahead.

\* \* \*

Dick Delp of Advanced Micro Devices (AMD) will discuss the AMD 2900 at a seminar Wednesday, Feb. 22, starting at 9 a.m. in the Sandia Exhibit Center.

\* \* \*

Personnel's Carol Hamzy (3532) is the dispenser of discount cards for a number of enterprises selling fun: Disneyland, Sea World, Zoofari (San Diego), Universal Studios, the Queen Mary, 6-Flags (Dallas) & Astroworld (Houston). You can find Carol in Bldg. 832, room 175.

If you're a space freak, then take in "A Close Encounter with the New Mexico Symphony" on Sunday afternoon, 3 p.m., Feb. 26. The orchestra will play a concert with music from *Close Encounters*, *Star Wars*, and *2001—A Space Odyssey*, as well as music by Tchaikovsky, Strauss, von Suppe, Borodin and Sarasate. Sponsored by United Nuclear, the concert is planned for families and, according to the release, there will be "...exciting visual effects with lights and slides." It will be held in the Kiva Auditorium of the Convention Center. Tickets at Ticketmaster outlets and at the Symphony office, 120 Madeira N.E.; or call their office, 265-3689.

\* \* \*

The Army's Major General Robert Malley was a visitor to Sandia Labs in early February. He is the senior Army member of the Military Liaison Committee. Hosted by Director of Weapon Systems Development Bob Peurifoy (4300), the General spent most of his visit in the Labs' weapon display area in Bldg. 892 being briefed on new developments in the weapon programs. General Malley is assigned to the office of Deputy Chief of Staff for R&D Acquisition.



It was bound to come, of course, but somehow we didn't expect Walt Disney to be ruled unsuitable for children in our own lifetime. In Helsinki recently, a left-leaning library board cancelled the library's subscription to Donald Duck comics—concurring unanimously that Donald is "unduly bourgeois and presents pernicious attitudes towards society." They condemned the comic for showing (are you ready for this?) "naked ducks, telling tales of incomplete families and expressing harmful attitudes toward children." What really scandalized them was the fact that Donald had a common-law marriage.

## Jogging Can Aid Your Mental Health

[Ed. Note—Former Sandia Ada Jane Akin, now residing in San Diego, sent us this article. We were so impressed with it that we asked for and received permission to reprint it from author Bill Center, staff writer for The San Diego Union.]

The millions of Americans who jog regularly to improve their physical fitness could be reaping other benefits.

### Mental Health.

"Slow, long running benefits the total body," says Dr. Thaddeus Kostrubala, who wrote the book "Joy of Running," established the mental health running therapy program at Mercy Hospital and founded the San Diego Marathon Clinic.

But he warns that long-term, long-distance running can become addictive with personality changes which could lead to altered life styles.

"You can get hooked and the effects are all not wonderful," said Dr. Kostrubala. "Running seems to promote individuality and a personality change. Life styles can change. There are running widows and widowers, cases of broken marriages and some extreme personality changes."

But for most of us, the mental side effects of running are totally beneficial. Running is being used increasingly as therapy in the treatment of many mental disorders.

"We've found running can be very good therapy for the garden variety depressions," says Dr. Kostrubala. "In the earliest stages it leads to a reduction in anxiety, then an increased sense of energy."

"In longer runs, a whole different set of things can happen. Joggers will notice changes in perception and in visual, hearing and olfactory senses.

"Beyond that there is a very striking phenomenon in long-distance runners, the K Phenomenon. It occurs once or twice a year and is an intense experience. It is an altered state of consciousness."

Dr. Kostrubala and his associates have arrived at a formula to reap maximum benefits from jogging:

For one hour, three times a week, run at 75 to 80 per cent of your maximum cardiac output.

"If you do this, it seems the formula and benefits will apply to most people. By the time three months have passed, you should notice mental benefits," says Dr. Kostrubala.

He also believes many people might already be denying themselves these mental benefits of jogging by placing too many outside pressures on their running.

"Outside pressure is one of the best ways to destroy the benefits of running," he said. "Try not to set up competition with yourself or others. Run to enjoy."

It is not easy, even for a veteran of 16 marathons like Dr. Kostrubala.

"The first 20 minutes are dysphoria," he says. "You feel awful, the 'what am I doing here?' feeling. At 30 minutes you have the runner's high. Euphoria. You get very talkative, you feel good and ideas flow."

"Other states occur after 45 minutes. But you must go at least for an hour's run to touch your consciousness. That's like a

meditative state. Your head clears of little worries."

People who run less than 30 minutes seldom break through the dysphoria stage and experience any mental benefits.

Dr. Judy Elman, a psychologist who has worked with therapy running programs at the La Jolla Women's Center and the UC San Diego extension, stresses the outside influences on running.

"Running counters the American myth of the pain free road to happiness," she says. "Pills, cigarettes, none have lasting effects. Running can be an addictive benefit."

But the background is almost as important as the run.

"In terms of a therapeutic value, jogging is a leveler of moods," she said. "It seems to be an anti-depressant in some ways. It's like a unifying experience, you become more aware of your physical body interacting with your mind."

"But to achieve that, you have to run without outside influences. The runner's attitude, the type of running and the setting all have a lot to do with how therapeutic his running will be."

"It's hard to achieve if you are running with someone faster than you. Running free along a road is better than running around a track because it frees one from the process of counting laps."

"Setting demands, time goals and distances on running diminishes the enjoyment and the freeing effect."

"Your jogging should be the part of the day different from the rest with no pressures attached. You should make yourself free to run. When you start putting demands on it, running becomes more like the rest of the day."

Dr. Kostrubala says a man's need to run dates back to the evolution of the specie.

"Man evolved for four million years as long-distance runners, hunters and gatherers. When agriculture began 10,000 years ago and cities started 5,000 years ago, man started behaving abnormally by genetic heritage. He changed from mobile to sedentary."

"Certain diseases began to appear, the biggest being cardio-vascular ailments. But also mental illness. When we look at the runner-hunter tribes, there is no sign of mental illness."

Dr. Kostrubala believes his treatment is nothing more than a return to the practices of our ancestors.

"As far as patient therapy goes, running can be applied to a number of mental disorders to relieve fear, anxiety, depression and self-evaluation," he said.

"What I'm claiming is that running is a new way to reach the unconscious. There are all kinds of psychological benefits you don't see in normal therapy. For one, you see all the patients out of doors."

The rhythmic pattern of the runner is believed to be one of the soothing qualities affecting his mental state.

"You can learn a lot about yourself just from the way you approach the morning jog," said Dr. Elman. "Some run as though

they were attacking running. Some move with grace.

"A rhythmic runner helps release tension, anger and anxiety. Such running builds endurance and a sense of accomplishment plus mental relaxation. A runner's high won't happen every time you run."

To reap maximum benefits, do not start a day with a maximum or minimum distance.

"If you're feeling bad, run less," said Dr. Elman. "If you feel good, run more. Leave it open. Always be prepared to stop, but push yourself from within. But don't make it, I must run six miles today. That is a bad pressure."

A program of scheduled running increases one's self esteem, according to Dr. Kostrubala. "It makes you aware, improves the ego."

"Running could be one of our best defenses against mental problems. But you have to approach it the right way."

## IRS Approves Pension Plan Amendments

In September of 1977, Sandia filed with the Internal Revenue Service (IRS) to obtain a determination that amendments to the Sandia Retirement Income Plan made since 1974 had not changed its status as a qualified pension plan. This procedure is necessary to determine that Plan amendments meet the requirements of the applicable Internal Revenue Code and the Pension Reform Act of 1974. The amendments submitted include the change from a contributory to a non-contributory plan, the adoption of the Bell System benefit structure, improvements in the Plan benefits and changes required to comply with the Pension Reform Act. All amendments for which a determination was requested have now been approved by IRS.



Journalism Quarterly now verifies something we have long suspected. After analyzing vast numbers of editorials, they have concluded there is strong evidence to support the hypothesis that newspaper editorials decline in vigor once an independent newspaper is bought up by a chain.

## Events Calendar

Feb. 17—"The Villains Still Pursue Me," with Vincent Price, UNM Cultural Entertainment Series, 8:15 p.m., Popejoy Hall, 277-3121.

Feb. 17-19—Shrine Circus, Tingley Coliseum, 265-8808.

Feb. 22—"The Biblelands," travel-adventure film, Popejoy Hall, 7:30 p.m.

Feb. 23—"ESP in Action," with Russ Burgess, UNM Speakers Committee, Popejoy Hall, 8:00 p.m.

Feb. 25—The Albuquerque Youth Symphony, Popejoy Hall, 8:15 p.m., 277-3121.



CLASSIC CHEVY CLUB of Albuquerque was organized recently with Terry Bisbee (2113), right, president, and Jerry Esch (2611), vice president. The group is devoted to the preservation and restoration of 1955 through 1957 Chevrolets. Jerry's machine is a '55 Nomad station wagon which he has

restored to original showroom condition. Terry's '55 sedan has been restored and modified with installation of a 350 CU engine, 4-speed transmission and custom interior. The Club is seeking new members. Call Terry, 293-0356, or Jerry, 292-0754, for additional information.

# sandia PEOPLE Report



PRESIDENT SPARKS recently received a plaque of special appreciation to Sandia employees from the United Way's newly-elected 1st Vice President Bob Garcia (3500). Sandians were cited "for their continued personal dedication and community commitment and particularly for their outstanding support of the 1977 United Way of Greater Albuquerque campaign." Sandians pledged \$557,315 to the Employees Contribution Plan, 85 percent of which goes to the 32 agencies of United Way.



HONORED—Ziggy Shelton, supervisor of Education and Training Division I 3521, was honored at the national convention of the American Society for Engineering Education, Continuing Engineering Studies Division, in San Diego recently "for outstanding service." Ziggy has been a member of the group for 10 years, has served as chairman, board member and chairman of a number of conferences and symposiums.



RECORD BREAKERS—Chuck Barnes (5133) and Richard Cernosek (1354) set new state weightlifting records in their class in a recent state powerlift event. Chuck lifted 440 lbs. in the squat, also holds the New Mexico record for the bench press—350 lbs. Richard lifted 630 lbs. in the deadlift, the most weight lifted in any weight class in the state's history.

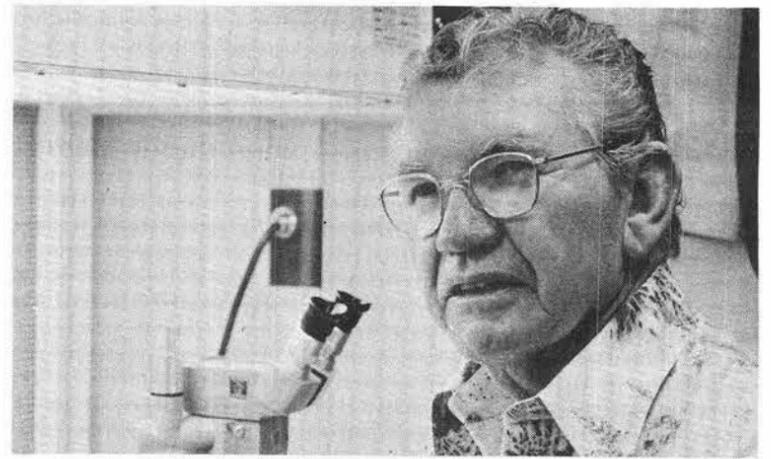
# MILEPOSTS

## LAB NEWS

FEBRUARY 1978



Louis Feltz - 1324 15



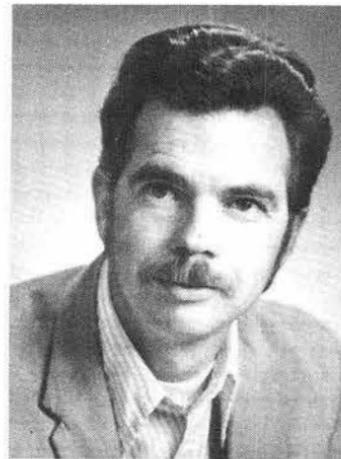
Silviano Chacon - 2323 15



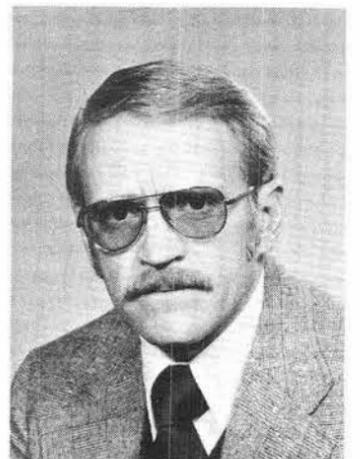
Basil Herrera - 9713 15



Raymond Clark - 5246 15



Don Putz - 8157 10



Jimmie Martin - 3411 15



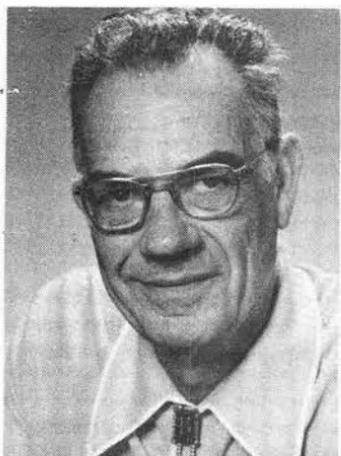
Paul Adams - 9331 30



Lewis Fjelseth - 1752 25



Ray Gott - 8424 20



Don Beard - 8312 20



John Lyle - 9335 15



Marvin Moss - 5842 15



John Stathis - 3144 20



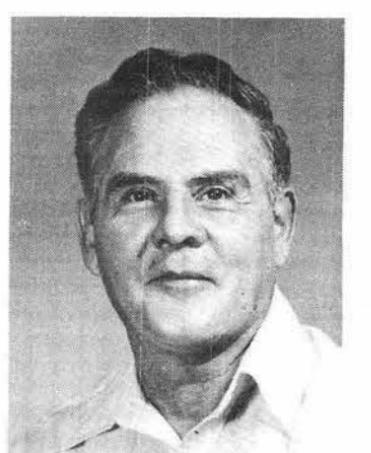
Del Olson - 2330 25



Dick Silva - 8257 15



Richard Rudolph - 9487 25



Joe Holcomb - 3413 10



**SNOW JOB**—The Cumbres & Toltec Scenic Railroad breaks out its rotary snow plow every so often, much to the joy of rail buffs, and has a go at the white stuff north of Chama en route to Cumbres Pass at over 10,000 feet elevation. The narrow gauge railroad did this for real, not for fun, in the late 19th century

and through the early 60's as it hauled passengers and freight between Chama, Durango, Alamosa and other towns on the New Mexico/Colorado border. LAB NEWS photographer Bill Laskar, who chokes up at the sight of a genuine choo-choo, caught the rotary as it hurls snow off to the side.

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2. One ad per issue per category.
3. Submit in writing. No phone-ins.
4. Use home telephone numbers.
5. For active and retired Sandians and ERDA employees.
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

**TRASH BAGS**, city-approved, \$4, South Hwy. 14 Project. LAB NEWS office, Bldg. 814.

**O'KEEFE & MERRITT** built-in dishwasher, avocado, \$50; white, metal kitchen cabinet w/drawer, shelves & doors, \$45. Paul, 299-6387.

**WHEEL HORSE TRACTOR**, 6 hp w/blade, chains rear wheels, needs some clutch adjustment, make offer. Rutledge, 281-1155.

**35 MM ARGUS C-3** camera, case, lightmeter, telephoto lens & flash. Sullivan, 299-6545.

**'74 SINGER** Stylist, \$50. Zmiejko, 265-4927.

**MAGNAVOX** TV console, color needs work, \$50 or \$60 if I deliver. Thompson, 298-5800.

**PLATFORM ROCKER**, orange upholstery, \$80; chrome/black pole lamp, \$20. Philbin, 292-1352.

**HEYWOOD WAKEFIELD** blond birch dining table, 4 chairs, buffet, \$350. Kerns, 255-4222.

**TWO** new matching orange striped swivel rockers, \$225 for both; 3 folding chairs, \$2.50 ea. Muchow, 299-1813.

**AQUARIUM**, 10-gal., complete, \$35 or 10 books S&H green stamps, cost \$55. Lucero, 299-7933.

**METAL DESK**, 23x54", wood laminate top, \$110. Elliott, 294-1785.

**CRAFTSMAN** 22" self-propelled lawnmower, \$35; seeder & fertilizer spreader, \$7.50. Kramm, 281-5379.

**PORTABLE** Singer sewing machine; port. Remington Typewriter; ladies ice skates & wooden-wheel roller skates, both size 8. Kent, 256-1221.

**SOFA** & matching chair, \$60; 2 ea. 700-15 6 ply tires, 10,000 miles left on tread, \$9 ea. Martin, 869-2049.

**STEREO** cassette recorder, \$200, was \$380, will demonstrate. Kersten, 821-2472.

**KELVINATOR** double-oven gas range, coppertone, continuous clean, will consider trade for single oven gas range, \$225. Olson, 268-2227.

**MARK TWAIN** novels, 7 volumes, newly printed, \$15. Cockelrears, 256-7570.

**BATHINETTE** & changing table, folds for storage, \$9.50. Keck, 294-2887.

**FOUR** Land Cruiser/Blazer 8" American white spoke wheels w/used off-road tires, \$200. Kovacic, 843-6148.

**WASHER**, GE deluxe 18 lb. w/mini basket, avocado, 1 1/2 yrs. old, new \$350, sell for \$200. Mueller, 299-6387.

**GIBSON** Kalamazoo elec. guitar, powder blue solid body, white & chrome trim, tremolo tailpiece, case, \$85. Floyd, 292-2160.

**CAMPER**, 9' cabover, fits LWB, styro-foam insulation, Porta Potti, other extras, \$995. Erni, 268-1721.

**ELEC. RANGE**, Whirlpool free-standing, white, 30" wide, \$45 or best offer. Fienning, 298-0743.

**16' BOAT** w/75 hp outboard, complete w/trailer, boat needs new upholstery, \$725; upright cabinet grand piano, antique, newly re-finished, \$500. Kaye, 293-0499.

**DISHWASHER**, GE, 2-cycle Pot Scrubber, gold, portable, can be built in. Madrid, 294-5780.

**DISHWASHER**, portable, 2-yr. old, Sears, \$150. Pucket, 298-6067.

**DATAMATH** TI-2500 electronic calculator, \$45; very heavy duty Exerow exercise machine, \$100. French, 881-1387.

**ACCORDION**; Necchi sewing machine; tire changer machine; port. air conditioner for under dash. Herrera, 836-1768.

**'72 JET** 17 1/2' self-contained trailer, shower, hot water heater, furnace, equalizer hitch/elec. brakes, \$2500. Jones, 294-4914.

**SKI BOOTS**, maroon Henke, size 6 or 6 1/2, \$5. Bassett, 898-1840.

**CIRCULAR** dining table, 42" diameter, 3 leaves, birch, lt. finish, \$100. Smith, 299-6873.

**GERMAN RIFLE SCOPE**, pre-WWII, \$35; 1909 food & meat grinder, \$25; Nitton 8 mm movie camera, \$25. Smith, 881-1001.

**COFFEE TABLE**, pecan/glass, 58" long; Formula ski boots, size 5; skis; Ben Hogan woods. Chandler, 296-3323.

**TWIN BOX SPRINGS** & mattress, \$25; B&W TV, console, \$45. Bishop, 299-5749.

**SKI RACK**, trunk mount for 2 pr., \$15. Brammer, 266-5158.

**ANTIQU** Grandfather clock, oak, springwound Ithaca, \$390; oak chest, \$95. Young, 292-2805.

**GM Love Seat**, \$12; stroller, \$7; infant seat, \$1.50; 5000 BTU refrigerated AC, \$125; approx. 100'x24" fencing, \$10. Glaser, 293-8110.

**DINETTE**, dk. wood grain top w/4 red & black upholstered chairs, wrought iron trimmed, \$45; GM car seat, \$10; baby scale, \$8; Greenholt, 294-5286.

**30" BUILT-IN** elec. range, \$15; small pet cage, \$2; apt. size refrig., needs work, \$10. Hall, 298-8617.

**LESLIE MODEL** 125 (w/single 12" speaker) wood cabinet, \$160; Foldedhorn holds 2 15" speakers (not incl.), \$60. Whitham, 836-1216.

**HOUSING INSULATION**. Falacy, 293-2517.

**HAM GEAR**, Hammarlund HQ-170A & matching speaker, Johnson Ranger II, both w/manuals; Drake low-pass filter, antenna relay, vertical antenna. Richards, 821-9046.

**FIREPLACE** heat recovery system, 6 tubes & 100 cfm blower, guaran-

teed 5 yrs., used 1 season, \$105 new, make offer. Thalhammer, 298-8521.

**CORNER BEDS** w/corner table, springs & mattresses, \$125; mahogany dresser mirror, \$50. Pope, 255-6702.

**TWO** female Collie/Shepherd puppies, 4 mos. old, they look like "Lassie," free to good homes; white Whirlpool elec. range, 30", \$45. Smythe, 247-9209 or 831-2836.

**40" ROUND GAME TABLE**, pecan wood w/4 caned-back pecan wood arm chairs, vinyl seats, casters, \$185. Shieler, 881-8723.

### TRANSPORTATION

**1939 DODGE**, 4-dr. sedan, body in fairly good shape; it's all complete but not running, \$700 or best offer. Lucero, 836-5375.

**'77 HONDA** Super Sport, 400 4 full dress, take over payments of \$48/mo., balance \$1200. Lujan, 831-4636 after 9 p.m.

**CHRYSLER** Buccaneer 18' sailboat, many extras. Shead, 292-2420.

**'72 CHEVY** Impala, 2-dr., HT, AC, R&H, V8, AT, \$1050. Padilla, 842-6035 or 831-2599.

**'72 OLDS** Tornado, AC, PS, PB, tape deck, \$700. Price, 299-6265.

**'75 DUSTER** Custom, AT, PS, PB, AC, Sony cassette, CB, green vinyl top & interior, white body, special 218 V8-2 bl. carb. Arana, 299-1214.

**'69 OLDS** Delta 88, 4-dr., 62,000 miles, V8, PS, PB, AC, R&H, one owner, \$1000. Thomas, 299-0178.

**'67 CORVETTE** Stingray, 427 c.i., 2 tops, \$7000. Zmiejko, 265-4927.

**'74 FORD** Pinto wagon, std., air; '71 Pontiac Vista Cruiser; '68 Plymouth Fury II, best offer. Bishop, 299-5749.

**'71 FORD** Maverick Grabber, 2-dr., 6-cyl., AT, R&H, \$700. Padilla, 296-2346.

**'70 FORD** Campervan, stove, ice box, chem. pot, sleeps 4, \$3000, consider trade up/down for 4-wd. Bronco or pickup. Welch, 266-2074.

**BICYCLE**, 26" boys, 10-spd., \$45. Smith, 821-6863.

**'77 FORD** 150, super cab, AT, AC, CC 400 eng., low miles, tape deck; dinette set, 6 chairs, \$65. Witherpoon, 294-5293.

**'66 AMC**, 2-dr. sed. w/hand controls, 50K miles, AT, PB, 6-cyl., \$600 cash, firm. Baxter, 344-7601.

**'76 DATSUN** B-210, 2-dr., 20,000 miles, \$2700, \$600 below retail book value. Barnes, 898-2375.

**'74 CORVETTE**, silver, black-leather interior, T-top, full power, AC, luggage rack, 4-spd., Clarkson, 294-5834.

**'73 TOYOTA** stn. wgn., AC 4-spd. Roth, 877-4997.

**SPORTCARS**: '58 MGA; '61 MGA, new convertible tops, rebuilt engines. Boulware, 281-5343.

**BIKE**, 10-spd. Raleigh Super Course, Simplex derailleur, 25" frame, cost \$199, sell for \$120. Smailer, 881-7981.

**'72 CHEVY** Cheyenne 10 pickup, AT, PS, PB, AC, radio, 8-track, new paint, \$1600. Kasnic, 299-5583.

**'73 VOLVO** 1800ES hatchback, 45,000 miles, leather interior, AC, AT, AM/FM stereo, \$5900 or best offer. Cockelrears, 256-7570.

**'73 MAZDA** RX2, low mileage, new engine & clutch, new steel radials, \$1800. Johnson, 298-1011.

**'71 FORD** 3/4 ton pickup, 4-spd., 10 1/2' camper, 3 gas tanks, 76,000 miles. Armijo, 268-7645.

**DATSUN** B210, 4-spd., vinyl top, air, radio, 2500 miles, still under warranty. Kelley, 255-6531.

**'72 IMPALA**, 4-dr. HT, air, PS, PB, AT, 350 V8, best offer. Walter, 843-5411.

**'69 CHEVELLE** SS, 396, AT, PS, PB, AC, \$1400 or offer. Shaw, 296-2531.

**'76 CAPRI** V6, low mileage, fully equipped. Mortensen, 298-5348.

**'77 FORD** LTD., 2-dr., HT, AT, PS, AC, pwr. seats-windows-locks. AM/FM stereo, 6000 miles, warranty, below av. retail, \$5400. Berman, 296-5640.

**10-SPD** FUJI Special road racer, 21" frame, weight 28 pounds, \$125. Stamm, 255-2640.

**'74 VOLKSWAGEN** BUS, new radials, low mileage, AM/FM/8-track stereo, AC, other extras, \$4250. Rea, 299-9315.

**TWO EACH** VOLKSWAGEN BUGS, 1968 & 1969. Wilkinson, 299-8327.

**'76 CHEV. VAN**, 3/4 ton, LWB, 350-V8, 3-spd., PB, radio, towing pkg., asking \$3900. Butler, 293-7699.

**'77 VW RABBIT**, \$3300, 34 mpg; '72 Suzuki GT750 w/wind jammer, bags, & CB, \$950. Gardner, 832-6212 Moriarty.

**'69 CHEV. Impala**, 350, AC, AT, PS, PB, \$600. Hart, 881-1733.

**'69 CHRYSLER**, 383, 2-barrel, PS, PB, AC, other options, \$625 or best offer. Carlson, 292-3817.

**'73 FORD** Pinto, 2-dr., 1600cc, 4-cyl., 61,000 miles, \$1100. Adams, 277-5785 after 6.

### REAL ESTATE

**MOBILE HOME** in adult park, double-wide Viking, 2-bdr., living, dining, family w/island kitchen, carpeted throughout. Clay, 821-8509.

**3-BDR. & STUDY**, 1 1/2 bath, FR w/fp, appliances, covered patio, 2-car garage, 1900+ sq. ft., 3-yr. old, mid 50's. Mena, 1629 Robert Dale NE, 296-1736 or 293-5237.

**TAOS SKI VALLEY LOT**, 0.41 acre, lot 23, block M, O.E. Pattison subdivision. Schroeder, 344-1011.

**3-BDR.**, 1 bath, NE Heights, \$33,900 CTL. Alcone, 292-2028.

**MOBILE HOME**, 10'x55', 14' expanding living room, new plumbing, small down payment, located Volcano Mobile Home Park. Cupp, 299-2661.

**BRICK HOME**, 3-bdr., 1 1/2 baths, matching guest house, 1-bdr., bath, LR, FP, complete kitchen, paneled basement, heated pool, 70's. Poliard, 268-1709.

### WANTED

**BOAT COVER**, 16' Glasspar. Zownir, 256-3717.

**EXERCYCLE**, speedometer, odometer, adj. seat & handlebars, tension control. Houghton, 299-3386.

**GO CART** with or without engine. Prevender, 299-5253.

**GUITAR**, elec. or archtop acoustic (F-hole); Fender amplifier for guitar or bass; multichannel mixer & PA amplifier. Floyd, 292-2160.

**FORD** Bronco, 4-wd vehicle in good condition; or other small size 4-wd vehicle (Jeep, Scout or Toyota). Tucker, 877-1140.

**2-HP** air compressor; .25 auto. gun, Colt or Browning; complete gas welding outfit, oxygen, acetylene & cutting attachments. Herrera, 836-1768.

**USED** Encyclopedia Britannica. Smith, 299-6873.

**CAR POOL** from Glenwood Hills to Area I. Butler, 293-7699.

**USED PICKUP**, LWB, under \$1000. Hall, 298-8617.

**GAS** cooking stove, 24" wide. Whitham, 836-1216.

**VOLUNTEERS** for typing and clerical duties with the Retired Senior Volunteer Program. Lee, 766-4950.

### FOR RENT

**2-BDR. APT.** near Labs, lg., new, w/carpet, DW, walk-in closet, W-D hookups, storage. Shipp, 268-1345.

**UNFURNISHED** 3-bdr. home, carpet, drapes, 2-blocks from Tomasita School, \$300/mo., available March 1. Ward, 299-2859.

**3-BDR. HOUSE**, carpet, NE near San Pedro & Freeway, \$285/mo. Martinez, 881-9396.

**3-BDR. ADOBE** in Corrales, 3 fireplaces, brick floors, \$350. Perry, 344-4959.

**FURNISHED** 2-bdr. mobile home, parked at University Village, \$200 plus elec., 1 child, 1 sm. pet allowed. Ortiz, 242-7202.

**2-BDR.** unfurnished apt., carpeted, fp, dishwasher, washer-dryer hook-up, patio. Smith, 299-7506 after 5.

**3-BDR.** unfurnished house, 1 1/2 baths, den, carpets, drapes, barbecue, near Eubank and Candelaria, \$390/mo. Moss, 298-2643.

**1-BDR.**, furnished or unfurnished, refrig., stove, disposal, drapes, from \$150/mo. and \$100 damage deposit, no pets. Montoya, 255-8437.

### LOST AND FOUND

**LOST**—Man's gold wedding band, ladies' navy glove, mirrored sunglasses w/red-white-blue frames, four silver bracelets, grey glove w/leather fingers, white & turquoise drop earring, 5 keys on silver-colored ring, small black leather appt. book w/calendar, single key marked A-60, man's black knit glove w/vinyl palm for right hand.

**FOUND**—Fairchild Amplifier A00-10. **LOST AND FOUND**, Bldg. 832, 264-1657.

# Mellotones Play Tonight

**TONIGHT**—A change in the Club calendar puts Freddie and his big Harry James-type trumpet and the Mellotones on the bandstand instead of the previously announced B&O Railroad. Freddie also likes to croon about his native Islands. Request "Hawaiian Wedding Song" or "Sleepy Lagoon." The band will play for dancing from 8 to 12.

**TOMORROW** is the last day to pick up your tickets for the Chinese New Year celebration set Feb. 25. In addition to a galaxy of star Chinese goodies, bellydancer Dianne Lane will perform with sword and snake and the Red Hot Chili Jazz Band will play for dancing.

**CORONADO SKI CLUB** meets Tuesday, Feb. 21, for free refreshments and ski movies. Door prizes will be awarded. This weekend, part of the group is skiing Crested Butte.

**TRAVEL DIRECTOR** Ed Neidel (2166) will be in the lobby tonight between 6 and 7 p.m. with a handful of options on trips to Hawaii. Reduced air fare, tours and a wide range of prices are available. Pre-trip meeting for Hawaiian travelers is set Feb. 22 at 7:30 in the El Dorado room.

Ed reports that space is still available on the Jamaica trip departing April 30. Seven days at the Jack Tar resort costs \$419. Also, the Mediterranean Air/Sea Cruise departing June 23 is still open. The deluxe package through Egypt, Israel and the Greek Islands costs \$1699.

**CORONADO WOLFPACK** is not holding its breath waiting for the Lobos to take the WAC basketball championship. Plans are already made for an "IF TRIP" to Tempe to see the first round of NCAA playoffs. Round trip charter bus, game tickets, two nights at the Granada-Royale, breakfasts and cocktail parties are part of the \$90 per member package. If the Lobos don't win the championship, the trip is off and the money is refunded. However, don't wait. Call Shirley Dean (9001), 4-7882, right now if you want to keep the faith.

**PRE-TRIP MEETING** of travelers interested in reduced rates on air fare only to London or Frankfurt with lots of options on departure will be held Monday, Feb. 20, at 7:30 in the El Dorado room.

**UPCOMING EVENTS**—Happy Hour March 3 will see Yolanda and La Ultima on the bandstand, pot roast on the buffet. Singles will also party that night starting at 4:30 in the El Dorado room.

The biggie next month is a shrimp peel set March 18. "Nostalgia Night" it's called, and it will feature the big band sounds from the 40s with the 14-piece orchestra of Phil Lenk on the bandstand. This is the group that's been packing them in on special occasions at the Four Seasons. Tickets will cost \$6.50 for members.



YOUTH SYMPHONY SOLOISTS Rene Howard (daughter of Orville Howard, 1733) and Lori Glibert, daughter of Ken Glibert (1112), right, discuss upcoming concerts Feb. 25 and April 22. Ken is president of the AYS Parents Association.

**Our Town**

## Youth Symphony Concert Feb. 25

At Sandia Ken Glibert of Experiments Division I 1112 is involved in radiation diagnostics for laser induced plasmas. When not at the Labs, Ken is active with the Albuquerque Youth Symphony; in fact, he's president of the AYS Parents Association.

Ken's oldest daughter Lori, 17, is concert master with the symphony and will be a featured violin soloist at a concert on Saturday, Feb. 25, at 8:15 p.m. at Popejoy Hall. His youngest daughter Debbie, 15, is principal flautist with AYS.

This weekend Ken is touring as a chaperone with the symphony in Arizona. AYS is presenting concerts in Winslow, Flagstaff and Tempe.

"The Youth Symphony is financed jointly by Albuquerque Public Schools and UNM," Ken says. "The AYS Parents Association raised funds to help finance the trips. Last year the AYS traveled to Kansas City and performed for the National Music Educators Conference—a

real honor. It was a triumph for the kids. We still get letters praising their musicianship."

As a parent, Ken did not push his daughters into music. He was "urged" to play piano as a kid and resented it. "My girls developed their interest in music on their own," he says.

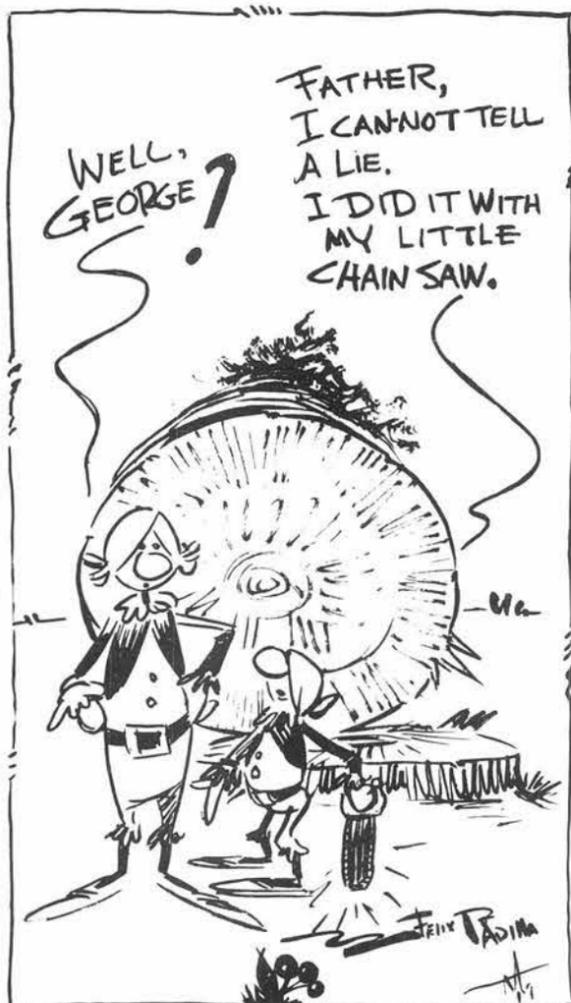
The Youth Symphony membership, 86 musicians, is made up of high school students from throughout the city. They must audition for membership.

"The competition is fierce," Ken says. "One of the requirements is that the student must be a member of the band or orchestra of his own high school. Symphony activities are in addition to standard music education. No academic credit is awarded for participation. Still, to be a member of AYS is a distinct honor.

"There are three other similar groups in the city," Ken continues, "the Valley and Heights junior orchestras for junior high students and the Albuquerque Youth Orchestra for high schoolers."

All four groups will appear in concert at Popejoy Hall April 22. Rene Howard, daughter of Orville Howard (1733), will be a featured soloist with AYS at this event.

Tickets to the Feb. 25 AYS concert are \$2 for adults, 75 cents for children. They are available from AYS members, or from the Popejoy box office.



FRIDAY	SATURDAY
17—HAPPY HOUR BBQ RIBS BUFFET  Adults \$3.75 Under 12 1.92  Mellotones	18—KID'S KARNIVAL 11-2:30 10 GAMES .75  Members Only  TEEN DANCE 7:30—10:30 Satin Flame
24—HAPPY HOUR BEEF STROGANOFF/ SHRIMP CREOLE BUFFET  Adults \$3.50 Under 12 1.92  Prisoners	25—CHINESE NEW YEAR  Cocktails—6 Dinner—6:30  Red Hot Chili Jazz Band Mbrs. \$6 Guests \$7