

Three Top DMs Return to Research

A healthy research organization should allow occasional movement out of management and back into full-time research.

That's the firm belief of Venky Narayanamurti, VP of Research 1000. After working with his directors and other Sandia executives for well over a year to put the belief into practice, he announced on Jan. 16 that three research scientists — Jim Schirber (formerly 1150), Tom Martin (formerly 1250), and Glen Kepler (formerly 1810) — were returning to full-time research, free of line management responsibilities.

Jim is now Research Scientist of Solid-State Physics Dept. 1090; because his research area is one in which Venky is personally interested, Jim will report to Venky directly. Tom is Research Scientist of Pulsed Power Dept. 1290; he will report to Pace VanDevender (1200). And as Research Scientist of Organic Materials Dept. 1890, Glen will report to Bob Eagan (1800).

Given their return to full-time research, their time will now be charged to direct research cases, rather than indirect cases. But, in recognition of past achievements, each will have a private office, use of a laboratory, and necessary technical support.

"Although these moves represent a change of tradition at Sandia, the practice is common at AT&T Bell Labs and at other leading research institutions," said Venky, as he met with members of the departments involved. "It's an important way to nurture Sandia's technical excellence — which, as I see it, is a primary goal of the research environment. We're taking three outstanding technical people and giving them the chance to do some leading research that, if successful, will promote the health of Sandia's tech base.

"In addition, these three will be role models, trailblazers. They'll be proof that it's okay to move from management to full-time research, that it's a natural and desirable movement."

Personal Research Programs Maintained

"A key characteristic of all three is that they have maintained a strong personal research program over a long period, including the years they have served Sandia in a managerial role," says Venky.

"It's a natural desire of scientists to return to their roots. So it's extremely important for the health of a research organization that such moves between management and technical careers can take place — consistent, of course, with the needs of the Labs and the personal desires of the people concerned."

Those desires are reflected in the lateral moves announced. All three managers had expressed a wish

Welber on DM Shift

"What our research organization is doing in moving three of its outstanding department managers into full-time research exemplifies one important way to accommodate the changing needs of Sandia and its people," says President Irwin Welber.

"It's an innovative approach — it recognizes that change is becoming a way of life at Sandia and allows greater flexibility for the Labs while satisfying the needs of employees.

"So the 1000 program may represent a pattern that other organizations will want to follow sometime in the future."

to forgo administrative tasks and return to research. Glen's experience is typical: "When I talked sometime last year with [former 1800 Director] Dick Schwoebel about long-range goals, I said I'd really like to get back into a lab and devote my full time to research.



WHEN YOU DON'T DRIVE TO WORK — and thus qualify as a participant in this week's "Don't Drive One in Five" competition — you may acquire exercise as well as sustenance at lunchtime. Here, President Irwin Welber and Executive VP Lee Bray return from lunch at the Coronado Club to a meeting that takes them past their empty parking slots (they rode to work on Monday with Dick Russell, 3700). The competition, sponsored by the city's Better Air Campaign, is a challenge among Sandia, DOE/AL, and KAFB to determine which organization has the highest percentage of participating employees. Winner of that challenge — and of a similar competition among Sandia's vice-presidencies — will be announced next issue.



LAB NEWS

VOL. 41, NO. 2 SANDIA NATIONAL LABORATORIES JANUARY 27, 1989



RESEARCH VP VENKY NARAYANAMURTI (right) is excited about the new program in Research 1000 that allows managers to return to full-time research. Tom Martin (1290, left), Glen Kepler (1890), and Jim Schirber (1090) headed for their respective research labs on Jan. 16.

"Recently, [current Director] Bob Eagan and I talked with Venky about the proposed program. 'It looks good!' was my reaction then, and, now that some of the details have been worked out, it looks even better. Of course, the proof of the pudding . . ."

"Pace and I were discussing some of the things

we had learned on PBFA II about the role of gas breakdown in synchronized switching in our high-energy spark gaps," says Tom.

"I told him that our data, supported by some breakdown relationships developed by Charlie Mar-

(Continued on Page Seven)

Antojitos

Stepping Over, Not Up, Down, or Out -- The new program in Research 1000 (see Page One), under which three department managers will exchange the thrill of management for the thrill of discovery, is revolutionary for Sandia. Research VP Venky Narayanamurti is excited about the new program: "In its own way, it's as important an advance as our breakthroughs in parallel processing and high-temperature superconductors."

Congratulations, Venky -- and Tom, Jim, and Glen.

* * *

Strike While the Irony Is Hot -- As part of the city's Better Air Campaign, we've just completed "Don't Drive One in Five" week. That is, we were challenged by DOE/AL and KAFB to bus, bike, carpool, or vanpool to work at least one day. Praiseworthy effort that.

But you may have noticed, as Harriet Mason (5261) and Pete Palmer (7112) did, that the prize to be awarded to each of five randomly chosen participants borders on the bizarre -- \$10 worth of gasoline. Great!

Next, I suppose, participants in our Savings Bond campaign will win trips to Las Vegas casinos and those in our weight-reduction classes can take home a dozen doughnuts.

* * *

Speaking of Irony -- We print-oriented folk find solace in this New Scientist item: "Our man with time on his hands at [the 1987 annual meeting of] the AAAS wandered down to the exhibition hall, where booth upon booth was laid out to tempt scientists with books, magazines, and arcane gadgetry of all kinds. As he approached one such booth, emblazoned with the name Interdisciplinary Information Network Inc., an earnest young man in a suit stepped forward to make his pitch. 'Hi,' he said, thrusting a thick wedge of paper into our man's hand. 'Print is dead. Read about our electronic service.'"

* * *

Amazing Coincidence -- Marvin Moss (4051) was struck by the similarities between the Harry Emerson Fosdick poem that graces the January 1989 TLC Wellness Letter and one by Robert Louis Stevenson. I find Fosdick a tad derivative, shall we say. But judge for yourself:

A Definition of Success

To laugh often and much;
To win the respect of intelligent people and the affection of children;
To earn the appreciation of honest critics and endure the betrayal of false friends;
To appreciate beauty;
To find the best in others;
To leave the world a bit better, whether by a healthy child, a garden patch, or a redeemed social condition;
To know even one life has breathed easier because you lived.
This is to have succeeded.

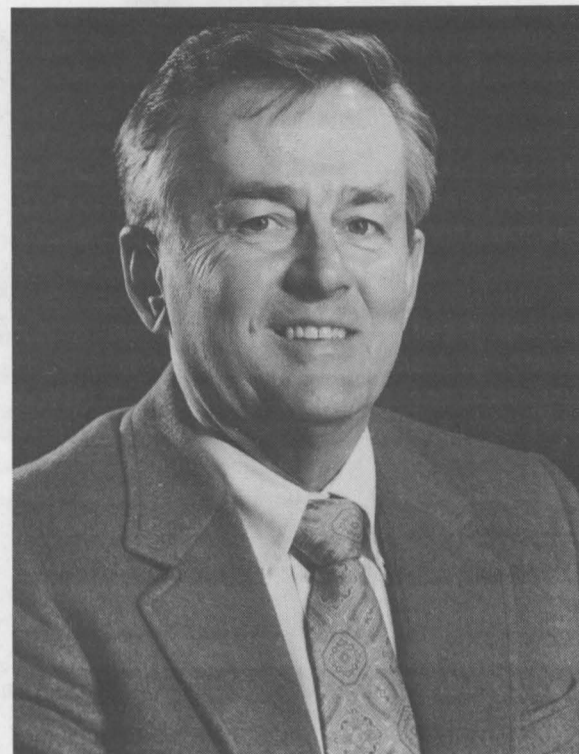
--Fosdick (1878-1969)

The Meaning of Success

That man is a success who has lived well, laughed often, and loved much;
Who has gained the respect of intelligent men and the love of children;
Who has filled his niche and accomplished his task;
Who leaves the world better than he found it, whether by a perfect poem or a rescued soul;
Who never lacked appreciation of earth's beauty or failed to express it;
Who looked for the best in others and gave the best he had.

--Stevenson (1850-1894) ●BH

Gerardo Named Fellow of American Physical Society



James Gerardo, Manager of Laser and Chemical Physics Research Dept. 1120, has been named a Fellow of the American Physical Society.

The recognition is "for scientific contributions in gaseous electronics, electron dynamics in plasmas, laser physics, plasma physics, and laser analytical measurement methods."

Although he is being honored by an association of physicists, Jim is by education an electrical engineer. "His work has bridged physics and technology," says Fred Vook, Director of Solid State Sciences 1100.

Jim performed pioneering research that led to the first excimer laser, the xenon excimer. Other excimer lasers have been widely used in both industry and science because they are efficient and can be scaled to high powers for industrial applications such as welding and cutting, and for scientific applications such as laser-driven nuclear fusion, photo-physics, and photochemistry.

At Sandia, an excimer laser is used to trigger the high-voltage gas switches that synchronize Particle Beam Fusion Accelerator II.

Jim has published more than 50 papers. An important portion of these have been in electron-ion recombination — hence the APS citation's reference to electron dynamics — and in laser physics.

Jim came to Sandia in September 1965 from the University of Illinois, where he had received BS, MS, and PhD degrees in EE. He was promoted to division supervisor in December 1967 and to department manager in March 1974.

Welcome

Albuquerque

John Barnum (7554)
William Mufich (2113)

Arizona

Richard Hurley (2345)

Colorado

Howland Jones (1821)
Charline Seyfer (3522)

Massachusetts

Philip Sackinger (1511)

New Jersey

Hazel Scully (1831)

New Mexico

Joel Darnold (2334)
David Stokebrand (7525)

Texas

William Hossley (144)

Washington

Matthew Kozak (6416)

Deaths

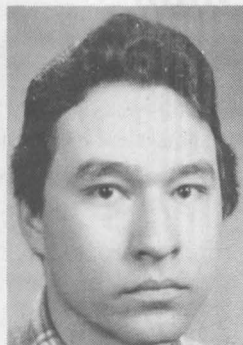


Stan Vargas of Access Control, Emergency Preparedness, and Operations Training Division 3437 died Jan. 13 after a lengthy illness.

He was 34 years old.

Stan joined the Labs in May 1981. He was a Security lieutenant assigned to the training group in Div. 3437.

He is survived by his wife, two daughters, and a son.



Robert Armijo of Facilities Modifications Div. 7813 died Jan. 15 after a lengthy illness.

He was 32 years old.

Robert joined the Labs in September 1984. He was a member of Sandia's apprenticeship program.

He is survived by his wife.

LAB NEWS

Published Fortnightly on Fridays

SANDIA NATIONAL LABORATORIES

An Equal Opportunity Employer

ALBUQUERQUE, NEW MEXICO 87185
LIVERMORE, CALIFORNIA 94550
TONOPAH, NEVADA
AMARILLO, TEXAS

Sandia National Laboratories is operated by Sandia Corporation, a subsidiary of AT&T Technologies, Inc., and a prime contractor to the US Department of Energy.

BRUCE HAWKINSON, Editor (505/844-1053)
PHYLLIS WILSON, Writer (4-7842)
DONNA RIX, Writer (4-7842)
LARRY PERRINE, Writer (6-6888)
CHARLES SHIRLEY, Writer (6-5542)
RANDY MONTOYA, Photographer (4-5605)
GERSE MARTINEZ, Asst. Photographer (4-5605)
JANET WALEROW, Editorial Assistant (4-7841)
BARRY SCHRADER, Livermore Reporter
(415/294-2447; FTS 234-2447)

Livermore Electroplating Researchers Work to Refine 150-Year-Old Process

Some technology fades rapidly as advanced processes and equipment are developed. But other basic technology — electroplating, for example — lives on and on. Electroplating, now 150 years old, is used to produce a wide variety of consumer, industry, and government items, including nuclear weapon parts.

Electroplating (electrolytic deposition of metals) and two variations of it — electroforming and electrochemical joining — are primary research areas in Sandia Livermore's Materials Dept. 8310. Many parts made with these processes contribute to the safety, reliability, and longevity of weapons.

Rudy Johnson, DMTS in Joining and Physical Metallurgy Div. 8312, has spent 29 years of his 32-year Sandia career studying the processes. He, along with Bill Bonivert and John Hachman in 8312's plating research lab, specializes in defining, refining,

and applying the processes for weapon applications.

Rudy has primary responsibility for the lab. Bill, a 25-year employee, oversees the lab's day-to-day operations and ensures that OSHA and EPA chemical-waste regulations are followed. John, in the group a little more than a year, helps operate the plating shop, designs special fixtures and parts, and handles computer matters.

The SNLL plating researchers are currently exploring high-speed techniques for plating metal coatings up to five hundredths of an inch thick. Industry already does high-speed plating for certain applications — food-can manufacturing, for example — but these are typically only a few millionths of an inch thick.

Rudy explains Sandia's interest in electroplating weapon parts: "Electroplating a noncorrosive fin-

ish on parts protects them from the environment, allowing weapons to stay stockpiled for many years. We also electroplate parts to modify their electrical, physical, and mechanical properties."

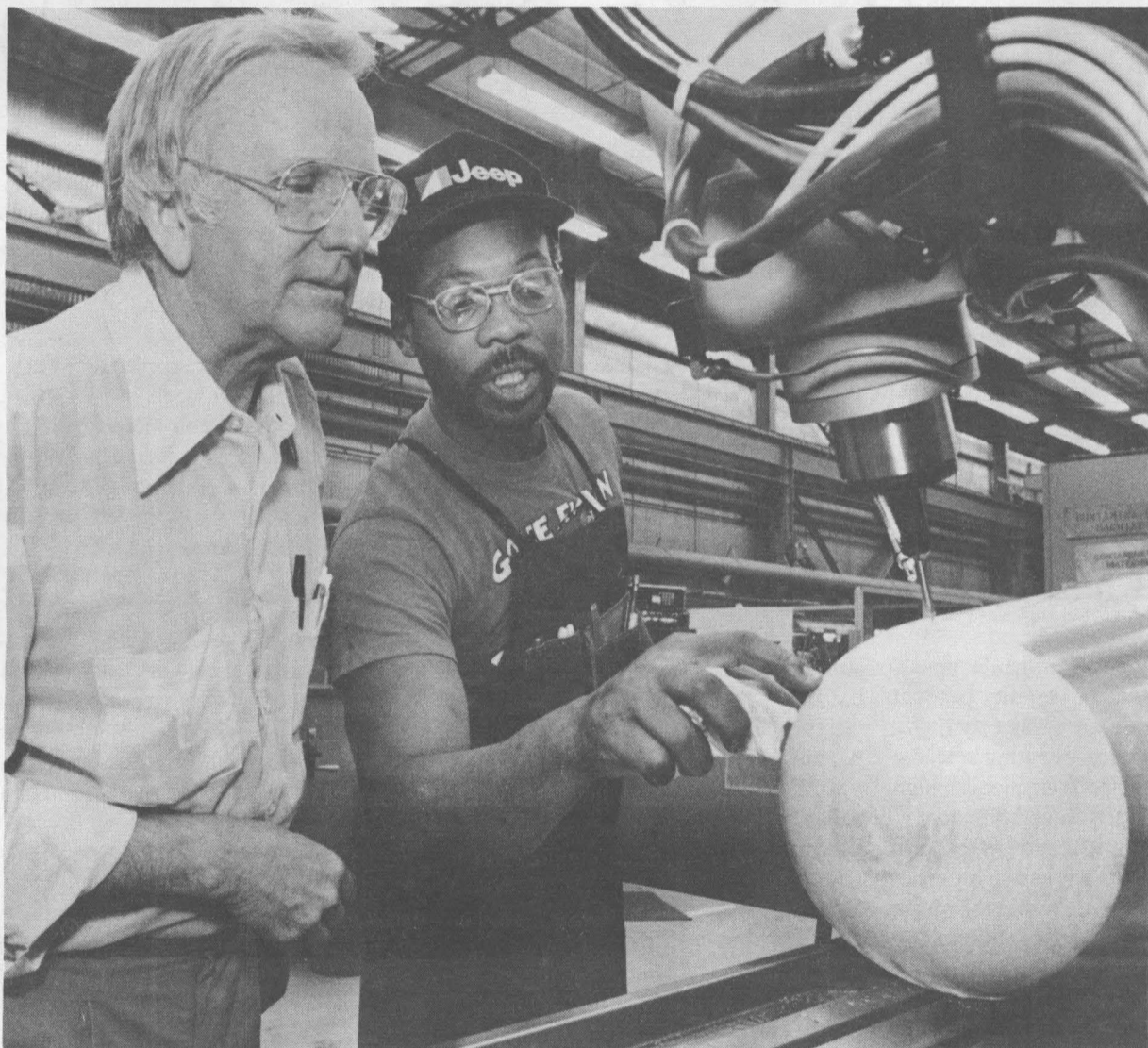
Copper, gold, and nickel are the most commonly electroplated metals in nuclear weapons — copper and gold primarily for their electrical properties, nickel for its strength and corrosion resistance. Zinc, cadmium, silver, lead, and alloys of nickel, nickel-cobalt, tin-nickel, and tin-lead also are plated on weapon components for special purposes.

Why Research Continues

Why does Sandia continue research and engineering in a technology that's 150 years old?

"Although electroplating has been around for a century and a half, the NWC [Nuclear Weapon Complex] labs and production facilities have specialized applications," explains Rudy. "We work to

(Continued on Page Four)



RUDY JOHNSON (DMTS, 8312, left), and Fred Johnson (8284-1) discuss a machining problem encountered in drilling some of the 445,000 holes in an aluminum mandrel for a special electroforming project.

Electroplating: How It Works

Some useful things occur when an electric current is passed through a liquid containing a dissolved metal. Electroplating is one of those things; electrowinning, where metal, such as copper or zinc, is recovered from a solution, is another.

Electroplating works this way: The article to be plated is placed in the solution — bath — containing a dissolved metal compound, and an electric current is passed through the liquid from one terminal to another. The first terminal — the anode — is made of the same metal as that in the solution and steadily dissolves as current is applied, maintaining the concentration of metal in the solution. The object to be plated forms the other terminal — the cathode — in the circuit.

The dissolved metal in the bath is a compound (such as copper sulfate) that contains negative and positive ions. When direct current is passed through the solution, the positive ions drift to the negative terminal — the cathode — and are deposited, or electroplated, on it. If desired, organic material can be painted on selected parts of the cathode in advance to prevent plating in those areas.

When you have a metallic part that is suitable in every way except surface finish, electroplating is often a good, cheap way to get that finish. The technique produces goods that need an attractive (lustrous), noncorrosive, or nonreactive finish: silverware, gold-plated jewelry, chromed bumpers and furniture, and tin-plated food cans. High-tech items include hybrid microcircuits, compact disks, and high-temperature coatings for the space shuttle.

Low cost is a primary reason for electroplating. It's a lot cheaper to make gold-plated jewelry, for instance, than to produce the solid-gold variety. However, cost isn't the only reason to electroplate, as researchers at SNLL are quick to explain (see main story).

Take Note

Peter Mattern (8300) began a three-year term as a director on the board of the Livermore Chamber of Commerce on Jan. 14. Last year, Peter participated in the first Leadership Livermore class, in which local business and professional people were trained for future civic and political leadership roles in the community.

* * *

Marlin Pound (8530) was recently reelected to a fifth four-year term on the Livermore Area Recreation and Park District board of directors.

Congratulations

To Mary Clare Stoddard (8446) and Robert Ferencz, a son, Stephen Bruce Ferencz, Dec. 31.

To Cheryl (8316) and John Lawrence, a daughter, Sarah Lavon, Jan. 7.

To Mary (8522) and Bob Ernesto, a daughter, Rebecca Ann, Jan. 12.



TWO JANUARY RETIREES at Sandia Livermore are Doris Pouard (8524) and Cliff Selvage (8275). Others include Francis Cunningham (8285), James Smith (8511), Leo Daniel (8452), Otto Schreiber (8174), and Don Benton (8281).

(Continued from Page Three)

Electroplating

fine-tune the basic processes and optimize them for these applications. We also spend considerable time doing corrosion and mechanical tests of the deposits to verify their integrity and reliability.

"Although the basic plating process is simple," he says, "controlling it, sustaining it, and ensuring a uniform, quality coating can prove difficult, especially when parts with critical design parameters are

Variations Produce Parts

Some nuclear weapon parts that can't be manufactured by conventional fabrication methods are produced using electroplating variations — electroforming and electrochemical joining.

In electroforming, specialized parts are made entirely from the metal that is plated over a mandrel (substrate metal form). After plating is completed, the part and mandrel are then separated. The mandrel is treated chemically before plating to prevent adhesion of the coating during plating operations. The part and mandrel then separate — similar to the way a cake separates from an oiled baking pan.

Mechanical techniques are used to separate some simple parts from the mandrel. In other cases, where the mandrel and electroformed part have sufficiently different coefficients of expansion, they are heated or cooled rapidly together and separate when one shrinks or expands slightly more than the other.

Good for Making Thin Parts

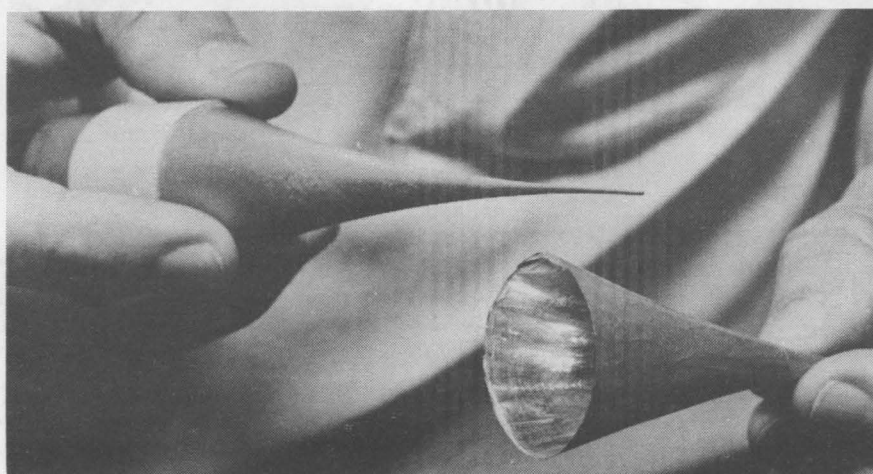
When design permits, a mandrel can usually be reused many times. But, in complex designs, the mandrel may be chemically dissolved in a solution that doesn't attack the part.

"The electroforming process is particularly useful for making very thin parts," explains Rudy Johnson (DMTS, 8312). "It's much easier to let the electroforming process 'grow' a thin-metal coating to a desired thickness than it is to machine a thin-metal part. That's especially true when you need an intricate or oddly shaped part."

The other variation, electrochemical joining, is used to join parts together in a sort of "cold welding" process. DOE's NWC facilities use the process to join parts made from different types of metal. Some are difficult or impossible to braze or weld together because they have different melting points or different coefficients of expansion, which causes stress and distortion when the metals are cooling.

Rudy cites an example: "In one weapon program, we needed to join a large (about 40-inch) stainless-steel part to a large aluminum part. You can't weld aluminum to steel because of the large difference in melting points and you can't braze them because the high temperature would 'age' the aluminum and destroy its mechanical properties. So, we solved this difficult engineering problem by joining the parts together with electroplated nickel, which produced a stronger joint than the aluminum material."

A 1-MIL-THICK electroformed gold cone (about an inch in diameter by 4.5 inches long) is shown at right after separating from a stainless-steel mandrel.



Tuned Frequency Impedance Probe

Bath Chemistry Without 'Witchcraft'

Chemical bath solutions used for electroplating and printed circuit board manufacture can be "fine-tuned" using an electronic instrument developed by materials specialists at Sandia Livermore.

The tuned frequency impedance probe was developed by Sandia to improve process monitoring and control by ensuring that chemical baths maintain proper amounts of organic additives. Working prototypes have been built, tested, and used successfully for an electroplating application.

Organic additives in plating solutions might be compared to the tiny amount of baking powder in the biscuit mix — they're minor, but necessary ingredients for making a quality product. Commercial organic additives are often put into the chemical plating solution to tailor both the surface finish and certain mechanical properties of electrodeposits — brightness, grain size, and throwing power (improved metal distribution over complicated geometric areas). The concentration of the additives needs to be controlled as the plating/manufacturing process proceeds, or product quality can vary and suffer.

Additives are slowly depleted — incorporated into electrodeposits, decomposed at the electrodes, absorbed by filters, or otherwise lost — as the process proceeds. The trick is to maintain them in the right amounts and add them at the right times. The tuned frequency impedance probe can continuously monitor additive concentration and determine when/how much to add.

In some cases, it's desirable to electroplate metals in organic-free baths because certain organics contaminate the solutions and cause tiny voids in the plated layer, especially when extremely thin deposits are desired. The probe can also be used with the organic-free baths.

Former Sandian Joe Farmer (now at Lawrence Livermore National Lab), a co-developer of the probe, along with Bill Bonivert and John Hachman (both 8312), explains its value: "Organic additives are in the baths in such small concentrations that it has been very difficult — sometimes impossible — to measure them. It was really an inexact science, almost witchcraft. However, it became clear several years ago that the physical characteristics of electrodeposits could be correlated with quality of the bath chemistry. It was obvious that we needed an instrument that could monitor the chemistry closely and continuously."

The SNLL team began development efforts in 1983 and completed its first working prototype in 1984. It has three wire electrodes that can be embodied in a flow-through electrochemical cell or in a submersible wand. Wires lead from the electrodes to a small electronic box that generates wave forms and measures the phase shift between the voltage and the current.

"This phase shift is a very sensitive measure of the concentration of organic species on the probe surface," says Bill. "As the organic level goes up and down in the bath, so does the phase shift, and the instrument puts out a reading that is proportional to the shift."

Sandia's continuing research, with Joe Farmer still involved, focuses on refining the electronics — being done by Doug MacMillan (8281) — and extending the monitoring capabilities to additional metals. A US patent on the probe is expected to issue soon. DOE has waived its rights to the patent, and Sandia is negotiating with an electronics firm that may license the patent and manufacture the probes for commercial sales.

being produced.

"Companies making consumer items need to turn out quality products, but their standards usually aren't as exacting as ours in the weapon program," continues Rudy. "We must ensure that our methods are precise, highly repeatable, and reliable." (See "Tuned Frequency Impedance Probe.")

Secondary goal of the Sandians is development of faster, easier, and cheaper electroplating methods — but never at the sacrifice of quality.

"Again, the quality level will be the determining factor in the success of this research," says Rudy. "The physical and mechanical properties of the coatings must meet our standards. We won't adopt any method just because it's faster or cheaper.

"But, if we can develop reliable high-speed plating techniques that give us the properties we need, there could be some substantial cost savings for the NWC: fewer workers, less capital outlay for buildings and equipment, and smaller volumes of waste chemicals."

No Modest Goals

The plating research lab's goals aren't modest ones. The researchers are exploring advanced techniques that could be much faster than current ones. Conventional nickel-plating techniques take about an

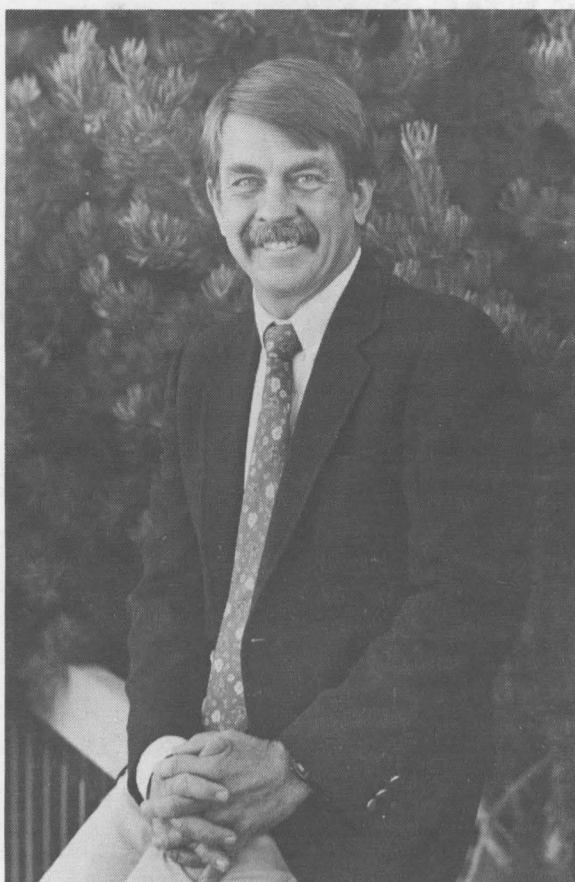
hour to deposit a mil (1/1000th of an inch) of material. Rudy thinks Sandia may eventually develop techniques that are somewhere between five and 50 times faster.

He says there are two main keys to success — developing reliable methods for moving solution past the cathode rapidly (about two metres per second) and developing ways to dump a lot of current into the cathode and still keep it cool. "These aren't trivial engineering problems, but we are building some new equipment now and beginning work on some promising schemes," he says. ●LP

October 1988 Earnings Factors

	Earnings Factors
Savings Plan for Salaried Employees (SPSE)	
AT&T Shares	1.0997
Government Obligations	1.0096
Equity Portfolio	1.0210
Guaranteed Interest Fund	1.0073
South Africa Restricted Fund	1.0066
Diversified Telephone Portfolio	
Unrealized Appreciation	1.0306
Realized Appreciation	.0065*
Savings and Security Plan — Non-Salaried Employees (SSP)	
AT&T Shares	1.1003
Guaranteed Interest Fund	1.0073
South Africa Restricted Fund	1.0062
Diversified Telephone Portfolio	
Unrealized Appreciation	1.0295
Realized Appreciation	.0066*

*The 1 has been removed from the earnings factor. Current month's DTP earnings may be calculated directly: Earnings Factor x DTP Current Worth = Current Month's Earnings.



PAUL KLIMAS (DMTS) to supervisor of Solar Thermal Electric Technology Div. 6227, effective Nov. 1.

Paul joined Sandia in June 1976 as a member of the Aerodynamics Department. In 1980, he transferred to the Wind Energy Division, where his work has been in vertical-axis wind-turbine (VAWT) research, particularly airfoil design. Along with Emil Kadlec (DMTS) and Jack Cyrus (both 9122), Paul is a co-inventor of a patented pump spoiler for the VAWT.

He has a BS in aeronautical engineering from Boston University and an MS and PhD in aerospace engineering from the University of Connecticut. Before joining the Labs, Paul served with the U.S. Navy and, as a civilian, taught aerospace engineering at the U.S. Naval Academy. He's a member of ASME.

He enjoys sailing, skiing, and traveling in his spare time. Paul has three grown children. He and his wife Carlota live in the Embudo Canyon foothills.



DODY HOFFMAN to manager of Purchasing and Materials Management Dept. 3740, effective Dec. 16.

Dody joined the Labs in 1956 as a clerk in the Personnel organization. She later worked in technical organizations as a division and department secretary

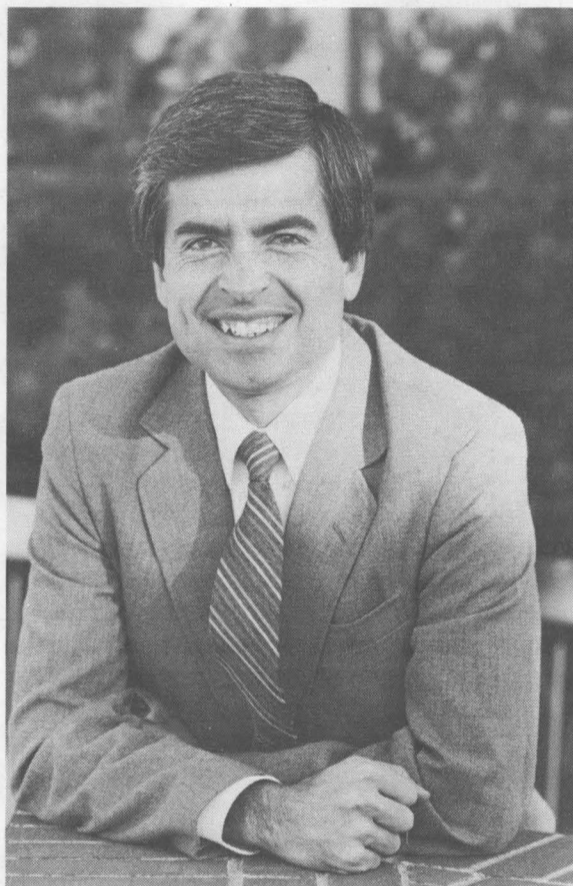
and, after transferring to the Security organization in 1975, worked with document control and with education and systems studies and appraisals.

She was named supervisor of the Systems Analysis Section in March 1979. In February 1980, she was appointed supervisor of the Administrative Security Standards Division, and later headed the Materials Systems Division, also in Security.

In April 1984, she joined the Purchasing organization, and headed the Purchasing Information and Administrative Services Division and the Accelerated Procurement, ICO/FAO, and PEL/MEL Division.

Under Sandia's Educational Aids Program, Dody earned her bachelor's degree in business from the University of Albuquerque and her MS in public administration from UNM. She is a member of the National Contract Management Assn. and a charter member of the NM Hispanic Women's Council. She serves on Sandia's Hispanic Leadership and Outreach Committee and is active in Sandia's VIA (Volunteers in Action) program.

Dody and her husband Jim (1235) enjoy hiking, tennis, biking, and gardening. They live in the NE Heights.



DAN ARVIZU to manager of Technology Transfer and Management Dept. 6010, effective Dec. 16.

Dan was with AT&T Bell Labs (Denver) from 1973 until 1977 when he transferred to Sandia and began working on heliostat evaluations in the Solar Thermal Test Facility. In 1981, he joined the Photovoltaic Concentrator Research Division, and was named its supervisor in April 1984. It became the Photovoltaic Cell Research Division in 1986. Dan oversaw development of the Photovoltaic Device Fabrication Lab, and managed the Photovoltaic Device Measurements and the Optics Measurement Control labs.

Dan earned his BS from NMSU, and an MS and PhD (the latter under Sandia's Doctoral Study Program) from Stanford, all in ME. He is a member of ASME and IEEE, serves on the Electron Device Society administrative committee, and is a member of the NMSU Mechanical Engineering Academy advisory group.

Dan enjoys soccer, running, and family activities with his wife Patricia and their five children. They live in the NE Heights.



NEIL HARTWIGSEN to manager of Safeguards Application Dept. 5210, effective Jan. 1.

Neil joined Sandia in 1967 as a member of a component environmental test group, where his work included explosive component testing. In 1974, he transferred to the Safeguards organization and worked on access denial methods. He joined the strategic petroleum reserve program in 1979, serving as project engineer for leach/fill technical support. He was then project engineer for a year and a half on the sludge-irradiation program. Neil returned to Safeguards to lead the Savannah River Reactor Safeguards project, completed in 1984.

He was promoted to supervisor of the Advanced Facilities Protection Division in December 1983. This division worked with the Special Safeguards Facility at TTR, AROD (Airborne Remotely Operated Device), and MIDAS (Mobile Intrusion Detection and Assessment System).

Neil received his BS in ME from Valparaiso University and his MS in engineering from UNM. He has been a member of the ad hoc MTS Performance Evaluation and the Direct Support Study committees.

His spare-time activities include gardening, woodworking, and wine-making. He and his wife Cheryl have two children and live in Los Lunas.

Retiree Deaths

Victor Padilla (91)	Sept. 27	Carmon Paschal (75)	Nov. 23
Wilbur Sheaffer (83)	Oct. 1	Fae Ruez (81)	Nov. 25
Francis Macek (77)	Oct. 15	Marston Skidmore (78)	Nov. 25
Evelyn Ricard (81)	Oct. 21	Charles Johnson (73)	Nov. 26
Purdy Meigs (83)	Oct. 30	Alvie Barrett (78)	Dec. 6
Ruth Kresge (74)	Nov. 3	Gene Daniels (58)	Dec. 8
Juan Herrera (81)	Nov. 3	Amado Salazar (82)	Dec. 19
Theodore Siegrist (76)	Nov. 9	O. J. Foster (72)	Dec. 20
William Bramlett (84)	Nov. 19	George Mincks (66)	Dec. 22
Gwendolyn Warnick (75)	Nov. 20	Ralph Farnham (84)	Dec. 23
Marshall Ludlam (72)	Nov. 21	John Harner (78)	Dec. 28
James Vincent (71)	Nov. 21		

Restores Corvette to Original Condition

Jerry McCorkle (7174) recently needed a radiator for his old car. Luckily, he found one for \$1100. *Luckily?* Eleven hundred bucks for a radiator? It's true, because Jerry's "old car" is a completely restored red '65 Corvette, one of four Corvettes he has owned. The others were '59, '74, and '78 models.

Like many car fanciers, Jerry was first bitten by the Corvette "bug" when he was a young driver. Also, like many, he couldn't afford one then or for years to come. "In a way, that makes owning and driving them now even sweeter," he says. "When I got my first one about nine years ago, it made me feel like a kid again."

He was proud of the three others, but the '65 is his real pride and joy. Jerry, an optical tracking specialist at Sandia's Tonopah Test Range (TTR) in Nevada, won several top awards with the '65 last summer at shows in car-crazy California. The awards included "best mid-year" ('63 to '67 models) awards at two shows, in addition to "best interior" award at one of them.

Jerry figures his '65 beauty is worth about \$40,000. And he should know — he's president of the Las Vegas Corvettes Association. Jerry bought the '65 a couple of years ago, then spent about \$12,000 and untold hours restoring it to its original condition.

He says "original condition" has a special meaning for show Corvettes: "The major parts — radiators, generators, blocks, etc. — must either be



JERRY McCORKLE'S OLD CAR is an award-winning, sleek, red '65 Corvette in original condition. It's not just a show model. Jerry (7174) and his wife Linda drive it around Las Vegas and even to out-of-state car shows.

the originals that came on the car or replacement parts that were manufactured within six months of the day the car was manufactured," Jerry says. "Both the cars and the parts have manufacturing dates stamped on them. It's OK to rebuild the innards of certain parts — generators, for example — but the permanent pieces of such parts must be original."

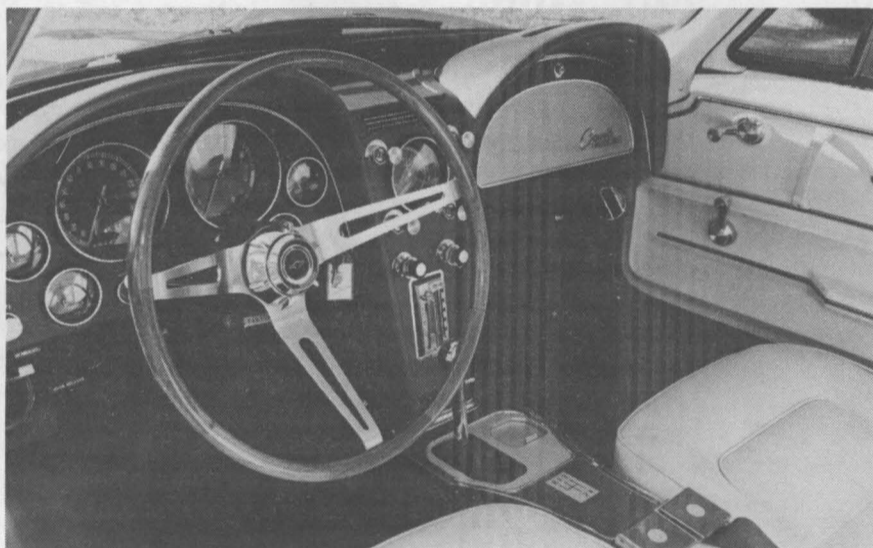
That's why parts like original-equipment radiators cost \$1100 or more, he explains. "Actually, the radiator was a bargain at that price. The guy I got it from probably could've sold it for around \$2000," says Jerry, who adds, with a sly grin, "but I didn't tell him that."

Finding some original working parts isn't easy, according to Jerry. "It's a challenge, even though there's a Corvette original-part traders' catalogue," he says. "A lot of the ads don't even list the price, and many fall into the 'if-you-have-to-ask, you-probably-can't-afford-it' category."

Jerry's hard work and expense to restore the '65 were recently recognized in a special Corvette issue of *Hot Rod* magazine. Jerry and the car are featured in a four-page spread, including the centerfold.

He's not through restoring Corvettes — not by a standing mile. He recently bought a '61 that needs a lot of work. "It will be a start-from-scratch kind of restoration job," he says.

A 20-year TTR veteran, Jerry is one of a few Labs employees who have been assigned to all three primary Sandia facilities. He spent three-plus years in Albuquerque and two in Livermore before joining the TTR staff.

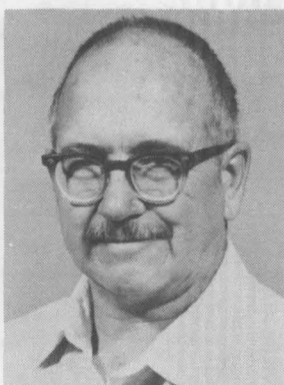


ONE LOOK INSIDE Jerry's '65 Corvette quickly lets you know why he won a "best interior" award last summer. It's like new. The telescoping, teakwood steering wheel, originally a \$40 option, now goes for about \$1000, "if you can find one," he says.

Retiring



Willard Randall (7818) 34



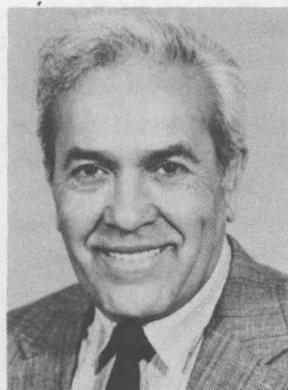
Don Mattox (1834) 27



Bob Wilde (3430) 30



Ruth Dillon (7815) 25



Bob Velasquez (3551) 32



Jay Grear (DMTS, 7232) 37



Lou Roper (7810) 22

Fun & Games

Bowling — SANDOE Bowling Assn. winners at the No-Tap/Scotch Doubles Tournament at Iceland Bowl on Jan. 14-15 were Gerald DePuydt (7816) and Dolores Schumpert (DOE) with a 1491 six-game handicap series. Second went to Jerry (7111) and Lea Long with a 1452 six-game handicap series.

November Bowlers-of-the-Month: Scratch — Wayne Yoshimoto (7412), 674; and Lil Radtke (3430), 557. Handicap — Dominic Bellino, 586, 706; and Julia Norwood (3400), 523, 694. December Bowlers-of-the-Month: Scratch — Reggie Tibbetts (7815), 648; and Margret Tibbetts, 589. Handicap — Gary Cochrell (9115), 631, 697; and Frances Baca, 469, 625.

A Four-Game Mixer Tournament is set to roll on Feb. 18-19 at the Holiday Bowl.

* * *

Fun-Climb — See how often you can climb out of the pit at the annual Cystic Fibrosis Pit Climb on Feb. 4 from 9 a.m. to 1 p.m. at the UNM Pit. The Climb is an exercise-for-fun-and-charity event with prizes for both individual and team entrants. Grand prize is a trip to Disneyland. Contact Tim Wheeler (6412) on 4-9554 or the Cystic Fibrosis office on 255-7507 if you're interested in either participating or making a pledge.

Take Note

Rio Grande Chapter of the Special Libraries Assn. is sponsoring "Communication Skills: Letting Them Know What You Know," on Feb. 10 from 10 a.m. to 4:30 p.m. at the Holiday Inn Pyramid (5151 San Francisco Rd. NE). Participating Sandians and their topics include: Pat Newman (3144), "Breaking through the Language Barrier: How to Put Your Best Foot Forward Instead of in Your Mouth"; Allison Davis (1813), "Communications through Presentations"; and John Gardner (3153), "You Got Talkin', You Got Pictures, and Then You Got Talkin' Pictures!" Everyone is welcome to attend. Fee is \$25, and deadline for registration is Feb. 6. Contact Cathy Pasterczyk (3144) on 4-1080 for more information.

* * *

Society of Women Engineers (SWE) will celebrate the chartering of the Central New Mexico Section with a banquet on Jan. 28 at the Albuquerque Hilton Hotel. National president Suzanne Jenniches (pronounced "genesis") will present the charter to the new section. Guest speaker and past national president Arminta Harness will discuss the Society's development. SWE is a non-profit, educational service organization that encourages young women to pursue science and engineering careers and promotes the professional development of its members. For banquet reservations or membership information, call Jan Williams (7823) on 6-6428 or Margie Whipple (7844) on 4-2482.

Sandia Colloquium

Duncan Moore from the Institute of Optics at the University of Rochester will speak on "Gradient Index Optics" at 9 a.m. Feb. 10 at the Technology Transfer Center (Bldg. 825). John Anthes (2531) is the host. Call him on 4-7941 for more information.

Retiring and not shown in LAB NEWS photos: Ruth Whan (1820), Joe Holdridge (122), Charles Mills (7844), Gloria Perrine (3716), James Manweller (9141), Henry Harada (5261), John Moore (5215), Dominic Russell (3414), Walter Roose (3144), Juan Tafoya (3552), Antonio Trujillo (7816), Alfonso Trujillo (5141), Lovella Montoya (3414), Jim Thompson (3423), Ed Brass (2000), Alice Moore (3141), James Reid (5261), Betty Tanner (9110), and Robert Adams (5256).

Retirement Seminars

Dean Witter Reynolds, Inc., will present a seminar, "Planning for Your Retirement," on Jan. 31 at 5 p.m. in the Coronado Club, Eldorado room. Topics covered will include IRA roll-overs.

Guy Trujillo of Financial Network Investment Corp. will present "Asset Allocation," an approach to portfolio development. The seminar is set for Feb. 1 at 5 p.m. in the Coronado Club, Eldorado room; RSVP to Guy on 291-8585.

Alliance Française of Albuquerque begins its spring session of French classes the week of Jan. 30. Classes run for two hours per week for 10 weeks, and are held weekdays, daytime or evening, or on Saturday morning. Cost is \$56 for the entire session. Levels range from beginners to advanced literature classes and are designed to give students practical working knowledge of French. The Alliance is associated with the French section of UNM's Department of Modern and Classical Languages.

The French for Children (ages 4-12) spring session, sponsored by the UNM French section, begins Feb. 4. During the 10-week session, classes are held on Saturday mornings at UNM from 11 a.m. to noon and cost \$30 for the first child and less for each subsequent family member. There's also a French for Parents class for those parents who want to learn along with their children.

For more information, call Valérie Putnam on 255-0386 or 277-7371.



LOLA ORR (3520) DEMONSTRATES BAUERNMALEREI, a folk art from Germany, her native country. Sandians, retirees, and family members who practice ethnic arts and crafts are asked to submit original works for an ethnic arts and crafts exhibit to be held in conjunction with Sandia's International Day — A Celebration of Cultural Diversity — sponsored by Equal Employment Opportunity and Affirmative Action Dept. 3510, on May 12. If you specialize in any art or craft related to your ethnic heritage, contact Joe Laval (3163) on 4-6531. The exhibit will be displayed in lobbies of major Sandia buildings beginning April 3. Deadline for submissions is Feb. 15.

(Continued from Page One)

DM Shift

tin [the British pioneer in pulsed power], could provide some new insights into the problem of dielectric breakdown [a problem common to all electrical equipment] and that those insights suggested that a single, simple concept might underlie the breakdown problem.

"And Pace replied, 'You really enjoy doing this kind of research, don't you? Want to do it full time?'"

" 'Sounds great to me,' I said, and here I am!"

Idea Whose Time Has Come

Many members of Sandia's research community are as excited about the new program as is their VP. "One retired department manager who was present during the announcement said he thought the new program was an excellent idea, one whose time has come," says Tom.

"Reaction within 1200 has been enthusiastic too," Tom continues. "Most of our people show a great deal of interest in the program, and several have offered to help me with my research. In the large pulsed-power accelerator field, I need to continue to work collaboratively with many people."

"I've always been excited by research itself, but, as a line manager, I've not had time to do as much of it as I'd have liked," says Jim. "This program is the best of both worlds. And Sandia is one of the few places in the world that can offer the talent, the resources, and the capabilities to do really *fore-front* research. So I'm really excited about the new opportunity.

"At the same time, it's a big responsibility — I've been challenged to produce, to make the program work, not only for me but for the benefit of others that might be considered for a similar move in the future.

"And I think it *can* work," Jim continues. "We have, for the first time, the flexibility to go back and forth between management and research — depending on the sense it makes for the person and the Labs. That's an important step forward."

All three have begun defining the research areas they intend to explore. In addition to the dielectric

breakdown problem mentioned above, Tom (who, Venky notes, "has been a driving force in 18 major state-of-the-art accelerators built at Sandia") plans to study ways to reduce the cost-per-unit-power of large accelerators: "Our experience indicates that as we increase power output ten times, we increase cost by eight times for similar output energies.

"In other words, we're not getting the economies of scale you expect in other fields. Some improvements here would make Sandia even more competitive in inertial-confinement fusion, above-ground testing, and basic research."

"I'm planning to do research on the electronic properties of organic solids," says Glen. "The long-range goal here is to develop the new materials Sandia needs for a variety of applications.

"In recent years, researchers at Sandia and across the country have recognized that organic materials can be 'molecularly engineered' — tailored to provide a wide range of useful electronic properties. I'll now be able to contribute more fully to the understanding needed to make this molecular engineering possible.

"Obviously, such an effort must be highly interdisciplinary, so I'm looking forward to working closely with a wide variety of Sandians, particularly those in Dept. 1810. I think that, working hard and working together, we'll be able to make some real progress toward the development of exciting new materials useful to Sandia."

Next Step in Superconductor Research

"I hope to help Sandia marry its capabilities in strained-layer superlattices to those in 'high-temperature' superconductors and thus exploit the Labs' already unique capabilities in high-temperature, high-pressure [thousands of atmospheres] oxygen processing of superconducting materials," says Jim.

"What we plan to do is make *in situ* measurements of the materials while they're still under oxygen pressure. That would be a capability no one anywhere in the world currently has."

"I believe that the new program will have a broad impact on all managers and supervisors in 1000," Venky concludes. "Our outstanding people will see that assuming management responsibility is not the *only* way their worth to the Labs can be recognized." ●BH

The Grand Canyon by Boat— Adventure w/Luxury

By John Shunny (Ret.)

In August of 1869, Maj. John Wesley Powell, a Civil War veteran who had lost his right arm in the Battle of Shiloh, was deep in the Grand Canyon, leading the first river exploration of the Canyon. His expedition was not going particularly well, with many upsets in the rapids, a demoralized crew, and a deteriorating food situation:

August 24, 1869—Our rations are still spoiling; the bacon is so badly injured that we throw it away. We have now only musty flour sufficient for ten days and a few dried apples, but plenty of coffee. We may be compelled to give up the expedition.

I thought of these words from Powell's journal one evening as we relaxed on a large sandbar along the Colorado River within the Grand Canyon in August of 1988. We had just concluded dinner: shrimp cocktail, halibut steaks, vegetables, and salad, with cheesecake and berries for dessert. Some sipped wine with their dinners. It struck me that the day will come when Americans with a taste for adventure — provided it's comfortable — will enjoy haute cuisine on the slopes of Mt. Everest or somewhere on the snow-bound reaches of Antarctica.

It was Thursday. On Monday, our group of 15 had embarked upon a 33-foot inflated boat at Lee's Ferry, launch point for trips down the 280 miles of Colorado River that constitute the length of the Grand Canyon. On the coming Monday, we would emerge from the Canyon at Lake Mead, mile 280, to be met by a chartered bus that would return us to our parked cars at Lee's Ferry, from which place we would return to Albuquerque.

In our group, I was the only veteran of the Grand Canyon (aside from our two boatmen). This was my fourth trip, and it had been interesting to observe the others and how they reacted to the Grand. From their earlier questions, I knew that some were apprehensive about the rapids, what the brochures love to describe as "the white-water experience." Others had little or no experience in camping and were preoccupied with creepy, crawling things. They brought tents along. And then there were the photographers, intent on seeing the Canyon through a viewfinder and manipulating their collections of lenses.

Effect Is Stunning

The first day on the river pretty much settles everyone. The effect of seeing the Canyon from the intimate setting of the river can only be described as stunning — people become hushed, as if in a cathedral. The first rapids, rather modest, are reassuring in that you quickly comprehend that this is a seaworthy boat; it will twist and bounce and you'll get wet, but it's clear that the boat and its two professional boatmen will prevail. You note also that



THE REFERENCE BOOK says there are more than 200 rapids in the 280 miles of Colorado River that constitute the Grand Canyon. A more realistic number (that is, truly significant rapids) is 20 to 25, depending upon the quantity of water flowing in the river. Here our boat enters Badger Creek rapids, a four or five on the river runners' scale of ten. Only two rapids, Crystal and Lava Falls, approach the ten rating.

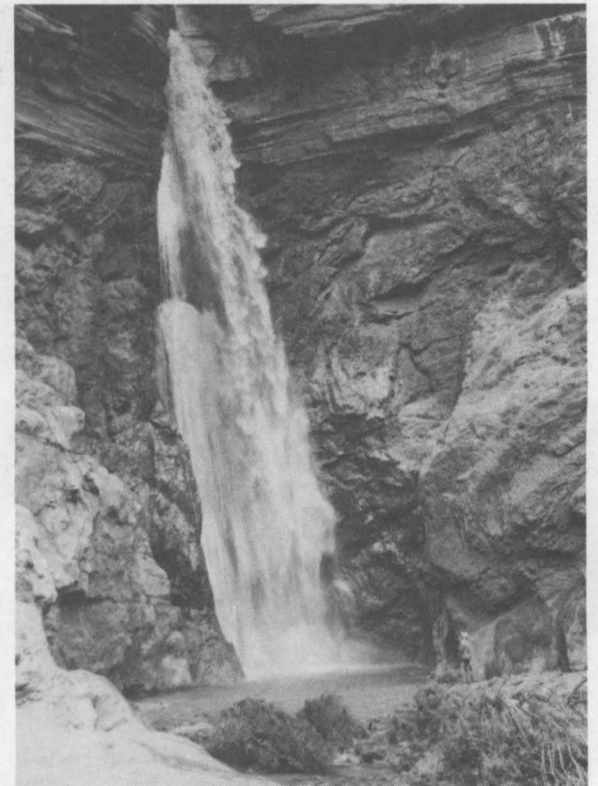
it's a hot and sunny day in Arizona; still you're chilled, and you begin to spend more time in the aft areas of the boat where there's less spray.

In late afternoon, after stops for lunch and hikes up side canyons, camp is made along a pristine beach. You set up your personal camp, be it bedroll or tent, wherever you wish — near the river with its rush and activity or higher up where the view may be better. The tents in our party tended not to appear after a few days — you miss the spectacle of a truly dark star-filled sky in a tent. And, besides, the few bugs in camp seemed intent upon their own business.

Meanwhile, our boatmen have become chefs, taking charge of the principal hassle of camping — the food and its preparation. After you've set up your personal camp, your one remaining task is to enjoy the cocktail hour while awaiting dinner. It's enough to make you think of Major Powell and his crew, maybe even feel a little guilty.

Logistics: Grand Canyon trips are pricey — the Park Service limits the number of people going through the Canyon, so commercial outfitters are in a seller's market. Prices can be as high as \$175/day, but our eight-day trip came in at \$750 (\$94/day) because we were dealing with the outfitter as a group and thereby gained a discount.

Next Canyon trip: Aug. 20-28, nine days, \$860. Call me, 265-1620, for information and reservations.



DEER CREEK FALLS is unexpectedly grand, in that Deer Creek originates in the Arizona desert high country. Note figure at lower right. Pool at bottom of falls is favorite swimming hole. Only the brave [Ed. Note: read "masochistic"] swim under and behind the falls.



EARLY-DAY Canyon-runners endured a Spartan diet of canned food and soggy bread. But no more. A smiling Les Harris (5231, second from left) looks over the spread — it was Mexican food night — while the chef/boat captain, Al Tinnes, acknowledges compliments.

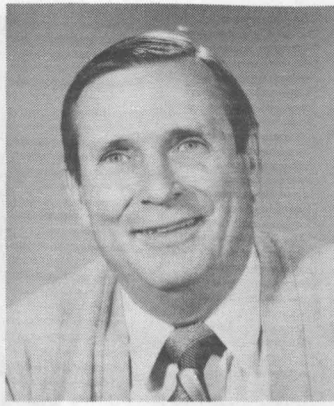


THE TROUBLE with air mattresses is that you first have to inflate, then later deflate them. Ward Hunnicutt (7800) is in the latter phase. Grand Canyon campsites are typically sandy, clean, and scenic.

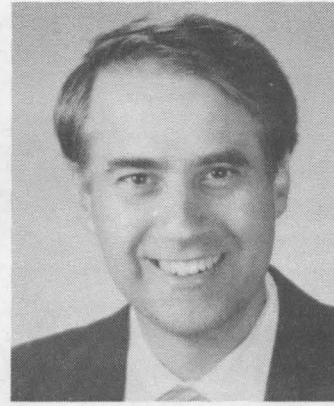
MILEPOSTS

LAB NEWS

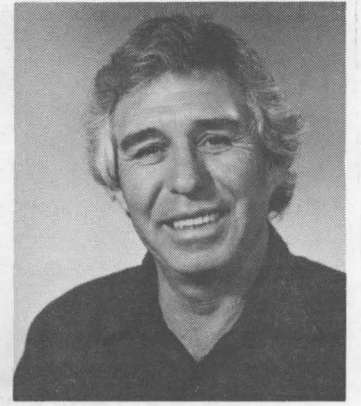
JANUARY 1989



Howard Devaney (2542) 40



Art Hull (8454) 20



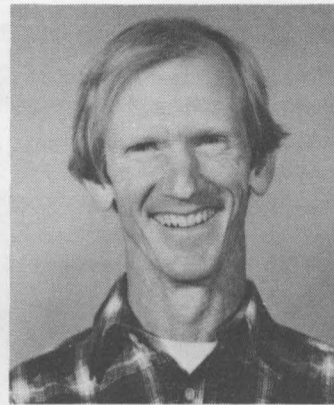
Salomon Moya (7818) 20



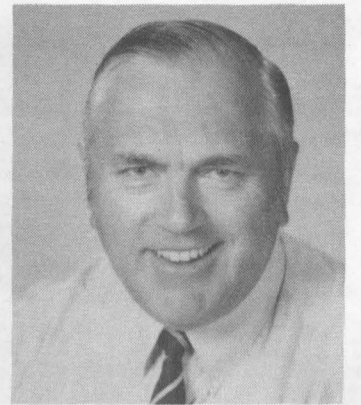
Marcelia Samuelson (3428) 40



Donna Mitchell (8234) 15



John Arnold (7535) 25



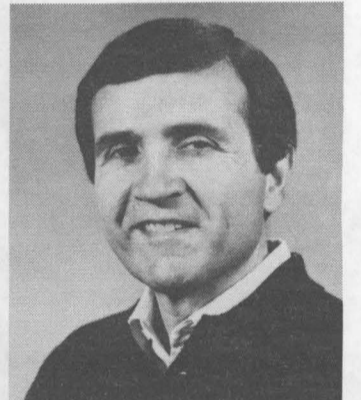
Colin Hackett (8244) 15



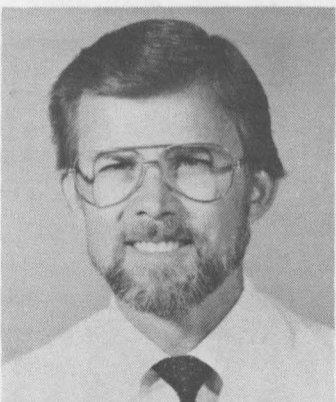
Dan Blazek (2315) 25



Bruce Caskey (2821) 30



Al Hodapp (DMTS, 1551) 20



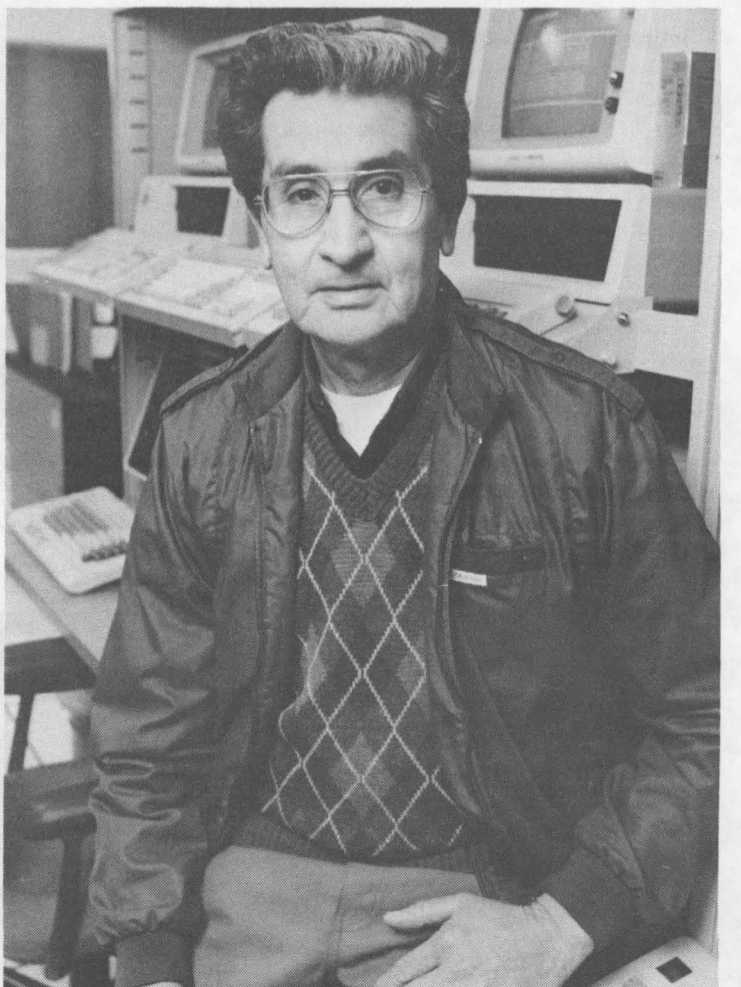
Ted Schmidt (6450) 20



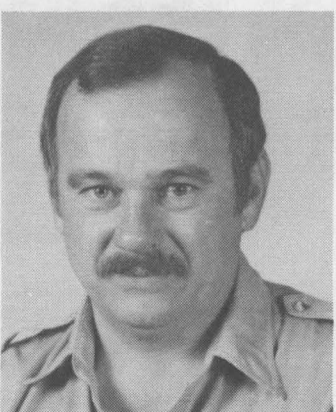
Bruce Worden (8163) 30



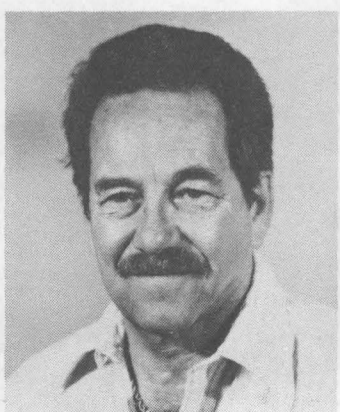
Gene Moore (154) 15



Orlando Torres (2631) 30



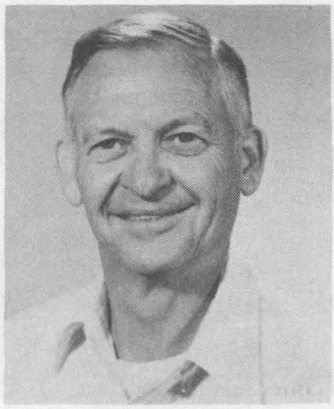
Jack O'Connor (8445) 20



Art McCarthy (7554) 30



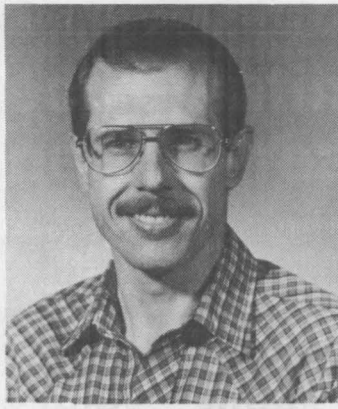
Lloyd Rothacker (8513) 30



Bill Duggin (1221) 40



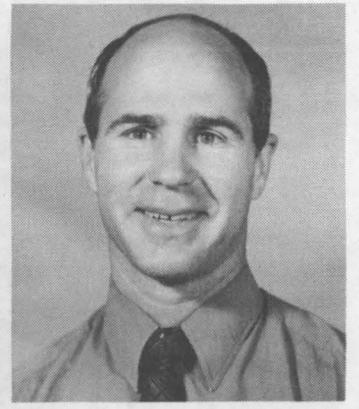
Herb Anderson (7223) 40



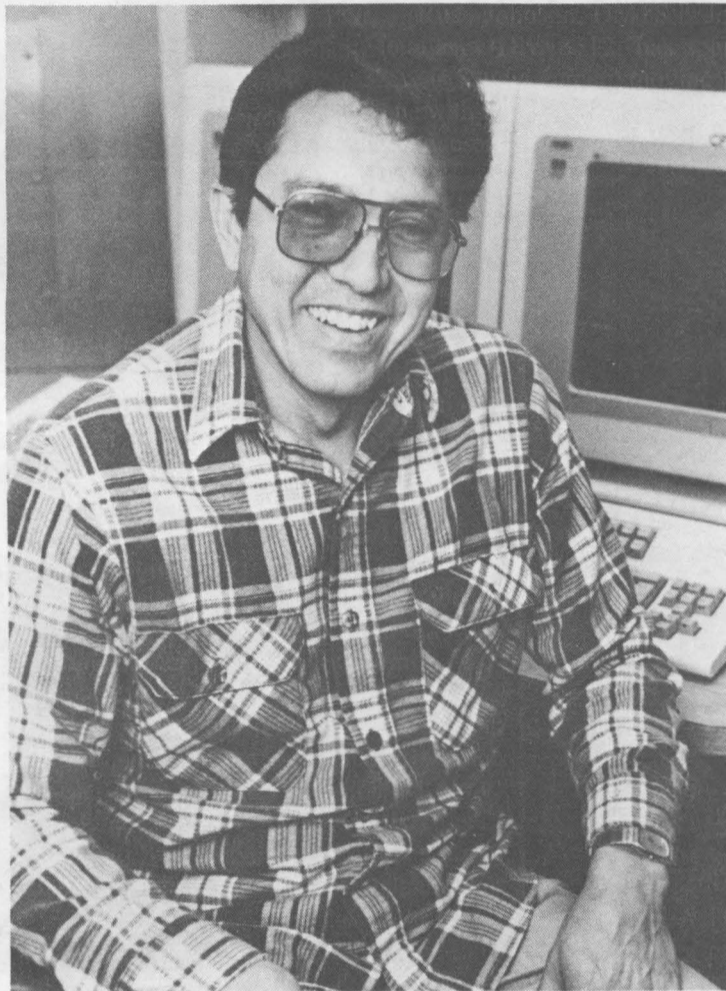
Tom Cabe (2315) 15



Bill Snyder (6500) 35



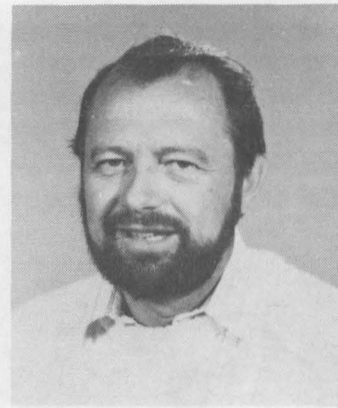
Dan Appel (7476) 15



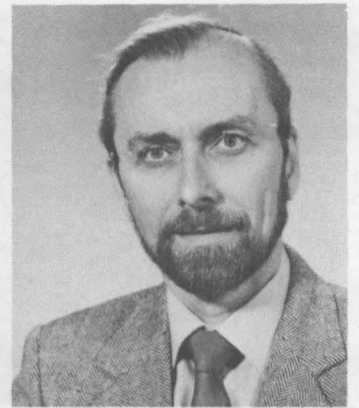
Leroy Duran (2631) 25



Roger Rizkalla (7815) 20



Peter Johnson (1264) 15



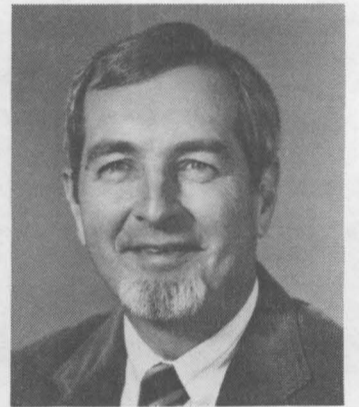
Don Greenwoll (5249) 30



Martel Boyer (7412) 30



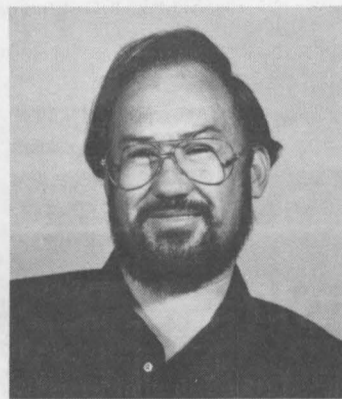
C. A. Davidson (1522) 35



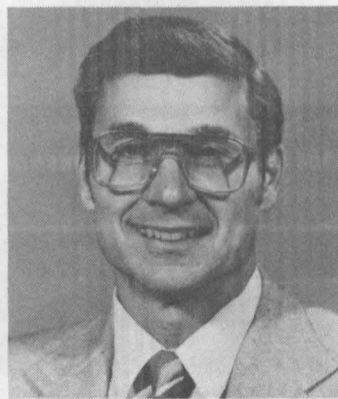
Bob Prew (5111) 25



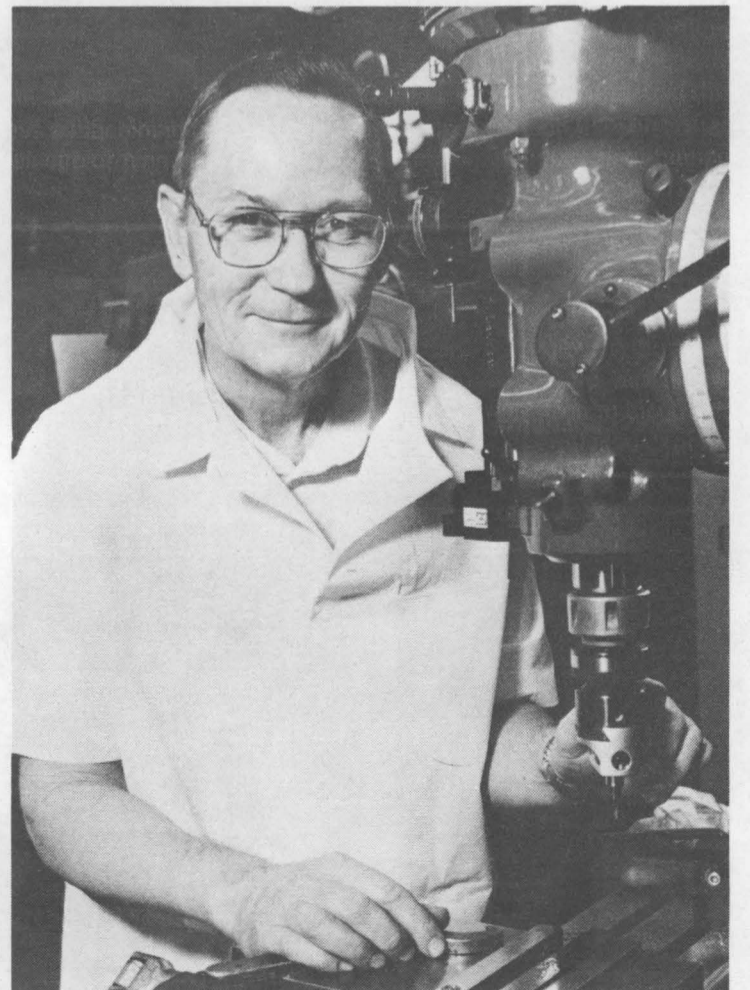
Don Bower (5231) 30



Vic Gabaldon (3423) 15



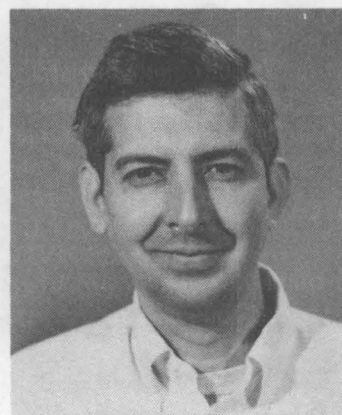
Marshall Berman (6427) 20



Keith Gawith (7481) 25



Francis Graham (121) 30



Jim Hamilton (2335) 20



G. W. Walker (7252) 40

Events Calendar

Jan. 27 — Concert, Tom Espinola and Lorraine Duisit from the Blue Ridge Mountains of Virginia perform original and traditional folk and string-band music; 8 p.m., South Broadway Cultural Center, 848-1320.

Jan. 27-29 — "American Masters," Southwest Ballet Company presents "Billy the Kid," "Allegro Brillante" by Tchaikovsky, and the world premiere of a new ballet; 8:15 p.m., 2 p.m. Sun.; Popejoy Hall, 294-1423.

Jan. 27, 29, & Feb. 5 — "Madame Butterfly," drama of deception and human destruction in the name of love, presented by Opera Southwest; 8 p.m. Fri., 2 p.m. Sun.; KiMo Theatre, 243-0591.

Jan. 27-April 30 — "High Country," photography/video exhibit detailing plants and animals in the harsh environment above 11,000 feet in New Mexico's Sangre de Cristo Mountains; 9 a.m.-5 p.m. daily, New Mexico Museum of Natural History, 841-8837.

Jan. 29 — Canterbury Concert Series: the Sangre de Cristo Chorale; 4 p.m., St. Thomas of Canterbury Episcopal Church (425 University NE),

836-6775.

Jan. 30 — Keller Hall Series: Sierra Woodwind Quintet performing works by Mucznski, Foss, and Dahl; 8:15 p.m., Keller Hall, 277-4402.

Jan. 31 — Keller Hall Series: mezzo-soprano Kathryn Fowler with Prof. Emeritus George Robert on piano; 8:15 p.m., Keller Hall, 277-4402.

Jan. 31-Feb. 1 — Susan Marshall and Company, New-York-based dancers perform their perception of how human beings are changed through contact and communication; 8 p.m., Rodey Theatre, 243-4500.

Feb. 1-4 — "Flowers for Algernon," performed by the Sandia High School Drama Dept.; 7:30 p.m., Sandia High School Theatre, no advance ticket sales.

Feb. 3-4 — "A Cast of Thousands," NM Symphony Orchestra, eight soloists, NMSO Chorus, UNM Chamber Singers, and the Albuquerque Boy Choir present Gustav Mahler's rarely performed Symphony No. 8 in E-flat Major (also known as "A Symphony of a Thousand"); 8:15 p.m., Popejoy Hall, 842-8565.

Feb. 3-19 — "Play It Again, Sam," by Woody Allen;

8 p.m. Wed.-Fri., 6 & 9 p.m. Sat., 2 p.m. Sun.; Albuquerque Little Theatre, 242-4750.

Feb. 4-5 — Collectors' Showcase, antiques and collectibles; 10 a.m.-6 p.m., Exhibit Hall, NM State Fairgrounds, 883-6986 or 265-1791.

Feb. 7 — American Indian Day, concert showcasing Indian youth; call for time, Indian Pueblo Cultural Center, 843-7270.

Feb. 10-12 — 25th Anniversary Antique Show & Sale, antiques and collectibles; noon-9 p.m. Fri., noon-8 p.m. Sat., noon-5 p.m. Sun.; South Exhibit Hall, Convention Center, 268-5122 or 881-7557.

Feb. 10-19 — "When You Comin' Back, Red Ryder?" play by Mark Medoff, New Mexico Repertory Theatre production; 8 p.m. Tues.-Sat., 2 p.m. matinees Sat. & Sun.; KiMo Theatre, 243-4500.

Congratulations

To Margie and Al (6331) Lappin, a daughter, Molly Margaret, Dec. 24.

To Cheri and Ted (1232) Parson, a daughter, Mary Voy, Jan. 6.

UNCLASSIFIED ADVERTISEMENTS • UNCLASSIFIED ADVERTISEMENTS • UNCLASSIFIED ADVERTISEMENTS • UNCLASSIFIED ADVERTISEMENTS

Deadline: Friday noon before week of publication unless changed by holiday. Mail to Div. 3162.

Ad Rules

1. Limit 20 words, including last name and home phone.
2. Include organization and full name with each ad submission.
3. Submit each ad in writing. No phone-ins.
4. Use 8 1/2 by 11-inch paper.
5. Use separate sheet for each ad category.
6. Type or print ads legibly; use only accepted abbreviations.
7. One ad per category per issue.
8. No more than two insertions of same "for sale" or "wanted" item.
9. No "For Rent" ads except for employees on temporary assignment.
10. No commercial ads.
11. For active and retired Sandians and DOE employees.
12. Housing listed for sale is available for occupancy without regard to race, creed, color, or national origin.

MISCELLANEOUS

PRE 1200 SKIS, 204cm, Tyrolia 380RD bindings, \$150. Miller, 281-3959.

REMINGTON MODEL 870 WINGMASTER, 12-ga., riot/bird-gun combo, w/carrying case, riot w/18" full, bird w/26" imp. cyl., both stocks, \$250 firm. Mason, 281-3052.

SOFA & CHAIR, wooden frame, brown/rust plaid pillows, \$450. Baldonado, 344-2857.

WOMAN'S GOLF CLUB SET: 8 irons (3/pw), 3 woods, putter, bag, pull cart, \$125. Weitzel, 831-9454 after 5.

'84 OLDS. MANUALS, electrical & mechanical, all models, 2 volumes, \$15. Meikle, 299-4640.

OCCASIONAL TABLE, 71" long, 16-1/2" high, 22-1/2" wide, rustic plank top, \$20. Hovorka, 299-0224 leave message.

GE ICE-MAKER, new seals and water valve, also GE refrigerator timer and thermostat, \$25. Dippold, 821-5750.

PORTABLE SEWING MACHINE, \$45; 8mm movie camera, \$15; ski boots, size 10, \$15. Schowers, 822-8494.

ROLLTOP DESK, stained oak, \$200; baby crib & mattress, \$50; misc. baby items. Vigil, 293-5656.

SEARS EXERCYCLE, \$50; rowing machine, \$75; trampoline, \$15; \$125 OBO for all. Lucero, 345-0974.

MOTORCYCLE MOTO-CROSS RIDING GEAR, complete, \$250. Wright, 296-3850.

BARRECRFTER SKI RACK, model 72, \$25; Anderson open-hole flute, silver body, \$300; shop manual for Volvo 172 sedan, free. Taylor, 869-2934.

WEIGHT-LIFTING BENCH, w/leg, pec, and preacher attachments, \$250. Jakowitz, 299-9271.

FURNACE HUMIDIFIER, used one sea-

son, w/humidistat, \$25. Guttman, 888-5114.

CROSS-COUNTRY SKIS, Trak T6000 backwoods/telemark, w/bindings, \$70. Scott, 294-8627.

TWO MAG RIMS AND TIRES, 2 ea., mounted, \$60/both. Puccini, 255-0568.

NORITAKE CHINA, Pinetta, service for 8 plus extras, \$150; IBM Selectric II typewriter, w/stand, \$60; framed 30" x 65" Robert Wood picture, \$25. Neil, 884-4461.

PC/XT, 640K RAM, 10mb hard disk, 1 360K floppy, Keytronic KB5151 keyboard, no monitor, \$450. Cochrell, 298-2068.

INFANT/TODDLER CAR SEAT, Cosco/Peterson, adjustable, \$30; antenna, Radio Shack VU-90, used indoors 1 week. Schofield, 292-7220.

'67 MUSTANG & COUGAR PARTS; boat. Rhoden, 293-5301.

DOWN SKI JACKET, Jr./Miss size 10-11, green w/navy trim, \$35; matching wool hat available. Tremel, 266-5412.

JUDO GI (uniform), size 5 (large to extra-large), \$25. Van Deusen, 291-8196 after 5.

WINCHESTERS: model 70, 270-cal., \$550; model 100, 308-cal., \$350; model 64, 30-30, \$275; model 77, 22-cal., \$150. Zamora, 836-6101.

RCA XL-100 COLORTRAK TV, 19", \$60; Realistic 12-band graphic equalizer, \$60. Burstein, 821-6688 after 5:30.

29-GAL. AQUARIUM SET-UP, complete w/stand, heater, filter, gravel, \$60/all. Mozley, 884-3453.

SOFA, off-white w/pastel pattern, \$222; wooden dinette set, 4 chairs, white Naugahyde seats, \$58. Fjelseth, 296-2257.

GOLDSTAR SLIDE-IN CAMPER, full-size 8", w/icebox, stove, heater, sink, toilet, jacks, sleeps 4. Danneels, 292-1548.

JOGGING TRAMPOLINE, 40" diameter, \$15; high chair, \$15; stroller, \$25; school desk/chair, \$10; hand lawn mower, \$15. Gaither, 298-1043 or 296-2609.

EXERCYCLE, 262 miles, 2 yrs. old, \$50; 4 wooden chairs, round seats, brown & white, \$10/ea. Leatherman, 268-3754.

TWO AQUARIUMS: w/everything including fish and food, 10-gal./\$35, 20-gal./\$60 OBO. Dixon, 298-5617.

DOG FOOD: 100 lbs. (five 20-lb. bags) Hill's canine KD prescription diet, \$75; 1 case of cans, \$15. Krukar, 292-3917.

QUEEN-SIZE WATER BED, complete, \$55; JBL L-26 Decade speakers, \$50/pr. Hamilton, 294-5850.

OCTAGONAL TABLE, w/leaf & 4 chairs, \$75; exercise bicycle, \$45; Pioneer 35-watt/channel receiver, \$30. Turner, 293-8938.

FULL-SIZE MATTRESS SET and frame, \$50. Herr, 281-8275.

SKI BOOTS, all sizes, \$10/pr.; poles and bindings. Lloyd, 889-8934 leave

message.

CUSTOM-LINED DRAPERIES, w/valences & rods, ceiling-to-floor, 96" x 180", pale green, see while they're hanging, \$125. Marmon, 298-0238.

DINING-ROOM FURNITURE and other, kitchen utensils, linens, more, estate sale, 1616 California NE, Jan. 28-29, 8 a.m.-4:30 p.m. Connor, 293-7608.

CRAFTSMAN HALF-SHEET FINISH SANDER, \$15; Craftsman hand-held scroll saw, \$15; Sound Ideas subwoofer speaker, \$100. VanDenAvyle, 898-6474.

WOOD-BURNING STOVE, w/some pipe and fittings, \$100; mink jacket, in cold storage, \$600. Smith, 1-384-5182.

BALDWIN FANFARE ORGAN, rhythms, Fantom Fingers, bench, books, cost \$3000, sell for \$995. Randolph, 299-2057.

KENMORE WASHER & DRYER, \$350/both; GE refrigerator/freezer, 14 cu. ft., \$150; potter's wheel, electric Paragon kiln, \$225. Hayes, 298-9396.

BABY BED, Jenny-Lind style, w/mattress, \$100; car seat, \$15; stroller, \$10; playpen, \$15; misc. baby clothes. Baney, 294-8970.

TRANSPORTATION

'87 FORD RANGER, 4x4, V-6, 5-spd., long bed, XLT pkg., cruise, tilt, bedliner, \$9500. Wilkins, 831-4856 leave message.

'87 HARLEY-DAVIDSON 883 SPORTSTER, 1K miles, extras, \$3750. Miller, 281-3959.

'83 KAWASAKI 1100 SPECTRE, shaft drive, black & gold trim, helmet, \$1300. Griego, 881-4103.

'81 CHEV. CAPRICE LANDAU, Olds. diesel, PS, PB, cruise, tilt, radio/CB combination, 26-mpg, \$2000 OBO. Ramel, 821-0475.

ADULT-SIZE TRICYCLE, w/baskets on front and back, \$60. Gregory, 897-0607.

TAKARA 10-SPD. BICYCLE, \$100 OBO. Stewart, 265-8927.

'88 HONDA ACCORD, 2-dr. coupe, 5-spd., \$11,500. Smith, 275-8185.

'88 DODGE CARAVAN, fully loaded, take over payments. Leyba, 242-0466.

'86 CHEV. TRUCK, 4-WD, 4-spd., new tires and mag wheels, 44K miles, AM/FM stereo, \$9900. Sena, 823-6678.

'79 APOLLO RV, 30', 20.7K miles, loaded w/options. Hoffman, 255-6451.

'76 VEGA, 3-spd. hatchback, needs work, \$300. Jones, 255-7924.

'85 DODGE RAM 50, standard, \$3300. Cibicki, 877-7098.

'71 PLYMOUTH DUSTER, runs, \$250 OBO. Gee, 299-2972 leave message.

MAN'S 12-SPD. BICYCLE, Peugeot, \$100. Wright, 296-3850.

'74 HARLEY-DAVIDSON SPORTSTER, chromed, 4-1/2 quickbob, new motor, balanced, ported, dual-plugged,

hard saddlebags, king/queen seat, \$3200. Gonzales, 344-4933.

14' FIBERGLASS FISHING BOAT, w/35-hp motor, first \$500 firm. Weber, 293-8196.

'72 FORD PICKUP, 3/4-ton, LWB, 390, AT, PS, PB, AC, \$1800. Gibson, 344-8056.

'86 HONDA XR250R TRAIL MOTORCYCLE, Trick pipe, cams, carburetor, and suspension, never raced, \$1400. Romero, 821-7629.

'76 MUSTANG II, 2-dr. hatchback, 4-cyl., 4-spd., AC, PB, \$1000 OBO. Lucero, 298-1524 after 5.

'85 CHEV. CUSTOM VAN, 60K miles, 4 captain's chairs, sofa, table, oak accents, \$12,500; pickup for parts. Stauffer, 344-5714.

'65 BUICK SPECIAL, 4-dr. sedan, V-8, manual transmission, single owner. Rogers, 881-4721.

'76 DATSUN B210, \$700; '77 Chrysler Cordoba, power sunroof, 318 engine, uses regular gas. Perea, 292-2519.

'83 AUDI 5000S, PW, power sunroof, leather seats, PL, AM/FM cassette, \$3500. Weatherby, 292-5639.

'86 CHEV. SUBURBAN, AT, 5.7-litre gas engine, PS, AM/FM cassette stereo, AC, 44K miles, \$10,500 firm. Ortiz, 869-3278.

'84 TOYOTA TERCEL, 4-dr. liftback, AT, AC, PS, PB, \$2850 OBO. Smith, 892-2516.

MAN'S 10-SPD. BICYCLE, \$65. Hamilton, 294-5850.

'77 OLDS. CUTLASS SUPREME, AT, PS, PB, AM/FM, tilt, AC, 76K miles, \$1150 OBO. Skogmo, 294-0133.

'84 FIERO, loaded, sunroof, new brakes and tires, PW, PL, \$300 below book, negotiable. James, 299-0810.

'84 FORD F-150 4x4, AC, PS, PB, cruise, AM/FM cassette, 351-CID, shell, \$7995. Baney, 294-8970.

'72 MERCEDES 280SE 4.5, V-8, AC, AT, 86K miles, brown exterior, tan vinyl interior, \$6800. VanDenAvyle, 898-6474.

'87 FORD F-150 XL 4x4, 4-spd. AT, AC, PS, PB, custom wheels, tinted windows, HD bumper, dual tanks, cassette. Montoya, 881-6898.

REAL ESTATE

3-BDR. HOME, 1-3/4 baths, 1700 sq. ft., double garage, pitched roof, Peralta (15 miles from Albq.), \$69,000. Tafuya, 865-9816.

'69 FLEETWOOD MOBILE HOME, 14' x 56', 1-1/2 baths, W/D, DW, located in Four-Hills park, porch, carport. Palmer, 294-7656.

4-BDR. PRESLEY MODEL 20 HOME, 2000 sq. ft., earthtones and upgrades throughout, Academy Acres, \$107,500. Garcia, 828-0890.

3-BDR. MOBILE HOME, 12' x 70', 1 bath, new refrigerator, washer, dryer, porch w/awning, \$7500 OBO. Hackard, 299-4333.

3-BDR. HOME, landscaped, hot tub,

new carpet and paint, 8% interest, \$126,000. Gallegos, 294-0233.

FOUR-HILLS LOT. Padilla, 345-7660 or 242-8763.

3-BDR. HOUSE, 1-3/4 baths, skylights, new stucco, near Eubank and Candelaria, \$74,900. Chinn, 296-5172.

2-BDR. MOBILE HOME, Ridgewood, mountain views, new water heater and carpet, adult section in Four-Hills park, \$10,900. Armistead, 296-4742.

2-BDR. HOME in Truth or Consequences, 3 city lots, den, FP, double high-bay garage, water purification, more, owner financing, \$53,000. Aaron, P.O. Box 191, 912 East 4th, Truth or Consequences, NM 87901.

2-BDR. TOWNHOUSE, 9018 Hendrix NE (Montgomery/Moon area), 1750 sq. ft., FP, double garage, upgraded appliances, \$80,000. Field, 275-8955.

2 ACRES, water, utilities, county road, 18 miles from Tramway exit on S-14, \$20,000, 1/2 down. Steinfort, 281-9893.

10 ACRES, south of Moriarty, \$10,000, will take late-model economy pickup down, finance balance at 6%. Smith, 1-384-5182.

3-BDR. HOME, NE, 1-3/4 baths, DR, FP, 2-car garage, 1347 sq. ft., \$74,000. Nutt, 821-4130.

WANTED

MALE OR FEMALE ROOMMATE to share house, Juan Tabo NE, area near freeway, \$300/month plus 1/2 utilities. Drebing, 299-2204 leave message.

ALUMINUM BOAT, 9' or 10'. Corpe, 864-6204.

WITNESS: will the gentleman who witnessed an accident June 6, 1988, on the Base near the Eubank Gate at approximately 6:50 a.m. please contact me. Lujan, 299-4820.

POWER CORD for Corning coffee percolator. Miyoshi, 821-9118.

ONE OR TWO TICKETS to the Itzhak Perlman concert. Stiefeld, 292-8207.

NEW OR USED BOSAL, for training, in good condition, reasonable price. Helmick, 869-0828.

TANDEM BICYCLE, good to reasonable components, will consider a tandem in need of repair. Lennox, 821-0474.

HYBRID ROSE BUSHES, large-blossomed, mature, will dig up. Hammond, 260-1473.

MALE ROOMMATE, share 3-bdr. NE home. Mulryan, 848-5948 days or 292-5071 evenings.

HF HAM RADIO, 80-10 meter, solid-state including finals, 100-watt output power. Hietala, 296-3287.

SWING SET, in good condition. Cibicki, 877-0828.

HOUSEMATE, woman to share home in NE Heights, nonsmoker, non-drinker. Randolph, 299-2057.

TODDLER TOYS: plastic play equipment for climbing and sliding, and a spring horse. McBrayer, 293-4076.

Funny Valentines Get Together Feb. 14: Dinner, Dancing, Flowers, Photos

SHARE SOME HEARTS-AND-FLOWERS TIME with someone special at the C-Club's Valentine's Day Gala Feb. 14. Dinner at 6 p.m. includes your choice of entree — filet mignon or coquilles St. Jacques Mornay — and a half litre of house wine. Afterward, dance to the mellow music of the Roland DeRose Orchestra. The price of \$28/couple includes all of the above, plus flowers for the distaff side and a 5 x 7 color photograph to help you recall fond memories later. Tickets go on sale Feb. 1.

PRIME RIB OR HALIBUT are your choices tonight on the two-for-one special dinner. What a way to end the week! Then it's tickle-the-tootsies time as you dance the night away; Trio Grande, the band with the noteworthy name, provides the accompaniment.

A BRUNCH OF FUN can be yours this Sunday (Jan. 29). Served from 10 a.m. to 2 p.m., the menu includes omelets, pancakes, baked ham, roast turkey, mashed potatoes and gravy, fruit salads, and much more. There's also a complimentary glass of champagne or house wine. No question — this one's the bargain of the week: \$6.95 for adults and \$3.50 for kids ages 4 to 11. Better make that reservation ASAP (265-6791).

T-BIRD CARD SHARKS roll up their sleeves and go into action on Thursday, Feb. 2, starting at 10 a.m. Come on out for all kinds of gaming, plus free refreshments and door prizes. Head dealer Jim McCutcheon says he might wear his Cupid costume because it's February, so this is one you won't want

to miss.

IF YOU'RE BONKERS FOR BINGO, you have a couple of chances coming up to try your luck — on Feb. 2 and 9. You can buy your cards as early as 5:30 p.m., and the early-bird game begins at 6:45. Prices are \$5/single package (15 games), \$9/double, and \$13/triple.

SHUFFLE AND STOMP next Friday night (Feb. 3) to the loony tunes of those indispensable Isletans, the Poor Boys. Beforehand, the two-for-one sagebrush-special dinner features T-bone steak — pretty elegant chow for trail riders, we'd say. Help out the ranch hands in the kitchen by calling in your reservation right now.

Medical Corner

Tips For Faster Medical Claim Service

As has been noted in this column some months ago, reimbursements for medical expenses under the Sandia Medical Care Plan are too often delayed or denied because of omitted claim information.

Following the tips listed below will ensure timely processing of your medical claims and inquiries:

Claim Submissions

1. File the first claim as soon as the accumulated charges meet or exceed your deductible (\$100 single; \$300 family). Thereafter, bills should be accumulated and submitted when the charges total \$50 or more. *One claim form is needed for each individual family member receiving services. Each claim form must have an original signature and a current date.*
2. On the front side of the claim form, complete all items. If an item is not applicable, please note N/A. Be sure to indicate any changes in marital status, spouse's employment, or other group coverage. If the charges stem from an accident, item 3 must be completed.
3. On the back side of the claim, you must sign the Authorization to Release Information and, if applicable, the Authorization to Pay Benefits to Provider. The Physician or Supplier Information does not need to be completed *if* the original (not photocopied) itemized bills are attached.
3. All itemized bills must include the following:
 - a. Physician's name, address, and telephone number;
 - b. Name of patient;
 - c. Diagnosis;
 - d. Date of service (including the year; see notes below);
 - e. Place of service;
 - f. Description and/or procedure code of service rendered; and
 - g. Charge for service.

Note 1. Claims for charges incurred more than two years before the date the claim is submitted will not be reimbursed.

Note 2. Certain Lovelace bills do not include the year of service for each line item. When the year is missing, indicate the year of service beside each line item and verify with your initials or signature.

4. Claims submitted where Provident is the secondary carrier must be accompanied by the primary carrier's Explanation of Benefits form and the itemized statement of the provider of service. The doctor's bill and Explanation of Benefits may be photocopies, except in the case of Medicare where the

Explanation of Benefits must be the original.

5. Claims submitted for second surgical opinions must be submitted with a second surgical opinion claim form.

Written Inquiries

1. Indicate policy name as "Sandia Medical Care Plan" or give its number (50547).
2. Provide the employee's, retiree's, or survivor's (not the patient's) Social Security number on all written correspondence.

Telephone Inquiries

1. Tell Provident's Customer Service Representative that you are covered through Sandia, and give the employee's, retiree's, or survivor's (not the patient's) Social Security number.
2. Please allow 30 days from the date you file the claim before requesting information on the status of claims.
3. Check your plan booklet for coverage information before calling Provident.

Approximately 90 percent of Sandia claims and inquiries are processed within 10 working days of receipt. However, the 30-day time frame is used for inquiries to allow for postal delays and other processing delays (such as requests for additional information from your physician). Delaying the filing of claims until the end of the year could delay processing.

A Reminder

Send claims to:
Provident Life and Accident Insurance Co.
1616 East Indian School Rd.
Phoenix, Arizona 85016.

Sympathy

To Patricia (3426) and Jim (3510) Shorty on the death of their son in Albuquerque, Jan. 3.

To Nancy Vermillion (141) on the death of her father-in-law in Albuquerque, Jan. 4.

To Joel Wendt (1141) on the death of his mother in St. Louis, Mo., Jan. 9.

To Julia (3400) and Dave (7411) Norwood on the death of her mother and his mother-in-law in Albuquerque, Jan. 10.

To Fred Enote (7262) on the death of his mother in Zuni, Jan. 10.

To Paul O'Brien (6311) on the death of his mother in Ohio, Jan. 12.

HealthNet Returns

By Pete Egan (3330)

HealthNet is back again. This year, two of its programs have been combined into one comprehensive 10-week program called "Eat Right/Stay Fit."

"Eat Right/Stay Fit" will promote both good nutrition practices and physical-fitness practices. Everyone who joins will get an "Eat Right/Stay Fit" calendar kit, T-shirt decal, and contract.

Sign up in Bldg. T-13 Feb. 6 through 13 between 3 and 4 p.m. Sign-up fee is \$5 per person (make checks payable to HealthNet).

Prizes will be awarded randomly to 150 of those who complete the program. Call Kate Brennan on 6-8143 (Monday through Wednesday) for more details.



HORACE POTEET (left) receives a DOE certificate of appreciation for work on treaty verification. The certificate is being presented by President Welber on behalf of Troy Wade, Acting Assistant Secretary for Defense Programs. Horace participated in an inspection of Soviet equipment used to measure hydrodynamic yields, in the Joint Verification Experiment at the Nevada Test Site, and in a similar experiment at Semipalatinsk in the USSR. A letter from Wade says Horace's efforts "significantly exceeded normal requirements and are deserving of special recognition."