

New Toy-Sized Robot May Make Its Debut in Space

Tourists at White Sands National Monument last month might have thought they'd gotten a little too much sun as a small space vehicle appeared on the horizon. Remotely driven by student summer hire Adan Delgado (9616), Sandia's Robotic All-Terrain Lunar Exploration Rover (RATLER) sped along white sandy paths, up hills, and over rocks as part of recent tests of its mobility on a moon-like landscape. At only six inches high and 12 inches long, this half-scale model of a Sandia-proposed rover can easily pass for a high-tech toy, but it's far from a toy, according to designer Jim Purvis (4115).

President Bush's 1990 Space Exploration Initiative includes a goal of sending robotic rover exploration missions to the moon within the next three to five years. Meeting this goal will be a big challenge for current mobility technologies, says Jim.

"System requirements for robotic exploration rovers," he says, "must include the ability to traverse rough terrain at moderate speeds while maintaining a significant payload capacity, with minimal power requirements, and a small launch mass. In terms of traditional mobile vehicle technologies, that's a hard order to fill."

Middle Pivot Deceptively Simple

But fill it he has. Within three weeks of developing the initial design with co-inventor Kent Biringner (4115), Jim designed and built a half-scale model of the RATLER rover that can climb obstacles of more than one wheel diameter while maintaining ground contact with all four wheels. Proposed for use by NASA or other space agencies, RATLER gains its unique climbing ability from a deceptively simple design.

"A pivot in the middle of the rover allows the vehicle's left and right sides to move independent of each other," Jim says. "This enables RATLER to overcome the traditional problem of having one wheel climbing an object and one wheel in the air to the point that a small error in movement causes the vehicle to tip and fall. When you're talking

space exploration rovers, you can't afford to have that happen."

Small, but Not a Toy

RATLER is Sandia's first of a new breed of toy-sized robots known as micro-rovers, says Paul Klarer of Advanced Vehicle Technology Dept. 9616. The idea behind using micro-rovers for space, he says, is that their small size makes them affordable to produce and to launch.

RATLER's potential payload includes radiation-sensing field effect transistors to map the lunar radiation environment and ensure safe exposure limits for human explorers, gas sensors to determine lunar atmospheric components, and surface acoustic wave transducers to trace various gases and chemicals that may be located within an area.

Fiber-optic sensors, another feature that could be installed on RATLER, are ideal for analyzing lunar soil, says Jim. These sensors, developed and patented by Sandia's Microelectronics and Photonics Center 1300, work by coating the tip of each fiber in a bundle of 10 to 20 fibers with a unique chemical that reacts according to the (Continued on Page Four)



THIS RATLER DOESN'T BITE — Students Leon Martine (left) and Adan Delgado (both 9616) prepare to put a model of Sandia's Robotic All-Terrain Lunar Exploration Rover (RATLER) through its paces traversing rugged rocks and hills around Sandia's Robotic Vehicle Range. RATLER is Sandia's first of a new breed of space robots known as micro-rovers designed to have a small launch mass and yet large payload capacity. (Photo by Randy Montoya)

Update on the Process

New Process for Moving into MLS Ranks Goes into Effect Monday

More Sandians probably will be checking the MLS (Member of Laboratory Staff) job announcements in the *Weekly Bulletin* beginning this Monday (Aug. 24). That's when new, less-restrictive requirements go into effect for moving into the MLS ranks.

As announced in the Aug. 7 LAB NEWS, Sandia has liberalized requirements for employee movement into MLS jobs and advancement within the MLS ranks. Monday's *Weekly Bulletin* will

Managers will now have more flexibility when specifying the MLS level.

contain a related announcement, and the job opportunities section in the *Bulletin* will contain a revised statement about how qualified employees can nominate themselves for appropriate MLS positions.

As part of the new process, managers will now have more flexibility when specifying the MLS level, according to personnel specialist Susan Harty (7531). For example, if an MLS-4 (under old system) job becomes open under the (Continued on Page Six)



LAB NEWS

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SANDIA NATIONAL LABORATORIES

AUGUST 21, 1992

Best of Both Worlds

Science, Industry Unite in New Advanced Materials Laboratory

Sandian Ted Neil (1823) was one of the first scientists in the door of the recently opened Advanced Materials Laboratory (AML), a joint government-university-industry facility created for collaborative materials research at UNM's Research Park. He and UNM research scientist

Graham Layne couldn't wait to get started on a joint research project between UNM's Geology Department and Sandia's Surface/Molecular Spectroscopy Dept. 1823. Their research involves analyzing natural materials such as meteorites and pieces of the moon.



NEW FACILITY — The new Advanced Materials Laboratory at the University of New Mexico's Research Park opened its doors recently.

While most of the researchers are still moving in, Ted and his partner have already begun work using one of the nation's few ion microprobes available for general research. Several days away from the Aug. 27 building dedication ceremony, AML co-director Ron Loehman (1708) says the collaboration is the first of many that (Continued on Page Five)

This & That

T-riffic Typo — What a difference one little character can make, as Tim Eklund (8451) points out. The 1991 version of a Sandia booklet contained the following phrase in a photo caption: “. . .the expertise of Sandia personnel and the Labs’ extensive testing facilities . . .” In the updated ’92 version, a “p” was somehow mistyped for the “t” in extensive. A “costly” error, you might say. * * *

Partially Recycled Paper Recipe — One reader didn’t understand my statement in the last issue that the LAB NEWS is printed on “partially recycled paper,” so he sent a memo. “I give up,” he said. “What is partially recycled paper?” OK, I acknowledge that “partially recycled paper” is imprecise, so I’ll divulge our “recipe”: 60 percent is from new pulp and 40 percent is pulp from recycled paper (primarily silly memos that I get). Why don’t we print on 100 percent recycled paper? Our printer says the newspaper press doesn’t run well when 100 percent recycled paper is used, and I believe what printers tell me — at least partially. * * *

Art Keeps on Ticking — Improving US-Russian relations are being manifested in ways that would have been unbelievable a few years ago. A prime example: Art Guenther (4100B), Sandia’s Science Advisor for Laboratory Development, has been named a member of the Russian Academy of Sciences (see story on page five). Art is also science advisor to New Mexico Governor Bruce King. As Sue Sozanski (4524) said so well in the *Sandia Management Bulletin*, Art is particularly pleased he met one of the three election criteria: “still alive and active.” * * *

Initial Reaction — My predecessor in this semi-prestigious position, Bruce Hawkinson (4304), railed often about people who put first and middle initials only (theirs and other people’s) on correspondence, instead of full given names. Because it also bugs me, I’ll take up the cause. Calling our colleagues by their first names is a Sandia tradition, so let’s use ’em in print, too. * * *

Friday Physics Lesson — Many people know my ol’ buddy Jim Baremore (4306) to be a hard-working fellow, but I’m not sure they know the extent of his dedication. After a hard week wrestling with DOE orders, Jim went to the trouble to gather several Sandians in his back yard on a recent Friday afternoon to help him recheck some of Newton’s laws. As a result, Jim has established a new corollary: “The forces of gravity are tempted steadily as you increase the number of Sandians in a one-person hammock.” Translation: “Gravity can bruise you.” Assisting Jim with this important physics project were G. Zamora (4505) and R. Dietz (6200); we’re using their initials in this case to preserve their desire for anonymity. * * *

Could He Mean . . . Layoffs? — It’s interesting to note the lengths to which some officials go to avoid using one particular word. My favorite example is the following by the head of a very large corporation: “Mechanisms will be established to assure that every opportunity is provided to place (name of company) employees in jobs before invoking outplacement mechanisms.” Don’t know about you, but I’m pretty sure that I don’t want any outplacement mechanisms invoked against me.

Another example (reported last year in the *Albuquerque Tribune*) is the firm that implemented a “skill mix adjustment.” As the writer put it, workers without the right skills were *adjusted* off the payroll. ●LP

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Transition Info on Sandia Line

To hear what’s happening on the transition to a new contractor, or to get a question answered, you can access Sandia Line’s Transition Activities information service.

After calling 845-6789, press 7 to hear directions to get to different destinations within that menu. If you are in a hurry, or have a specific interest, you can use four-digit “quick dial” codes.

For “quick dial” service, after calling 845-6789, press 9, then one of the following four-digit codes, followed by the pound (#) key:

- 1251 — State a contract transition concern or question. If you want a personal answer, follow the instructions and one will be sent to you.

- 1252 — Listen to previously submitted concerns or answers to questions. For a specific interest within this category, use one of the following five codes:

- 1255 — General
- 1256 — Transition Council activities
- 1257 — Contract procurement process
- 1258 — Human Relations and Benefits
- 1259 — Impact on Sandia business

- 1253 — Ask the system to fax you a copy of all concerns and responses in the preceding items.

- 1254 — Listen to a short summary of recent Transition Council activities.

Two Reading Rooms Now Open

Request for Proposals Next Step in Move to New Contractor

The pace of activity in Sandia’s transition from AT&T to a new management and operating contractor has picked up a bit in recent weeks, with planning for briefing prospective contract bidders, and the opening of reading and document control rooms.

The Albuquerque Operations Office (DOE/AL) is managing the transition for DOE, and the next major milestone will be the issuance of the Request for Proposals (RFP), probably in September or October. Members of Sandia’s Transition Council and the council staff are compiling information DOE may use in developing the RFP.

“We’re not certain of the date that will happen, but DOE has indicated it hopes to issue the RFP sometime early this fall,” says Sandia’s Transition Executive Lee Bray. “Our job right now is to assemble the information they need so the RFP will reflect the complete scope of Sandia’s work and methods of operation.”

Lee says the goal is to make the transition as nearly “seamless” as possible, and the best way to do that is to “make sure we dot all the i’s and cross all the t’s so the new contractor can take on the job as smoothly as possible.”

Soon after the RFP is issued, after interested prospective bidders have a chance to study the request, DOE will host a Pre-Proposal Conference, during which both DOE and Sandia managers and executives will brief them.

The briefings will cover a wide range of issues, including expansion of RFP details by DOE representatives and a review of programmatic and management details by Sandia. The conference also will include tours of Labs areas and facilities.

Although no conference dates can be determined until the RFP is ready, Lee says the conference probably will follow that announcement by about two weeks, and he expects it to take place no earlier than October.

Some of the material already gathered for the Pre-Proposal Conference was presented to DOE officials July 10 as a refresher briefing designed to provide a common DOE-Sandia view of the Labs and its work.

Meanwhile, two DOE public reading rooms filled with information about the Labs have opened — one at the Atomic Museum on Kirtland AFB and one at DOE’s Forrestal Building headquarters in Washington.

The information includes Labs history, budget figures, the range of Sandia’s work, and myriad other facets of the total Labs function. It is available to anyone interested in bidding on the contract.

(See related box at left.) ●

Fun & Games

Running— The Annual Bun Run to benefit Carrie Tingley Hospital will be held Sunday, Sept. 20. Events include 5K run, 5K race walk, 10K run, and the Celebrity Fun Walk, showcasing local celebrities and Carrie Tingley Hospital patients. Five-person “centipede” teams can be formed for any of the events; costumes are encouraged for these teams. Entry fee is \$12 for adults and \$10 for children (T-shirt included). Schlotzky’s Sandwich Shops have entry forms. Anyone wishing to help with the event can volunteer by calling Karen Turner on 243-6626 or Jon Bell on 857-7114.

Take Note

The high, cool mountains of North Cimarron are the focus for a New Mexico Volunteers for the Outdoors project early next month. The Valle Vidal Unit needs volunteers to work on a variety of projects on Labor Day weekend, Sept. 5 through 7. For information and to sign up, call project leader Dennis Croessman on 281-2014 or the NMVFO Office on 884-1991.

Pass the Raw Snake, Please

Gary and Paula's 'Excellent Adventure' — Minefields, Ant Soup, Rats, Sinking Boat, Fetid Tunnel Air...

If your idea of a neat vacation is tramping through tropical jungles near active guerrilla warfare, walking through minefields, and eating local "delicacies" that would make your American friends blanch, you would love the trip just taken



ONE WOMAN pounds rice into flour as two others watch and visit in a typical Laotian hilltribe village.

by Gary Richter and his wife, Paula.

This month-long odyssey took Gary, of Systems Studies Dept. 8114, and Paula through Laos, Cambodia, and Vietnam, including many out-of-the-way places where few Westerners have ever been.

Gary has been a student of the Vietnam War for years, and despite the hardships and dangers encountered, calls it the "dream trip of a lifetime." Paula, a teacher at Walnut Grove Elementary School in Pleasanton, was fascinated, but not as thrilled as her husband.

There was the night in a remote Laotian jungle village, for example, where they awoke to a screeching noise beneath them and sensed creatures skittering around on the floor of their thatched-roof bungalow on stilts. They lit a candle and discovered big jungle rats gnawing away at their bed pole supports.

Then there was the time their Land Rover broke down on a back-country trail in Laos, and while their driver and mechanic worked on the engine, three menacing-looking youths with automatic weapons appeared from the bush and loitered

nearby. It was in an area where bandits often pilage and plunder the population.

Avoided Known Hotspots

Gary researched the area extensively before embarking on the trip, planning their itinerary to stay away from known hotspots where internal warfare is still raging. Vietnam opened up for American civilian visits only last December and Cambodia in January of this year, and Gary began plotting their route soon after that.

They flew to Bangkok, Thailand, then on to Vientiane, the capital of Laos on the Mekong

River, before traveling to Pakse, where they went by boat to visit some ancient ruins and a place called Khong Island, near the Cambodian border.

While riding in an old wooden boat on the Mekong River, they struck a submerged object and the boat began sinking. As the boatmen paddled furiously for shore, the craft sank lower and finally settled on the bottom of the riverbed. Fortunately it was close enough and shallow enough for the occupants to wade to the riverbank.

That night they dined on a local delicacy — ant soup with clusters of large red ants floating on

(Continued on Page Seven)



A HMONG HUNTER'S CROSSBOW is the most prized souvenir Gary Richter (8114) brought back from the trip he and his wife Paula made to Southeast Asia. Paula shows off a Hmong villager's hand-crafted metallic necklace. They bartered for the souvenirs with tribal members in remote mountain areas of Laos.



SANDIA LIVERMORE NEWS

Both Applied for DOE Summer Program

Twist of Irony Sends Michigan Teacher Brothers to Livermore

Two brothers who teach science in different parts of Michigan could tell a Las Vegas dealer a thing or two about odds after both landed places in the DOE-sponsored TRAC (Teacher Research Associates) summer work program.

From 2,000 applicants nationwide, 376 teachers from 50 states were selected to work at 25 DOE research facilities, and both Pat and Jim Gormley were among them. And in a stroke of coincidence, both were placed at the same location — Sandia, Livermore.

But perhaps most ironic, neither knew the other had applied for the program.

They teach at high schools about 100 miles apart. Pat has been teaching chemistry and computer science at Lapeer for 26 years and Jim, his "little" brother, has taught for 23 years, mostly

Tschritter Re-elected as Heart Association President

Ken Tschritter (8609) has been re-elected president of the Tri-Valley Chapter of the American Heart Association for 1992-93. The branch serves Dublin, Pleasanton, and Livermore.

Congratulations

To JoAnn (8341) and George (8351) Sartor, a daughter, Jordon Taylor, July 24.

physics and physical science at Mt. Pleasant.

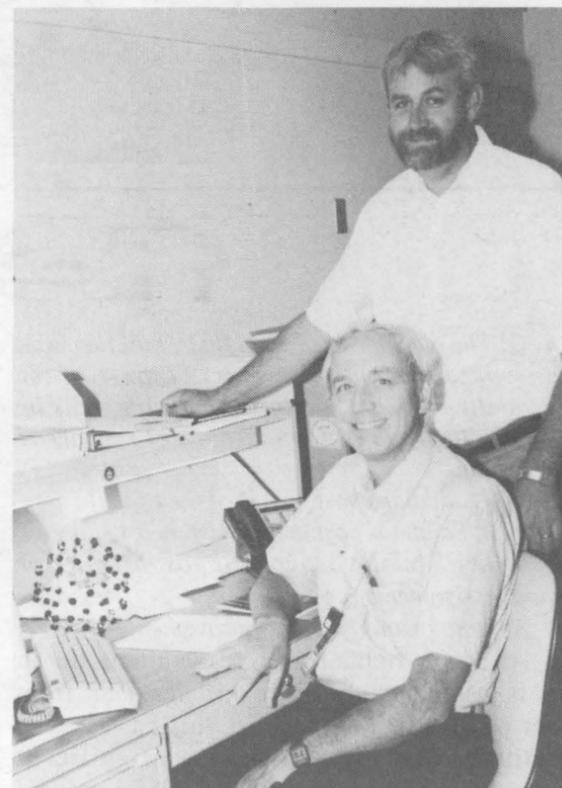
Late last year the phone calls came, informing each that he had been chosen for a research appointment. That alone was exciting enough for both of them, but then they learned that both would spend the summer at the same laboratory.

Jim is doing radiation detector research with Ralph James (8342) and working with Bob Hwang (8342) on the scanning tunneling microscope. Pat is working with Celeste Rohlfing (8341), using a Macintosh tied into a Cray supercomputer to investigate the threshold energy of placing helium atoms inside C₆₀ fullerene molecules, a project associated with a new specialty called endohedral chemistry, he says.

"Endohedral" refers to the chemistry of the inside of a polyhedron. It is new because fullerenes, nicknamed "buckyballs," are the first known molecules with a hollow form that can hold other atoms.

There are 11 TRAC program teachers at Sandia, Livermore this summer, from schools as far away as Coral Gables, Fla., and Kennesaw, Ga., to some as close as San Lorenzo, Calif., and Junction Middle School in Livermore.

The program is structured so teachers get hands-on experience in various scientific and mathematical disciplines. The experience is intended to benefit not only them, but also their students when they return to the classroom. ●



THE BROTHERS GORMLEY pose at Pat's computer. "Little brother" Jim stands behind Pat. They both ended up at Sandia, Livermore for the summer as a part of the DOE-sponsored Teacher Research Associates (TRAC) program.

(Continued from Page One)

New Space Robot

presence of specific compounds or elements. Laser light is reflected off these coatings back through the optical fibers to a detector and data processor or recorder. From this, researchers can determine the soil's chemical components.

"Robots are very promising for planetary exploration," says Paul, "because they can do most of the preliminary analyses you need without sending people, making missions less expensive and less dangerous. They could also help scientists figure out where to send people later."

Mining on the Moon?

Lately the moon has received renewed interest from space officials because large amounts of useful elements are thought to be deposited in lunar soil by solar wind. Solar wind is a flow of ionized gas that streams continuously from the sun out through the solar system. Elements of interest to space developers include hydrogen, oxygen, and helium.

"Oxygen from the soil," says Paul, "could be used for life support on lunar bases as well as for rocket propellant. Hydrogen is an important fuel for fusion reactors. Properly combined, the two elements could serve as a possible water source for lunar bases."

Lunar soil is also known to contain considerable amounts of iron and titanium. Lunar materials could be used to build structures in orbit or on the moon, says Paul. "If all you have to do is scoop up lunar soil, process it, and construct something, as opposed to mining the material on earth, processing it, and then launching the finished product," he says, "using lunar materials would be a good thing

BUILDING ROBOTS — Students Adan Delgado (left) and Leon Martine (both 9616) and Jim Purvis (4115) put the final touches on a new all-metal model of Sandia's Robotic All-Terrain Lunar Exploration Rover.



For Students, Building Robots Beats All

The road to success is sometimes a bit dusty for student summer hires Adan Delgado, Leon Martine (both 9616), and Pat Wing (4115). Each day, they take a dirt road to work at Sandia's Robotic Vehicle Range located on the southern rim of Tijeras Arroyo east of Tech Area 1. Along the way they are greeted by road signs saying, "Warning: Robotic Vehicles in the Area."

The signs can make newcomers a little nervous, but for Adan, Leon, and Pat they are a welcome sight. The Robotic Vehicle Range, with its machine shop, test tracks, and family of unique robotic rovers, is the place where they are gaining experience they can't get in a classroom.

Work at Sandia also gives students a feel about their prospective majors, says Adan, a sophomore at New Mexico Highlands University who is working at Sandia as part of a NASA honors program.

Pat, a recent graduate of Eldorado High School, says, "You may think you want to be an electrical engineer, but until you actually try it, you can't really know if it's for you."

Thanks to supervisors Jim Purvis (4115) and Paul Klarer (9616), Adan, Leon, and Pat have experienced everything from robotic test trips to White Sands and tours of NASA facili-

ties to vehicle demonstrations, model construction, and formal report writing. To top it off, the three teamed up to construct a new all-metal model of RATLER to replace Jim's balsa wood original.

The RATLER project was one of the highlights of the summer, says Leon, who will be a freshman at Oklahoma State University this year. "Few students get to work with robots, even fewer get to make them."

The group is also working with Paul on a new micro-rover called MIKEY. Part remote-controlled truck, part specialized hardware and software, MIKEY will be a test bed for a new concept in robot design called reflexive or "behavioral" control, which makes robots act at an intelligence level comparable to insects. For example, reflexive control enables robots to detect certain properties such as light or heat and either be attracted to or repelled from them. Though this may appear to be complex behavior, according to Paul, it is, in fact, a simple control system.

Adan, Leon, and Pat will now head off to college with a better understanding of what they're aiming for, what they need to learn, and a big chunk of practical experience.

"Robotics is a fun job," Adan says smiling, "but somebody's got to do it!"

to consider."

While RATLER technology is designed for planetary exploration, Jim says the rover's applications are not limited to space. RATLER could also prove useful for building vehicles that could pro-

vide access to dangerous areas for rescue activities, perform environmental assessments of accident or contaminated sites, explore abandoned mines, or support troops in battlefield operations.

RATLER on Parade

Since first introduced, RATLER has generated a lot of public interest. RATLER features have appeared in the *Albuquerque Journal* and *Space Exploration Technology Newsletter* and will soon appear in international publications of the British Interplanetary Society and *Space News*. Recently two production crews, one from CNN and one preparing an upcoming PBS special, spent time filming the rover at Sandia's Robotic Vehicle Range.

RATLER also appeared in the 1992 Mrs. USA Pageant televised by ABC on Aug. 15. The theme of the pageant was "Space." After noticing some early publicity on Sandia's lunar rover, Malcolm Neil, the pageant's director, called to see if Sandia would be interested in providing RATLER for display during the production. RATLER was featured as part of a set that included a lunar landing module and other NASA equipment. ●DT

fixed feedback

Q: The elevator area, first floor, Building 802, has looked unsightly for years because of the remodeling work. Couldn't temporary steps be taken to improve the appearance of this area?
Suggestions:

- Let Sandians post photos of their families
- Let Sandians post artwork by their children
- Invite public schools to post artwork or school assignments.

Anything would be an improvement!

A: You're right! The construction barrier in 802 is just plain ugly. Since this area is the front door of Sandia, and because this barrier will continue to remain in place for a significant amount of time, we are having the wall sheetrocked and painted to match the building. [Editor's Note: This project was completed several weeks ago.]

To correct this type of situation in the future, I have sent a request to the Engineering Standards Committee. The committee will explore the possi-

bility of specifying that construction barriers be sheetrocked and painted to match the building when the barriers are going to be present for a significant amount of time and when they are going to be located in high-visibility areas. When initially built, an attractive sheetrocked wall will not be significantly more expensive than the ugly plywood walls presently used.

Darryl Drayer (7942)

Q: Many Sandians use PC spreadsheet templates to do expense vouchers. These print nicely with impact printers to output the voucher. Somebody has now changed the voucher format, introducing a half-line space that throws the rest of the form off. Most spreadsheet software cannot handle half-line spacing. It seems that the people who redesign new forms should keep office automation goals in mind when they do their thing.

A: We certainly agree with your observation and concern.

In February 1991 we had to design new artwork on the "Perform" forms design software for changes to be implemented for the March printing cycle. In the process of designing the artwork, the top half and the bottom half of the form were designed at different times. Because of the haste required to meet the printing cycle deadline, the vertical spacing was not verified.

The form is now undergoing a major change and when printed, specifications will be given to the printer about the critical need for exact reproduction during their process.

We regret the inconvenience that this spacing problem has caused and we thank you for your feedback.

Paul Stanford (100)



Joins Texas Tech Professor**Guenther One of Two Americans Elected Members of Russian Academy of Sciences, Ural Division**

The Ural Division of the Russian Academy of Sciences has elected Art Guenther to membership, one of two Americans so honored following the academy's Symposium on High Current Electronics in July.

The other American is Magne Kristiansen, a professor of electrical engineering and physics at Texas Tech University. The academy also elected a third foreigner to membership, but that member's name was not readily available.

Art, of Strategic Analysis Dept. 4100B, was informed of his election in a letter from Prof.

Gennady Mesyats, vice president of the academy and president of its Ural Division.

"I believe that this election is a confirmation of your large contribution to the promotion of pulsed power research and education, and also to work in the field of laser equipment and laser physics," Mesyats wrote. "In addition, we highly appreciate the support that you render to the Ural Division of the Russian Academy of Sciences."

The letter invited Art to Ekaterinburg for the October recognition of his election to membership, and added, "We hope that you will be able to

deliver a lecture on one of the scientific problems you are engaged in."

The three new foreign members were elected unanimously by 30 members of the academy.

Art, Sandia's Science Advisor for Laboratories Development and science advisor to Governor

"Participating in personal exchanges . . . makes the changes palpable."

Bruce King, says he is flattered as well as honored with his election to academy membership.

"Although we have had on-and-off contacts with our colleagues in the former Soviet Union over the years, being elected to academy membership is especially gratifying because it is a tangible example of the openness that is developing as a result of the end of the Cold War," says Art.

"We read of these changes in newspapers and watch discussions of them on television news reports, but participating in personal exchanges as I was able to do when I attended the symposium in Russia makes the changes palpable," he adds. •



SHARING SCIENCE at a July symposium of the Russian Academy of Sciences, Sandia's Art Guenther (under the small US flag) clasps hands with, from left, Texas Tech professor Magne Kristiansen, Prof. Gennady Mesyats, president of the academy's Ural Division, and an unidentified symposium attendee. Art and Kristiansen, who were elected to academy membership, were among some 50 Westerners attending the symposium aboard a vessel sailing the Kama, Volga, and Moscow rivers.

Take Note

UNM's College of Engineering will hold a "Digital Signal Processing" workshop for engineering professionals Sept. 29 through Oct. 1 at UNM. The three-day course will cover the fundamentals of digital signal processing and includes an overview of continuous-time systems and sampling theory. Participants will get hands-on experience using Texas Instruments workstations. Presenters are Neeraj Magotra and Ramiro Jordan, electrical and computer engineering professors. For more information, contact Katherine Love on 277-0435.

(Continued from Page One)

New Materials Lab

will be formed in the new facility.

The AML laboratory, Ron says, is designed to promote joint research among Sandia, Los Alamos National Lab (LANL), UNM, and US companies in materials and process research, development, and application, and to aid in transferring the resulting technologies to industry. Though concepts of joint research and technology transfer are nothing new to the laboratories, the AML concept itself is unique.

For the first time, a number of Sandia researchers will work off-base at a dedicated laboratory facility located at the new University Center Research Park, located near University and Stadium Blvds. The venture, says Ron, marks the first time staff from two national laboratories will be permanently assigned to the same laboratory with the ability to do collaborative research. It will also be a rare opportunity to share equipment.

"We've worked hard at coordinating all the equipment that goes into the laboratory so that very little of it will be duplicated," says Ron.

A National Resource

"Development of advanced materials and processes is vitally important to US economic growth and competitiveness, and it is an important component of Sandia's new Advanced Manufacturing initiative," says Sandia President Al Narath. "It is also extremely important for Sandia and the other national labs to find new ways of collaborating with universities and industry. This new laboratory advances both of these goals. I expect it to

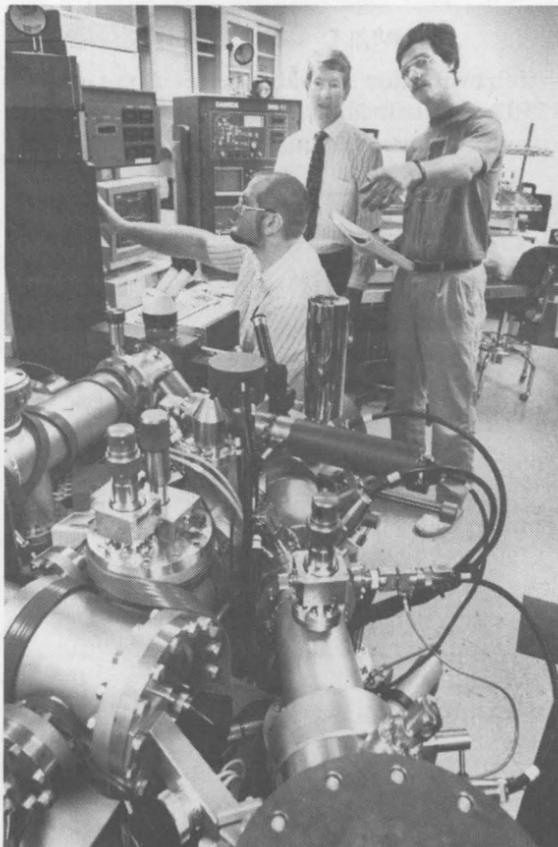
evolve into a national resource."

The value of pooling government, university, and company resources can be seen in the AML's wide array of state-of-the-art equipment. For characterization and analysis, the AML contains equipment for ion microprobe analysis, thermal analysis, imaging ellipsometry, dynamic light scattering, and electron microscopy. For synthesis of new materials, the AML has both a class 100 clean room and a class 1000 clean room containing class 100 clean benches for particularly sensitive work. (A class 100 space contains no more than 100 particles [of dust, typically] per cubic foot.) The AML also has facilities for a variety of spectroscopic measurements, including electron spin resonance, nuclear magnetic resonance, Raman, X-ray, photoelectron, and Auger electron spectroscopies.

Using this technology, researchers can process fine powders, sol-gel materials, electroceramic films, ceramics, chemical sensors, and advanced battery materials as well as synthesize materials in hydrothermal and supercritical fluids.

The laboratory will house about 65 people initially, including researchers from Duke Scientific, Superkinetics, Radiant Technologies, Sandia, and UNM. LANL plans to move staff members into the facility this fall.

UNM President Richard Peck will host the AML's formal dedication ceremony at 10 a.m. on Thursday, Aug. 27. Sandia President Al Narath, LANL Director Sig Hecker, and Senator Pete Domenici are featured speakers. The ceremony will be followed by an open house and tours of the AML facility. •DT/KFrazier(7161)



FIRST OF MANY — UNM research scientist Graham Layne (right) shows the Advanced Materials Laboratory's (AML) new ion microprobe to AML co-director Ron Loehman (center, 1708). Layne and Ted Neil (left, 1823) have already begun a joint research project between UNM's Geology Department and Sandia's Surface/Molecular Spectroscopy Dept. 1823. The collaboration is the first of many that will be formed in the new facility, says Ron.



Word Processing Team Update

Survey Results Guiding Software Evaluation Phase

Results from a recent Sandia word processing software survey indicate that some changes are in order. Secretaries in particular are ready because they are now supporting several packages, including MASS-11, selected several years ago in an effort to standardize word processing software among the support staff. Many more people are doing word processing now, and the survey results indicate that Microsoft Word and Word Perfect are extremely popular.

As explained in the May 29 LAB NEWS, building a Sandia word processing system that's flexible enough to meet long-term needs is the goal of the Labs-wide team working to evaluate and

Survey results indicate that Microsoft Word and Word Perfect are extremely popular.

then choose software packages that will be supported by the Labs. Larry Bertholf, Director of Information Architecture Center 4400, said in that

article that the team is designing a system that will accommodate several kinds of software and hardware and remain viable well into the future.

The idea is not to dictate to people what software they can use, Larry emphasizes, but to support a few makes of software, allowing people to freely exchange data regardless of the software brand.

More Than 3,700 Respondents

Sandians completed and returned 3,737 surveys, according to survey subteam leader Renae Dietz (6200). Microsoft Word was the top choice of the respondents at 43 percent and Word Perfect was the preference of 38 percent.

A subteam will evaluate several word processing packages, realizing that some Labs groups have special needs that may not be met by the two most popular choices. Also, many software product/platform combinations will be evaluated, for example, Microsoft Word running in Windows, Microsoft Word running on the Macintosh, Word Perfect on DOS, etc. The subteam will base its final selections for the packages to be included in the supported set

on function, support, and cost criteria, says evaluation subteam leader Larry Smith (7817).

The team emphasizes that no software will be mandated for use, but Larry Bertholf notes that employees will likely recognize the advantages of using the supported software. Software no longer supported by Sandia will probably "die out" as employees shift to the supported packages.

The process should be completed by Oct. 15, when the team plans to announce its selections. Announcements also will be made about training classes and how the Labs will otherwise support

The team plans to announce its selections by Oct. 15.

users of the selected software. In the meantime, Sandians are needed to help with the software evaluation process; interested employees are asked to call Julie Walker (4400) on 5-8310. A detailed list of the complete evaluation criteria is also available from Julie. ●DT/LP

(Continued from Page One)

Moving into MLS

new system, the manager can now determine if he/she wants to post it as an MLS-2/3, MLS-2/3/4, or as an MLS-3/4. In other words, the manager can decide whether to open the job to "entry-level" MLS candidates or to restrict it to more experienced candidates.

Only employees currently in an MLS job can qualify to move into another MLS job at level 4, says Marv Torneby, Manager of Staff Employment and Personnel Policy Dept. 7531. "However, no job openings will be posted exclusively at the MLS-4 level," he explains. "All current MLS-4 jobs will be posted in the future to also invite qualified applicants at level 3, or at levels 2 and 3."

Managers Can Specify

Job evaluation specialist Terri Giron-Gordon (3550), who helped formulate the new process, explains that managers may also require a degree

in a specific discipline for entering certain jobs at the MLS-3 or -4 level even though there is no general requirement for employees to have a college degree to move into the MLS ranks. (A list of "generally acceptable" degrees for many MLS jobs

"No job openings will be posted exclusively at the MLS-4 level."

will be included in the Aug. 24 *Weekly Bulletin* announcement.)

"Managers know whether a specific degree is required to do a given job," Terri explains. "In other words, they can still tailor job qualification requirements to their needs, but if no degree requirement or any other specific requirement is listed in the posting, then anyone who meets the basic requirements can bid on the job."

As before, managers must have "authorized jobs" that have been approved by Compensation and Job Evaluation Dept. 7550, notes Terri.

Basic requirements for moving into MLS ranks and advancing within MLS non-supervisory ranks are listed in the box at left. These were published in the Aug. 7 LAB NEWS, but one rule published then has been dropped; it said employees moving into an MLS job had to wait one year thereafter before making a lateral move. (For example, a new level 2 employee would have been required to wait a year before bidding on another level 2 job. This requirement has been eliminated.)

Employees who are interested in the detailed guidelines for movement into and within MLS ranks may want to read the just-revised section 9-D, "MLS Movement," in the Sandia Personnel Manual, available from all Sandia managers. Questions about the new process can be directed to your manager or to your organization's personnel representative. ●LP

Take Note

A National Innovation Workshop to help inventors develop and market their inventions will be held Sept. 18 and 19 at the Albuquerque Marriott Hotel. The workshop features lectures and panel discussions about the innovation and invention process, including topics such as turning ideas into inventions and starting up new businesses. DOE is one of the national sponsors, and Sandia is a regional sponsor. There is a \$95 registration fee. For workshop information, contact JoAnn Emmel at New Mexico State University on 1-646-3425.

The Society of Logistics Engineers (SOLE) and the AIAA are sponsoring the fifth Space Logistics Symposium, "Space Logistics — Working Tomorrow's Visions Today," in Huntsville, Ala., May 24-26. The symposium includes technical sessions and tours of space facilities in the Huntsville area, including NASA and the Space and Rocket Center. Technical professionals are invited to submit abstracts of papers they would like to present during the symposium. Abstract deadline is Sept. 21. For information, contact Jim Graham, Booz-Allen & Hamilton, Inc., in Washington, D.C., on 202-488-1889, ext. 26.

The Albuquerque Museum invites community members to a "get-acquainted coffee" to learn about the Museum's education volunteer program on Monday, Aug. 24, from 10:30 a.m. to noon. Volunteers joining this program will receive training in the art of New Mexico. Volunteers give tours of the Museum and assist with Museum education programs. Formal art training is not required. The Albuquerque Museum is located at 2000 Mountain Road near Old Town. Call 243-7255 for more information.

Basic Requirements for Moving Into MLS Jobs

(1) A non-degreed MA IV, MA V, STA, TA, Team Supervisor, Executive Secretary, or Nurse with five years combined experience in these categories is eligible to bid on MLS postings.

(2) Any employee, regardless of classification, with a relevant bachelor's or master's degree is eligible to bid on MLS postings.

(3) The MLS level (2 or 3) will be determined by education and experience:

Non-degreed employees with five years of Sandia experience in one or more of the job categories in item (1) above will start at level 2.

Employees with relevant bachelor's degree and no experience will start at level 2.

Employees with a relevant bachelor's degree and five years of Sandia experience in one or more of the job categories in item (1) above will start at level 3.

Employees with a relevant master's degree will start at level 3.

(4) Employees will be required to remain at the designated level for two years before advancing to the next, and must be performing at an acceptable level. ●

Retiree Deaths

| | |
|------------------------------|---------|
| Henrietta Stoller (79) | July 6 |
| Almon Alberts (79) | July 11 |
| Charles Cundiff (83) | July 14 |
| Doyle Earnest (72) | July 17 |
| Don Weems (66) | July 17 |
| Robert Fox (66) | July 27 |

Sympathy

To Al Stanley (7715) on the death of his mother in Oregon, July 29.

Employee Death



BARBARA ORTIZ

Barbara Ortiz of Technical Library Systems Design Dept. 7142 died Aug. 13 after a long illness.

She was 43 years old.

Barbara had been at Sandia since 1989 and was a Member of the Laboratory Staff.

She is survived by a daughter and two sons.

(Continued from Page Three)

S.E. Asia Trip

top. "A bit chewy," Gary reports, "but actually quite tasty."

Next they flew to Xieng Khouang, Laos, traveling out into the jungle in a Land Rover through deep ruts, fording rivers, and getting so deeply mired in mud they had to abandon the vehicle.

Then they flew directly to Hanoi — a chance for Gary to see the infamous Hoa Lo Prison, known to American prisoners of war as the Hanoi Hilton. It is still being used as a prison, Gary says. Also while in Hanoi, they visited the tomb of Ho Chi Minh and several museums, most notably a military museum where parts of B-52 bombers downed during the war are displayed.

Saw Sandia-Developed Sensors

In that museum, coincidentally, they saw Sandia-designed sensors that had been sown along the Ho Chi Minh Trail during the war to detect enemy troop movements. Called Air-Delivered Seismic Intrusion Detectors, they were dropped from aircraft. They buried themselves in the ground on impact and were made to resemble branches to avoid detection.

Feigning ignorance, Gary asked the tour guide what they were and was told: "Sensors dropped by the Americans on the trails, which embedded themselves in the ground and used an antenna to send back signals."

Then the Richters headed south, visiting Hue, Danang, Nha Trang, Dalat, Tay Ninh, and Saigon (now renamed Ho Chi Minh City). In Hue they toured the old Imperial City, which the Viet Cong invaded and held for nearly a month during the 1968 Tet offensive.

They also visited Khe Sanh, the large US Marine base besieged by the North Vietnamese and

"There were lots of bats, and the air smelled like it had been breathed by scores of people before you."

eventually abandoned, and the DMZ — the 17th Parallel, which had been heavily mined — where they were taken through a minefield that the guide didn't tell them about until afterwards.

In Ho Chi Minh City they went to the former US embassy, now used by the Vietnamese government as the Petroleum Ministry, but were chased out of the compound by guards for trying to photograph the area.

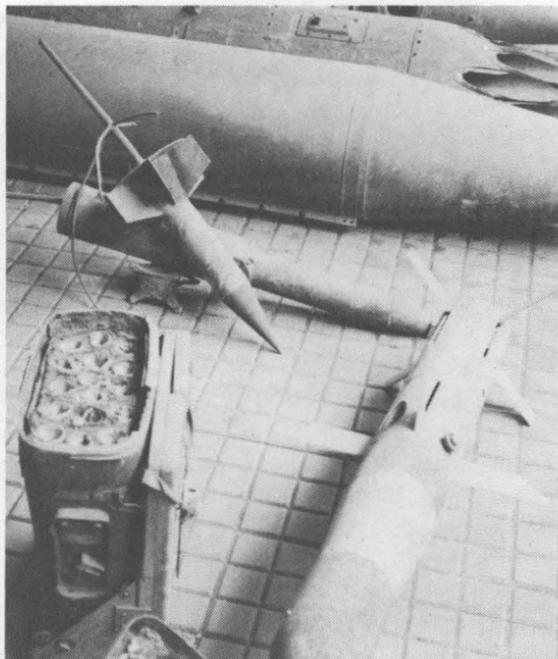
Bats and Claustrophobia

Outside the city they were led on a crawling tour through a maze of Viet Cong tunnels and underground living quarters, something Gary wouldn't want to repeat. "I got terribly claustrophobic, crawling through dark, dank spaces meant for smaller-boned people, with no room to ever turn around or exit until you found trapdoors camouflaged overhead," he says. "There were lots of bats, and the air smelled like it had been breathed by scores of people before you."

He says there were also false tunnels and punji-stick pits that had been incorporated into the maze during the war, to trap any Americans who entered the three-level tunnel complex.

From Vietnam, they flew to Phnom Penh, the capital of Cambodia, where UN troops are trying to deter warring factions from blocking next year's planned election. Only the central part of the country is safe from the terrorism of the Khmer Rouge, the Communist group accused of killing three million Cambodians during the past 20 years.

Gary and Paula were taken on a walk through the "killing fields," where bones and clothing parts still protrude from shallow graves. At Tuol Sleng Prison, the Khmer Rouge allegedly tortured to death more than 20,000 people and even documented it with photography, which still exists to be



A SANDIA-DESIGNED sensor (top center, with antenna) was among US equipment displayed in a Hanoi museum. Thousands of the sensors were deployed to monitor movement along the Ho Chi Minh Trail during the war.

seen at the prison, in cells still caked with blood.

Next they went to Siem Reap, best known for the Angkor Wat temple, an immense stone structure built in the country's capital in the 12th century. It was abandoned hundreds of years ago and was considered a lost city until a French explorer discovered the overgrown remains in the jungle in 1865.

The exotic foods they sampled on the trip included dog meat and intestines, cobras brought to the table live and sliced up to be eaten raw, deer meat, hedgehog, and even the local "snake alcohol" that is filled with snakes, snake organs, and other morsels.

Remote Hill Tribes

Over the course of their travels, they visited several isolated tribes in the mountain country — the Khmer, Cham, Lu, Kha, Kha-Tou, Bru, and, better known to Americans, the Hmong. Gary reports that for the most part they are friendly to Americans since US Special Forces units recruited their men to fight the Communists during the Vietnam War.

While visiting the remote Hmong tribe, Gary bartered for a hunter's ancient crossbow that shoots poison-tipped arrows. That is his most prized souvenir from the trip and hangs on his living room wall with four small arrows.

Among the many war-related souvenirs they brought back is a dogtag purchased from a village youth near the site of a Special Forces camp on the Vietnam-Laos border that had been overrun by the enemy at great loss of life. Gary hopes to someday locate the family of the serviceman and return the tag to them.

"I guess my strong attraction to the history of the Vietnam War originated with having had so many friends and even relatives who fought there," he says. "I really wanted to see where they were for myself, and find out what it was like in that country. This was a trek that will probably be unequalled in my lifetime." ●

Sandia News Briefs

Carroll Vice President of National Engineering Society

Margaret Carroll, Manager of Safety Engineering Dept. I 7732, has been named first vice president of the American Society of Safety Engineers (ASSE). The 80-year-old society's 27,000 members manage, supervise, and consult on environment, safety, and health issues in industry, government, and education. As first vice president, Margaret will manage the activities of region and division vice presidents, overseeing the operations of 13 regions that include 133 ASSE chapters.

Fulton Wins Safe Employee of the Month Award at WIPP

Sandian Don Fulton of WIPP Instrumentation Team 9322-1 has been named Safe Employee of the Month (August) at WIPP. The award, given by WIPP management and operation contractor Westinghouse, was instituted recently. It is determined by a committee comprising 12 Westinghouse employees and one Sandia representative. Don won for his work in writing the ES&H standard operating procedure (SOP) for access to and work on the site's 12-foot-diameter, 2,150-foot-deep air intake shaft. His SOP governs work in the shaft, which must be performed from a platform suspended inside it.

100 Summer Employees Recount Their 'Summers in Science'

Nearly 100 Sandia summer hires wrapped up their work season recently by describing their summer's work experiences. On Aug. 11, 85 participants in Sandia's Summer Employment for Minority Youth (SEMY) program gathered at the Coronado Club, along with families, teachers, mentors, and supervisors. Their presentations included posters and visual displays designed by the students describing their Sandia projects. SEMY coordinator Deborah Bailey (611) organized the event.

Twelve students and two teachers participating in the Historically Black Colleges and Universities (HBCU) program shared their work experiences with black high school students and community leaders Aug. 5. Students gave technical presentations, and Decater Rogers, Dean of Engineering at Tennessee State University, delivered a keynote address. In addition, the Labs' Black Outreach Committee honored two Sandians for contributions to the HBCU program: Tom Cannon (6908) and Freddie Heard (5921). Patricia Salisbury (611) organized the event.

Rural Middle School Teachers Attend Sandia Institute

Twenty-three rural New Mexico middle school teachers increased their science knowledge at a three-week DOE-sponsored Sandia institute called Teacher Opportunities to Promote Science (TOPS). The institute is intended to improve the science skills of participating teachers, who will then serve as role models and mentors for their home school colleagues. Topics at the institute range from chemistry to superconductivity. Sharon Holmes of Diversity Management Dept. 611 says that in addition to the summer institute, TOPS staff members will conduct three two-day workshops during the academic year to update teachers.

Sandia Co-Hosting 1993 Santa Fe Tech Transfer Conference

Representatives from academia, industry, and government laboratories will discuss transfer of technology from the public to the private sector during a March 1993 conference in Santa Fe. The 2-1/2-day meeting, titled "From Lab to Market: The Technology Commercialization Process," will include presentations, panel discussions, and opportunities for informal exchange of ideas. Mark Allen of Technology Transfer Applications Dept. 4212 says it is being co-sponsored by Sandia and Los Alamos national laboratories, Phillips Laboratory, the University of New Mexico's Robert O. Anderson Schools of Management, and US Senators Pete Domenici and Jeff Bingaman.

Send potential Sandia News Briefs to Editor, Dept. 7162.



IN THE BAG — Youth Opportunity Trainee Clint Thatcher (7813) mows his way around Personnel Bldg. 832 as part of his work with the Maintenance Modifications ground crew. Clint says he wasn't just a yard worker, he was a "deviant plant-life specialist." (All photos on this page by Mark Poulsen)

Now That They've Made 'Big Bucks' ...

Sandia Summer Hires Head Back to the Big Books

As the last of summer hires head back to school this fall, directors of the many summer educational programs at Sandia may be breathing sighs of relief, but their efforts paid dividends for both the students and the Labs. About 450 students and faculty from all over the country had a chance to spend the summer working at Sandia, earning money and gaining experience. Though the participants were as diverse as their jobs, they all seem to have had one thing in common — an enjoyable work experience.

"You'd be surprised at the number of people who wave to a guy on a lawnmower," says Clint Thatcher (7813) after a summer of work with the Maintenance Modifications ground crew. Clint, a freshman computer science student at New Mexico State University, spent the summer mowing lawns, watering grass, emptying trash, and engaging in "weed patrol" as part of Sandia's Youth Opportunity Trainee (YOT) program.

Clint says the tasks were "a good way to recover from a stressful high school senior year." "There's not much mental stress involved in sweeping the patio," he says. "The work gave my brain cells a chance to grow back in time for college, and gave me money to help pay for it."

The YOT program provides work opportunities for economically disadvantaged students to learn and earn income to continue their education.

Similar to the YOT program is Sandia's Histor-



SOLVING MYSTERIES — Laura Lochhead (6211) uses her computer to graph an equation that might explain why nuclear magnetic resonance values for building coal molecules yield a higher hydrogen-to-carbon ratio than that given by chemical analysis.

ically Black Colleges and Universities (HBCU) program. HBCU is a DOE-sponsored program offering summer employment for exceptional engineering and science students and faculty from historically black colleges and universities.

Ramesh Dwivedi (9616), a professor of electronics technology at Prairie View A&M University, says his two summers spent working at Sandia's Robotic Vehicle Range under the HBCU program have helped him keep up-to-date on changing technologies and given him lots of practical training to take back to his classroom.

"Teaching ideas is one thing," says Ramesh, "but working with your own hands is another. I think all teachers should have the opportunity to do what they teach so they can better appreciate the skills needed to apply knowledge to real-world problems."

For student Mark Olona (7153), opportunity is being "in the right place, at the right time, and saying the right things." Mark, a participant in Sandia's Summer Employment for Minority Youth (SEMY) program, went from sorting envelopes in the mailroom one day last summer to learning the techniques of filming, editing, and dubbing with Video Services Dept. 7153 the next. Mark attributes his luck to having one of his "days of brilliance."

"I happened to be attending one of Sandia's summer classes," says Mark, "and for some reason, I was just answering questions like crazy. I mentioned I was interested in videography and there happened to be a videographer sitting right behind me. He said video services might be able to use me, and things went from there."

Mark spent this summer filming everything from Sandia summer classes to special tests. He also put together several video features.

Student Laura Lochhead (6211) spent her summer finding out why using nuclear magnetic resonance values to build coal molecules yields a higher hydrogen-to-carbon ratio than that given by chemical analysis. The solution involved coming up with an equation that would either give data to match NMR results or else point out flaws in NMR values. Laura didn't receive any academic credit for her summer accomplishments, but she says, "I got economic credit. That's what counts."

Laura was one of some 40 students working at Sandia as part of Sandia's Outstanding Student Summer Program (OSSP), which provides opportunities for work experience in a laboratory environment for college engineering and science students from junior levels through PhD. ●DT



TRACKING A TARGET — Ramesh Dwivedi (9616) adjusts a range finding system he helped develop over the past two summers for a countermine project that enables unmanned vehicles to detect and locate mines in a minefield.

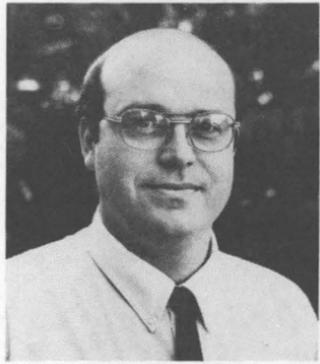


LIGHTS, CAMERA, ACTION — Mark Olona (7153) spotlights the activities of SEMY (Summer Employment for Minority Youth) students in a recent video he produced.

Supervisory Appointments

EMIL KADLEC to Manager of Instrumentation Development Dept. 2663.

Emil joined Sandia's Telemetry Development Division in 1980, designing telemetry systems to monitor performance of various weapons. He led the B61 Common project to develop an instrumentation package for use on multiple B61 gravity bombs.



EMIL KADLEC

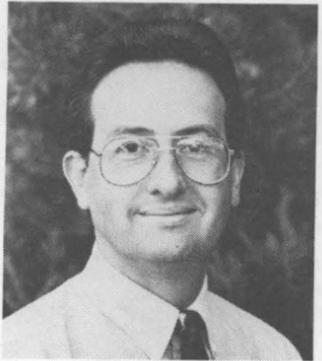
In 1989, he transferred to B61 Weapon Development Division and managed various activities on the B61-6,7,8 weapons to improve safety in the nuclear weapon stockpile. Emil's recent work includes activity on new instrumentation business for restoration projects within the DOE community.

Emil has a BS and an MS in electrical engineering from UNM. Before coming to Sandia, he worked for the Air Force Weapons Laboratory. He received the DOE Quality Improvement Award in 1990 for work on the B61 Common instrumentation.

Emil enjoys playing flag football, basketball, and raising box turtles. He and his wife Diana have two children and live in Albuquerque.

BORIS STARR JR. to Manager of Operating Systems Dept. 7324.

Boris joined Sandia in 1979 as a member of the Data Base Division, where he provided data base administration for purchasing and financial systems. He left the Labs in 1983 to manage a computer service bureau in Brazil.



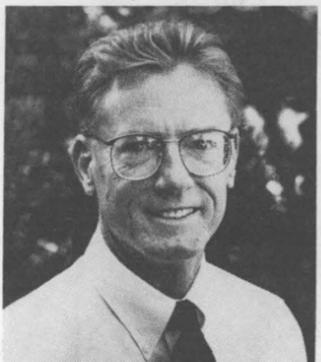
BORIS STARR

In 1986, he returned to Sandia's Human Resource Systems Division, where his work was in payroll applications support. He joined the Systems Planning and Development Division in 1988 and coordinated administrative information system planning. In 1988, he transferred to the Human Resources Systems Division as project leader for benefits, payroll, and personnel application system development. He transferred to Software Engineering and Advanced Technologies Division in 1992, working on cooperative processing and pervasive data access.

Boris has a BA in economics and an MBA from UCLA. He and his wife Heloisa have two children and live in the NE Heights.

JIM HAMILTON to Manager of Production Services Dept. 7329.

Jim joined Sandia in 1980 as a member of the Personnel Systems Division. He was project leader of the Employee Benefits System and Education and Training System projects.



JIM HAMILTON

In 1985, he was promoted to Supervisor of the Computer Operations Section. He transferred to the Procurement Systems Design Division in 1987, and was project leader of the Purchasing Information Management System. He also led a project to evaluate the use of document imaging technology for Purchasing, Receiving, and Payment Processing. In 1990, Jim

transferred to the Software Engineering and Advanced Technologies Department. He became a group decision support facilitator for information system projects and was project leader for automating computer operations.

Jim has an AAS in business information systems from Metropolitan State College in Denver and a BBA in business administration from the University of Albuquerque. Before joining the Labs, he worked for J.I. Case, Samsonite, and Martin-Marietta Aerospace. He served in the Navy submarine service from 1963 to 1969. He is a member of the Institute for the Certification of Computer Professionals and Literacy Volunteers of America.

Jim enjoys collecting rare crystal and rare coins, traveling in the Caribbean, deep-sea fishing, and gardening. He and his wife Deborah live in the NE Heights.

JENNIFER CROOKS to Manager of Payroll Services Dept. 152.

Jennifer joined Sandia's Management Information and Results Division in 1981, working on the year-end closing team and doing financial management reporting for



JENNIFER CROOKS

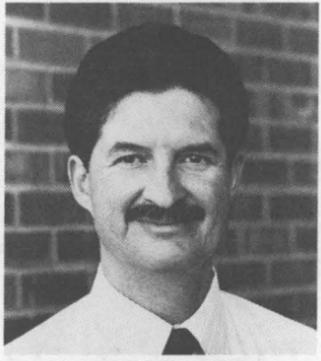
Orgs. 4000 and 8000. In 1984, she was named administrative assistant for the Weapons Development Directorate. She transferred to the Internal Budget Division in 1988 as an analyst for the indirect program budget and load rates and for the ES&H budget. In 1989, she became a planner in the Business Planning Division. She was named Supervisor of the Payroll Section in 1990.

Jennifer has a BA in English literature from the University of Texas and an MBA from UNM. She is a Certified Public Accountant and Certified Management Accountant. Before coming to Sandia, she worked for several accounting firms. She was supervisor of the inter-library loan department at the UNM Medical Center Library and worked at the UNM General Library.

Jennifer enjoys reading and writing fiction. She and her husband Max have two daughters and live in the NE Heights.

ALBERT VILLAREAL to Manager of Security Requirements and Planning Dept. 7432.

Al joined Sandia in 1977 as a member of the Property Accounting Division, where he did inventory accounting and reconciliation. He became an internal auditor in the Operations Audit Division in 1978. In 1980, he joined Purchasing Division B as a Sandia contracting representative. He became a personnel specialist in the Personnel and General Employment Division in 1981. In 1982, he



ALBERT VILLAREAL

joined the Equal Employment Opportunity and Affirmative Action Division as a senior analyst.

He transferred in 1986 to Education and Training Division III as a management development specialist. In 1987, Al was named administrative assistant to the Design Engineering Services Directorate. He returned to the Personnel and General Employment Division in 1989 and worked on the Rewards and Recognition Project. He joined the Safeguards and Security organization in 1990 and worked as project leader on Occurrence Management System development.

Al has an AA in liberal arts from San Bernadino Valley College and a BBA in accounting and MBA in accounting/finance from UNM. He served with the Air Force from 1970 to 1974. He has taught business courses at the University of Phoenix Albuquerque Division for more than six years. He is past chairman of the board of directors of Catholic Social Services (a United Way agency).

Al enjoys basketball, biking, and restoring classic cars. Al and his wife Theresa have two children and live in the NE Heights.

LINDA VIGIL-LOPEZ to Manager of Equal Employment Opportunity and Affirmative Action Dept. 611.

Linda joined Sandia's EEO/AA Division in 1984. She was an EEO analyst, investigating and recommending action on EEO internal and external



LINDA VIGIL-LOPEZ

matters. She chaired the Hispanic Outreach Committee. In 1987, she joined the Weapons Procedures and Logistic Support Division as a nuclear weapons media specialist.

She was named administrative assistant for Components Directorate 2500 in

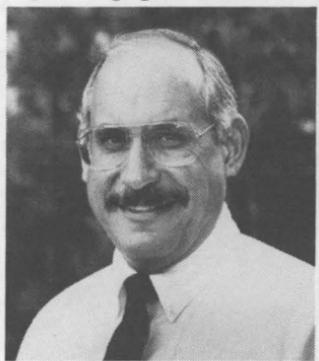
1990, providing administrative support for the directorate and for the *USS Iowa* incident project. From 1991 to 1992, she was a senior personnel specialist in the Personnel and General Employment Division. Linda was named acting manager of the General Employment and Staffing Support Division earlier this year.

She has a BS in biology from the University of Albuquerque and an MA in public administration from UNM. She worked for the Bureau of Land Management from 1979 to 1984 and the Equal Employment Opportunity Commission from 1971 to 1979.

Linda enjoys walking, biking, making stained-glass windows, and reading. She and her husband Daniel Lopez live in the North Valley.

ROBERT LONGORIA to Manager of Digital Applications Dept. 2611.

Bob joined Sandia in 1977 as a member of the Systems Test Equipment Design Division, designing test equipment used in nuclear weapon evaluation.



ROBERT LONGORIA

He transferred to Field Instrumentation Division I in 1980 and developed hardware and software for data acquisition systems used in field test activities. In 1984, he joined the Control Systems Department as a systems engineer on the Modular Building Block (MBB) mobile command and control program and was project leader for the MBB data bus.

In 1987, Bob was on a one-year assignment in Washington as project liaison with the Defense Communications Agency. He transferred in 1990 to the Verification Technology Division, where he was project leader for Pantex security upgrades.

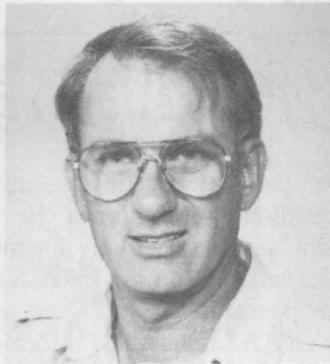
Bob has a BS in engineering from California State University/Northridge and an MS in electrical engineering from Stanford through Sandia's One-Year-On-Campus program. He was a member of the Air Force from 1966 to 1970. He is vice president of the Albuquerque Evening Optimist Club.

Bob enjoys mountain biking, skiing, racquetball, and camping. He and his wife Sharon have three children and live in the NE Heights. ●JC

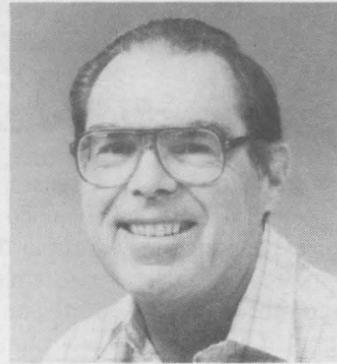
MILEPOSTS

LAB NEWS

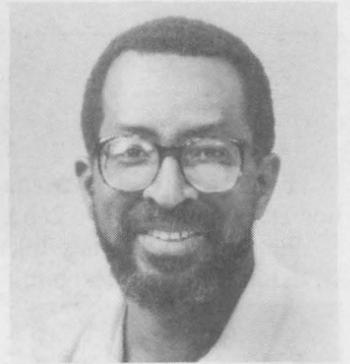
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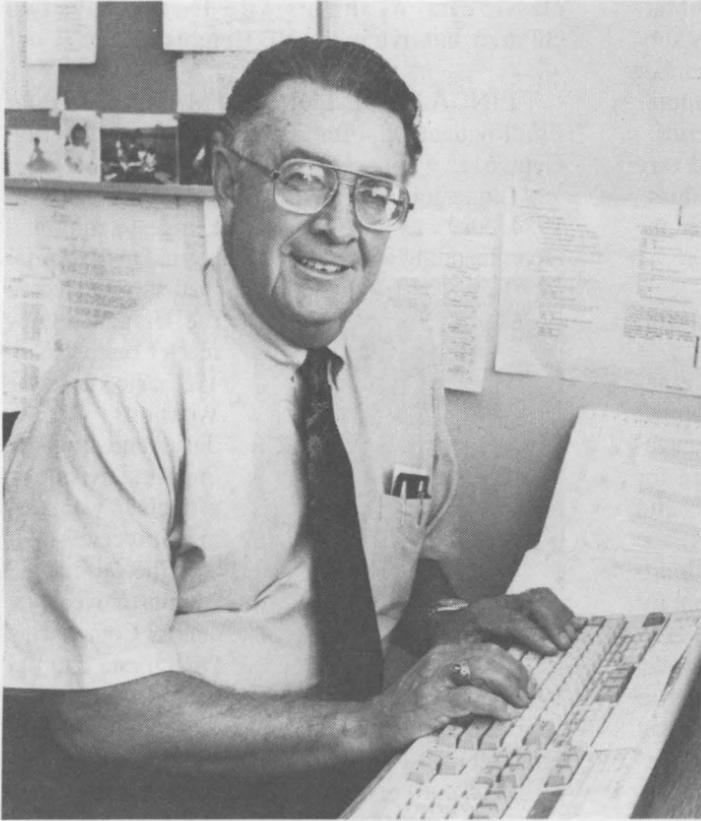
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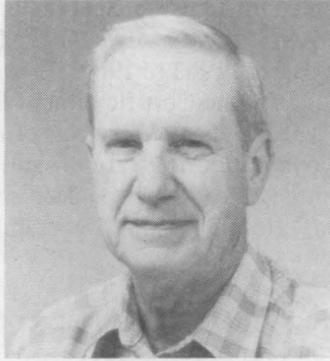
Bill Stephenson
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Freddie Heard
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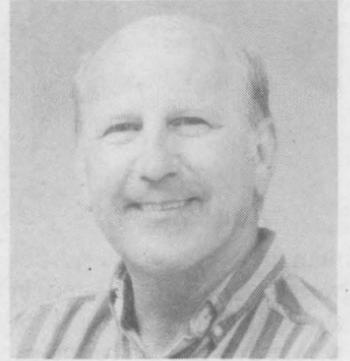
Roy Griego
121 35



Donald Amos
1422 30



Lana West
8451 15



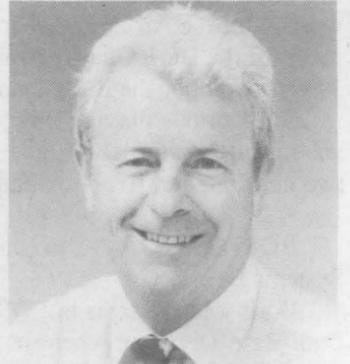
Stan Love
7001 30



Len Hiles
8400 25



Jack Hanna
6200 40



Richard Beckmann
5501 25



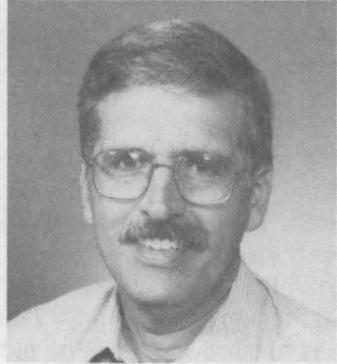
Orié Montoya
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Abel Anaya
7612 25



Bob Hargreaves
5362 35



Walt Ghio
5363 25



Ronald Williams
1237 35



Jim Trentham
2663 25



Judy Tejada
8284 15



Derek Snyder
4112 25



Francisco Sanchez
7818 20



Dusty Cravens
5715 35



Robert Connell
9227 15



Frank Padilla
7812 25

UNCLASSIFIED ADVERTISEMENTS • UNCLASSIFIED ADVERTISEMENTS • UNCLASSIFIED ADVERTISEMENTS • UNCLASSIFIED ADVERTISEMENTS

Deadline: Friday noon before week of publication unless changed by holiday. Mail to Dept. 7162.

Ad Rules

1. Limit 20 words, including last name and home phone (the LAB NEWS will edit longer ads).
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.
13. "Work Wanted" ads limited to student-aged children of employees.

MISCELLANEOUS

CANON AE-1 PROGRAM, w/power winder, mint condition, \$250; Nikon AF-35, auto focus, \$100. Bowland, 256-1861.

ELECTRONIC PARTS & EQUIPMENT, many years accumulation. James, 298-0709.

CAL-KING FUTON MATTRESS, 6' x 7', excellent condition, cost \$200, sell for \$115. Jennings, 255-5950.

16-BIT IDE-AT HD/2FD CONTROLLER, new, \$10; IBM XT keyboard, \$10. Spielman, 292-4953.

QUEEN-SIZE WATERBED, etched mirror/bookcase headboard, padded rails, complete, \$75 OBO. Barnard, 256-7772.

ROBOT HERO II JUNIOR, w/remote & phrase cartridges, all manuals, documentation, works great, make offer. Harrington, 899-1277.

YAMAHA PSR-47 SYNTHESIZER KEYBOARD, 100 PCM sounds, 100 rhythms, MIDI compatible, \$250 OBO. Swanson, 275-9495.

ELECTRIC BLOWER, Craftsman, w/attachments; wheelchair, commode, bedside, for invalid use. Pitti, 256-1629.

DISK-SANDER/POLISHER, 6-in., Sears Craftsman, 2-spd., double-ins., like new, \$40. Schuster, 296-9334.

RABBIT CAGE, 1 yr. old, w/water bottle & large bag of cedar chips, \$25 OBO. Poulter, 291-0607.

UPRIGHT PIANO, black, Baldwin Hamilton, wonderful condition, \$1,200; hutch, armoire, other furniture. Eyster, 822-9544.

FIVE ADJOINING CEMETERY LOTS, in Sunset Memorial Park, \$1,300/ea. Summers, 881-7765.

EXERCYCLE/PROFESSIONAL TRAINER, Genuine Tunturi Amerec, 15-step load adjustment, tachometer, 0-200-rpm, timer, excellent condition, \$250. Perryman, 281-3020.

WEDDING & ENGAGEMENT RING SET, new, 54-pt. center diamond w/16 four-pt. diamonds, H-I color, appraised at \$2,500, sell for \$1,325. James, 883-8784.

QUEEN WATERBED, w/underdresser, complete, \$175; repair manuals: Toyota 20R engine manual & carina, Celica chassis manual, covers '73-'80. Mozley, 884-3453.

WARDS FREEZER, older model, \$100; wedding dress & veil, empire waist, long sleeves, \$200. Shorty, 821-3952.

FISHER 190 CROSS-COUNTRY SKIS, w/poles & boots, used 3 times, \$85 OBO. Koehler, 298-2488.

TWO PARAKEETS, w/large cage & accessories, moving, need good home, free to someone without pets. Martin, 842-5964.

WINDSURFER, complete, for beginner; evaporative cooler, side draft; misc. baby items, car seat, walker, high chair, all in excellent condition. Russell, 294-0229.

YUCCA, 5-ft., healthy, can deliver, \$50. Oberkamp, 292-4366.

KING-SIZE WATERBED, w/armoire, mirrored dresser, \$500; large refrigerator; electric stove; 2 matching formal swivel rocking chairs, blue. Miller, 831-6459.

WHIRLPOOL REFRIGERATOR, \$400; microwave, \$70; king waterbed, w/dark 12-drawer pedestal, heater, rails, mirrored bookcase headboard, \$300. Greer, 275-5668.

CONSOLE PIANO, Hobart M. Cable, \$1,200; Culligan water softener; double bed; mirrored dresser; couch & love seat; stereo. LaFleur, 836-6471 after 4:30 p.m.

PRINTER, Star NX-2400, 24-pin, 5 fonts, single-sheet, push tractor feed, paper parking, IBM/Epson emulation, manuals, extra ribbons, \$170; Nunez, 884-3623.

OLD CANVAS TENT, 10' x 10', free; '76 Blazer gas tank, free; factory hitch for '76 Blazer, \$10. Ludwick, 296-6447.

ROTTWEILER, small (50 lbs.), very friendly, 1-1/2 yrs. old, spayed female, w/tail, all shots current, price negotiable to good home. Russell, 898-7117.

LAKE TAHOE TIMESHARE, 5-star resort, base of Heavenly Ski Resort, 1 week/year prime season + bonus time, \$9,000. Ingwerson, 510-455-5024.

REMINGTON 243, Model 700, includes shoulder strap, rifle bag, & recoil pad, \$300; Ruger Bearcat .22-cal. revolver. Chavez, 275-0490.

YAMAHA TRUMPET, excellent condition, includes mute, \$275 OBO. Ledwith, 821-9154.

HOUSEHOLD ITEMS: refrigerator, freezer, table, chairs, shop/garden tools, quilting craft supplies, Fri. & Sat., Aug. 21 & 22, 3300 Texas NE. Burch, 857-0654.

ZENITH Z-150 COMPUTER (PC/XT clone), Turbo 286 enhancement board, 20MB hard disk, 640KB RAM, 5.25 drive, monochrome monitor, manuals, \$325. Monaco, 768-6140 or 293-2754.

CEMENT MIXER, 3 cu. ft., w/electric motor, good shape, \$125. Waldorf, 836-0642.

WALNUT DINING ROOM SET, Danish modern, table 40" x 60", extends to 96", 6 chairs, china cabinet, excellent condition, \$495. Schamaun, 298-5192.

PALOMINO POP-UP TRAILER, sleeps 6, hard walls, heater, many extras, like new, 1990, \$4,800 firm. Montoya, 899-0341.

YARD SALE, 3-family, Aug. 28 & 29, baby items, clothes, furniture, toys, games, more, 10425 Aspen NE. Morris, 292-1722.

SURGE PROTECTOR, 4-amp., industrial model, \$200; Nagel commemorative serigraphs, 2 @ \$200. Altman, 294-6304.

MINK COAT, natural tourmaline, size 12-14, finger-tip length, excellent condition. Wagner, 823-9323.

VGA DISPLAY, 14-in., \$135; 16-bit VGA display driver, \$35; Panasonic printer & accessories, \$140; 2400-baud internal modem, \$30. Hale, 298-1545.

SECTIONAL COUCH, rust, good condition, \$350. Lucero, 296-1747.

FRENCH PROVINCIAL OAK DESK, absolutely beautiful, w/chair, walnut colored, excellent condition, \$450; oak bookshelf, walnut colored, \$125. Pena, 883-8847.

SPOTTING SCOPE, Bausch and Lomb 16 x 50 Discover, w/case, \$200 OBO; Polytone Baby-Brute amp., \$225 OBO. Newman, 256-7331.

TRAILER, heavy-duty, dual-axle, electric brakes, bed 18' x 6.5', mounted Delta tool box, 2 spares, \$2,000. Dolce, 299-8801.

MINIATURE DACHSHUND PUPPIES, AKC-registered, black & tan, \$200; AKC-registered red Doberman male puppy, \$170. Puccini, 255-0568.

STORM DOOR, 36" x 80", white, glass & screen, hardware included, good/VG condition, hinged left from outside, \$50. Pennington, 256-9506 after 5 p.m.

OAK DESK, double pedestal, w/file drawer, excellent condition, \$250. Miller, 883-0218.

HAMSTERS, free to good home. Webb, 828-2271.

SKI AND TRAM SEASON PASSES, for Sandia Peak (will consider selling ski passes alone), \$300 OBO. Schultz, 821-5158.

REFRIGERATOR, 23.5 cu. ft., \$750; invisible fence w/2 collars, \$250; 4-drawer file cabinet, \$25; water softener, \$175; 15-cu.-ft. refrigerator, \$50. Seager, 281-5045.

TRUCK CAMPER, for W/LWB lightweight (750 lbs.), insulated, electric refrigerator, lights, & water pump, jacks included, \$550. Shunny, 265-1620.

PC/XT-COMPATIBLE, 10MHz, co-processor, 640KB RAM, 40MB HD, 2-5.25 FD (360K), CGA color, trackball, software, \$400. Dresser, 821-7292.

AMIGA 1000 COMPUTER, 1.5MB, monitor, printer, modem, desk, 33 games, 21 tools, 141 diskettes, 45 magazines, manuals, \$1,000. Starr, 821-6480.

CANVAS TENT, aluminum frame, sleeps 4, \$65; Coleman tent heater, \$25; Minolta 50mm AF lens, \$25. Stuart, 265-7315.

KING AIRBED, w/6-drawer pedestal, mirrored bookcase headboard, padded rails, \$125; large crib w/mattress, \$55. Miner, 298-4779.

TWIN BED, chest of drawers, nightstand, maple, \$275; sofa, maple coffee table, \$325; 2 antique oak chairs, make offer. Krahling, 268-8126.

ELECTRONIC CASH REGISTER, \$100; Motorola 865 cellular phone, \$200; adjustable electric twin bed, \$200. Paulos, 268-2391.

CHIHUAHUA PUPPIES, AKC-registered, 7 wks. old, weaned, 1 male, 1 female, \$175/ea. Gallegos, 821-7351.

REFRIGERATOR/FREEZER, Hotpoint side-by-side, 22 cu. ft., icemaker in door, frost-free, excellent condition, \$250 OBO. Linker, 299-4057.

SOFA, like new, w/recliner each end, matching love seat, \$1,500 new, sell for \$750. Daniel, 271-0721.

UTILITY TRAILER, 16-ft., tandem axle, brakes all 4 hubs, \$1,000. Gonzales, 877-4100.

CHINA CABINET, French provincial, 2-piece, \$400; 4 bamboo & glass tables, \$35/ea. Graham, 292-0109.

BOX FAN, \$9; floor lamp, \$9; recliner, \$40; wedding dress & veil, size 8, \$125. Forster, 293-7231.

LAWN MOWERS, 2 used, 1 runs, other maybe, \$25/ea. OBO; rims for Nissan truck, \$30. Howard, 839-9203.

PAIR OF WOODEN SPEAKERS, can be mounted or rest on floor, \$50/both. Hovorka, 296-2773.

GARAGE SALE, 8 a.m.-3 p.m., Sat., Aug. 22, children's items, window coverings, light fixtures, books, clothing, 4932 Calle de Tierra NE. Banks, 291-1794.

BLACK STANDARD POODLES, 4 males, 1 female, born May 26, parents on premises, \$425/ea. Brooks, 891-3347.

ELECTRIC TEST EQUIPMENT, vacuum-tube voltmeter, radio-frequency generator, frequency counter (200 megahertz), other junk, cheap. Lambert, 293-8825.

YARD SALE, Aug. 22 & 23, 8 a.m.-2 p.m., rowing machine, books, new Avon products, misc., 721 Kentucky SE. James, 265-4015.

GIRL'S WHITE DAY BED, w/trundle, accent pillows, comforter, & bedding, \$250 OBO; 18-cu.-ft. white Kenmore chest freezer, w/flash defrost, \$100. Hatch, 296-2773.

JUKI LETTER-QUALITY PRINTER, \$400; Canon-NP-270 copier (needs cleaning), \$500; Cress kiln (needs repair), 17" x 24", \$400. Griego, 865-4124.

FREEZER, Whirlpool, 6.0 cu. ft., chest style, \$70. Lagasse, 298-0977.

UPRIGHT FREEZER, 21 cu. ft., \$150; twin mattress set/frame, best offer. Hueller, 296-0976.

MACINTOSH CLASSIC, 4MB RAM, 40MB IHD system 6.08, w/all manuals & disks, \$900. Wrons, 275-0356.

TRANSPORTATION

'82 BUICK REGAL, rebuilt engine, PS, PW, PL, \$2,200 OBO; '83 Dodge Ram D-50 Sport, 4x4, \$2,500 OBO. Flores, 877-7439.

FISHING BOAT, 12-ft., fiberglass, w/oars, electric trolling motor, trailer, excellent condition, \$600. Swanson, 275-9495.

'74 SAAB 99, new clutch, rebuilt transmission, 4-spd., 2-dr., blue, clean, well maintained, runs great, \$1,250. Caldwell, 299-6361.

'83 HONDA CIVIC, 59K miles, excellent condition, runs great, \$2,500. Abeyta, 247-3817.

CRESTLINER BOAT & TRAILER, 16-ft., fiberglass, 75-hp motor, \$1,200 OBO. Chavez, 865-7450.

'83 GRAND PRIX LS, smoked-glass Tops, 5.0-liter engine, white, all instruments, loaded, exceptionally clean, \$3,800. Bassett, 898-1840.

'74 CHEV. PICKUP, rebuilt 350, 3-spd. manual, 2-WD, w/shell, runs great, good shape, 11-yr. owner. Wells, 293-0468.

'87 SEA RAY 268 SUNDANCER, front/aft cabin, shower, AC, kitchen, below appraisal, \$25,000 OBO. Bland, 344-9969.

'84 CATALINA SAILBOAT, 22-ft., excellent condition, swing keel, pop top, trailer, 6.6-hp Sailmaster motor, \$5,900. Percival, 299-6606.

'59 DODGE CUSTOM ROYAL, push-button AT, swivel front bucket seats, ready for restoration, \$800. Perryman, 281-3020.

'69 PONTIAC TEMPEST, one owner, standard shift, 40K miles, mechanically well maintained, never been in traffic accident, \$3,500. Jansen, 260-8126.

'89 FORD F-250 XLT LARIAT, 302 V-8, 5-spd., towing package, camper shell, 32K miles, excellent condition, \$13,200. Bailey, 281-3910.

'84 CHEV. S-10 BLAZER, 4-WD, AC, stereo tape deck, 87K miles, \$4,295. Davidson, 293-9486.

'86 TOYOTA PICKUP, 5-spd. extra cab, long bed, AM/FM cassette, extra nice, \$3,895 OBO. Garcia, 255-0394.

'89 MERCURY COUGAR LS, loaded, good condition, \$9,100. Jojola, 294-3101.

'73 CHINOOK CAMPER VAN, new upholstery, carpets, & mattress, looks and runs great, see to believe, make offer. Waldorf, 836-0642.

'90 VW CORRADO, 5-spd., white, leather, extras, excellent condition, \$14,000. Trollinger, 255-5966.

REPOS: '84 Cadillac Eldorado 2-dr. coupe, 8-cyl., AT, 102,408 miles, AM/FM stereo, AC, PB, PS; '85 Lincoln Continental, 4-dr., 8-cyl., AT, 95,245 miles, AM/FM stereo, AC, PB, PS; bids accepted through Tuesday, Sept. 8; we reserve the right to refuse all bids; subject to prior sale. Sandia Lab FCU, 293-0500.

'63 CHEV. IMPALA, 4-dr., 283 V-8, AT, 70K miles, new interior, brakes, front end, & more, \$1,800 firm. Allman, 299-4418.

'85 CHEV. CAVALIER, AT, AC, tape, runs well & looks good, \$2,000 firm. Kelly, 897-1838.

'72 DATSUN 240-Z, runs very well, needs some TLC, \$1,850 OBO. Zownir, 256-3753.

'78 PONTIAC GRAND PRIX LJ, white/gold, very good condition, AT, AC, cruise, AM/FM, new tires, etc., \$1,400. Cano, 296-6955.

'83 TOYOTA LANDCRUISER, 60K miles, new tires, great condition, \$6,200. Platzbecker, 299-6096.

'90 OLDS 98 REGENCY BROUGHAM, beautiful champagne color, low miles, mint condition, all the bells & whistles, \$12,000. Mitchell, 275-1788.

'81 CHEV. CITATION, 4-dr., manual 4-spd., no frills, solid transportation, 88,500 miles, single owner, \$950 OBO. Esherrick, 299-8393.

'90 YAMAHA RT180A DIRT/TRAIL BIKE, Reed valve engine, Monocross rear suspension, excellent condition, \$990. Stuart, 265-7315.

'77 BMW R100/7 MOTORCYCLE, good condition, 33K miles, \$2,000. Williamson, 299-4310.

'85 RV, 30-ft., cruise, AC, 6.5 Onan generator, loaded, \$20,500. Campbell, 299-9195.

'84 RENAULT ALLIANCE, 2-dr., 5-spd. standard, 50K miles, new tires, \$2,000 OBO. McBrayer, 293-4076.

'86 THUNDERBIRD, V-6, excellent inside & out, always garaged, one owner, \$3,200. Sturgeon, 281-9035.

BICYCLES: girl's blue Cycle Pro & boy's red Peugeot, both 10-spd., \$80/ea. or \$150/both. Hatch, 296-2773.

'73 FORD F-250, Camper Special, low mileage, 390 engine, 4-spd., dual tanks, radials, extras, original owner, \$2,000. Perkins, 899-8766.

'85 FORD F-150 XLT, original owner, low mileage, clean, loaded, always garaged, new Michelin tires, dual tanks, \$5,500. Myers, 298-2677.

'79 CHEV. BLAZER, 89K miles, 4-spd., PS, FM/cassette, CB, good AT tires, \$3,500 OBO. Kaye, 292-4242 after 6 p.m.

'82 TOYOTA CELICA ST, AM/FM cassette, AC, \$1,100. Carroll, 888-2466.

'86 HONDA NIGHTHAWK S700, low miles, very clean, \$2,000 OBO. Miller, 281-3936.

REAL ESTATE

2-BDR. HOME, 2-1/2+ baths, whirlpool, central vac., deck w/views, 2-story, w/brick, 7 mos. new, 1,200 sq. ft., assumable ARM, \$92,500. Hovorka, 296-2773.

80 ACRES WILDERNESS near Datil, N.M., forest road & 4-WD accessible, \$12,000. Harrington, 899-1277.

3-BDR. BRICK HOME, 2-1/2 yrs. new, 2-story, 2 full baths, 1,500 sq. ft., security system, no qualify 8.4% assumable, \$89,800. Miller, 831-6459.

4-BDR. TOWNHOUSE, excellent starter home, 1,350 sq. ft., 8% assumable loan, adobe accents, fireplace, \$57,500. Lopez, 836-7144.

4-BDR. HOUSE, 4 irrigated acres, city water-sewer, less than 30 minutes from Base, detached garage, horse facilities, sheltered spot garden. Skolnick, 877-6170.

2-BDR. TOWNHOME, 2-story, near Wyoming base entrance, 1,069 sq. ft., w/clerestory & fireplace, assumable w/low down, terms negotiable. Ramos, 262-0003.

4-BDR., 2-STORY HOME, Presley, 3-car garage, large master suite, auto sprinklers, updated accents, 3 fireplaces, 2-1/2 baths, 2,300 sq. ft., \$124,900. Lusader, 298-3469.

3-BDR. HOME, 2-1/2+ baths, whirlpool, central vac., deck w/views, 2-story, baseboard heat, wood stove, sprinklers, 1,600 sq. ft., \$114,000. Hatch, 296-2773.

WANTED

WOODCARVING TOOLS, gouges, chisels, knives, any condition. Coleman, 884-5009.

WHEELCHAIR for charitable institution, reasonable price or as donation. Hall, 299-3594.

BOARDING for small dog, 10-pounder, quiet, housebroken, spayed, non-shedding, loves everyone, your home, must have secured yards. Newman, 299-2729 after 5 p.m.

OLD BICYCLES: 1930's to 1950's; Whizzer motorized bikes or parts; Schwinn 5-spd. Stingrays; Cushman scooters. Callahan, 243-2491 or 242-2445.

SWATCH WATCHES, new or used, must be in working condition. Altman, 294-6304.

FEMALE ROOMMATE, non-smoking, share 3-bdr., 2-bath house, Kentucky NE, \$209/mo. plus 1/2 utilities, furnish your own bedroom. Cano, 296-6955.

CHILD'S WAGON, med. or large size, in good condition. Townsend, 275-8913.

IBM-COMPATIBLE LAPTOP OR DESKTOP, 286 or newer, 2MB motherboard, 40MB HD or better, software desirable, also need printer. Mitchell, 275-1788.

HARD-WORKING HIGH SCHOOL STUDENT for yard work, weeding, trimming bushes, etc., & painting, pays \$5/hr. Miner, 298-4779.

NORDICTRACK USER, someone who bought one from the company, preferably Pro model, I have some questions about mine. Simon, 899-0109.

OVERHEAD CAMPER, 8-9 ft., self-contained. Campbell, 299-9195.

LIVE-IN PERSON, to care for elderly woman, male or female, cooking, valid NM drivers license, & references required. Walker, 268-5353.

SMALL PICKUP, Mazda, '85 or newer, must cost less than \$3,000. Howard, 839-9203.

SWIVEL ROCKER RECLINER, stroller, battery-operated baby swing, baby stuff. Forster, 293-7231.

WORK WANTED

HOUSESITTING by responsible college student, long- or short-term, excellent if you're relocating on temporary assignment. Moreno, 294-4268.

LOST AND FOUND

LOST: man's wedding ring, Manzano Field, July 31. Sjaardema, 299-8042.

Coronado Club Activities**Family Night Features Frownbusters**

HERE COME THE SMILES and there go the frowns when the clown troupe Frownbusters gets to work. So bring the kids to the Club at 5 p.m. today, Aug. 21, and watch the fun. Kids' bingo starts at 6 p.m., and the prizes for one lucky girl and boy will be a school backpack full of fun and games — and a \$50 gift certificate from Wal-Mart. Hungry? The buffet line will be open from 5 to 8 p.m.

AUGUST CLOSEOUT — Next week (Aug. 28), the Isleta Poorboys finish up the Club's Friday nights for the month with their toe-tapping music. They'll play from 7 to 11 p.m. while you dance or just listen. Not only is there a feast for the ears, there's a treat for the taste buds: The menu includes prime rib or fried shrimp for \$11.95, and the all-you-can-eat buffet offers poached cod almondine and baron of beef. Dinner is served from 6 to 9 p.m. Reservations: 265-6791.

BOARD OF DIRECTORS election comes up next month. Sept. 14 is election day, and every member's vote counts. Watch this space for a list of nominees.

MARK YOUR CALENDAR — The Labor Day Pool/Patio Party is Monday, Sept. 7. More info next time.

SKIERS, TAKE NOTE — No, there aren't any snowy slopes yet, but the snow will come. And so will the Coronado Ski Club's first meeting of the season — probably in September. So watch for the announcement. Also coming up: a competition for a new design on this season's club turtle-neck and T-shirts. (You have to be a Ski Club member to enter the contest.)

FALL COLOR TRAIN RIDE — It takes a mental leap to get from the Dog Days of Summer to the quaking golden aspens of fall in the high country, but if you want to get there in person, you'd better jump. Bob Butler and Art Hasenkamp are taking reservations now for a Sept. 27 Cumbres-Toltec fall color excursion. You'll ride the train to the top of Cumbres Pass, then travel by chartered bus through spectacular Toltec Gorge to Antonito, Colo. Details are available from Art at 255-8946 or Bob at 299-5626.

Events Calendar

Events Calendar items are gathered from various sources. Readers should confirm times and dates of interest whenever possible.

Aug. 21 — "El Corazon De La Cultura," second annual performing arts spectacular sponsored by the Hispanic Culture Foundation; 7:30 p.m., KiMo Theatre, 831-8360.

Aug. 21-28 — Exhibit, "Native Iconographic Influences in Raymond Jonson's Painting"; 9 a.m.-4 p.m. Tues.-Fri., 5-9 p.m. Tues., 1-4 p.m. Sun.; UNM's Jonson Gallery, 277-4967.

Aug. 21-22 & 28-29 — "McKean Street," poignant story of a boy growing up in South Philadelphia and the struggles he encounters becoming an actor, presentation of the Southwest American Playwrights Laboratory; 8 p.m., Silver Bear (6921 Montgomery NE), 881-6203.

Aug. 21-Sept. 6 — Exhibit, "Richard Ross: Museology," photographs of various areas of museum spaces throughout the world; 9 a.m.-5 p.m. Tues.-Sun., Albuquerque Museum, 243-7255.

Aug. 21-Sept. 6 — Exhibit, "First to Fire, Last to Lay Down Their Arms," documents defense of Bataan Peninsula in the Philippines by the 200th Coast Artillery, New Mexico National Guard; 9 a.m.-5 p.m. Tues.-Sun., Albuquerque Museum, 243-7255.

Aug. 21-Sept. 6 — Exhibit, "Nature's Invisible World: Artist and Microstructure," crystalline structures photographed under magnification; 9 a.m.-5 p.m., New Mexico Museum of Natural History, 841-8837.

Aug. 21-Oct. 11 — "Hopi Spirits," photographs document kachina doll making; 9 a.m.-4 p.m. Mon.-Fri., 10 a.m.-4 p.m. Sat., noon-4 p.m. Sun.; Maxwell Museum of Anthropology, 277-4404.

Aug. 21-Oct. 18 — Exhibit, "Unbroken Threads: A Quincentenary Exhibition of Native American and Hispanic Art"; 9 a.m.-5 p.m. Tues.-Sun., Albuquerque Museum, 243-7255.

Aug. 21-Oct. 25 — Exhibit, "Fact and Metaphor: Optics in Photography," shows how the study of optics and the devices it helped produce contribute to the understanding of sight and comprehension of the world; 9 a.m.-4 p.m. Tues.-Fri., 5-9 p.m. Tues., 1-4 p.m. Sun.; UNM Art Museum, 277-4001.

Aug. 21-Jan. 13 — Exhibit, "Dinosaurs, Penguins, and Whales: The Wildlife of Antarctica"; 9 a.m.-5 p.m., New Mexico Museum of Natural History, 841-8837.

Aug. 22-23 — Summerfest: Hispanic Night and Fiesta Artistica De Colores, food, entertain-

ment, fine arts, crafts; noon-10 p.m., Civic Plaza, 768-3490.

Aug. 28-29 — Three Short Operas: "Wake for Don Corsinio," based on story by Fray Angelico Chavez; "Arthur Snatchfold," based on story by E.M. Forster; "Divertissement," words by composer Alan Stringer; 8 p.m., First Unitarian Church (3701 Carlisle NE), 296-9215.

Aug. 28-Sept. 20 — "The Trip to Bountiful" by Horton Foote, story about a woman whose last wish is to return to her home in Bountiful before she dies; 8 p.m. Fri.-Sat., 6 p.m. Sun.; Vortex Theatre, 247-8600.

Aug. 29-30 — Back to the Future Weekend: Route 66 Fiesta, arts & crafts, food, entertainment; 6 p.m.-midnight Sat., noon-5 p.m. Sun.; Central Ave. between 2nd and 8th streets, 768-3559.

Aug. 29-30 — Back to the Future Weekend: Renaissance Fair, featuring knights, maidens, jousting, medieval arts and crafts, food, entertainment; 2-10 p.m. Sat., 2-6 p.m. Sun.; Civic Plaza, 768-3559 or 843-7185.

Congratulations

To Rhoda (7131) and Bennie Yazza, a son, Benjamin Cody, June 18.

To Jacky and Chuck (2858) Yagow, a daughter, Taylor Ann, Aug. 5.

*this month in the past...***Sandia LAB NEWS**

40 years ago . . . The Tech Area Cafeteria announced a new "hot plate" lunch special, selling for 65 or 75 cents (maybe the 75-center included antacid tablets). And speaking of antacid tablets, it's a good bet that several folks who attended one Sandia group's annual picnic needed some; the 40 guests reportedly ate 200 hot dogs.

30 years ago . . . After running the Salton Sea Test Base in California for nearly 13 years, Sandia relinquished control of the outdated facility. Test activities began at the base in 1946, and Sandia began operating it when Sandia Corporation was formed in November 1949. Still-useful instrumentation and equipment used at Salton Sea were moved to the larger Tonopah Test Range in Nevada (featured in the June 26, 1992, LAB NEWS). And lest anyone think that safety consciousness is new at Sandia, consider this slogan from the Aug. 17, 1962, paper: "No job is so important and no service is so urgent that we cannot take time to perform our work safely." Familiar ring?

15 years ago . . . Successful tests were reported on a Sandia-developed acoustic telemetry system for transmitting data via sound waves from the ocean floor. The system was developed to help explore and characterize the outer continental shelf to aid in offshore petroleum activities.

10 years ago . . . Sandia's three Church brothers and their family were featured. The three brothers worked at Sandia for many years; Hugh (6612) and Allen (9332) still do, but Ted retired several years ago. All were born at the old Los Alamos Ranch School that was taken over by the government in 1942 as the site for the Manhattan Project. The site was personally chosen by Robert Oppenheimer.

Welcome

Albuquerque — Daniel Mulder (6403), Jean Plummer (7141).

Elsewhere: Washington — Nina Stewart-Poppelsdorf (7712); **Wisconsin** — Erik Webb (6331).



AND THEN THERE WERE FOUR — These four Sandians all started working at the Labs on the same day 15 years ago — from left, Tommy Barreras (2858), Peter Chauvet (2802), Merri Lewis (7601), and Patrick Horton (9545). All were participants in a mechanical drafting training program sponsored jointly by Sandia, Albuquerque Technical-Vocational Institute (TVI), and the City of Albuquerque. Of 10 participants originally hired by Sandia, only these four remain. Tommy and Peter are still employed as drafters.