

Computer Code Models Events You'd Hate to Be Near

Sandia-developed computer software for which more than 100 external licenses have been issued is being used in studies that can range from the origin of the moon to the possible detonation of weapons by accidental impacts.

The software is CTH, a large (250,000-line) computer code that has quickly become the standard program throughout industry and government for modeling a wide range of high-energy, high-velocity phenomena. Many of its applications are in defense.

"It's an extremely popular code," says Mike McGlaun, Manager of Computational Physics Research and Development Dept. 1431 and one of the CTH developers. The code was developed by a team of Sandia scientists and engineers over the past year and a half, and is being continually refined.

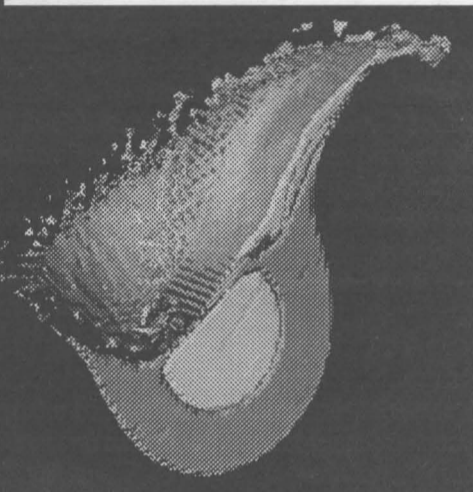
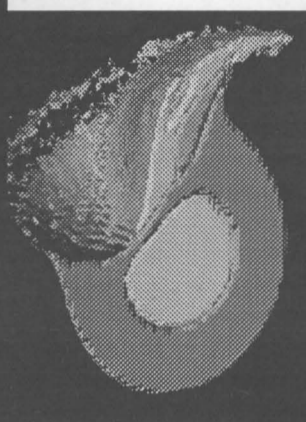
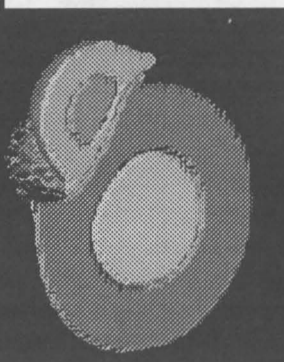
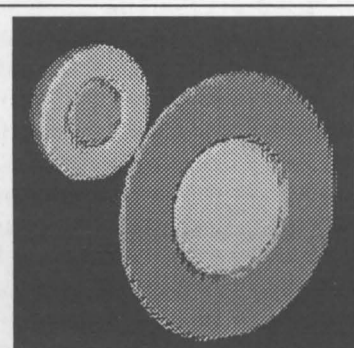
Meteorites and Gallstones

CTH is a portable, high-performance computer code that models and generates images of two- and three-dimensional phenomena arising from very rapid release of very large amounts of energy. These dramatic events melt or vaporize solid materials, generate strong shock waves, and fragment much of the material. "The common denominator is energy," Mike says. "Lots of kinetic, chemical,

or nuclear energy."

Such events include impacts of meteorites, collisions of orbital debris with space vehicle hull protectors, violent explosions when molten metal and water come into contact, acceleration of hypervelocity projectiles, explosive forging, and defense applications such as nuclear

(Continued on Page Four)



INTERPLANETARY COLLISION — If a Mars-size body collided with Earth, here's how the result might look at the initial contact (upper left) and approximately 10, 20, and 30 minutes later. The simulation, done with the Sandia-developed CTH code, shows how the wave of ejected matter is captured by Earth's gravitational field. Such computer simulations have supported the hypothesis that the moon was formed by a collision with the early Earth. This three-dimensional calculation is an example of the high-velocity, high-energy events modeled with CTH.

Town Meeting with Al Narath

Sandia Is Strong, Must Seize Strategic Opportunities

"I believe in self-fulfilling prophecies," said President Al Narath to Sandia employees in a recent Town Meeting series. "If we adopt a pessimistic outlook, this laboratory could fall by the wayside. But the evidence that I see tells me there's much more reason for optimism — and that's self-fulfilling, too."

This observation came from one of the eight meetings he conducted last week at the Labs' California and New Mexico locations. Referring to the

"Our customers view us as delivering real value."

sites that way, he said, rather than the traditional Livermore and Albuquerque designations, is an experiment he's trying as a way to underscore Sandia's distinctiveness from other DOE labs. "I invite you to try it, too," he said.

During the talks with employees, Al presented the Labs' statement of strategic intent — "exceptional service in the national interest," from Harry Truman's 1949 letter that led to the formation of the Labs. "Many people have thought about other ways of stating our strategic intent," he said, "but it's hard to improve on that phrase. It's the one enduring theme in Sandia's history."

Which Hills?

Al acknowledged the discomfort caused by continuing economic uncertainty and the disorientation of having lost the sense of a single focus as the world backs away from superpower confrontation. "The way a lot of people feel," he said, "is that we scaled a mountain once, by helping make it possible to win the Cold War. Now, it seems as if there are just a lot of little hills out there, and we're wandering around trying to

(Continued on Page Five)



LAB NEWS

VOL. 44, NO. 18 SANDIA NATIONAL LABORATORIES SEPTEMBER 4, 1992

You Make the Difference

Rehabilitation Center Helps Sandia Family



ALBUQUERQUE REHABILITATION CENTER therapist Karen Lucero plays in the center's therapeutic pool with 11-month-old Daniel. The warm water helps Daniel's muscles relax so he can learn to control his head movements and move his legs, which are stiff from being in full cast. The Rehabilitation Center is a United Way agency. (Photo by Randy Montoya)

During last year's Employee Contribution Plan (ECP) campaign, Dan Summers (324) spoke at several ECP meetings and told the story of a young man who years ago nearly failed in school when he learned his four-year-old daughter was stricken with muscular dystrophy. That young man found help for his daughter, himself, and his family through Albuquerque's Rehabilitation Center.

The adversity also resulted in the young man writing a master's thesis about stresses on a brace called an ankle/foot orthosis (AFO) which led to better-fitting, longer-lasting braces for his daughter. The computer code he wrote for analyzing the AFO's structure is still being used today to make AFOs for patients at UCLA Medical Center and Rancho Los Amigos Children's Hospital.

The young man is, of course, Dan. His daughter, Danelle Carrillo, is now grown, married, and taking classes at Albuquerque T-VI and UNM. Danelle received help at the Rehabilitation Center from age four to eight. She attended a kindergarten that she remembers as a pleasant experience. "Attending that kindergarten was a nice way to find out that this is okay," says Danelle. "Other children had the same problems I did and we learned to cope together."

"As a parent, I saw them provide her

(Continued on Page Four)

This & That

Best of the Worst - Every week or so, a Sandian sends me someone's strange attempt at spelling Albuquerque. George Trever (9215) says a young, rather highbrow-looking hotel desk clerk didn't even flinch as George mentioned Albuquerque when he registered. But when he got the bill, it showed him as an "Alvakirkie" resident. "Can anyone top that?" he asks. Well, George, Sandians have submitted these in the past: Aberkerki, Albaquiry, Alberquerkie, and even Albug Vevgue. However, the worst I've seen is Akbyqyerqyem, but that one is so bad that I attribute it to a typist having a bad day. (After all, even engineers spell better than that!) If you have equally interesting misspellings of Albuquerque, we'd like to add 'em to our collection. Please send them to "This & That," Employee Communications Dept. 7162.

* * *

But Ike Said It! - I mentioned in the last issue that it bugs me when people use initials only instead of full given names on correspondence. Something else bugs Marvin Moss (251): when people pronounce nuclear to sound something like nuke-yu-ler. As I recall, President Eisenhower pronounced it that way, and it unfortunately caught on with lots of people back then.

* * *

Roman or Arabic? - Ruby Cockrell (6400) wants to know why Sandia's numbered technical areas are sometimes referred to using Roman numerals and sometimes Arabic. (For the record, we use Arabic in the LAB NEWS and *Weekly Bulletin*.) If anyone knows for sure which is "correct" or at least which system was used first and you have the proof, please send it to Employee Communications Dept. 7162, and we'll share it with everyone.

* * *

Sure Beats Lonely Street - We got a letter recently from an Albuquerque retiree who lives on Tennis Court NW. Sounds like a decent street if you don't mind dodging bright yellow projectiles. Seeing Tennis Court reminded me that I once lived in a city that had a street named Candy Cane Lane. That was just a little too "sweet" for me, and I nominate it as the worst-named street anywhere. Anyone have anything that can compete with Candy Cane Lane?

* * *

We Don't Deliver - Sometimes Sandians call us to say that their group didn't get enough copies of the LAB NEWS or *Weekly Bulletin* to go around. If your group doesn't get enough copies, please call the mail distribution folks. They are totally in charge of distribution. Call extension 4-4213 in Albuquerque or extension 4-2429 in Livermore. However, if you continue to have problems, then call the Employee Communications office in Albuquerque on 4-7841 or Barry Schrader in Livermore on 4-2447, and we'll check into the problem.

* * *

Now It Needs Waxing - I've tried to teach my kids to look for a positive side of seemingly bad things. It may be working. After hearing me register disgust at our leaking dishwasher, number one son said, "Hey, Pops, it's not all bad. It's the only time the kitchen floor ever gets mopped." ●LP

Recent Patents To Sandians

Roger Clough (1811), Clifford Renschler (1812), Timothy Shepodd (8711), John Gill (Mound Labs), Daniel Hawkins (University of Alaska), and Henry Smith (Allied Signal Kansas City): Solid-State Radioluminescent Zeolite-Containing Composition and Light Sources.

Richard Brow (1845) and Randall Watkins (6611): Sealing Glasses for Titanium and Titanium Alloys.

Danny Gregory (2761), Harry Hardee (ret.), and David Smallwood (2741): Downhole Hydraulic Seismic Generator.

Stephen Martin and Antonio Ricco (both 1315): Acoustic Wave Device Using Plate Modes with Surface-Parallel Displacement.

Tazwell Bramlette and Jay Keller (both 8364): Method and Apparatus for the Control of Fluid Dynamic Mixing in Pulse Combustors.

Take Note

The Maxwell Museum of Anthropology is seeking individuals to serve as museum educators in its Museum Docent Program. This is an excellent opportunity for people interested in learning more about Southwestern culture. Participants will be trained by Museum staff in a 10-week program that covers a broad overview of Southwestern archaeology and includes lectures by noted scholars and hands-on workshops on how to best present the materials to groups of children in the Museum and in outreach "trunk" programs in the schools. No previous experience is required, and free parking is provided. All participants who take trunk programs to the schools will be reimbursed for mileage from the Museum. Training will begin Wednesday, Sept. 30. Contact Mary Smith on 277-2924 or register at a sign-up coffee on Wednesday, Sept. 30, at 9 a.m. at the Museum.

Sympathy

To Karl Schuler (1562) on the death of his mother in Albuquerque, Aug. 1.

To Bill Burd (2483) on the death of his sister in Hallstead, Pa., Aug. 2.

To Rita Padilla (153) on the death of her father in Albuquerque, Aug. 23.

To John Gallegos (7329) on the death of his father in Albuquerque, Aug. 23.

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PROJECT OVERVIEW - Paul Kaplan of System Performance Assessment Dept. 6312 (right) points out a feature on a picture of Yucca Mountain during a break in a recent course taught by Purdue Professor of Geotechnical Engineering Milton Harr (center). Scott Borg of DOE's Yucca Mountain Project Office looks on. The course, Reliability-Based Design in Civil Engineering, was hosted by Sandia. The Labs' Nuclear Waste Management Center 6300 is working with DOE to determine the suitability of the Yucca Mountain site for an underground repository for disposal of high-level radioactive waste. The course provides a forum for several groups with differing views about building the repository. A major benefit of the course is that it gives these groups a chance to discuss the issues in a non-confrontational setting, says Paul.



Department Gets 'Ergonomized'**Morning Stretch Is Just What the Doctor Ordered**

What's the first thing you do when you arrive at work each morning? Maybe you pour a cup of coffee, chat with co-workers, or reach for a doughnut. Well, employees in one Sandia, Livermore organization have discovered an alternative to these routines.

Every morning, employees in Plant Maintenance Dept. 8613 begin their days with a 15-minute morning exercise program, says Department Manager Johnny Ellison. They stretch and do a series of exercises that warm up certain muscle groups and help prevent injuries and fatigue on the job.

"The reaction of employees has been positive," says Sandra Hansen, a physical therapist who first put on an exercise workshop for department employees five years ago. "There have been fewer worker's compensation claims, less absences, and people say they feel better," she says. "They're not as stiff or tired."

Hansen's first visit to the department in 1987 taught employees stretching exercises that would help stop physical maladies resulting from their jobs. It focused on musculoskeletal problems, how they occur, and how to prevent back injuries, strains, sprains, and fatigue. The group has been doing the exercises ever since.

Recently, however, Hansen returned to the department to teach a revised workshop. The new workshop included ergonomics — how to organize

the work site differently to make an employee's job easier. In other words, how to fit the job to the person rather than fitting the person to the job.

Warm Up and Cool Down

The workshop focused on job functions that Department 8613 employees do every day, explaining how ordinary body movements could lead to fatigue or physical problems. It then provided preventive and self-treatment techniques for each problem.

For instance, for tasks in which employees might work with their heads forward and their necks bent down — such as cleaning or maintaining machinery — employees were told to get as close as possible to the object of their work to avoid extending their necks. In addition, the work should be kept high so the neck doesn't have to be bent.

Specific stretching exercises for the neck and shoulders were also recommended that would

improve posture and strengthen affected muscles. As a general rule, the workshop recommended warm-up exercises to increase circulation before a task and cool-down exercise afterwards to prevent soreness.

A brochure, slides, and a video were produced from the workshop, in which employees can see themselves performing normal job routines, lifting, working with tools, and in awkward positions. The materials will be used as periodic refreshers and to teach new employees.

Johnny says approximately 80 percent of the department's 75 people participate in the morning exercise program. But even more important, they are now equipped with stretching techniques and preventive approaches that they can use throughout the day. It is this kind of daily stretching, maintenance, and attention to safer procedures that will help prevent on-the-job injuries and fatigue in the long run, he says. ●



SANDIA LIVERMORE NEWS

Assesses Labs' Environmental Impact**Long-Awaited Report Ready for Release**

The long-awaited Environmental Impact Report and Environmental Impact Statement (EIR/EIS) for both Sandia, Livermore and Lawrence Livermore National Laboratory is complete and expected to be released next week, say DOE officials.

The 2,200-page document analyzes the potential environmental impacts of operating the two national laboratories in Livermore. The report assesses laboratory impacts on air and water quality, geological systems, occupational and public health, prehistoric and historic resources, endangered species, flood plains and wetlands, socioeconomic resources, hazardous waste management, and other environmental issues.

Broad policy issues, such as nuclear weapons testing, test ban treaties, or nuclear proliferation, are beyond the scope of the document.

The report was prepared by DOE during a two-year period.

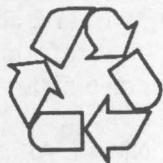
Don Nissen, Manager of Environmental Protection Dept. 8642 and EIR/EIS project manager for Sandia, says he is pleased with the final document and believes it is the most thorough look at the two laboratories' operations and impacts ever produced.

"In addition to the internal work performed by Sandia and contract personnel, we received more than 700 public comments at the April 30 public hearing and from later written statements," he says. "All comments were included verbatim in Volume IV of the final report."

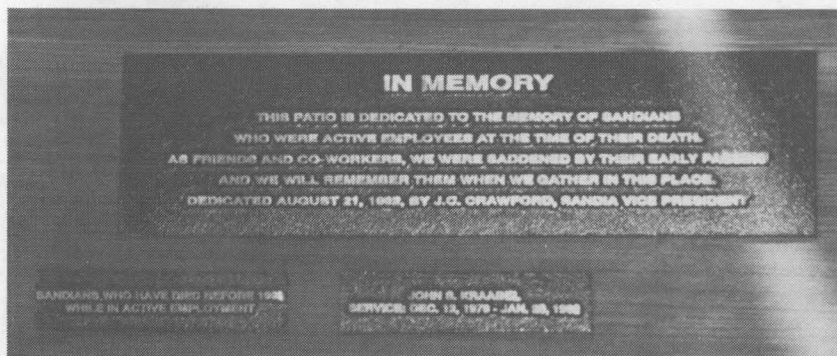
Copies of the five volumes will be available by Sept. 9 in the Sandia reading room (Bldg. 911 Lobby) or in the Livermore City Library, as well as at other locations in the Bay Area. ●

Take Note

Barbara Combs of Dept. 8532 has been named chair of the Sandia, Livermore Family Day committee. Family Day for the Livermore site is scheduled for Saturday morning, Oct. 17. Sandians interested in serving on the committee are welcome; contact Barbara on 294-3250.



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HONORING THE DECEASED — John Crawford, Vice President of Livermore Programs Div. 8000, and other employees recently honored Livermore Sandians who died while they were Labs employees by dedicating in their memories a new memorial plaque and the patio area between Buildings 912 and 913. The plaque includes two bronze plates, one memorializing Sandians who died before 1992 and the other honoring John Kraabel, a Livermore Sandian who died in January. Families, colleagues, and friends of Sandians who died since 1992 may purchase individual nameplates to place in the area by contacting Jo Sandelin (8522).

(Continued from Page One)

High-Energy Modeling

weapon safety and armor-projectile interactions. All are being modeled with CTH.

CTH has helped provide evidence that the moon was born out of a cataclysmic impact of a large planetary object with the early Earth. CTH is being used to evaluate the potential for premature detonation of a weapon due to accidental impacts. It is being used for medical purposes, to analyze the destruction of gallstones and kidney stones by shock waves.

CTH is the principal code employed in the US for these kinds of problems, the Sandia team says. It's already being used at more than 80 industry, university, and government sites, with the number rising steadily.

"It really has become the code of choice," says physicist Gene Hertel (1431), project manager of the Sandia team. Gene tracks all outside requests

CTH has become the standard for modeling high-energy, high-velocity phenomena.

for the code. "Virtually every Army, Air Force, and Navy lab has CTH and uses it. Virtually every major defense contractor has it. The national laboratories and a number of universities use it."

CTH can operate on anything from a massively parallel supercomputer to a Cray supercomputer to a high-end personal computer, Mike and Gene say. "The porting to massively parallel computers allows us to take advantage of the tremendous capabilities of these new computers," says Mike.

CTH is easy to transfer to any computer

because it's written in modern portable programming languages (ANSI FORTRAN and C), and machine dependencies are minimized.

Another reason CTH has become so widely used so fast, they say, is that it's more accurate and covers a wider range of conditions than previous codes for modeling highly energetic events. It uses material models that are accurate for solid, liquid, vapor, and mixed phases, for temperatures higher

"The common denominator is energy — lots of kinetic energy, chemical energy, or nuclear energy."

than 100,000 K, and for pressures greater than 1 gigapascal (about 10,000 times atmospheric pressure). In addition, recent government-sponsored tests showed that CTH is often faster than other, earlier codes.

CTH is also unique in the field of complex 3-D codes because it supplies a complete visualization environment that generates color-shaded images of the data. "Visualization is the only effective method of understanding the enormous volume of data generated by CTH," Mike says.

Sandia Provides Consultation

"The reason CTH has been so enthusiastically embraced," he continues, "is that it's a very well integrated system. It's turn-key and user-friendly. It's a very nice code."

Gene reinforces that point. "Integration of all the pieces into a coherent, usable system is unique. We've built a very portable system. In the space of an afternoon a user can have a package that enables him or her to perform calculations and obtain useful images of the data."

Still another reason for CTH's success in the outside community, they emphasize, is that Sandia is working hard to make the users comfortable, by providing an extensive consulting service.

Because of its defense applications, CTH is

'In-Computer' Tests Get Popular

Complex codes such as CTH are becoming increasingly important, because field tests of highly energetic impact or explosive events are difficult, costly, and potentially hazardous. Environmental considerations are increasingly a concern.

Using high-performance codes, scientists and engineers can carry out more of the design "in the computer," supplementing and often reducing the number of tests needed. They can also deal with conditions and energy regimes where testing is impossible or impractical.

export-controlled. Users must agree to a number of stipulations to ensure proper use.

CTH was developed entirely at Sandia with DOE funds. Much of the funding for subsequent development and user support to key government and contractor sites is being provided by the Defense Advanced Research Projects Agency. Most of the applications for CTH at present are government-related, the Sandia developers point out, and the main industry and university users of CTH are working under DoD, DOE, or NASA contracts. Nevertheless, civilian commercial uses are expected in the future. ●KFrazier(7161)

feed back

Q: I recently had to do a home plumbing repair job and purchased a lead-free solder (an alloy of silver, copper, tin, and bismuth), made by Oatey, at Builder's Square. It has a working range of 420 to 455 degrees F, and when used with its recommended flux, performed adequately. Because of the presence of lead in normal solder, we have to address the issue of handling solder and solder scrap in our SOPs.

I noticed that no lead-free solder was available in the GEN catalog of JIT. I wondered if there is any consideration being given to replacing the solder throughout the Labs with the lead-free type? I realize that testing of bond strength to meet WR requirements will be necessary, but with the amount of lead/tin solder that must be present throughout the Labs, this may be a worthwhile endeavor if it succeeds in eliminating one more hazard in the workplace.

A: Ideas that promote ES&H at Sandia are beneficial to all employees, and your idea of making lead-free solder readily available through JIT is indeed worthwhile. It contributes directly to our goal of eliminating or minimizing chemical hazards in the workplace by the substitution of less hazardous materials for hazardous materials whenever possible. Lead-free solder can be made available at Sandia by working with JIT purchasing, and Industrial Hygiene Dept. I 7711 and Industrial Hygiene Dept. II 7712. Line organization input also will play an important part in these transactions.

Dick Lynch (7020)

(Continued from Page One)

ECP Helps

with a tremendous amount of self-confidence," says Dan. "Confidence in who she was and what she could become."

The Rehabilitation Center offers several programs, one of which is Pasitos De Niños, a therapeutic program for children from birth to age three who are at risk for or have special needs resulting from delays in development or uneven patterns of growth.

"The Rehabilitation Center helped us see there were people who could help," says Dan. "They provided help from a mental standpoint as well as financially."

The annual ECP campaign will be held Oct. 5 through 9 (Sandia, Livermore's LEAP campaign will also be held in early October). Money raised at Sandia, Albuquerque goes to United Way to help more than 260,000 people (one out of three) living in Bernalillo, Sandoval, Valencia, and Tarrant counties. Employees also have the option of choosing other agencies not supported by United Way. Either way, the money we give stays in our community so help will be there when we need it. ●JC



UNITED WAY HELPS people we know, including Sandian Dan Summers (324) and his family. Daughter Danelle Carrillo received help from the Rehabilitation Center (a United Way agency) when she was first diagnosed with muscular dystrophy. The therapists at the Center gave her tips on how to perform basic skills with a disability, such as getting dressed or combing her hair, but most important, says Dan, they gave her self-confidence.



Take Note

The Armed Forces Communications and Electronics Association (AFCEA) is having a luncheon at the Kirtland Officers Club East on Tuesday, Sept. 15. The pay-as-you-go lunch is at 11:30 a.m. At noon, guest speaker Tim Crowley, Intel Corp., will talk about "Silicon Wafer Fabrication." For information, contact Lt. Col. Dale Yaeger on 6-5909.

UNM's L'Alliance Française D'Albuquerque, a non-profit organization, is offering French classes in Albuquerque and the East Mountain area for students ages 4 and up. For information, call Carolyn Simmons on 281-1858.

(Continued from Page One)

Strategic Opportunities

decide which ones to go up."

Al contrasted this view with the Labs' reputation among customers in Washington and elsewhere, and with the argument that Sandia is ideally positioned for contributing to the country's needs over the next decades.

"I talk to a lot of people in Washington, at DOE and other places," he said, "and it's clear that we're thought of as the best-managed laboratory in DOE. Those aren't words to be taken lightly.

"We give consistently high customer satisfaction," he continued. "That doesn't mean that all customers are always delighted — like anyone else, we have an occasional fiasco — but our customers view us as delivering real value."

Making the Labs' Case

Sandia has changed, in the last 20 years, from carrying out externally defined assignments to being a lab that helps influence the course of events. "We have to make sure our good ideas are

"We have to make sure our good ideas are recognized and put into action."

recognized and put into action," Al said. "That's for our customers' good and for ours. This is a defining period for the national labs. Many people question whether they have a role at all. We feel we know our role, and we're making sure we're heard."

And, he said, Sandia apparently is making the case for its value. He cited a generally healthy FY92 budget and the so-far-favorable prospects for FY93 — this during a time when many organizations have faced large cuts.

Internally, however, Al said, employees still feel overworked and overstressed. They believe that infighting continues, and that teamwork hasn't taken hold as the primary way of working. They don't believe that Sandia has a clearly focused mission, and they think the Labs' strategy is unclear.

Rather than try to reconcile the internal and external views in detail, Al offered an alternative based on the demands of the present and the opportunities of the future. "The past is gone," he said. "We may feel nostalgic about it, as we may about our childhood, but it's a time that won't come again. The changes now are just a natural continuation of changes that we have seen since the earliest days." He cited stressful events of the past, such as the addition of research programs to the traditional engineering programs in the '50s and the shift to being a multiprogram lab in the '70s. "The pace of change has increased, as the world has changed in ways we could not have predicted."

Economic War Intensifies

Al characterized the future as full of opportunity for Sandia's technological capabilities. "We're in an economic war," he said, "and while the Cold War was an economic victory — the other side saw that it could not afford to continue — the economic contest is actually intensifying. It has political and social dimensions, certainly, but the technological dimension is central. To be competitive, our nation must keep pace technologically. And that's where we fit in."

Al noted that Sandia continues to have an "awesome responsibility" for nuclear weapons. Even though it's not clear how many weapons there will be in the US stockpile, weapons of mass destruction — including chemical and others —

are proliferating in the world, and nuclear weapons will continue to have some role in US security.

In meeting the future and carrying out its mission, Al said, there are three keys: strategic planning, a focus on customers, and an emphasis on science and technology.

"Planning and replanning go on constantly. In a dynamic world, our direction is never set permanently, yet at any given time we have to know where to point the rudder. And as part of that planning, we have to understand what our competitors are good at, so we can decide what we need to be good at — we can't do everything." Sandia also must exercise political sensitivity, he said; not playing politics, but being respectful of political positions and mindful of political forces in the nation.

Breaking Taboos

The customer focus, Al said, involves two words that have been "all but taboo" in the Labs' history: marketing and competition. "We have to understand what marketing means for us," he said. "We're not just trying to sell products or services. We help customers define their needs, and we offer our solutions, produced by teams that may be just from Sandia or may include others. And that inclusion of others is part of our approach to competitiveness. Competition motivates excellence — it helps keep us sharp. But without cooperation, competition becomes destructive. While cooperating, we prefer to lead — as should our competitors. We compete for leadership while cooperating and teaming with others."

Sandia's basic job in science and technology, Al continued, is to innovate. "Doing research and advanced development is a way to help keep us in front and offer solutions to customers. Not everything we offer customers is or should be innovative, but much is."

The Labs' core competencies are the areas where Sandia invests its resources to stay strong in science and technology. "The core competencies aren't our purpose in themselves," Al said, "but our excellence in these areas supports our ability to

"Competition motivates excellence.... But without cooperation, competition becomes destructive."

deliver for customers. Sandia has long been good at combining various levels of activity, from fundamental research to the development of products."

The core competencies also unify service to different customers, he said. "The same set of competencies supports our traditional mission in nuclear weapons and our work for other customers. Conversely, our variety of customers helps support the core competencies required for our basic mission. We've maintained cohesion by attending to this set of fundamental technical strengths."

Teaming For Competitiveness' Sake

Newly emerging mission areas may continue to be largely government-funded, Al said, but government won't remain the near-exclusive customer as it is for weapons. "The emphasis now is to increase US competitiveness. In the past, we interacted with industry so that government could receive the products it needed — nuclear weapons being the prime example. Now, interaction with industry is a means for helping make our country more competitive economically."

These emerging areas — including advanced manufacturing technologies, improved transportation systems, more cost-effective health care, technical contributions to space missions, and a variety of technology transfer efforts — include areas where DOE does not have direct mission responsibility but can, through its national labs, contribute to national needs. Doing that without "turf battles" among government agencies requires unprecedented cooperation — which Al said is beginning

to be visible.

Major areas where Sandia is working to contribute to US global competitiveness have become the responsibility of specific Sandia managers: Dan Hartley (6000) for transportation, Gerry Yonas (9000) for space and health/biomedical technologies, and Heinz Schmitt (2000) for advanced manufacturing technology.

Advanced manufacturing technologies are the single most important key to US economic growth, Al said. "We can't be a nation that produces only services, and that fact is becoming more widely recognized. We have to manufacture products. Much of Sandia's past work fits into this national need. For instance, microelectronics and photonics, metal fabrication and joining, and composite materials would just begin a list."

In the other areas, Sandia's traditional work has varied from large to small when measured in dollar amounts, but has been significant in opportunities to make contributions. For each of the

Advanced manufacturing technologies are the single most important key to US economic growth.

areas, he said, a single person was needed to take responsibility for the programs that will cut across the Labs' various organizations, and thus came about the assignment of the named managers.

On the other side, in industry, the more than 100 cooperative R&D agreements that have come into being since mid-1991 are evidence that there's great interest, Al said. He noted that as these agreements are formed and work is done, important relationships develop between the Labs and industry.

"So, all in all, here's how I think we should see ourselves," Al concluded. "We can't be complacent, but we certainly have success stories to tell, and we have good reason to feel confident. We don't have a guaranteed future, but we're strong enough that we don't need guarantees. Our customers believe in us; we should believe in ourselves. If we work together, if we stay mindful of what Sandia is about, no one can match us. The opportunities are out there — let's seize them."

•CS

See related articles on page 6 about discussions of the Labs' strategic directions.

Take Note

The Educational Success Alliance, a network of community groups, has organized a conference titled "Educational Success: Teaming for Our Future" to be held Saturday, Sept. 12, from 8 a.m. to 1 p.m. at the Smith Brasher Hall Bldg. at Albuquerque T-VI (corner of University and Coal SE). Keynote speaker will be George Otero, a nationally recognized authority on education and family relationships and executive director of Las Palomas de Taos Educational Center. Conference workshops include "Eliminating Barriers through Communication" (in Spanish and English), "Conflict Resolution: A Winning Strategy," "Communicating with Parents and Young People," "Discipline with Dignity," "Personal Pride" (in Spanish), "Working the Systems to Benefit Your Child," and others. The conference is free, with free child care for children three years of age or older. To register, call Anis Johnson on 298-2124, Debra Baca on 831-6038, or RoseMarie Sanchez on 768-6059.

Welcome

Albuquerque — James Griego (7814), Nicholas Lendino (7812), Phillip Rivera (7615), Tommy Storks (7818). Other New Mexico — Patrick Jaramillo (7615), Christina Moya (7615), Robert Ulibarri (7615).

Elsewhere: California — Susan Hutton (122).

Excellence Through Accountability

1992 Fall Leadership Forum Will Revitalize Strategic Plan

Inviting Sandia's top management under the umbrella of a unified strategic vision is Labs President Al Narath's goal for this year's Fall Leadership Conference, now officially titled the "Sandia Leadership Forum."

During the annual conference, Sandia directors, vice presidents, and other Labs leaders meet at a location away from the tech areas to discuss various management issues and the future of the Labs with each other and with prominent customers. This year's conference takes place Sept. 15 through 18 in Santa Fe.

The conference's theme, "Living Our Strategic Plan," and slogan, "Excellence Through Accountability," underscore the personal commitment required by each Labs manager if Sandia is to succeed in meeting its challenges, says Bob Zaeh (7200), co-chair of the conference's planning committee.

"We want each manager to become personally accountable for overcoming the strategic challenges facing the Labs," he says. "The slogan could have been 'If it's gonna happen, we're gonna do it.'"

A Quality Confab

During planning of this year's conference, Bob says, suggestions from last year's participants were combined with recommendations from Sandia's

So What Did Managers Talk About at the Forum?

Following the 1992 Sandia Leadership Forum on Sept. 15 through 18, several of Sandia's sector and support programs VPs are scheduled to deliver their visions of the Labs' future to employees and report results of the four-day forum. VPs Gerry Yonas (9000), Roger Hagengruber (5000), Dan Hartley (6000), Paul Fleury (1000), and Paul Robinson (4000) are scheduled to speak.

Sessions at Sandia, Albuquerque take place in the Technology Transfer Center (Bldg. 825) on Sept. 28 and 29. Employees should attend sessions at the times listed below:

Dates, Times	Organizations
Sept. 28, 8:30 a.m.	1 through 600, 6000
Sept. 28, 10 a.m.	1000 through 1900, 2800
Sept. 28, 1 p.m.	2000 through 2700
Sept. 29, 8:30 a.m.	5000 through 5900 and 7000 through 7300
Sept. 29, 10 a.m.	7400 through 7900
Sept. 29, 1 p.m.	4000 through 4500 and 9000 through 9900

Sessions at Sandia, Livermore take place Sept. 30 in the Building 904 auditorium. Employees with last names beginning A through L should attend the 8:30 a.m. session; employees with last names beginning M through Z should attend the 10 a.m. session.

Take Note

The Vet H.E.L.P. Homeless Veteran Program will present two days of family entertainment on Saturday and Sunday, Oct. 17 and 18, at the NM State Fairgrounds to raise money for transitional and affordable housing for the homeless. The benefit includes veteran art exhibits, Native American veteran gourd dancers, mariachis, and family events. Vet H.E.L.P. was organized as a non-profit organization in October 1991. For more information, contact director Ernest Gagnon on 842-5155 or Ray Duran (7435) on 265-7809.

Got a Strategic Question? Let Your Director Know

In past years, the annual Fall Leadership Conference has been primarily a management event, during which Sandia's top managers gather to discuss business plans for the next fiscal year. This year, the Sandia Leadership Forum is intended as only one element of a Labs-wide campaign to share these business plans with employees.

As part of the overall campaign, Labs President Al Narath recently held a series of town meetings to share management's strategic vision with employees (see story on page one). Gerry Esch (7101), communications coordinator for the conference, says he hopes the meetings have encouraged employees to think about strategic planning issues.

"Managers will have several opportunities during the leadership forum to discuss concerns brought to them by their employees," says Gerry. "Employees who have specific questions and concerns can relay them to their directors before the conference."

In addition to the dialogue sessions, VPs are scheduled to hold sector meetings with employees later this month (see box). These meetings are meant to communicate Sandia's strategic vision to employees, particularly concerning the results of the Sandia Leadership Forum. Center directors are also being encouraged to share what they learn at the conference with their employees.

top managers and incorporated into the conference's structure, along with other considerations, such as current status and anticipated directions for the Laboratories.

"Participants last year overwhelmingly named corporate quality awareness as a major component of the success of that conference," he says. "Everything we do at this year's conference will reinforce the value of quality."

Many participants suggested that the conference provide more information about the Malcolm Baldrige National Quality Award methodology. As a result, daily activities at this year's conference will coincide with seven major criteria of the Baldrige Award. For example, Tuesday's activities will include presentations about leadership skills in a changing environment, and Wednesday's events will focus on strategic quality planning.

Now Featuring Customers

Labs customers will again be featured attractions at this year's conference. Visitors will include Linda Stuntz, Deputy Secretary of Energy, who will discuss strategic directions; Kathleen Carlson, DOE Kirtland Area Office Manager, who will discuss interactions between DOE and Sandia; and Bill Garcia, Secretary of Economic Development for New Mexico and member of

Gov. Bruce King's cabinet, who will discuss Sandia's economic impact on the state.

Another recommendation made by last year's conference participants was to maximize the opportunities for networking at the conference. "It's important for Labs leaders to get together and share ideas," says Bob. "Networking can help managers understand the strengths of their peers and solve cross-organizational problems." Several group discussions have been scheduled, and a Tuesday night dinner has been planned for participants to get to know each other better.

Participants in this year's conference will also hear about some outstanding employee contributions. At a Thursday evening dinner, employee groups that have helped establish new ways of doing business and satisfying customers during the last few years will be highlighted. "This kind of recognition ties directly into our corporate values, particularly the values of respect for the individual and teamwork," says Bob.

Bob says the planning team hopes to achieve several key objectives at the conference. "Better awareness of our sector business plans and our core competencies is at the top of our list," says Bob. "We will also reinforce the importance of customer satisfaction and understand that we can achieve excellence only through people." ●JG



NEW COMMANDER — Brig. Gen. Leonard Miller (right), who assumed command of the Field Command Defense Nuclear Agency this summer, confers with Executive VP Orval Jones during a recent visit to the Labs. Gen. Miller was briefed on work Sandia is doing in various defense programs, the nuclear stockpile, and nuclear safety.

Time to Review and Renew

National Quality Month Filled with Quantity and Quality

Sandia will join companies and other organizations across the country observing National Quality Month in October, to review progress made during the past year and renew its commitment to Total Quality Management (TQM) for 1993.

Allison Kane of Quality Tools Dept. 4311, chairman of the Labs' National Quality Month Committee, says a full slate of activities and speakers are scheduled for the month, including the chief executives of some of the world's leading companies.

"This is our annual public awareness campaign, and all our speakers and programs will focus on the need for, as well as the importance of, quality improvement in all Labs organizations," says Allison.

Quality Month was first observed in 1984, as the result of a joint resolution by Congress and a proclamation by President Reagan.

This year's edition will begin Oct. 1 with a program beamed by satellite to locations across the country, featuring a keynote address by Edwin Artzt, chairman and CEO of Proctor & Gamble, and chairman of National Quality Month 1992.

National Quality Leader

The program will be presented in the Technology Transfer Center (TTC) at Sandia, Albuquerque, and in Building 904 at Sandia, Livermore.

"We hope the month's activities will help broaden Sandians' understanding of quality and push all of us along the way toward our goal of making the Labs a national leader in quality," says Allison.

President Al Narath, who set Sandia on the TQM path, says there are many components in quality processes at the Labs, but that perhaps foremost is the need to satisfy customers' requirements and expectations.

"We must not only satisfy our customers' requirements," says Al, "but we must also understand their needs, as well as how their expectations influence their perception of quality."

Sandia events scheduled during Quality Month include:

- The Quality Forum VIII kickoff, Albuquerque TTC, 8 to 11 a.m., Oct. 1; Livermore Building 904, tape delay, 1 to 4 p.m., Oct. 2; among other things, addresses by Artzt, Wal-Mart President and CEO David Glass, Xerox Canada

Chairman David McCamus, and Ernst & Young Chairman Ray Groves.

- Quality Tools Forum '92, Aahames Activity Center, Livermore, Calif., Oct. 5 through 7; speakers and workshops.

- "Union Understanding of TQM — A Must," TTC, 10 to 11:30 a.m., Oct. 12; colloquium by Joseph Sensenbrenner, former mayor, Madison, Wis.

- "Successes in a New Culture," Building 822 Conference Room, 8 a.m. to noon, Oct. 15; presentations by Sandia employees.

- "Creative Problem Solving and Continuous Improvement," TTC, 8:30 to 11:30 a.m., Oct. 20; colloquium by Chic Thompson, founder and president of Creative Management Group.

- AT&T Quality Conference, TTC, time to be determined, Oct. 22 through 23.

- "Successes in a New Culture," Building 822 Conference Room, 9 to 11 a.m., Oct. 26; presentations by Sandia employees involved in the Quality Action Request process.

- "Quality — You've Got To Believe It to See It," TTC, 10 to 11:30 a.m., Oct. 29; colloquium by Ed Gus, member of the federal Senior Executive

Service currently serving at the Federal Quality Institute.

Fun Event Planned

"There's also an event we think Sandians will have fun entering," Allison says. "It's called 'Visualizing Quality' and will take place in tandem with Family Day on Saturday, Oct. 17. Employees and their families can participate by drawing their vision of quality on an 8-1/2 by 11-inch sheet of paper or coloring one of the line drawings in the National Quality Month '92 poster."

She says the line drawings to be colored are available from center quality coordinators. Drawings and colorings, including names and employee organization numbers, must be turned in to employees' respective center quality coordinators by Oct. 9 and will be posted in work areas for viewing on Family Day.

Allison says the first 200 entries will receive a Quality First stadium cup.

Further details on National Quality Month will be announced as they are developed. ●HK

feed back

Q: I understand the policy on level increases has changed and they are now being added to base salary. When did this policy take effect? Also, why wasn't this change communicated to managers? How can managers effectively motivate their staffs when they are not aware of basic personnel policy changes?

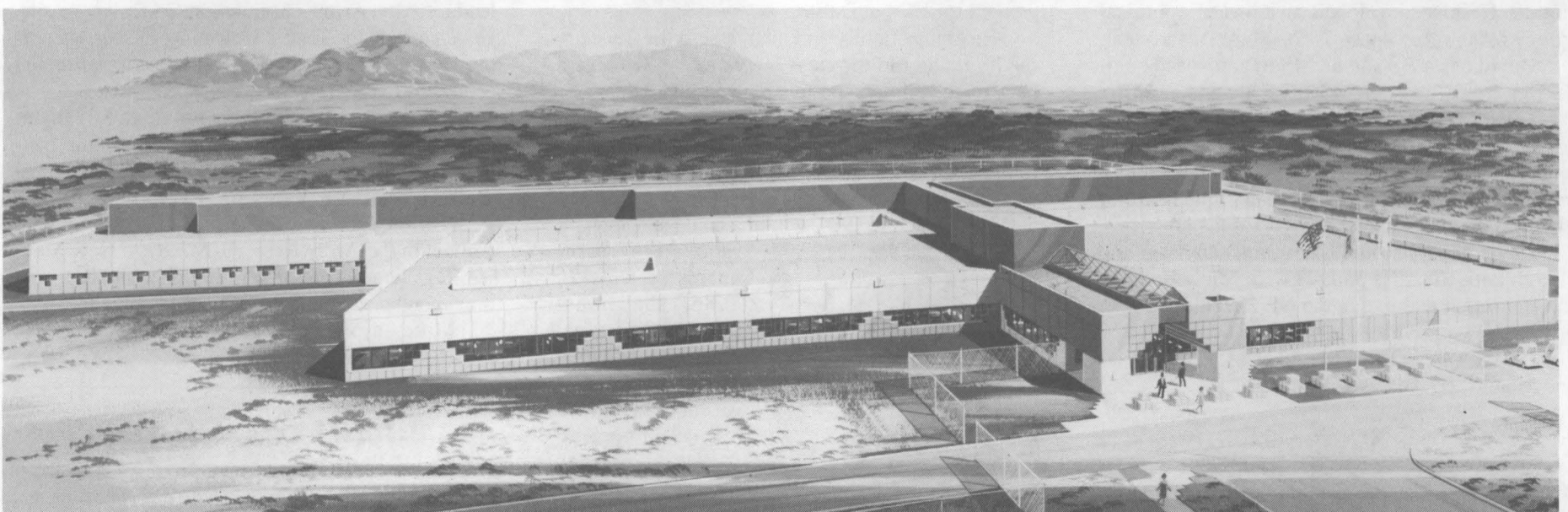
A: In July 1991, Compensation proposed a policy change and a transition schedule moving to the use of base salary increases to recognize advancements within the MLS structure rather than lump sum awards. The transition schedule called for an Oct. 1, 1991 effective date in order to provide appropriate forewarning about the change in rules. At the time of the policy decision, there were three announcements scheduled: one on Aug. 1 and two on Oct. 1.

Staff from the Compensation Department met with VP assistants, director assistants, and personnel reps on July 23; the agenda included

announcement and discussion of the policy change and the effective date so that pending actions could be altered, as appropriate. On Aug. 1, 1991, Compensation distributed a memo to all VP assistants, director assistants, and personnel reps restating the policy change and the effective date, and on Oct. 1, the annual "Promotion Increases, Salary Minimums, and Advancement Awards" memo was distributed to all management (division supervisors and up) and to all administrative assistants and personnel reps. The promotion increase memo included a table reflecting base increase amounts by level.

The policy change was effected at the start of a new fiscal year, and the transition provided for both notification of the change and some lead time prior to implementation of the policy.

Ralph Bonner (7500)



MANY OLD FACILITIES in Tech Area 2 will be phased out when this new Explosive Components Facility (ECF) is occupied in 1995. Several DOE officials and Sandians will participate in the Sept. 10 groundbreaking ceremony at the site located northeast of Area 2. Lloyd Bonzon, Manager of Explosive Projects and Diagnostics Dept. 2514, says the 91,000-square-foot ECF will contain both office and laboratory space. The explosive-component testing area will contain seven test firing bays and two walk-in test fire chambers for explosives testing, chemical and physical testing labs, propellant and pyrotechnic areas, a battery testing area, a neutron-generator testing area, and other special facilities. The building

will be used by four Sandia technology groups: Explosive Technologies and Components, Neutronic Components, Power Sources, and Weapons Evaluation. The Explosive Components Facility has been designed with a heavy emphasis on advanced components activities and advanced diagnostic systems to support component development for the nuclear weapon program. As production agency consolidation occurs, Lloyd explains, the facility will take on an increasingly important role in maintaining technologies important to weapon systems and in doing R&D on explosive components in cooperation with firms that will be involved in manufacturing and supplying them.

Supervisory Appointments

THOMAS EVANS to Manager of Digital Subsystems Test Equipment Dept. 2313.

Tom joined the Labs in 1962 as a member of the Environmental Test Division, where he was a test and instrumentation technician at the drop tower facility. He transferred to the Quality Operations Department's East Coast Field Office in 1969 and did maintenance and calibration of test equipment. In 1971, he joined the Digital Subsystems Division as a design engineer. He was project leader of the Secure Cryptographic Unit and system manager of the Computer-Aided-Engineering network.

Tom joined the Advanced Weapon Systems Division in 1990 and was the W91 electrical systems engineer with PAL (permissive action link) System responsibility and the project leader of a joint US/UK system study. He transferred to the Command and Control Department in 1992 and provided systems engineering support for a PAL controller.

Tom's degrees are in electrical engineering, an AS from Pennsylvania State University and a BS and MS from UNM.

He enjoys amateur radio, cross-country skiing, church activities, and auto mechanics. Tom and his wife Cindy live in the NE Heights and have two grown children.

DAVID KEESE to Manager of System Design and Engineering Dept. II 9812.

David joined Sandia in 1984 as a member of the Aerospace Projects Division. He has worked in aerospace engineering since coming to the Labs, including aerodynamic modeling and trajectory simulation of reentry vehicles and booster systems. Projects he's worked on include the Aerothermal Reentry Experiment, the Army Test Vehicle flight tests, and Mk11 sounding rocket flights. He also developed an upward appraisal survey for the Aerospace Technology Department.

David has a BS and an MS in aerospace engineering from Texas A&M University and an MBA from UNM. Before coming to Sandia, he worked for Exxon from 1977 to 1979 and did missionary work in the Philippines from 1981 to 1982. He is a member of the Ponderosa Christian Camp board of directors and is financial deacon for his church.

David enjoys softball, hunting, camping, and church activities. He and his wife Michelle have three children and live in the NE Heights.

JOHN TAYLOR to Manager of Verification and Monitoring Analysis Dept. 9241.

John joined Sandia in 1975 as a member of the Nuclear Safety Assessment Technology Division, evaluating risk in transporting radioactive material and in weapon accidents. He transferred to the Transportation Risk Assessment Division in 1979 and

continued evaluation of nuclear weapons and radioactive materials transportation issues as well as plutonium dispersal phenomenology.

In 1983, John joined the Arms Control and Verification Technology Division, evaluating proposals for cutoff of fissionable material production and for warhead dismantlement. He studied on-site inspection issues and evaluated Intermediate Range Nuclear Forces Treaty, Strategic Arms Reduction Treaty (START), and Chemical Weapon Convention verification. In 1990, he was named a Distinguished Member of Technical Staff.

John served as DOE liaison to the START delegation in 1990 and was DOE liaison to the State Department for the Gulf War cease-fire implementation in 1991.

He has a BS and MS in nuclear engineering from Stanford University. He served with the Navy and was reactor controls officer aboard the *USS Nautilus*.

John is an amateur historian, a state high school soccer official, and participates in church activities. He and his wife Lynn have four daughters and live in Peralta.

JERRY McDOWELL to Manager of System Design and Engineering Dept. 9811.

Jerry joined Sandia in 1979 as a member of the Exploratory Projects Division, where he analyzed reentry vehicle flight test data and developed algorithms/codes for parameter estimation and for predicting aerodynamic properties. He joined the Aeroballistic Projects Division in 1981 and did aerodynamics, flight mechanics, and mission planning and data analysis. He has been involved in numerous SWERVE (Sandia winged energetic reentry vehicle) tests. Among others, he was point of contact and lead payload range safety engineer for the SWERVE III flight test in 1985. He transferred to Advanced Systems Development Division IV in 1985 and was senior analyst and program manager for two SWERVE flights at Tonopah Test Range.

Jerry has a BS, MS, and PhD in aerospace engineering from the University of Texas. Before coming to Sandia, he was a co-op student at NASA's Johnson Space Center in Houston and worked for LTV in Dallas.

He enjoys family and church activities, soccer, reading, and old movies. Jerry and his wife Tara have three children and live in the NE Heights.

JENNIFER ECKWERT to Manager of Environmental Restoration Technology Dept. 6621.

Jennifer joined Sandia's Access Denial Technology Division in 1984, working on development of innovative safeguards systems. In 1986, she transferred to the Project Engineering Division and worked on nuclear command and control. From February 1988 through April 1990, she was on temporary assignment in Washington, representing Sandia on the Phase One Engineering Team that supports the Strategic Defense Initiative Organization. When Jennifer returned to Sandia, she continued work in the command and control area. She was leader of the Proof-of-Concept/Experimental Testbed project and was the Military Intelligence

Information Processing System team leader.

She has a BS in mechanical engineering from the University of Nebraska and an MS in mechanical engineering from Stanford University through Sandia's One-Year-On-Campus program. She was named a Distinguished Member of Technical Staff in 1992.

Jennifer enjoys skiing, tennis, and golf. She lives in the NE Heights.

REBECCA McCLAFIN to Manager of General Employment and Staffing Support Dept. 7533.

Becky joined Sandia's Secretarial Services organization in 1969 as a clerk-typist. She joined the Personnel Operations and Services Division in 1974. In 1981, she became an MLS trainee in the Accounting organization. Other groups that she's worked for include Systems and Appraisal, Procurement Systems Design, and Personnel Information Systems.

Becky has a BBA from the University of Albuquerque and an MBA from UNM. She is a member of Human Resource Systems Professionals.

She enjoys reading, gardening, and music. She has two children and lives in the NE Heights.

MICHAEL MUNDT to Manager of Programmers Dept. 2314.

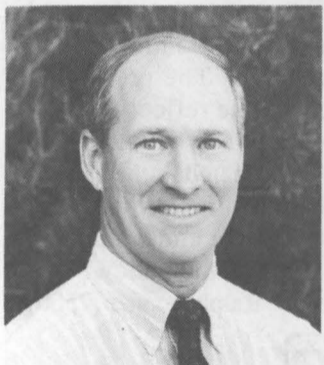
Mike joined Sandia in 1980 as a member of the Advanced Fuzing Development Division, where he did electrical fuze design for the Air Force MX missile. The division became the Trident II Arming, Fuzing, and Firing (AF&F) Design Division in 1982. Mike was a member of the system design team that managed advanced development and production of the AF&F for the Navy's Trident II submarine. In 1988, he joined the Advanced Fuzing Development Division and was fuzing system project leader for the Army's Follow-On-To-Lance missile. He returned to the Trident II Arming, Fuzing, and Firing Design Division in 1990 and developed fuzing proposals for alternative warhead candidates.

Mike has a BS from West Point, an MA in human resource management from Pepperdine University, and an MS in electrical engineering from the University of Wyoming. He served with the Army from 1969 to 1978, and is now a lieutenant colonel in the Army Reserve. Mike is a New Mexico Registered Professional Engineer and is a part-time member of the University of Phoenix faculty.

Mike enjoys flag football and running. He lives in Albuquerque. ●JC



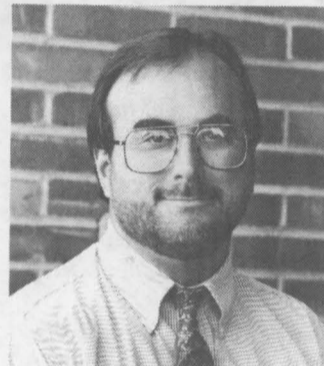
TOM EVANS



DAVID KEESE



JOHN TAYLOR



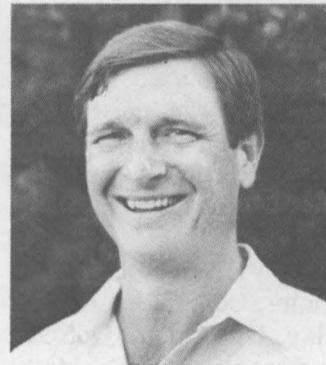
JERRY McDOWELL



JENNIFER ECKWERT



BECKY McCLAFIN



MIKE MUNDT

Fun & Games

Boating — The Coast Guard Auxiliary is again offering boating safety courses in both power boating and sailboating. Classes begin Sept. 15 and will be held Tuesdays at 7 p.m. at the Armed Forces Reserve Center (400 Wyoming NE). Both courses continue for approximately 13 weeks. Classes include information about marine engines, basic sailing, navigation, marlinspike training, and trailering. There is no charge for instruction, but there is a \$15 charge for the course text for the first member of a family only. Additional family members who attend pay \$5 for the worksheets. To register, call 897-1695 or 298-0116.

Sandia News Briefs

DOE Hosting Innovation Workshop in Albuquerque

An Albuquerque businesswoman whose company is marketing a product derived through a cooperative research and development agreement with Sandia will address a DOE innovation workshop in Albuquerque Sept. 18 and 19. Ioanna McNamara, founder and president of Permacharge, joins Professor Lowell Catlett of New Mexico State University; James Mueller, president and CEO of Controls for Environmental Pollution, of Santa Fe; and Gary Hickox, AT&T International Markets Group vice president. The workshop is designed to help inventors and other entrepreneurs get their ideas to the marketplace.

The workshop will be held at the Albuquerque Marriott Hotel.

Bingaman Amendment Hikes Funds for Lab-Industry Partnerships

The Senate has adopted an amendment written by Senator Jeff Bingaman and co-sponsored by Senator Pete Domenici adding \$25 million to its existing budget request for partnerships linking DOE labs and industry. The amendment pushed the Senate funding request to \$141 million, but the House version calls for \$91 million. The two bills are awaiting action by a Senate-House conference committee.

"The national laboratories in New Mexico have been aggressively seeking partnerships with industry in such areas as computers and electronics, and this amendment will give them the funding to make even more of these partnerships work," says Bingaman.

Domenici says government has a "responsibility to tap the expertise of our national laboratories to enhance the competitiveness of US industry."

Bingaman says the \$25 million increase in labs-industry partnership funding would be offset by a \$25 million reduction in production of nuclear materials.

Former Sandian Awarded '92 National Medal of Science

Stanford engineering professor Calvin Quate, who was Vice President for Research at Sandia in the late 1950s, has been awarded this year's National Medal of Science. Quate, who also is a senior research fellow at the Xerox Palo Alto Research Center, accepted his medal from President Bush in a White House ceremony earlier this summer. The other 1992 science medalists are Eugene Shoemaker of the US Geological Survey and John Whinnery of the University of California, Berkeley.

Quate invented the scanning acoustic microscope in 1973, and in 1986, together with Gerd Binnig and Christoph Gerber of IBM, introduced the atomic force microscope.

CRADA Could Improve US Role in Semiconductor Memory

Sandia and Radiant Technologies Inc., of Albuquerque, have signed a cooperative research and development agreement (CRADA) that should lead to a stronger US role in semiconductor memory and optical communications markets. The objective is to develop a new type of nondestructive readout nonvolatile semiconductor memory device that would be a key component of future military computing systems and commercial optical communication systems.

Every time nonvolatile memories are read, they have to be rewritten to their original state by a brief "destructive readout" that takes about a tenth of a microsecond. A single-event upset during that instant can permanently scramble the information, and the CRADA will team Sandia and Radiant Technologies in an effort to develop a nondestructive readout method to avoid that problem.

Bruce Tuttle of Glass and Electronic Ceramics Properties Dept. 1845 says much of the work on the project will take place in the new University of New Mexico Advanced Materials Laboratory in Albuquerque, where UNM, Sandia, and Los Alamos National Lab researchers are working along with industry researchers. This new facility was dedicated in late August (LAB NEWS, Aug. 21).

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



BLAZE BUSTERS — Mary Gilliland (1341) extinguishes a flammable liquid fire under contractor Ramon Maldonado's tutelage. The instruction is part of an ongoing fire extinguisher training program being conducted by Fire Protection Engineering in Safety and Environmental Engineering Dept. 7734. The program includes hands-on fire extinguisher training for all security inspectors, building fire teams, maintenance and custodial employees, and other Sandians who work with hazards such as flammable liquids. Carlos Trujillo (contractor) says the one-hour, hands-on training sessions supplement the fire training film viewed annually by employees. Comments and suggestions about the training are welcome; Sandians may call 4-8416.

this month in the past...

Sandia LAB NEWS

40 years ago . . . Albuquerque Sandians sing the "Orange Barrel Blues" a lot these days, but employees living to the west of Kirtland AFB in '52 also had traffic troubles. A major project was under way to widen Gibson Ave. into a four-lane divided street. "Hot Lips" Henry Busse and his orchestra were the featured attraction at a special Sunday night Coronado Club appearance.

30 years ago . . . Sandia's Tonopah Test Range had its first-ever Family Day, showing off its rocket launch complex, tracking telescope, "radar hill," and other facilities. Long-distance stories from Gramps: Sandian Joe Ozmina, who died this spring, could have been an inspiration for the "books on tape" that have become popular recently. Joe was featured in a LAB NEWS story that told how he used a new personal "business machine" to record bedtime stories on tape — actually a plastic belt back then — and sent them to his grandchildren in Salt Lake City. The parents cued up grandpa's stories on a similar machine at their house.

20 years ago . . . After nearly six years at the Sandia helm, President John Hornbeck (now deceased) left at the end of September 1972, turning the duties over to Morgan Sparks, now retired and living in Albuquerque. Morgan was president of the Labs longer than anyone else so far, nearly nine years (until July 1981). The approximately two dozen Sandians working at the Pantex nuclear ordnance plant in Amarillo, Tex., were featured in a LAB NEWS story. About the same number of Sandians work there today — the folks in Stockpile Evaluation Dept. IV (Org. 364).

10 years ago . . . The environmental impact from Sandia, Livermore's operations was declared well within federal guidelines in a 3.5-pound Environmental Impact Statement that also covered Lawrence Livermore National Lab.

Earnings Factors June 1992

Long-Term Savings Plan for Management Employees (LTSPME)	Earnings Factors
AT&T Shares	1.0194
Government Obligations	1.0121
Equity Portfolio	.9805
Guaranteed Interest Fund	1.0065
South Africa Restricted Fund	.9786
Long-Term Savings and Security Plan (LTSSP)	
AT&T Shares	1.0195
Guaranteed Interest Fund	1.0065
South Africa Restricted Fund	.9787
Equity Portfolio	.9805
Employer Stock Fund	1.0196

Congratulations

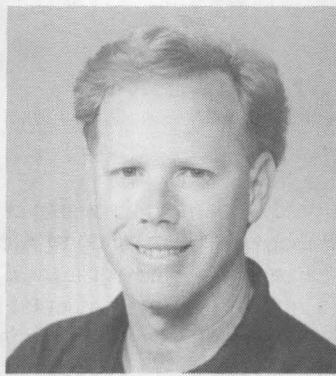
To Lorie and Mark (7614) Crawford, a son, Cody Robert, June 10.

To Mary Beth and Ken (1332) Hughes, a daughter, Krista Lynn, Aug. 5.

MILEPOSTS

LAB NEWS

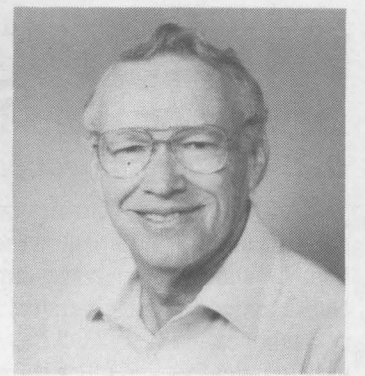
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Don Kasberg
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Donald Hinman
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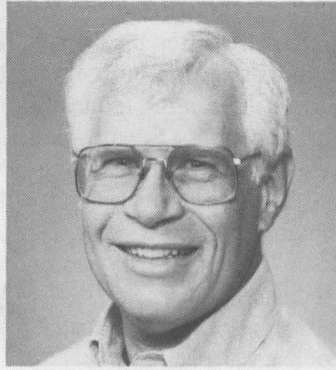
Ray Rychnovsky
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Angie Gurule
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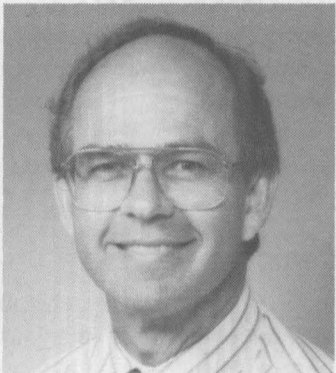
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Larry Borello
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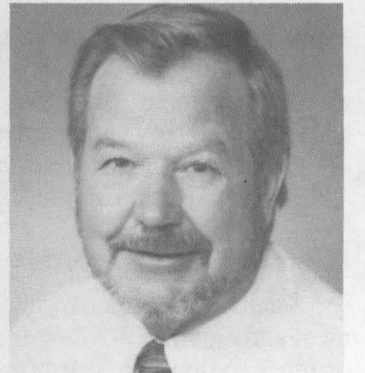
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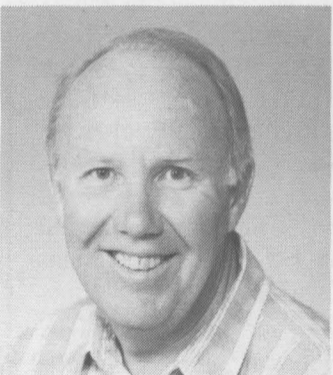
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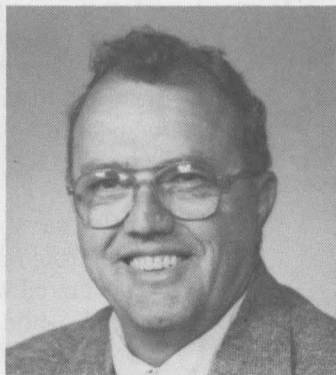
Ernest Padilla
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Larry Humphreys
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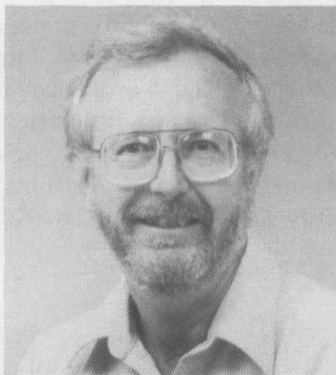
Rod Nissen
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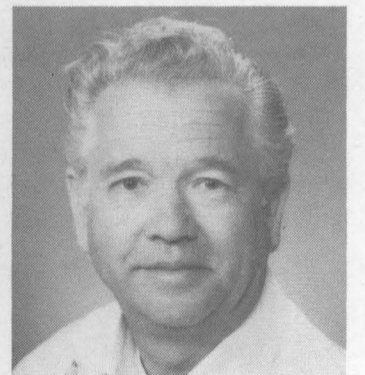
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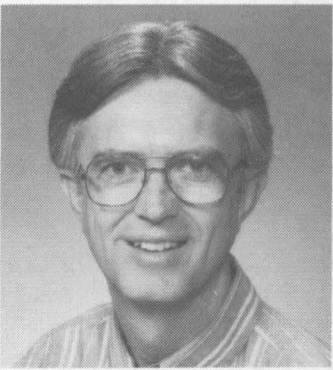
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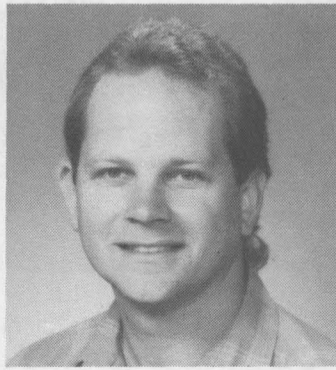
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Lou Wittkopp
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Charles Ray
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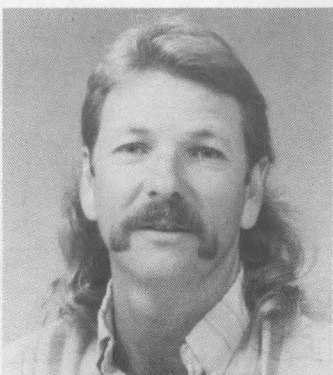
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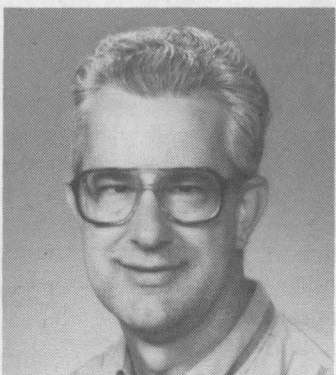
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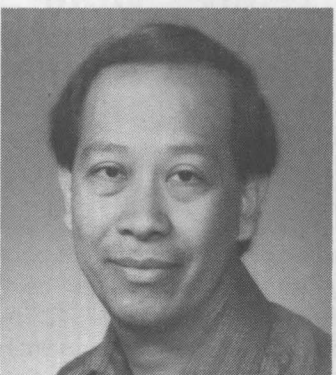
Andrew Wilken
9811 35



Robert Aragon
7812 20



Steve Schwegel
8271 25



Robert Chan
8451 20

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

NEW-STYLE CAPS & T-SHIRTS w/Sandia logo now in stock, \$8; cups, \$7; pocket knives, \$10. So. 14 Village Project, LAB NEWS, Bldg. 814.

JVC TURNTABLE, cassette, & equalizer; Sherwood cassette; Graco stroll-a-bed & playpen; light fixtures; smoker grill; car seat; portable typewriter. Kruse, 881-4169.

LEATHER CHAIR & FOOTSTOOL, cream color, \$75; oak book cabinet w/glass doors, \$200. Olbin, 275-2681.

RV GENERATOR, Onan 4KW, low hours, 90-day guarantee, \$1,100. Lee, 281-5496.

FULL-SIZE SOMMA MATTRESS, box spring, & bed frame. Bernhard, 299-6597.

JASON TELESCOPE, 280X, astronomical, \$50; LXI stereo, AM/FM cassette, turntable, speakers (28 x 12), album rack, \$100; bunk beds, \$90. Ewen, 836-3563 after 9 p.m.

FEATHER COMFORTER/SLEEPER, soft & fluffy, never used, excellent condition, originally \$120, sell for \$59. Stephens, 766-6674.

THIRD SEAT FOR 245 VOLVO STATION WAGON, fits all years, excellent condition, \$250. Clevenger, 821-0046.

CHILDCRAFT WHITE CRIB, w/Evenflo mattress, used only 1-1/2 mos., \$200 OBO. Parma, 296-7959.

ANTIQUES: unique handcarved & inlaid Italian dresser, 5-ft. high, \$750; handcarved 4-poster double bed, \$250; oak Bentwood rocker, \$25; desk, \$10. Garrity, 275-3044.

LUGGAGE RACK, fits any size car, \$20; electric adding machine, 10-key, excellent condition, \$20. Anderson, 897-2772.

PICNIC HAMPER, by Royal Ascot, w/silverware, mugs, china plates, thermoses, & several containers, excellent condition. Wagner, 823-9323.

DP FITNESS BENCH & WEIGHTS, heavy-duty laundry rack, golf bag, Priscilla curtains, ironing board, portable fan. Branstetter, 292-5978.

WASHER & DRYER, 2 yrs. old, \$350; speakers & stereo cabinet; 20-piece stoneware set, new. Freshour, 296-3114.

ROCKING CHAIR; mini-blinds, two 55" x 54" & two 70" x 54"; wrought-iron plant stand & candle holder. Holland, 268-6475.

COCKER SPANIEL, buff-colored, 6 yrs. old, neutered, free to good home that can provide lots of love & attention. Wichhart, 898-9711.

SOFA, \$50; bed & new mattress, \$100; lawn mower, \$125; Magnavox TV, 25-in., \$350; washer, \$85; dryer, \$125. Record, 243-5103.

SEARS REFRIGERATOR, 17 cu. ft. (14.1-cu.-ft. refrigerator & 3-cu.-ft. top freezer), w/ice maker, auto defrost, \$230. Hale, 298-1545.

SOFA SLEEPER, brown & tan pattern, \$100; executive desk, w/chair, \$75. Henderson, 292-8574.

AMANA REFRIGERATOR, side-by-side, Model SD125, \$200. Clark, 857-0434.

2-MB 256K SIMMs, \$20/MB; Paradise EGA adapter. Hilts, 275-1758.

CONVERTIBLE CRIB/TWIN BED & chest, \$300 OBO; platform twin bed w/headboard, \$10 (no mattress); electric stove, white, works well, \$75 OBO. Ghanbari, 883-3819.

TRAM PASS for 4 persons, Sept. 5. Montoya, 296-0454.

EXERCISE MACHINE, 240-lb. weights, \$575 OBO; Fisher car seat, excellent condition, \$40. Cibicki, 877-7098.

BEDROOM FURNITURE, young person, 3-drawer desk, w/padded chair, matching shelves, matching trundle (2 double beds) bed, w/pad. Gutierrez, 821-8476.

BEIGE RECLINER, \$75; various tools. Coulter, 266-0305.

PET KENNEL/CAGE for large dog or whatever, sold in most pet stores for about \$80, will sell for \$35. Jones, 296-3998.

TWO BERKLINE WALL-AWAY CHAIRS, \$75/ea.; stationary bike, \$65; framed Japanese print, make offer. Krahling, 268-8126.

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

SLIDING GLASS DOORS, 6-ft. & 12-ft., Hurd, used, metal-clad, 1-in. insulating glass (95% UV blockage, R=4.05). Brodie, 836-6977.

BOY'S SOCCER SHOES, Patrick, size 1, worn only 5 times for about 1 hour, new \$35, sell for \$20 firm. Warner, 294-2639.

AMANA MICROWAVE OVEN, mid-size, 10 power levels, push-button, good condition, \$90. Tempel, 828-1218.

TWIN-SIZE MURPHY BED FRAME (pull out of the wall), \$50; twin spring, \$35; 4 oak kitchen chairs, \$15/ea.; downhill skis (185), \$20. Kallio, 299-8837.

PURPLE LEATHER SUEDE JACKET, worn once, size small in ladies, \$250 value, asking \$85. Ponce, 842-8970.

MAMIYA 1.2F 35mm CAMERA, Vivitar 2600 flash, \$125; London Fog trench coat, 42 reg., new, never used, \$110 OBO. Garcia, 888-4735.

WHIRLPOOL FREEZER, 20 cu. ft., \$125; microwave, \$100; student cello, \$300. Bordemay, 883-4926.

SATELLITE DISH, 3-meter, & receiver, best offer; Coleman generator, 800W, \$200. Malpas, 294-2667.

MATTRESS SET, queen, w/frame, SleepAire support, \$145; 2 end tables, 1 long oriental sofa table, new, \$180. Treadwell, 884-4221.

CHILDCRAFT CRIB/N'BED, converts between crib & bed, honey oak, excellent condition, originally \$650, sell for \$350 OBO. Reno, 296-6290 after Sept. 7.

VACUUM, waterbed, microwave, jewelry, Walkmans, & other misc. items. Scouten, 255-2391.

TREADMILL, vacuum, La-Z-Boys, Amana chest freezer, Lowrey Holiday organ, 2 keyboards. Walker, 821-5938.

COMPUTER, 286/12MHz, 640KB, 40MB drive, 3.5 & 5.25 floppies, color VGA monitor, IP/2S/1 game port, Microsoft Works, \$690. Holloway, 296-6354.

WEST HIGHLAND TERRIER, AKC-registered, neutered male, housebroken, good w/older children, needs at-home master/mistress, very active, free to good home. Schulz, 292-0686.

RIDGEWAY CHILD CARRIER, \$75. Dodd, 293-3404.

COMPLETE NINTENDO SYSTEM, w/9 games, \$175. Jansma, 294-3524.

HIMALAYAN SEAL POINT, lovable & disciplined, born Aug. 1984, declawed and neutered, good health, free to good home. Brown, 839-4185.

BLACK LABRADOR, AKC-registered, female, 1 yr. old, \$150. Jiron, 1-864-3271 after 5 p.m.

CAL-KING FUTON MATTRESS, 6' x 7', excellent condition, cost \$200, sell for \$100. Jennings, 255-5950.

ROLLER SKATES, high-top, white leather w/pink wheels & laces, size 6. Shortencarier, 293-8053.

FLOTATION MATTRESS, Somma Supreme, queen-size, excellent condition, \$200 OBO. Rivera, 892-3236.

RUGS & PADS, 6-1/2' x 12', brown, \$70; 9-1/2' x 12', peach, \$80; 4 yellow & white kitchen chairs, portable evaporative cooler. Layne, 857-0989.

AUTO SERVICE MANUALS, for '86 Honda Civics & '78 through '81 Toyota Cressidas. Roady, 299-6084.

DYNASTAR SKIS, 180cm, S637 bindings, w/poles, \$125; front door, 36" x 80", \$40; 2 louver doors, each 18" x 80", \$15; ImageWriter II printer, \$300. Rosinski, 823-1805.

SNARE DRUM, w/case, electric metronome. Douglas. 281-9843.

COMPONENT STEREO, \$300; 4-drawer chest of drawers, \$35; girl's roller skates, w/case, size 5, \$25. Dandini, 296-4975.

**Feeling Rejected?
Please Follow the Rules**

Some "unclassified ads" are rejected because they do not meet requirements. LAB NEWS staff members do not have time to call people who submit ads, so non-qualifying ads are rejected *without notice*. The most common reason for rejected ads is that Sandians do not list their full names and organization numbers; this information is not printed, but it is necessary to verify that the ad was submitted by a Sandian. The rules are printed at the top of this page in each issue, and Sandians are encouraged to clip and save a copy.

CHAIR PADS (6), colonial blue; brown rocking chair pad; Trichem craft paints, variety of colors. Lamppa, 299-1119.

GARAGE SALE: Saturday, Sept. 12, 7 a.m.-4 p.m., children's winter clothes & coats, hundreds of record albums, video camera/VCR, more. Schofield, 292-7220.

EARLY AMERICAN TABLE & 4 captain's chairs, table is 42-in. diameter, has mar-resistant top, \$250/set. Love, 271-9970.

GUN CABINET, glass door, storage area, lockable, holds 6 guns, \$100. Prew, 296-3815.

SOLOFLEX WEIGHT MACHINE, \$850; folding ping-pong table, new \$150, sell for \$85; king-size print bedspread, \$85. Biffle, 293-7043.

BORDER BRICKS, 25¢/ea.; kitchen table & chairs, \$50; Yamaha single CD player, \$100; daybed, \$25. Stannish, 821-0914.

TWIN BED FOUNDATION, Sealey, hardly used, \$20. Kiefer, 296-2331.

'78-'79 PONTIAC GRAND PRIX PARTS, side windows, trunk lid, bumpers, 400-cu. 350 engine, AT, rear end, make offer. Armijo, 255-1985.

SMITH & WESSON, 44-mag., 4-in. barrel, w/extras, \$350. Myers, 281-1137.

TRANSPORTATION

CANOE, 15-ft. Coleman, 3 jacket/vests, paddle, car rack carrier, \$450. Ewen, 836-3563 after 9 p.m.

BOY'S BMX BICYCLE, 20-in., excellent condition, \$30. Clevenger, 821-0046.

'86 DODGE CARAVAN LE, one owner, 2.6L 4-cyl. engine, AC, AT, cruise, tape, 110K miles, but looks & runs great. Carlson, 897-1850.

'89 GMC JIMMY S-15, Sierra Classic

pkg., 4.3L, EFI, 58K miles, excellent condition, below book at \$10,500. Lyons, 281-9283.

'91 HONDA CIVIC DX, 4-dr. sedan, white, 10K miles, 5-spd., blue interior, \$10,900 OBO; woman's Mongoose mountain bike, ridden once, red. Garrity, 275-3044.

'85 FORD F-150, SWB, 6-cyl., AT, AC, PS, PB, cruise, AM/FM cassette, camper shell, carpet kit, 75K miles, \$5,500. Torres, 898-2641.

'73 GRAND TORINO FORD RANCHERO, camper shell, reverse chrome rims, body, glass, & upholstery in good condition, no engine, \$800. Gallegos, 247-9284 after 5 p.m.

YAMAHA RD350, fresh rebuild, \$450. Clancy, 266-0190.

'86 SUZUKI RM250 DIRT BIKE, good condition, stored inside, \$1,000. Schaub, 256-0880.

'86-1/2 NISSAN PICKUP SE, V-6, blue, 5-spd., AC, 56K miles, AM/FM cassette, insulated shell, full carpet kit, excellent condition, \$7,500. Steinborn, 296-2181.

'91 SUZUKI GSXR750 MOTORCYCLE, 3,800 miles, excellent condition, \$5,500 OBO. Stanley, 255-3083.

'76 FORD VAN, LWB, 351 engine, AT, runs well, partially set up for camping (convertible), \$1,500 OBO. Schulze, 897-2974.

MAN'S 10-SPD. BIKE, Sears "Free Spirit," maroon, 26-in., good condition, several yrs. old, \$35. Collier, 299-0182.

'81 OLDS CUTLASS SUPREME, 2-dr., AT, 6-cyl., burgundy over white, good engine, needs detailing, \$1,200. Wagner, 275-2010.

'86 HYUNDAI EXCEL GLS, AT, sunroof, new tires, AM/FM cassette, great school car, \$2,200 OBO. Cordova, 864-8982.

'85 HONDA CIVIC STATION WAGON, single owner car, in excellent condition, approx. 60K miles, \$3,450. Jones, 296-3998.

'85 DODGE CARAVAN SE, low miles, 4-cyl., new tires, cruise, PS, PB, AT, AC, \$5,000. Sanchez, 292-1982.

'73 INTERNATIONAL TRAVELALL, 392, tow pkg., boat loader, excellent condition, \$1,600 OBO. Hayes, 299-1200.

MOUNTAIN BIKES: Trek 800, 15-in., \$200; Trek 830, 18-in., \$250; both good shape, older Peugeot 10-spd., \$80. Kovacic, 256-9867.

'69 GMC 1/2-TON PICKUP, LWB, insulated shell, extras, very good condition, \$2,500. Malpas, 294-2667.

TOURING BICYCLE, Univega Model 934, 25-in., 12-spd., owner's manual, excellent condition, \$120. Treadwell, 884-4221.

'78 BMW R100/7, excellent, one owner, Tourer w/Vetter fairing, lowers & bags, \$2,000. Bland, 265-6286.

'84 TOYOTA CELICA GT, 5-spd., AC, tilt, cruise, EC, beige/tan, many new parts, \$2,900. Baca, 271-2962.

'90 FORD XLT LARIAT F-150, blue, AT, V-8, fully loaded, 4-WD, bed liner, always garaged, 1,300 miles. Green, 898-3791.

'86 NISSAN 300ZX, T-tops, 5-spd., AC, PW, PL, cruise, alarm, 88K miles, new paint, \$6,995. Irwin, 296-8418.

'85 CHEV. S10, 1.4-liter, 4-spd., camper, AM/FM, rebuilt engine, newly painted, utility boxes, excellent condition, \$3,250. Barker, 831-5055.

'88 JEEP CHEROKEE, 4-WD, 4.0-liter, 57K miles, excellent condition, PS, AC, AT, loaded, white, \$9,700. Wiseman, 292-2827.

MOUNTAIN BAT KAYAK, includes flotation, spray skirt, paddle, \$550. Dodd, 293-3404.

BICYCLE. Branstetter, 292-5978.

MAN'S 10-SPD. BIKE. Kruse, 881-4169.

GIRL'S 20-IN. BIKE, \$45. Hilts, 275-1758.

'85 HONDA PRELUDE, 2-dr., 5-spd., AC, stereo, low, low miles, extras, only \$5,500. Myers, 292-3672.

'76 CHEV. LUV, w/camper shell,

90K miles, \$1,000 OBO. Langkopf, 293-4076.

'88 FORD TAURUS STATION WAGON, 3.6-liter V-6, 61K miles, fully loaded, AC, third seat, excellent condition, \$8,500. Sanger, 828-1678.

'78 OLDS CUTLASS SUPREME, 2-dr., small V-8, AT, AC, excellent condition, clean & dependable, \$950. Benson, 299-3315.

'88 CHEV. PICKUP, 1/2-ton, step-side, Silverado, AC, AT, 350 V-8, towing pkg., tilt, cruise, AM/FM cassette, 43K miles, \$8,900 OBO. Jackson, 281-8927.

'88 MERCURY SABLE, white, PS, PL, cruise, tinted windows, 61K miles, \$6,000. Claghorn, 884-4483.

'79 CHEVETTE, 4-spd., 4-door hatch, cloth seats, good condition, one owner, great student car, \$800. Davidson, 294-4571.

'80 CUTLASS 4-DR. SEDAN, diesel engine, AT, needs work, \$700 OBO. Armijo, 255-1985.

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

REAL ESTATE

2-BDR. TOWNHOUSE, far NE Heights, 1-1/2 baths, fully landscaped, auto sprinklers, security alarm, east deck over double garage, \$86,500. Martinez, 822-8985.

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

170 ACRES, 25 min. east of Albuquerque, fenced, beautiful views, meadows, trees, close to water & power. Curro, 867-2471.

3-BDR. HOME, 1-3/4 baths, 2-car, patio, clubhouse, woodstove, solar, huge landscaped yard, reduced for quick sale, near Tramway/Copper, \$80,000. Apodaca, 294-5525.

MOBILE HOME, 10' x 50', set up in NE Heights park, w/axles & wheels, \$2,600. Sundberg, 281-1199.

6-BDR. MULTI-LEVEL HOME, 3,750 sq. ft., living room, dining room, den, basement "rec" room, custom quality, spacious rooms, 7417 Aztec NE, \$179,000. Kane, 884-5090.

WANTED

BARBIE DOLLS, 1960s-1970s, top prices paid. Smith, 294-3413.

ROOMMATE to share 2-bdr., 2-bath house w/big yard & 2-car garage, \$300/mo. plus 1/2 utilities. Garrity, 275-3044.

CB SETS for use by Central NM Audubon Society, donated if possible. Carrick, 266-0191.

EGA OR VGA MONITOR needed by high school senior, also EGA or VGA graphics card for IBM PC-XT. Hollister, 296-8055.

ACOUSTIC GUITAR, 6-string, for beginning to intermediate student, small to med. size preferred. Bennett, 298-1142.

LAWN MOWER, in decent condition. Holswade, 294-2017.

GIRL'S 16-IN. BIKE, in good condition. Mastin, 292-2086.

INFANT CAR SEAT, in good condition. Douglas, 281-9843.

GOLF BAG & CART, woman's left-handed clubs. Coulter, 266-0305.

NORDICFLEX GOLD EXERCISER. Murata, 881-8459.

EXPERIENCED PLAYERS for a Div. 2 men's soccer team. Cropp, 296-1877.

TRANSMITTER for older-style Genie garage-door opener, 325-MHz. Creighton, 292-6805.

CHILD'S BOOSTER SEAT, in good condition, prefer Gerry Guardian; spring horse. Langkopf, 293-4076.



Coronado Club Activities**Dance, Dance, Dance to the Poorboys' Tunes**

PICKIN' AND SINGIN' — The Isleta Poorboys take the stage tonight, Sept. 4, from 7 to 11 p.m., with music that'll set you to strutting. For dinner (served from 6 to 9 p.m.), you can choose from T-bone steak (\$11.95), grilled or Cajun catfish (\$10.95), or the all-you-can-eat buffet with baron of beef and chile-smothered chicken breast (\$6.95). Make your reservations now (265-6791).

STOP LABORING and join the Club's Labor Day blowout. Admission is free to Club members. The pool and patio are open from 11 a.m. to 6 p.m., and an a-la-carte buffet will be served from noon to 5. There's entertainment by the carload, including the clown troupe Frown Busters to entertain the little guys and gals from 1 to 3 p.m., and the dance music of Bob Weiler and Los Gatos from 3 p.m. until closing. This is the last day the pool and patio are open this year, so let's enjoy it! (Note: The pool and patio will be closed Saturday, Sept. 5, for a private function.)

FIESTA TIME — Next Friday, Sept. 11, you can celebrate Dieciseis de Septiembre at the Club with music, dancing, entertainment, and great food. The folk-dance group Miguel Caro y La Fiesta Mexicana will perform at 8 p.m. The popular band Together will play fine dance music from 7 to 11 p.m. Of course, you can count on some good New Mexican food. It's gonna be a sellout, so make those reservations (265-6791).

ATTENTION, JUNIOR BOWLERS — The Coronado Club Junior Pros, for ages 6 through high school, still have room for Saturday morning bowlers. It's a good way to have fun while learning to bowl — or to get some coaching and learn to bowl better! The group meets Saturday mornings at Holiday Bowl, 7515 Lomas Blvd. NE, with check-in time at 8:45 a.m. Cost is \$3.50 each week for three lines of bowling, plus a one-time sanction fee of \$4.50 (good through July 1993). For more information, call coach and league official Ciss Kelly on 255-8011.

GO, ROADRUNNERS! The Roadrunners RV Club will congregate Sept. 21-25 at Lyman Lake, north of Springerville, Ariz. For information about the club or specifics about this trip, call President Tex Vandt on 293-1249 or Wagonmaster John Smelser on 256-3108.

BOARD ELECTION — Members, let your voice be heard in the Board of Directors Election. Secret-ballot voting is at the Club on weekdays from Tuesday, Sept. 8, through Monday, Sept. 14, with voting hours 11:30 a.m. to 1 p.m.; on Friday, Sept. 11, from 6 to 8 p.m.; and on Monday, Sept. 14, from 4:30 to 5:30 p.m. The Annual Meeting is Monday, Sept. 14, at 5 p.m. There are seven vacant slots on the Board; nominees are Brian Behling (7202), Linda Benavides (182), Dale Buchanan (ret.), Lee Chavez (DOE/AL), Jay Clise (124), Gretchen Gardner (ret.), Paul Graham (1400A), John Hancock (333), Charlie Kaspar (ret.), Jann Levin (7543), Willy Morse (9616), Eric Moss (7329), Mary Nation (4302), and Andrew Zawadzki (DOE/AL).

Events Calendar

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

Sept. 4-20 — "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.

Sept. 4-19 — "Once Upon a Mattress," musical comedy based on "Princess and the Pea" fairy tale, Albuquerque Civic Light Opera presentation; 8:15 p.m. Fri.-Sat., 2:15 p.m. Sun.; Popejoy Hall, 345-6577.

Sept. 4-Oct. 2 — Exhibit, "21 Steps," waterless lithographic images; 9 a.m.-4 p.m. Tues.-Fri., 5-9 p.m. Tues., 1-4 p.m. Sun.; UNM Jonson Museum, 277-4967.

Sept. 4-Oct. 8 — Exhibit, "The Political Landscape: American Photography 1839 to the Present," 41 works by well-known photographers from the Civil War to the present; 9 a.m.-4 p.m. Tues.-Fri., 5-9 p.m. Tues., 1-4 p.m. Sun.; Van Deren Coke Gallery, UNM Art Museum, 277-4001.

Sept. 4-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.

Sept. 4-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.

Sept. 4-Oct. 25 — Exhibit, "Fact and Metaphor: Optics in Photography," how the study of optics contributes 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.

Sept. 4-Dec. 23 — Exhibit, "Rio Grande Blankets/Frazadas del Rio Grande: Late Nineteenth Century Textiles in Transition," examples include Pueblo, Navajo, and Mexican weaving, artworks, artifacts, and historical photos; 9 a.m.-4 p.m. Tues.-Fri., 5-9 p.m. Tues., 1-4 p.m. Sun.; UNM Art Museum, 277-4001.

Sept. 8 — Hispanic Issues Forum, "Discovery or Encounters in the New World," talk by Saturnino Noriega focusing on the arrival of the Spaniards in the new world; 7 p.m., UNM Continuing Education Conference Center (1634 University NE), 277-1160.

Sept. 10 — "What's in the Cookie Jar?" theatrical evening of inspiration and humor with a special performance of the "Spirit Players," actors dramatize events from their personal lives; 7:30

p.m. Paradise Hills Community Center (5901 Paradise Blvd. NW), 277-1160.

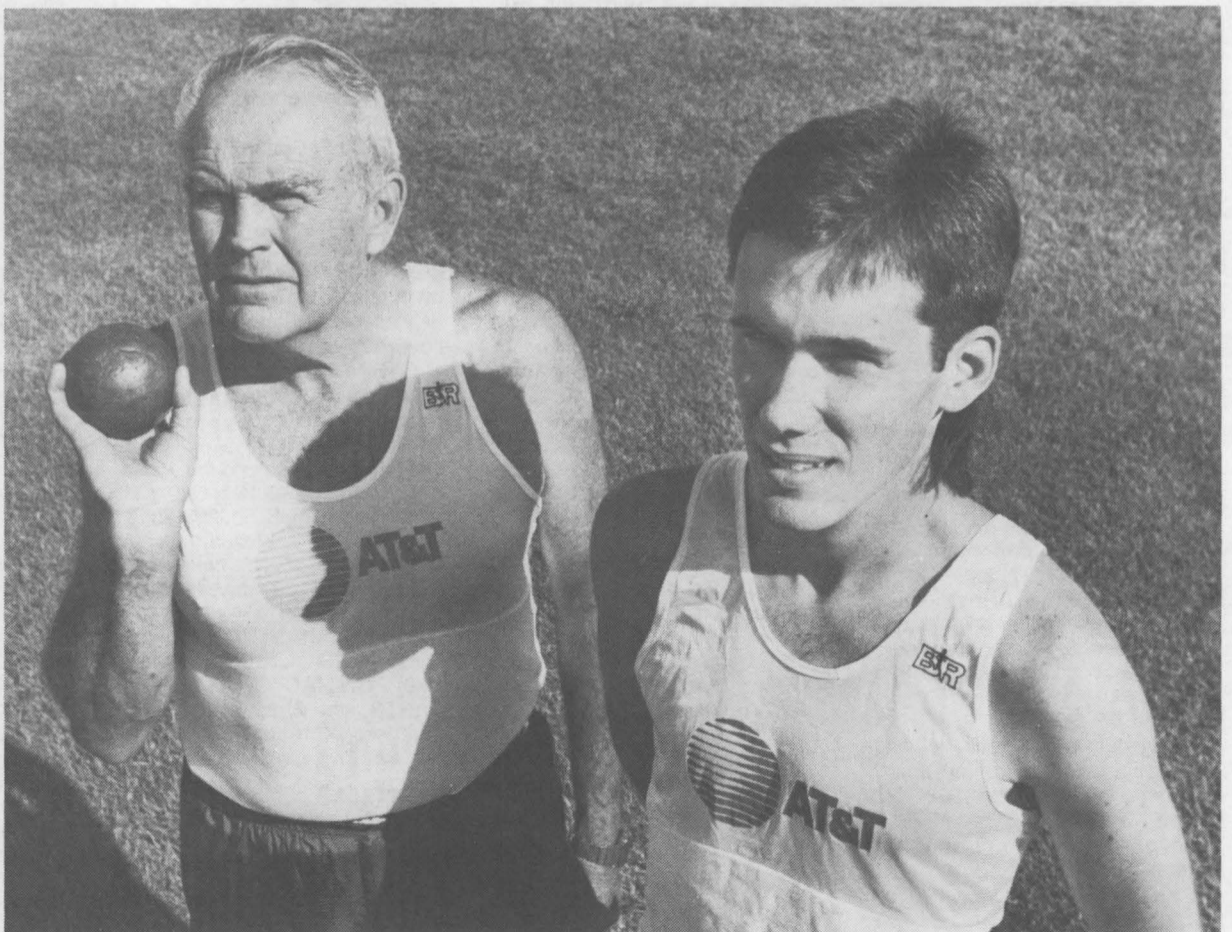
Sept. 11-12 — Senior Celebration, information & fun for seniors 55 and older, entertainment Saturday night includes the Orley Saavedra Orchestra, senior fashions, senior "prom" with king & queen crowned on Saturday night; 10 a.m.-6 p.m. (senior prom 7:30-10 p.m.); Winrock Center, all activities are free, 883-6132.

Sept. 11-26 — "On Golden Pond" by Ernest Thompson, winning account of an elderly couple sharing the pleasures of their 48th summer together; 8 p.m. Thurs.-Sat., 2 p.m. Sun.; Albuquerque Little Theatre, 242-4750.

Sept. 13 — St. Joseph Rehabilitation Hospital and Outpatient Center 4th Annual Run/Walk/Roll, events include 5K run/walk/roll, 10K run/roll, and 1-mile fun walk/roll; 7 a.m., St. Joseph Rehabilitation Center (505 Elm NE, behind St. Joseph Hospital), 1-800-528-8888.

Sept. 13 — Spike's Ride and Chile Cook-Off, family fun day, features three separate distances for the bicycle ride and red and green chile categories in the cook-off; 8 a.m., New Mexico Museum of Natural History, 841-8837.

Sept. 18-19 — Marketplace Fall Arts and Crafts Show, more than 70 local crafters; 9 a.m.-5 p.m., Wyoming Mall, 294-1606 or 296-0460.



WINNING GENERATIONS — As members of AT&T's Corporate Cup track team, retiree Ed Johnson (left) and summer hire David Honea find themselves at opposite ends of the age field. Ed, 67, is one of the team's oldest members. David, 23 (26 years younger than the shot in Ed's hand), was the youngest Sandian competing for AT&T this year. He was in the Outstanding Student Summer Program and recently returned to school at North Carolina State. Both Ed and David contributed to AT&T's first-place finish in the 1992 National Corporate Cup competition held in Irvine, Calif., this summer. David won the men's 10K road race for the second year in a row, and Ed placed fifth in the shot-put and discus. They and 15 other Sandia Track and Field Club members qualified to compete on the AT&T team as a result of their performances in state and regional competition.