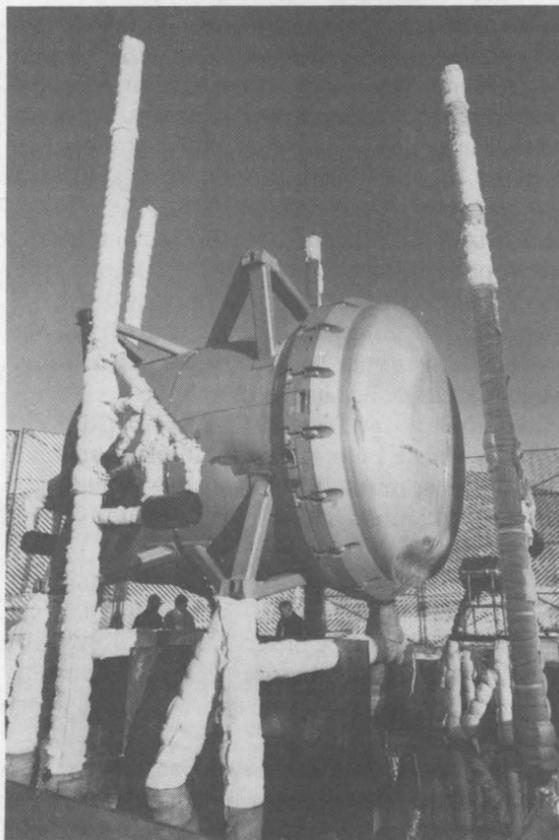


## Sandia Designs, Tests New Container for Transporting Chemical Weapons to Incinerators

Congressional legislation calls for the destruction of all obsolete chemical weapons in the US by 1999.

Sandia is assisting in the process by designing a special container for safely transporting chemical munitions to on-site incinerators.

According to current plans, the weapons will be transported one to three miles from storage facilities to incinerators on the same military



WORKERS WAIT for early-morning winds to die before a fire is started. Heat measurements are made by instruments placed in a fireproof casing on poles that surround the container.

base. The incineration is expected to take place at eight locations nationwide, says Allan McKinney from the Army's Office of the Program Manager for Chemical Demilitarization.

During a recent test in Lurance Canyon, a prototype of the On-Site Container was placed in a 5,000-gallon pool of jet fuel that burned for 20 minutes to determine its ability to survive a severe fire. The fire was the eighth in a sequence of tests. Previous tests included a 50,000-pound static load, three drop tests, and three puncture tests.

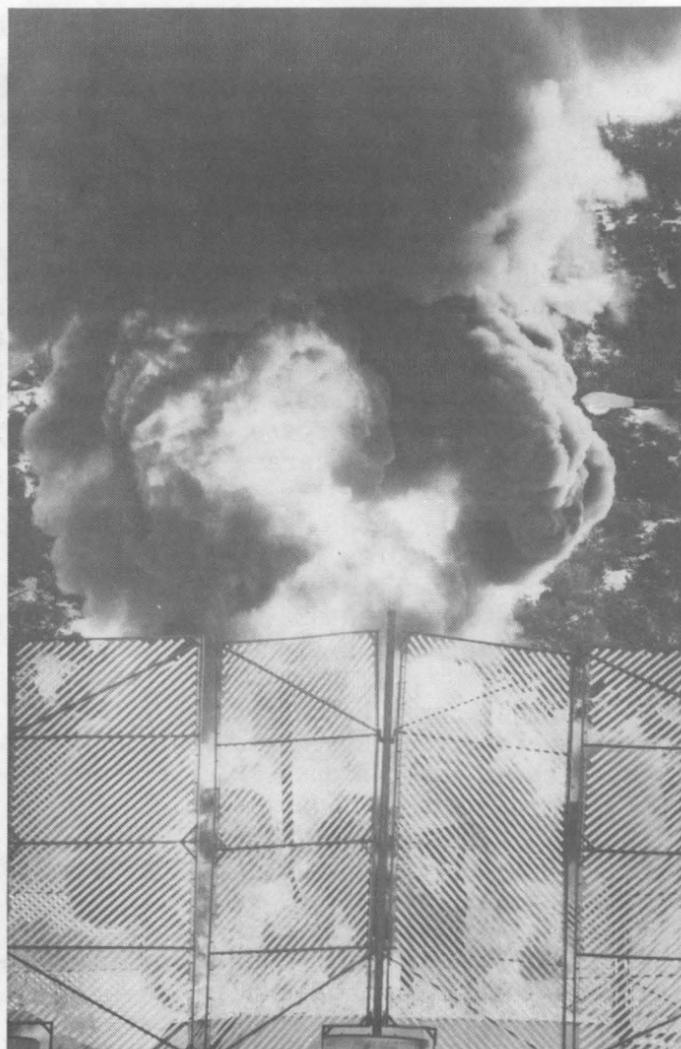
During structural tests, the container fared even better than expected, notes Bob Glass (6322). During a fire test, the bolts failed because of liquid metal embrittlement. That problem is now being corrected in cooperation with the Carlsbad firm that assembled the container.

Production of 165 of the containers is expected to get under way later this year.

The purpose of the container is to limit thermal and structural damage to the munitions, preventing accidental ignition of explosives and subsequent release of chemical agents. The container is 8½ feet wide and 12 feet long, weighs 19,000 pounds, and carries 8,000 pounds of munitions.

### Destroying Chemical Munitions

The Army plans to destroy all of its obsolete chemical weapon stockpiles by burning them. One incinerator on Johnston Atoll, about 800 miles west of Hawaii, is already operational. Another is under construction in Tooele, Utah. Additional planned sites are in Kentucky, Maryland, Arkansas, Colorado, Oregon, Indiana, and Alabama.



ENGULFED IN FLAMES — On-Site Container is subjected to the heat of 5,000 gallons of burning jet fuel.

The bulk of the chemicals to be destroyed include two nerve agents, along with some mustard agent. Types of munitions include projectiles, (Continued on Page Twelve)

## New Ombuds Program in Place By Early Summer

The Sandia Management Council has adopted a recommendation to create an Ombuds Program to address employee concerns, and members of the team that recommended it expect it to be operating by early summer.

The program is designed to help employees seek win-win solutions to their concerns before they grow into impassable barriers blocking job satisfaction and productivity.

Sandia will have two full-time ombuds, one in Albuquerque and one in Livermore. Their responsibilities will be to confidentially address any concerns brought to them by employees, to complement and supplement existing resources (such as EEO, Affirmative Action Council, Employee Assistance Program, Personnel Representatives, etc.), and offer alternatives where necessary.

The two ombuds will constitute an Ombuds Council reporting directly to President Al Narath and will be available to talk with any Sandian and (Continued on Page Twelve)

**'State of the Labs' Annual Interview — See Page Four**



# LAB NEWS

VOL. 44, NO. 8 SANDIA NATIONAL LABORATORIES APRIL 17, 1992

### Networking over Lunch

## Secretaries Exchange Ideas, Concerns at Brown Bag Forums

In most Sandia organizations, employees are grouped together because they do similar work. Among secretaries, the case is different. Each organization normally has one secretary, who is the only one doing that job.

That can lead to a feeling of isolation. To help overcome that feeling, and to give Sandia secretaries a chance to exchange ideas, the Sandia, Albuquerque Secretarial Committee has started a series of "Brown Bag" sessions.



ELENA HOLLAND

During those noon-time forums, secretaries can bring their lunches and share their ideas and problems with each other and the committee. The sessions are expected to

be held monthly (see box on page eleven).

"It's hard to get out of the office and see what other people are doing," says Elena Holland (9204), chairman of the Secretarial Committee. "We hope that having these designated times will give secretaries the opportunity to take an hour or so and meet with us and other people who are doing similar work. It's good to share ideas with other people who have the same problems or frustrations that you do."

### Restructuring Concerns

Brown Bag sessions were suggested by last year's Secretarial Committee, says Elena, as a recommendation that they didn't have an opportunity to complete during their year in office. "We thought it was definitely worth pursuing," she says.

"One concern of secretaries now is restructuring and its effect on them," says Carol (Continued on Page Thirteen)

# This & That

**A Wringer of a Year!** - That's how President Al Narath describes Sandians' experience since the last State of the Labs interview. If you're wondering about the Labs' relationship with DOE, how we're going about securing new work, or how our core competencies fit into the changing needs of the weapon program, turn to page four. Al and Executive VPs Lee Bray and Orval Jones talk about those subjects and quite a few more that address the changing times.

\* \* \*

**Addressing a Tough Problem** - Picture yourself as a Mail Services Team employee today, trying to get Sandians' mail to them on time, but simultaneously struggling with thousands of pieces of improperly addressed mail every day. The recent restructuring has intensified delivery problems because of the many new and revised organization numbers and employee moves, but every Sandian can help bring about speedier and more accurate delivery (see story at right).

\* \* \*

**Trading Places** - Welcome to our newest LAB NEWS writer, Howard Kercheval, a veteran (polite word for old) news reporter and editor who transferred here from the Public Relations Department. And goodbye and thanks to former LAB NEWS writer Linda Doran (she isn't nearly as "veteran" as Howard), who takes Howard's spot in the PR Department.

\* \* \*

**Funny Fax** - Neither Becky Villane (1900) nor I can figure out for sure whether the person who sent her a fax with this message on the cover sheet was serious: "Please contact me at [phone number] if you do not receive this transmission."

\* \* \*

**Easy Quiz and Quick Statistics** - Guess what two groups anticipate Professional Secretaries Week almost as much as the secretaries? Florists and restaurateurs, perhaps? Professional Secretaries Week is April 19-25 this year - see story about the new brown bag lunch sessions for secretaries on page one.

We learned from Jim Stromberg (3532) that office administrative assistants (OAAs - primarily Albuquerque-based, department-level secretaries) now total 339, that Sandia has many experienced secretaries (average age is 43), and their average Sandia service is five years. The OAAs keep up their skills once on roll - since January 1990, they've combined to take 1,001 classes in office automation and another 1,500-plus other classes. Of all current Albuquerque Sandians, nearly 1,300 were originally hired as clerical/secretarial employees.

\* \* \*

**Nasty Nonetheless** - In the March 20 issue, I asked if anyone knew how the Eureka (Nevada) Vandals got their "nasty name." Jack Swearingen (5377) sent a note making several points: (1) that the University of Idaho mascot also is the Vandal, a fierce-looking warrior, and (2) that the second definition in the dictionary (in *Webster's*, at least) is the nasty one: "one who willfully or ignorantly destroys, damages, or defaces property...." The first definition: "a member of a Germanic people who lived in the area south of the Baltic between the Vistula and the Oder, overran Gaul, Spain, and northern Africa in the 4th and 5th centuries A.D., and in 455 sacked Rome." Any way you look at it, vandals don't seem like particularly nice folks.

●LP

All Employees Can...

## Help 'Address' The Mail Problem

Mail delivery problems at Sandia, Albuquerque are continuing to be addressed within the new Logistics Management Center 3900, but Center Director Dick Shepardson says every Sandian can help.

"The most helpful thing Sandians can do right away is to ask our regular external correspondents and publications to add or update our organization numbers to the mail they send us," says Dick. "This will do more to ensure timely and accurate delivery than anything else we could do."

Recent reorganizing and restructuring efforts at the Labs, combined with folks not asking correspondents to add or update mailing addresses with correct organization numbers, are adding to Sandia's mail service problems.

"Many of us simply don't take the time to keep correspondents apprised of our organization numbers, and that makes internal delivery difficult," says Dick. "It's much like expecting the Postal Service to deliver your home mail without a correct street address or box number."

Mail Services Team 3913-2 Supervisor Keith Chavez says a Labs-wide Quality Action Team (QAT) has been formed to study key problems associated with timely mail delivery and to establish some metrics.

"All Sandians want timely, quality mail service, and we think this QAT will help us achieve and maintain that type of service," says Keith. "By teaming with a broad cross-section of Labs employees, we can develop the type of team approach that's needed."

In the meantime, Keith says Sandians can do a couple more things to help:

- If you get mail for a Sandian who has moved from your organization and you know his or her new organization, please write that number on the piece when you put it back into the internal mail instead of simply writing something like "no longer at this organization."

- Instead of ignoring continuing "junk mail," ask companies to remove your name from their mailing lists.

●LP

## Volunteer Opportunities

Here are some recent volunteer requests received by the Volunteers In Action program from schools and community agencies. If you are interested in any of these volunteer opportunities, call Al Stotts of Public Relations Dept. 3161 on 4-2282.

- Eisenhower Middle School (11001 Camero NE) needs judges for its annual math fair, which takes place Friday and Saturday, May 8 and 9. Volunteers are particularly needed for entries in the 7th grade enriched level. Those entries include research papers with visual displays. Judging times are 8:30 a.m. to 12:30 p.m. each day.

- The new Albuquerque Children's Museum in Coronado Center needs volunteer "explainers" who can discuss exhibits with visitors. The museum also needs people to work in the retail store and people who can share a special skill such as art, puppeteering, storytelling, or science demonstrations. The museum's weekend hours are 10 a.m. to 5 p.m. on Saturdays, and noon to 5 p.m. on Sundays.

- Living Through Cancer, New Mexico's only peer support center founded for and by cancer survivors, needs volunteers for a variety of activities at its annual fund-raising event to be held Saturday, May 9, from noon to 5 p.m. at the State Fairgrounds. The event, titled "Ticket to Travel," showcases the donations of more than 100 businesses with a large party and raffle. Volunteers are needed to help with setup, activities during the event, and cleanup. Any amount of time volunteers can give will be helpful.

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# LAB NEWS

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## Employee Deaths

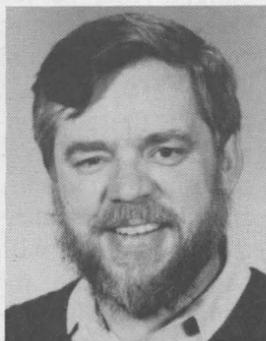


ROBERT BACKSTROM

Robert Backstrom of Strategic Defense Studies Dept. 4114 died March 25 after a long illness. He was 44 years old.

Robert was a senior member of technical staff and had been at the Labs since 1980.

He is survived by his wife, daughter, and two sons.



MELVIN OLMAN

Melvin Olman of Supercomputing Systems Dept. 1943 died April 2 after a long illness. He was 53 years old.

Melvin was a senior member of technical staff and had been at the Labs since 1967.

He is survived by his wife Mary and two daughters.

# feed **back**

**Q:** I thought Sandia supported aluminum can recycling. If that is true, why are there no recycling bins near the conference rooms and vending machines in Bldg. 912 [at Sandia, Livermore]? We have one in Bldg. 922. Is this a case of it being OK for staff to do it but management doesn't want to get involved? This is where our position on protecting the environment should be most visible.

**A:** As chairman of the Aluminum Can Recycling Committee, I can assure you that staff and management at Sandia are fully supportive of our can recycling efforts. Any deficiencies are merely a consequence of having a program that is still expanding. The can recycling program began with 20 widely distributed recycling bins. After monitoring bin usage, we redistributed some and purchased five new ones. We are now purchasing more bins to be placed outdoors.

Bldg. 912 was originally allocated three recycling bins. On Family Day, the downstairs bin near the teller's office was temporarily moved outside, after which it mysteriously vanished and has never been found. Recently, I placed one of the five new bins back in the old location and another one in the vending machine room on the same floor. Bldg. 912 now has four aluminum can recycling bins, one upstairs and three downstairs; the patio area will also receive one of the outdoor bins. I regret that anyone was inconvenienced, and especially that anyone might interpret this as meaning that Sandia is not cooperating in the can recycling program. This is basically a grass-roots project with volunteers doing most of the work, not to mention all the Sandians who are donating cans they could otherwise redeem for cash themselves.

Mike Bell (8454)

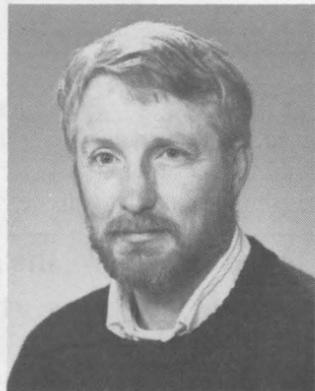
## Supervisory Appointment

**BOB TUCKER** to Manager of Publications Dept. 8535.

Bob joined Sandia, Livermore in 1978 as a technical writer and has remained in the same organization for 14 years. From 1971 to 1978, he was on the editorial staff of *Physical Review*, a physics journal produced at Brookhaven National Laboratory.

A native of New Mexico, Bob earned his bachelor's degree in physics at the University of Arizona and his PhD in the same field at Iowa State University.

He, his wife Phyllis, and three children have resided in Livermore since 1978. Bob's hobbies are youth sports, gardening, and instrumental music. He is a member of the handbell choir at Asbury United Methodist Church in Livermore.



BOB TUCKER

## Employee Death



ALICE ROGERS

Alice Rogers of Structural Mechanics Dept. 8242 died April 2 after a long illness. She was 58 years old.

Alice had been at Sandia for 26 years. She is survived by her husband Clarence (a retired Sandian), a son, and a daughter.

## Profiles of Sandia's New Directors

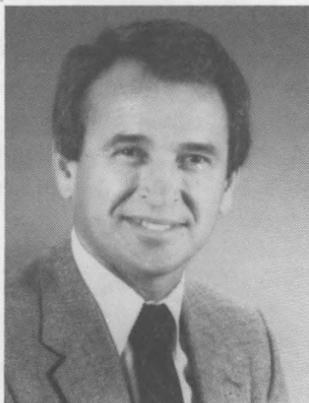
The LAB NEWS continues profiling Sandia's new directors in this issue. Some were profiled in the preceding issue, and more will be profiled in the next one. See page twelve in this issue for profiles of directors based in Albuquerque.

**LEONARD HILES** to Director of Electronic and Mechanical Engineering Center 8400.

"As director, my primary task will be to change the perception that this center is simply a collection of two different types of component groups," says Len. "We will do this by demonstrating that we are a multidisciplinary engineering team that excels in design development and that we deliver a cost-effective product — from concept to hardware."

Len joined Sandia, Livermore in 1966 as a member of the Instrumentation Development Division, where he developed fast response measurement techniques using pulsed lasers for underground tests and effects simulation. From 1971 to 1974, he was with the Advanced Weapon System Development Division and designed control systems for the ALLSPICE, MTV-2, and GLADD (glide bomb) programs.

In 1974, Len became lead engineer for the B77 roll control system. He joined the Solar Energy organization in 1978 and managed the molten salt central receiver system and line-focus receiver programs.



LEN HILES

He was promoted to Supervisor of the Instrumentation Development Division in 1978. He also supervised Special Projects, Theater System Studies, and Electronic Subsystem divisions. In 1987, he was promoted to Manager of the Systems Development III Department. He managed the Air Force Missile Weapon Programs, Advanced Technology, and Electronic Instrumentation departments.

Len has a BS in electrical engineering from California State University at Fresno and an MS in the same field from the University of California at Berkeley.

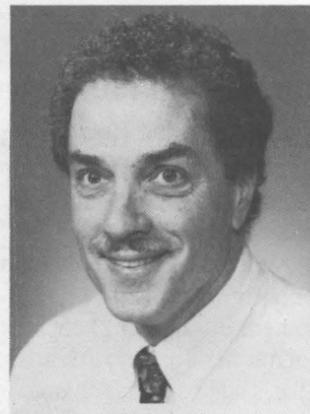
He enjoys alpine skiing, bicycling, diving, running, and swimming. He has two grown children and lives in Pleasanton.

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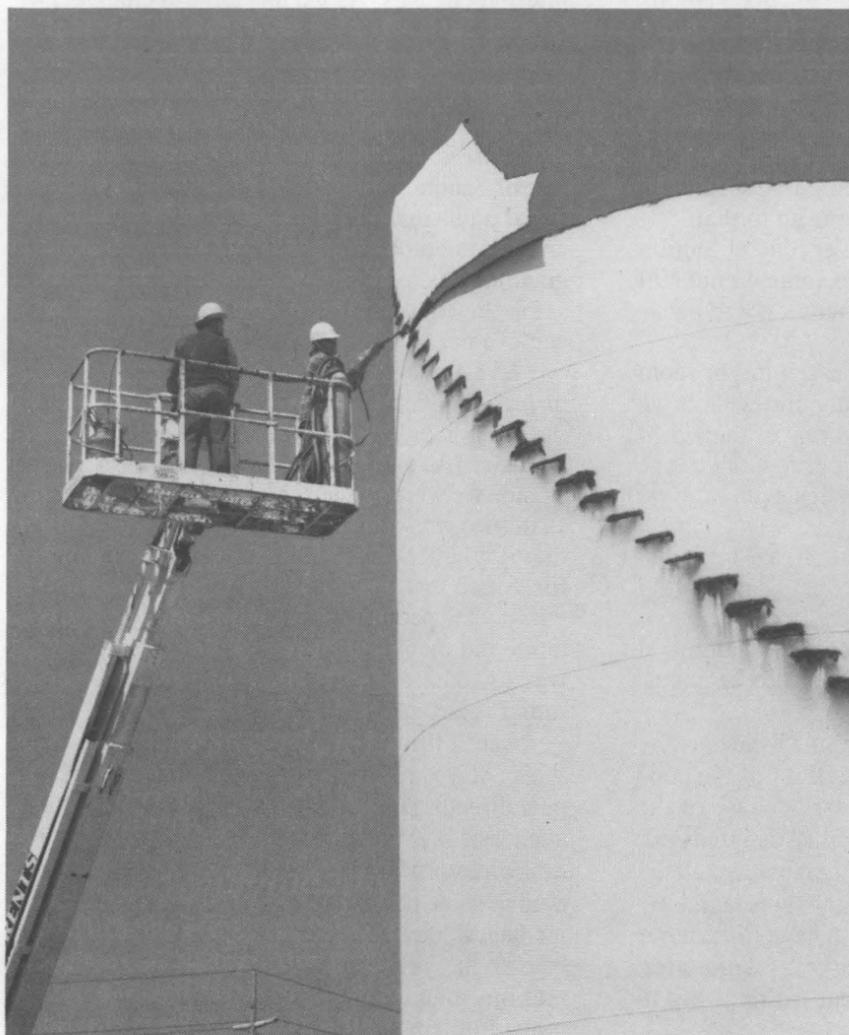
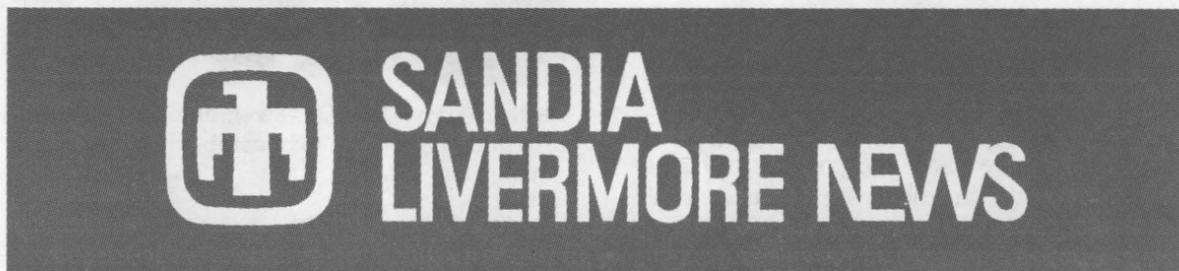
**WILLIAM McLEAN** to Director of Combustion Research and Technology Center 8300.

"We believe our Center affords an opportunity to continue outstanding fundamental and applied research programs in materials sciences and combustion," says Bill, "while at the same time utilizing Labs-wide resources to enhance our contributions to technology development in cooperation with US industry."

Bill joined Sandia, Livermore in 1978 as a member of the Combustion Research Division, (Continued on Page Eleven)



BILL McLEAN



PIECE BY PIECE, workers used a cutting torch to disassemble this 177,000-gal. reserve fuel oil tank that stood on the west side of the Sandia, Livermore site since the early 1970s. The tank was removed so a two-year bioremediation project can be undertaken to clean up an underground spill that occurred in 1976. A 10,000-gal. tank will soon be installed north of Building 963 to serve as a reserve fuel source for power.

**State of the Labs 1992****Setting the Labs' Course into an Uncharted Future**

Continuing a tradition that began more than 20 years ago, the LAB NEWS recently interviewed President Al Narath and Executive Vice Presidents Orval Jones and Lee Bray about the current "State of the Labs." Here's what they said:

**LN:** Let's start by looking back. How do you assess the past year?

**Al:** If Sandians feel like they've gone through a wringer, or if they feel breathless, there's good reason. It has been a momentous year.

When we talked last year, the nation was still in Desert Storm — it was just closing. Sandians worked on an expedited basis to assist. On the heels of that, we had the Tiger Team. Sandians made a tremendous effort, and overall we were successful. Following the visit was the develop-

**"Much of the experience gained during the last four decades doesn't fit the future — the rules are changing."**

ment of the Tiger Team Action Plan, which was a major job in itself.

We've been asked to support the Complex 21 reconfiguration with MDE [Manufacturing Development Engineering] concepts, a series of new experiments for privatization of manufacturing. That's a substantial change in thinking.

Then, toward the end of 1991, we saw the collapse of the USSR, leading to the formation the first of this year of the Commonwealth of Independent States. And it's unclear what the future of that may be.

So it's been a demanding but productive year, with a lot packed into it both at the Labs and in the outside world.

**LN:** After such a year, do we have the energy to keep charging forward?

**Al:** Absolutely. Besides, we don't have any choice. The pace is not set by us — it's set by the rate of external events. What pleases me, though, is the progress we've made in responding to change. We're still faced with problems, and in many cases we still need to improve on satisfying our customers. But Sandia has emerged as a laboratory that in many ways is establishing the trend among national labs. Collectively we're beginning to realize that much of the experience gained during the last four decades doesn't fit the future — the rules are changing, what is demanded of us is changing, our missions are evolving, and we need to maintain an ability to adapt. Everything I've seen these last three years tells me Sandia is up to that.

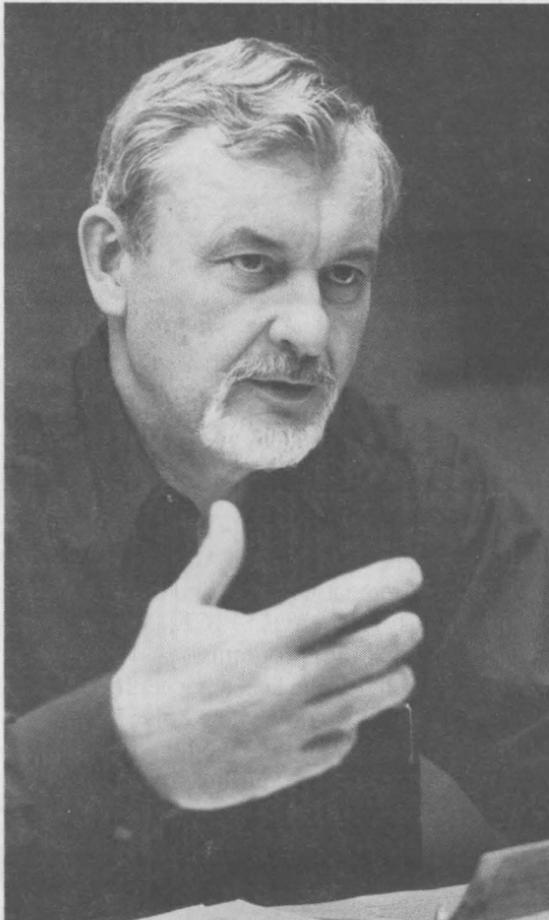
All the efforts made by everyone at Sandia have positioned the Labs to do some wonderful things. It's time to think about those, not to pause and relax.

**Lee:** With respect to the past, it might seem that we've been changing rapidly. But what if we say, "Wait a minute. How's the rest of the world changing?" Compared to that, our rate of change isn't especially high. It may be that even now we will have to pick the pace up.

**Orval:** The times are as tumultuous for many other US industries, US political units, and world political units as they are for us. In comparison, we have a measure of stability here as a national lab. Things are uncertain, yes, but they're uncertain everywhere.

One of the things that makes me believe we're going to be successful is the caliber of the staff here. We came through last year because of the staff. Every man and woman worked their tails off, and we came through a lot of harrowing events very successfully. When we talk about what the future will be like, we're going to have to earn our right to a position among the nation's laboratories. The opportunities are there, but we're going to have to work for them.

As we talk about change, pressure, and transition, though, I'd like to call attention to a stabilizing influence. That's our *Strategic Plan*. I find Sandians using the plan as we originally hoped they would — as a compass to direct their actions. It calls attention to the kind of standards we want to hold for ourselves, the kinds of actions and initiatives we've taken. I see its influence every day as employees exhibit attention to our customers. Throughout the Labs, if staff sense that we're not paying attention to customers, they remind us.



AL NARATH — Sandia has emerged as a laboratory that in many ways is establishing the trend among national labs.

**Al:** The *Strategic Plan* helps us all focus on a vision for the future. To realize that vision requires internal changes. As we make these changes, we will occasionally stumble, or we will do things that don't please everybody. During a period of change, it's easy to look around and see things you don't like. But that's counterproductive. Let's focus on the *Strategic Plan*, the vision it projects for the future of Sandia, and Sandia's role in addressing national problems. Then maybe all of us can develop enough tolerance to overlook the stumbles as we go along. As long as we believe the course we've set is the right one, and we all work together to achieve our goals, we're going to get there.

**LN:** As we talk now, we're putting our restructuring into effect. At this point, are things happening pretty much as you would have hoped?

**Al:** I had some concerns early on, because the change we were about to make in our management structure was major. There were no guarantees that it would deliver the results we were hoping for. Since then, I've relaxed, mainly because of the way the people who worked out the implementation did their jobs. They used restructuring as a way to address some of our most significant customer interface challenges.

**Lee:** I think the restructuring is going well. We've stayed on the schedule we laid out to get the new directors in place by the first of April. A big challenge is to decide which of the jobs left by the new directors will be filled, or combined, or covered in some other way, and to make the appropriate lateral moves. Some of those jobs are going to be extremely critical for us to fill rapidly. We'll be making management judgments about who to move into key positions.

**Orval:** In talking about restructuring, we should keep in mind that we started with reorganization last year. That was every bit as profound, although perhaps not in such an obvious way. What was accomplished there was the identification of customer sectors — bringing Defense Programs, Energy and Environment, and Work for Others under sector managers — and getting the top part of the company aligned.

Restructuring supports that by shifting our alignment from a hierarchical structure to a more customer-sector-oriented approach. It's an attempt to keep our costs under control, to shorten our lines of communication. But it's part of a package, not an isolated action.

**LN:** Choosing the new directors involved a lot of employee input. Did that work as hoped?

**Orval:** I've been very pleased with the way employee participation worked. It led to an upward look as well as the traditional downward look at candidates. That definitely had influence on the selection process. There are selectees who might have been overlooked otherwise. The fact that employee participation identified those people and that management responded is very positive.

**Al:** If there's a down side at all, it's that a relatively large number of people were nominated for the director vacancies and only a fraction could be chosen. So there are a number of disappointed people — very talented people. There's an extraordinary amount of talent in this laboratory. That means it's easy to create disappointment among those whose careers don't move as fast as they'd like.

**LN:** What can you tell us about next year's budget? Are we under any pressure to downsize?

**Orval:** I'd make a couple of points. First, in '86 and '87 we made a conscious decision to level the Labs' size and control spending. It seemed even then that we were expecting tighter budgets. Slimming the Labs down to about 8,200 in FY94 is the current plan. [Sandia has about 8,450 employees for FY92 — see "State of the Budget," page seven.] This means, of course, that we're not going to be on any hiring binges. But it also looks like, unless there is some unexpected large surprise, that we should be able to reach that number in a smooth fashion.

At this point, FY93 is probably under control, but we won't know for sure until Congress has acted. And those decisions are affected by the upcoming elections. FY94 is much less certain, because the budgeting process for that year is just

**"In the long term, the nation will need nuclear weapons at some level of stockpile."**

getting under way. But we do have flexibility to manage our response to the budget. I certainly expect the DP [DOE Defense Programs] and MA [Military Application] area to decline. On the other hand, we see considerable opportunities for growth in Energy and Environment. We're well regarded in that area by our customers. Work for Others, we're expecting, is going to be at least stable, and perhaps will enjoy some growth. Although the Department of Defense is cutting back heavily in procurement, they're emphasizing R&D. And I hope that kind of emphasis will be emulated within DOE, because in the long term, the nation will need nuclear weapons at some level of stockpile. However, we must be sensitive to changes in public perceptions. As an example, there's much less tolerance of risk than in the past. I think that is the kind of thing that will drive new R&D directions in the nuclear weapons development area.

**Lee:** When you ask about downsizing, it sounds like a question framed in the old context of

level of effort — that “somebody” is going to have to downsize us because of what’s happening around us. If we really believe in the notion of customers and our ability to compete for customers, then there is no “somebody” who gets to decide to downsize us. The weapons program may decline, and that can certainly have an impact on us. But we still have flexibility to compete for offsets.

**Al:** You can look at other government laboratories, particularly DoD labs that don’t have the multiple programs we do. They’re undergoing sig-

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**“We need to see the world as filled with opportunity for the Labs to make important contributions.”**

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nificant consolidation, significant downsizing. To date, we have escaped changes of that magnitude, and I hope our good fortune will endure.

It’s important to keep in mind that Sandia constitutes an extraordinary R&D asset for the nation. We have close to 10,000 people, if you include contract personnel, distributed over several locations. We have wonderful facilities. We have an extraordinarily talented staff. And at the same time, the nation faces large numbers of civilian and defense problems for which there exist, at least in principle, technological solutions.

So while there are challenges and problems, and while we may worry about each year’s budget, we need to concentrate on the opportunities that are presented to us during this period of rapid change in the national and international environment. We have a lot of flexibility. We have access to a broad range of customers. We can exercise considerable choice in the programs that we pursue. I think we need to see the world as filled with opportunity for the Labs to make important contributions.

*LN: Please update us on the Labs’ activities in regard to the AT&T Chairman’s Award, the Malcolm Baldrige Award, and similar quality-related corporate activities.*

**Orval:** It was toward the end of last year that Al initiated the idea of building our continuous improvement effort around the Malcolm Baldrige Award and its criteria. For us, that’s associated with the AT&T Chairman’s Quality Award, which uses the Baldrige criteria and is aimed at getting AT&T up to speed to compete nationally for the Baldrige Award. We’ve committed to preparing an application for the Chairman’s Quality Award [LAB NEWS, March 6, 1992].

One thing that has come to fruition in the past year is our self-appraisal program and its emphasis on continuous improvement. That program was originally developed by Larry Bertholf [4400] and Lee Bray. We used the *Strategic Plan* to establish many of the goals. We set those goals ourselves in discussion and agreement with DOE’s Albuquerque Operations [AL] and Kirtland Area Office [KAO]. We scored ourselves, and then AL and KAO scored us. We’ve now gone through a complete cycle. We tripped in a few areas, did great in others. Our total score was 85 out of a possible 100. Now we can look at the lessons we learned, where we didn’t score so well, and move toward improvement this year. I think DOE has been very pleased with the initiative that Sandia took in setting up this plan.

*LN: What needs to be improved?*

**Al:** I could mention two areas where both we and DOE recognize a need for improvement. One is to make cost of project performance a more useful metric. We tend not to be very good at cost estimation, or for that matter cost tracking and cost control. The second is benchmarking. We’ve been deficient in benchmarking the effectiveness of our processes against those of world-class organizations. We need to make greater use of competitive analysis, so we can find out how good we are in a quantitative sense. We’ve always thought of ourselves as an outstanding organization. But if you put it to the test of some objective measure, we’re unable to come up with quantitative answers.

*LN: What’s wrong with how we handle costs?*

**Lee:** Our cost accounting system just isn’t as sophisticated and robust as it should be. We’ll need a stronger one in the future, and that’s a significant challenge.

**Al:** We’re undergoing a transition from a structure in which financial control is concentrated in functional organizations to one in which control belongs to the sectors and their programs and projects. One of the main reasons for establishing the sector structure was to provide a more customer-oriented way of budgeting and controlling costs. That requires a different kind of financial system.

**Lee:** This is an example of how the responsibilities of administrative organizations often cut across all of Sandia. Wherever there’s either a strength or weakness, it affects nearly all the Labs’ programs. There’s a lot of leverage in the administrative functions.

*LN: How is our relationship with DOE?*

**Al:** In general the direction is a good one. Despite escalation in the requirements placed on us in operational performance through DOE orders, I think the relationship between Sandia and DOE both at the local level and the national headquarters level is as good as I’ve ever seen it. And I see it improving. I see a growing interest on the part of DOE in addressing the GOCO [government owned, contractor operated] issue. Let’s also remind ourselves that in Admiral Watkins we have a Secretary of Energy who is truly interested in having DOE become a more effective organization. He treasures the laboratories, he holds them in high esteem for their intellectual and other capacities.

The summit meeting in December with Secretary Watkins was the beginning of what I think will be an ongoing dialog between the Secretary, his top executives, and the laboratory directors. It has already borne fruit. I see things moving in the right direction. We’ve all complained about the burden imposed on us by the DOE order system, and we’ve seen deficiencies in the way DOE creates orders that are excessively burdensome and not very cost-effective. Again, one of the conse-

quences of this new dialog is a commitment on the part of DOE to re-engineer its order process. I’m optimistic that we will make progress in that direction.

In the meantime, we will do the best we can in complying with existing orders. We can’t justify noncompliance because we think certain details in the orders are not cost-effective.

**Lee:** We tend to forget that we were party to the creation of those orders. For example, we never pushed back in some areas, we never communicated the cost, we didn’t speak up as we should have if we knew we were going to be held accountable for both the performance and the cost. So by inaction we encouraged DOE to write orders that we now think are inappropriate.

But as Al says, in the meantime we have to do an exemplary job of complying with the orders. I’m especially aware of that on the administrative side, where for nearly every job, we really have two customers. One is the internal Labs organization that is a customer, and the other is the DOE customer who we’re responding to by following all the prescribed regulations that apply to every job. We need to meet both customers’ expectations and requirements. I think we’re doing

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**“The relationship between Sandia and DOE . . . is as good as I’ve ever seen it.”**

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a better job of understanding that double set of customers. For example, I’m particularly heartened by the way Org. 3400 [Security and Facilities Support Services] is recognizing that we have to satisfy internal customers, but at the same time adhere to external customer requirements. Certainly we all understand the Labs-wide impact of developing and implementing the Tiger Team Action Plan, which has now been through the DOE approval process and has been signed by Secretary Watkins. And I could cite other examples.

*LN: Have we changed the way we react to*  
(Continued on Page Six)

## Core Competencies Help Form Strategy

The Labs’ core competencies are proving valuable in guiding how Sandia invests its resources and chooses what work to accept beyond the traditional nuclear weapon mission, say President Al Narath and Executive VP-20 Orval Jones.

“Just as a reminder,” says Orval, “the core competencies that we identified as the foundation for the Laboratories are engineered materials and processes, computer simulation and high-performance computing, microelectronics and photonics, pulsed power, and physical simulation and engineering sciences.”

“We need to think in terms of a hierarchy of competencies,” says Al. “At the lowest level are our capabilities in fundamental science and technology; at a higher level are what some refer to as core products. At the highest level, I think of Sandia as a system engineering laboratory with significant involvement in test and evaluation. We’ve made a lot of progress in understanding what we’re good at, but we still need to narrow down those fundamental technical areas that are most deserving of future investments.”

As a result of last year’s reorganization, Paul Fleury, Vice President of Research and Exploratory Technology 1000, is the Labs’ overall core competency manager. Says Orval, “Paul has established a manager for each of the core competencies. We want to be sure that we maintain the strength of those competencies, and if they’re lacking, advise the sector managers and the Sandia Program Council so we don’t let capabilities slip away.”

“When we engage work-for-others customers, or customers in other program areas, we try to emphasize work that’s complementary to the core competencies and supports and maintains them — as a distinct strategy, as opposed to just bringing in funding, period.”

### Idea Adopted by Other DOE Labs

“By the way,” Orval continues, “I’d like to mention that Sandia was first among the DOE labs to focus on the idea of core competencies. It’s an idea that has been in the business community for a while, and it seemed to fit our strategic planning. It’s been absolutely amazing to see how quickly the idea has spread to other DOE laboratories. It’s a concept that has value not just here at Sandia, but across the board.”

“We began to examine this issue when we were asked by the Secretary of Energy’s Advisory Board, or SEAB, some time back about the effect of further diversification on the Labs’ capability,” says Al. “Some people felt that diversification would lead to fragmentation and to sub-threshold capability across the Labs.”

“We pointed out that we serve a diverse set of customers with the same set of competencies. By cultivating a broad spectrum of customers, we’ve been able to enhance our core competencies even during a sustained period of shrinkage in the nuclear weapon program. That way, we’ve also maintained the competencies essential to the weapon program, which for many years has been unable by itself to support them fully.”

*(Continued from Page Five)*

## State of the Labs

*proposed DOE orders, or is that something we're just learning to do?*

**Lee:** I think we're just learning. We have a process that should help us understand the impact of new orders or order changes as they come in and, based on our view of that, respond forcefully. But we really haven't exercised it fully yet.

**Al:** I think the important change that will take place in the order process is to include laboratory

**"My view is to team wherever there are skills that complement ours, to create win-win situations."**

inputs in the early stages. In the past, we've been handed draft orders just prior to implementation and asked to comment, usually with very limited time. Secretary Watkins has made it clear that he wants a process that is sensitive to laboratory evaluation early on.

At the same time, DOE is examining the whole audit and oversight process to see whether there should be consolidation, elimination of duplication — again, aimed at reducing unnecessary burden on laboratory management. I choose to be optimistic about that, and I think all Sandians can be. Where we see problems, it's ultimately not very helpful just to complain. We need to work within the system to seek improvements. What I've seen in the last year says to me that even though the world is becoming more difficult in many ways, constructive changes are happening. Not least among them, there's now an effective dialog between the laboratories and the upper echelons of DOE.

**LN:** Can you comment on our relationship with Congress and other national agencies?

**Al:** We're living in an environment that's increasingly competitive. Less and less of our work resides here for entitlement reasons. A larger and larger fraction resides here because in some sense we've earned it. We've also received welcome political support, especially from the New Mexico delegation. But we have earned that support, and we'll continue to earn it.

We do have one significant advantage. We are a national laboratory. While there's no universally agreed-upon definition for a national lab, one thing is clear: That status gives us significant license to seek new opportunities. Contrast that with a military service lab, which has a much more narrowly constrained mission. As a national asset, national labs are encouraged by DOE to seek out new opportunities in a much larger arena than any other federally funded organization that I can think of. We need to use that privilege to our best advantage and the best advantages of the customers we serve.

**Orval:** Al used a really important word there: entitlement. I'd like say a bit more, because that's a major change. Entitlement through the level-of-effort funding concept that Lee mentioned earlier — that's going away. I think it's going to be a dinosaur. I hope it goes away in an orderly fashion. But what it means is that we'll have to hustle — both management and staff.

**LN:** How are we going to operate as a government lab in a competitive environment?

**Al:** First of all, I acknowledge being a very competitive person myself. I have ambitions for the Laboratories which are competitive. In a sense, it's not really anything new, because I recall when I joined Sandia in 1959, even then the laboratory was developing an ambition to become something different than it was. Years after Los Alamos had become famous for its scientific capabilities, Sandia identified the need within its mission to develop a science and engineering research competency that was world-class in chosen areas. That was a very competitive thing for us to do, because

we hired people who then had to compete with peers in other laboratories.

I see competition as a way to become a leader. That's in our *Strategic Plan*. We intend to be a leader in the areas where we compete. We also know that we cannot be a leader at the expense of other capable organizations. My view is to team wherever there are skills that complement ours, to create win-win situations for all the participants. We need to emphasize teaming with other laboratories, with industry, with universities, to accomplish large objectives.

That's not inconsistent with being competitive. It simply means we want to maximize the value of the collective efforts of the team members — and, by the way, I would just as soon be the leader among those team members in defining the direction and setting the pace of the effort. At times, our appropriate role will be to follow someone else. But on balance, there's nothing wrong with competing for a leading position. But do it in the context of a cooperative effort among a number of different institutions. If we can arrange a team composed of institutions with complementary skills, we can compete more effectively against those who would rather do it all themselves at the expense of other institutions. I think our teaming approach is going to win out, and in that sense we will win the competition.



ORVAL JONES — We're going to have to earn our right to a position among the nation's laboratories.

**Orval:** Competing doesn't mean that you have to cut someone else's throat to get ahead in the world. We take a leadership role in bringing a team together to make something happen for the country. That's competing, in the broadest sense of the word.

Gerry Yonas [VP-9000] has coined the descriptive term GUILD — government, university, industry, laboratory development. We need to think about bringing such groups together. The better we bring them together to accomplish a national job, the more successful we'll all be.

**LN:** How does our customer focus fit in?

**Al:** I think of becoming more competitive as becoming more proactive in support of our customers. In many parts of our business at Sandia, historically we have played reactive roles — the job was essentially defined for us, and then we provided the solutions. Today, our customers increasingly need suggestions from the Laboratories as to what the appropriate directions are. They need the Laboratories to help define the problems and offer system-level solutions. We can't wait until a customer comes to us and says, "I have this specific problem; how long will it take you to solve it?" Rather, we need to help the customer

define problems. That's being proactive. That means doing more high-level thinking about what the issues are, and then interacting with customers. Out of those interactions will then come program opportunities.

**Lee:** If we talk about competition without that customer focus, the spotlight is on the wrong area. As we serve customers best, we'll be in competition. But the focus isn't on the competitor, it's on the customer. If we keep our eyes on our competitor, we probably won't be best at serving the customer. But if we keep our eyes on the customer, we can win the competition.

**Al:** I certainly agree. But we also have to recognize that we don't live in an ideal world, and customers are often pressed for time just as we are. We have to be sure that we communicate with our customers. They may not know that we're in a position to serve them best. Where the proactive element comes in — what people term as competitive — is making sure that we get our story across to the customer, and making sure that those who want to compete for the same jobs are honest in their presentations to the customer.

**LN:** Sounds like you're talking about a lot of managers, or staff, or both, spending time in airplanes or on the phone, talking with customers to find out what they need.

**Al:** I remind you that one of the important objectives of restructuring was to provide more management talent for enhanced customer interactions. Managers in functional, line-management positions become consumed by day-to-day management and compliance issues, leaving very little time to think about customer problems. I would view our current restructure effort a failure, no matter what the other merits may be, if it doesn't serve that important function of freeing up talent to work customer issues — planning, interfacing, helping the Labs become more proactive.

**Orval:** And the reason we restructured to free the talent up, as opposed to just increasing the number of managers, was to keep our costs in line. That's part of serving the customer well, too.

**LN:** As we see new opportunities, how will we decide which ones to go for?

**Al:** We need to do at least two things even better than in the past. One is that we have to be guided increasingly by sector-specific strategic plans in whatever we go after. That is to say, we'll need more top-down guidance as we go out and "sell" to customers.

We also need to decide what technical competencies are to be emphasized at Sandia. No lab, even one as large as ours, can be best at everything. And unless we're best at some things, the Labs won't prosper. What technical skills are we really going to have to continue to build and invest in? That needs more centralized guidance.

Without that guidance, we'll wind up doing what we've done at times in the past: having each Sandia functional organization seek external support to ensure its individual survival. That's in no one's best interest, because it would lead ultimately to excessive fragmentation. We would wind up with too many sub-threshold efforts across the Labs. One reason we created the three business sectors a year ago was to provide top-down guidance to help us select areas in which we choose to compete. We've taken steps to become more organized in identifying the core technical competencies that are most important to us, and then to make sure that sufficient support is provided to maintain and build our expertise. [See "Core Competencies Help Form Strategy" on page five.]

**Orval:** It's very important that we maintain our matrixing of work from the Defense, Energy and Environment, and Work for Others sectors into our core competency and core product organizations, 1000 and 2000. Each sector has work being done in those organizations. The work is being done by people who can connect it with what they're working on for another sector; or, maybe, the person next door is working on a related problem for a different sector. As a result, ideas can

cross between sectors. That kind of cross-fertilization is a powerful strength for this laboratory. If we were to completely separate the sectors, we would lose that. Everybody would be narrowly focused on their immediate problems, and they wouldn't get the stimulus of ideas passing between sectors.

**Lee:** It would be a lot like AT&T's experience when it divided into what were then 19 business sectors. They found that none of the business sectors was large enough to do the one thing that only AT&T could do: the really large projects. We have to be careful that we don't lose the capability of the laboratory by dividing it into three laboratories, or three businesses, that aren't working together.

**LN:** We have had some strategic consolidations — for instance, the consolidation of supercomputing. Are others being considered?

**Orval:** We have indeed made solid progress toward consolidation of our central supercomputing facilities between Livermore and Albuquerque. Dona Crawford [1900] and her team have accomplished a lot. Other good news along these lines is the consolidation of the JTA [joint test assembly] instrumentation development work. In the future, rather than having a separate group for each of our sites, that work will be conducted in Livermore.

We have other duplicated functions within the Labs. There's a balance to be sought between every organization having one of these "things" — whatever it may be — versus having enough in the Labs to do the job effectively. Maybe one isn't the answer, but on the other hand, maybe 40 aren't needed, either. So we're going to continue looking at consolidations, because that's the way to make our bucks go further. Whatever money we save by

eliminating duplication, we can use on creative technical work. I've really been pleased with the progress we've made, but we'll have to continue working on this in the future.

**Lee:** Some of those duplications follow from our lack of a rigorous cost-accounting system. We don't know what the cost penalty is for having a number of photo-processing facilities or explosive firing sites, for example. We also don't have a good mechanism for "make-buy" decisions.

On a related note, we don't have a way of looking at marginal cost to do work inside the Laboratories as opposed to going outside. There's no incentive for a program manager to pay a little bit more to have something done inside the laboratory, even though on a laboratory basis it's cheaper to

have it done that way than to go outside. So we've got to work through some of those things and get people enough information so that they can make the right decision for the Laboratories, as opposed to just optimizing their program or their project.

**Orval:** In fact, the Consolidation Advisory Group that Paul Robinson [4000] chairs, which did such a nice job of bringing about the JTA instrumentation development consolidation, has indicated to me that we may have as many as 40 distinct explosive firing sites. Those sites carry very heavy ES&H responsibilities. Not only do we have to consider the immediate cost of each of those sites — the facility, its maintenance, its staffing, its operations — but also how it backs up  
(Continued on Page Eight)



ROGER THORP (143) and Melodie Owen Eyster (140) discuss Sandia's budget outlook for FY 1992 and future years.

### Exceedingly Uncertain Times

## State of the Budget — Looks Good So Far, But...

*Editor's note: This article reflects the current structure of the Financial organization, which will be in effect until May 1. On that date, Melodie Owen Eyster will become Director of Financial Services Center 150 and Roger Thorp will become Manager of Nonweapons Budget Dept. 143.*

If there's one thing employees should know about Sandia's current budget situation, says Melodie Owen Eyster, Manager of Budget Dept. 140, it's that they will need to be flexible and innovative in their work to meet the funding challenges of the next few years. "We can no longer operate as if it's business as usual," she says.

The budget for this fiscal year looks pretty good, she says, thanks to some extra money set aside by Congress to boost the nation's declining R&D tech base. Sandia's share of that money is approximately \$35 million for FY92. But the most difficult funding challenges are yet to come, she says.

President Bush submitted his FY93 budget request to Congress Jan. 29. This budget is expected to bring substantial decreases in Sandia funding for weapons-related R&D. "It will come as no great surprise that we are witnessing a downturn in weapons business," says Melodie. This change can be attributed to the cold war's end and increasing pressure on Congress and the President to cut defense spending in favor of domestic programs, she says. Because weapons R&D is a large portion of Sandia's work, Melodie says, Sandia programs will be affected by the downturn.

But Roger Thorp, Supervisor of Nonweapons Budget Div. 143, says management also foresees some funding opportunities that may help offset decreases in weapons funding. In particular, he says, new opportunities in verification control and technology, technology commercialization, and environmental restoration and waste management should mean growing budgets for these Sandia programs in years to come.

Another funding area that shows promise is Sandia's MDE (Manufacturing Development Engineering) program, which should boost both the Production and Surveillance (P&S) and weapons R&D budgets. In addition, says Roger, the level of reimbursable work at Sandia is expected to remain stable during the next few years.

### Election-Year Uncertainty

For the next several months, Congress will debate and manipulate the President's FY93 budget request and eventually arrive at an appropriations bill, which ideally will be submitted for the President's signature before Sept. 30. However, says Melodie, because this is an election year, the chances of a continuing resolution instead of a final budget bill by Sept. 30 are great because many Congressional delegates will be unwilling to make tough spending decisions.

What this all adds up to, she says, is a lot of uncertainty about Sandia's FY93 budget. "We just don't know what will happen between now and when the President signs the final appropriations bill," she says. "But we can be certain that funds will be tighter in '93. Sandia's management is now looking into ways to invest in efficiencies during FY92 that will save the Labs money and position the Labs to be more competitive in growing areas." Examples include consolidating activities that are redundant and retraining some employees to apply their expertise in other areas.

As for staffing levels, says Roger, a slight downward trend is expected in the next two years. For FY92, Sandia expects to average 8,450 FTEs (full-time equivalents). This number is expected to drop to 8,400 in FY93 and to 8,200 in FY94. Basically, this means a reduced hiring program, he says.

Unfortunately, funding for FY94 could be even tighter for the defense laboratories, says Melodie. "FY94 could very well be the biggest funding challenge we've faced yet," she says. "However, because of management's careful

planning and investment during the Labs' growth years [the period between the mid-'70s and the late '80s], the Labs should be able to respond to the changes in funding expected during the next few years. Employees can rest assured that management is doing everything in its power to prepare the Labs to meet future funding challenges."

Roger adds that during the next several months, employees should be skeptical and patient about what they read or hear in the news as Congress debates the President's budget. "Remember that high-level changes in the President's budget don't necessarily affect Sandia programs proportionately," he says. "Sandia's long-standing reputation of providing our customers value for their dollars certainly has a positive bearing on the funding we receive in the future." ●JG

*An estimate of Sandia's expenditures for the current fiscal year follows; amounts do not reflect any reduction in commitment authority.*

### Anticipated Sandia Expenditures, FY92 (\$ rounded to millions)

Defense Programs	\$660
Intelligence	3
Verification & Control Technology	59
Nuclear Safeguards & Security	10
New Production Reactors	7
Environ. Restoration/Waste Management	95
Civilian Radioactive Waste Management	20
Conservation & Renewable Energy	45
Energy Research	33
Fossil Energy	12
Minority Economic Impact	1
Nuclear Energy	8
Total — Department of Energy	\$952
Reimbursable	341
Total Operating	\$1,293
Capital Equipment (Budget Authority)	68
Major Construction (Budget Authority)	47
<b>TOTAL LABS</b>	<b>\$1,408</b>

*(Continued from Page Seven)*

## State of the Labs

cost-wise into Glen Cheney's organization [ES&H and Facilities Management 7000], in that he has to back each site up with ES&H staff. So there's real leverage here.

**Lee:** The problem is that anyone who is in favor of retaining a particular site understands at least subjectively the cost penalty for giving it up. They know what it would cost in turnaround delays, inefficiencies, or whatever. They aren't able to offset that with the fact that they are paying, somewhere in their overhead rate, the cost of all the sites — ES&H support plus other things. So they've got a significant cost built in there. As long

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**"If we keep our eyes on the customer, we can win the competition."**

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as we haven't demonstrated the overall effect of consolidating these operations, such as the benefit of reduced overhead, nobody has the incentive to do it. We have to be able to do that better. We're got to get our arms around the costs that would go away with any consolidations that we consider.

**LN:** *Why haven't we looked at consolidations that way in the past?*

**Lee:** Let me use this illustration: Think about paper. What do we spend on paper? We have buyers buying paper, material handlers moving paper, people copying paper, mail service people delivering paper, custodial staff collecting the used paper, and then we have to pay to dispose of the paper. So we have a big chain of things we do to paper. None of those individual organizations or functions looks at anything but its own process. Maybe if we took a more horizontal, cross-Labs look, we would decide that we wanted more electronic communication. That's just an illustration, but we've gotten started looking at things that traverse across the system and nobody is totally responsible for.

**Orval:** In a very concrete way, Lee is illustrating what we're going to have to be doing in the next couple of years. We need to think freshly and come up with new solutions. And that's what Lee has described. Instead of buying paper — or whatever — maybe the answer is that you do something completely different. We must take ownership for that kind of thinking. When it's within your responsibility, go ahead and act. If it impacts on people outside your boundary of ownership, then interact with them to bring your new or better idea into acceptance.

**LN:** *Are you describing empowerment?*

**Al:** We've frequently used the word empowerment without a clear articulation of its meaning. Empowerment to me simply means ownership. Ownership brings with it not just rights, but a lot of responsibility. So when we talk about information at Sandia, where we are, where we're going, what the budget looks like, and so forth, I hope all employees realize that they have a responsibility to seek out this information, that it can't be spoon-fed. We are doing a much better job of making information available than in the past, but effective communication requires a transmitter, a transmission medium, and a receiver. In the LAB NEWS, for example, and other publications, there's an extraordinary amount of information. And there are many other ways we communicate, both in written and in oral form. But all will be for naught unless employees accept the ownership responsibility of accessing the information, digesting it, understanding it, and where they don't understand it, then seeking additional information.

**Lee:** We also have to be selective. You can't have your antenna up trying to receive all signals. Once you know your area of ownership and responsibility, you can sensitize yourself to that channel, and say, "I want to know everything I need for my responsibilities." That's quite different

from saying "I need to know everything." Good communication doesn't mean everybody knows everything.

Recently I got a comment that we weren't living our values because we didn't survey the employee population when we changed the deductible on our health insurance. But we're not all owners of that process. The owner made that decision, and it was communicated. We don't survey all employees about everything.

**Al:** That brings up a rather delicate issue. As we get better at adopting quality principles in what we do, more and more of our processes will be subject to employee input, and more extensive study and examination than in the past. We need to



**LEE BRAY** — Responsibilities of administrative organizations often cut across all of Sandia. Whenever there's either a strength or weakness, it affects nearly all the Labs' programs.

exercise care in selecting which processes we subject to this kind of treatment. We could get ourselves so bogged down in process that we don't produce anything.

So we need to exercise judgment in the investments we make, the amount of employee involvement we draw on, in improving various processes. Often management has to decide that an issue is sufficiently clear-cut that a decision should be made quickly — without second-guessing. We can't subject everything to a popular vote.

But I would also encourage all of us to draw the boundaries that define our ownership responsibility quite liberally. Again, I think this is an aspect of empowerment, the expectation that individuals can exercise influence outside the narrow confines of a specific, immediate job assignment. Their responsibilities can really be quite wide-ranging. As we strive for continuous improvement in our processes, we must not forget that the fundamental measure of a laboratory's strength is the excellence of its people — their skills, energy, and dedication.

**LN:** *Let's talk about some specific efforts. Al referred earlier to the shrinkage of nuclear weapon budgets. What's the outlook for our weapon work?*

**Orval:** I continue to believe that even as we lose our Soviet opponent, there's a place for a superpower in the world, if for no other reason than that it provides a measure of stability. In the long run, it's to the advantage of the US and the world that the US maintain a strong nuclear weapon stockpile. I expect the stockpile to be much smaller than in the past, though. We already know, from looking at the retirements, that it'll be more homogeneous. Those characteristics carry a lot of the opportunities for the future. First, the stockpile will

continue to have to be monitored and maintained. A small stockpile carries with it more stringent demands for reliability. We're still operating with old reliability assumptions. Sandians need to take the initiative, maybe pull a task force together, and consider how reliability should be done with today's technology, with the additional use control and so on that are in weapons.

Public perception is also different. In the '40s and the '50s, just after World War II, facing a large Soviet threat, US citizens were willing to accept greater risks involved with nuclear weapons. Well, that's changed, for a variety of reasons. For one thing, all of us are more risk-averse than we were in years past. The threat looks smaller now. So with the remaining stockpile, there's going to be a demand for greater safety, security, and use control. And those are initiatives for Sandia.

**LN:** *Any examples?*

**Orval:** I've been delighted over the past year with the work that has been initiated in new concepts for prototyping weapons, such as the modification of the B61 to provide a standoff capability. Without designing and building a completely new weapon, an added new military capability has been demonstrated. That's the kind of flexibility and increased utilization we'll want for the remaining weapons in the stockpile.

In the area of new components, improved safety and security will undoubtedly require stockpile improvement programs and retrofits from time to time. The STEP [Standardization Enabling Program]/Focal Point program is aimed at high-leverage technologies and components for the future. For example, direct optical initiation of explosives using a laser firing set with very substantial safety improvements is possible.

I think there's a variety of opportunities for us in the technology area, in the downsized production complex. The MDE [Manufacturing Development Engineering] effort that Harry Saxton [5400] has been leading would give Sandia a larger role to play relative to manufacturing. That's another example.

Many of these opportunities are different, however, from what we've done in the past. We can't apply the same old thinking. We need to step back and say, "Is there a different way we should be doing things?" I think if we do that thoughtfully, creatively, and forcefully, we'll be heard.

**LN:** *But we'll apply essentially the same skills our people have now? We'll change the way we apply those skills, rather than retraining or re-educating ourselves with different skills?*

**Orval:** Sandia's responsibility for the weaponization of nuclear explosives and maintenance of the stockpile rests on our core competencies. Those core competencies will serve us in the future just as they have in the past. But the directions, the emphases, I expect, are going to be rather different. And it's going to be up to us, Sandia, to identify those new directions and make the customer aware of them. As Al said earlier, we'll have

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**"We serve a diverse set of customers with the same set of competencies."**

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to identify for the customer the needs that we can serve. The customer's not just the DOE here. The customer is the public, as well.

I've seen Sandians picking up that challenge in the last year, already moving into new directions. We've got the right folks here to do it, no question about that.

It's a less certain, less defined situation than the old Phase 1 through 7 of weapon development, and then back to Phase 1 for another system, do it all again, repeat, repeat. This is a much more open-ended, evolving, flexible situation for us.

**LN:** *What's the status of the Labs' arms control work?*

**Orval:** The world is evolving rapidly enough that we've gone from the old adversarial situation with the former Soviet Union to working with them. If you had predicted that as recently as a

year to 15 months ago, I would have thought you were crazy. But Dave Nokes [5801] is leading that area for us, in how to apply safety, security, safeguards, accident response, transportation. In fact, he and four other Sandians spent a couple of weeks there recently.

Now, in the broader sense of arms control, there's a continuing need for intelligence and the technology that connects with our satellite program of monitoring suspect activities. I believe that will continue to be strongly supported, especially because of concerns over rogue nations developing nuclear weapon capability. In fact, one might argue that the breaking up of the Soviet Union makes those concerns even greater. Like it

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**"We're going to continue looking at consolidations, because that's the way to make our bucks go further."**

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or not, the bipolar superpower world was a stabilizing influence.

In the area of non-proliferation, one of the important areas that Sandia has supported over the years has been our work for the IAEA, the International Atomic Energy Agency of the UN. It's been recognized that the IAEA safeguards were not adequate to detect the Iraqi activities. I will be surprised if in the future there isn't increased emphasis given to the IAEA and its non-proliferation mission. Sandia has been for many years a major supporter of that mission. It may take a little time, but I see opportunity there.

*LN: It looks as if some power companies are interested in starting to think again about the possibilities of renewable energy, even to the point of reopening the Solar One plant in California as Solar Two [LAB NEWS, April 3]. What does that interest mean for Sandia?*

**Orval:** I was really excited to learn about Solar Two, the follow-on to Solar One for which Sandia provided technical support and for which our solar central receiver — the so-called Power Tower — was built some 15 years ago. It appears that industry has become strongly invigorated in working renewable energy technologies.

Although I'm speculating, I think concern about global warming and loss of the ozone layer has raised questions about chemical processes, burning of fossil fuels, and so on. There appears to be a "renewal" of interest in renewable energy sources, of which solar energy is a primary one and wind energy is another. Solar energy meetings have had record attendance this past year. The SOLTECH '92 meeting here in Albuquerque had a 40 percent increase in attendance over '91 — 500 registered attendees and 27 utilities represented. We share solar R&D responsibilities, of course, with the National Renewable Energy Laboratory [formerly Solar Energy Research Institute] in Colorado. They have a set of solar responsibilities, as do we, and we collaborate closely.

*LN: What about nuclear energy?*

**Orval:** Probably the most prominent activities that Sandians have heard about are our space-related applications. One is the Space Nuclear Thermal Propulsion power system that Jack Walker [6501] and his staff are working on, in partnership with other external organizations. That's aimed at greatly reducing the time for interplanetary missions, such as to Mars. We've also been working with the Phillips Lab on testing and evolving the Soviet Topaz reactor, once the politics are unscrambled to get a Topaz over here.

Beyond that, in the commercial nuclear power area, we're continuing to support the idea of re-licensing for plant life extension. The US derives a substantial amount of energy from nuclear power these days — about 20 percent — and that's clean energy, in the sense of emissions, and relative to current concern over warming and ozone. So it's important to extend the life of the existing plants. Of course, the Connecticut Yankee facility, one of the long-running power plants, shut down in

the last couple of months. That's part of the 20 percent. A 20 percent loss in our electrical energy production, with no nuclear plants being built, would be very noticeable and require major increases in fossil-fuel combustion.

*LN: What about another of our core competencies, high-performance computing?*

**Orval:** You'll recall that Sandia made a major contribution a few years back in identifying the power of massively parallel computing — we won the Bell Prize and Karp Award for that work. We were pioneers in that area and continue to lead. I think we encouraged a lot of the development that has continued elsewhere.

Several exciting things have happened during the past year. The CTH code, a Sandia three-dimensional dynamics code, was selected as the DoD code of choice for its applications. That was after a "compute-off" with Los Alamos codes. We've been funded to add capabilities and make that code available to DoD laboratories and contractors. We were the only DOE laboratory selected for membership in the National Consortium for High-Performance Computing. That's a major DARPA [Defense Advanced Research Projects Agency] thrust in massively parallel computing. We're pleased about the opportunity to work with the other consortium members. In the past year, we did the largest molecular dynamics and electronic structure calculation ever performed — here at Sandia on massively parallel machines. And we're in charge of the DOE "grand challenge" for computer design of materials and molecules. So this area is showing continuing progress and accomplishment.

In that context, let's come back to our discussion of consolidating our own supercomputing between our two main sites. We're working with AT&T to provide a state-of-the-art 45-megabit-per-second inter-site production connection. We're conducting research in gigabit networking with other labs, universities, and industry. So, as a result of needing to consolidate our own two computing facilities, we have the opportunity at Sandia to become a national leader in high-speed networking.

There's more happening, but those are some of the high points.

*LN: Speaking of AT&T, we've had an X-ray lithography project going on with Bell Labs for some time. How's it doing?*

**Al:** Some time in the future — by future I mean during this decade — the resolution required for patterning circuits on silicon will move beyond the capability of ultraviolet lithography techniques. One of the front-running replacements is soft X-ray lithography. One of the issues that has to be addressed is an appropriate X-ray source. We think

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**"Improved safety and security will undoubtedly require stockpile improvement programs and retrofits."**

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X-rays produced by a laser-heated plasma can do the job. For a couple of years, we've been in a joint effort at Sandia, Livermore with Bell Laboratories to develop the necessary technology, the laser-plasma source itself, the X-ray optics, the mask technology, resist technology, and so on. We now have a number of other companies on the team, and we have a program laid out which, if everything goes right, will demonstrate the feasibility of this approach over the next five to six years. We're exploring ways to bring Lawrence Livermore and Los Alamos into the team. It's very important that there be a single DOE-supported national-scope effort, just to economize on the limited resources available. This fits the mode of operating collectively through a teaming arrangement. The proposal is for Rick Freeman, Bell Labs' Electronics Research Department Head, to be the project manager for the future effort. That proposal is receiving strong DOE support.

*LN: What about manufacturing technologies in general? Are we diversifying the applications of*

*our core competencies?*

**Al:** There was a fascinating study mandated by DoD but led by industry, titled "Twenty-First Century Manufacturing Enterprise Strategy." It envisions a manufacturing strategy for the next century that involves taking the next step after mass production and just-in-time. It's called agile manufacturing. It's an approach to manufacturing which is highly modular, very fast, being able to respond to requests for small lots of highly customized, complex products. It envisions extensive real-time teaming arrangements among various industrial partners, depending on who has what capacity at any given time.

The whole approach can work only in the presence of an extraordinary information infrastructure that permits real-time communications and interchanges between data bases and so on to make all of this hang together. Obviously a great deal of automation is required: smart machines, a lot of standardization. Many of the things Sandia is developing fit right in: intelligent machines, quality technologies, approaches to creating

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**"I would encourage all of us to draw the boundaries that define our ownership responsibility quite liberally."**

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greater reliability and predictability of products, manufacturing processes, the work we're doing with SEMATECH. There are going to be some wonderful opportunities for Sandia, working with industry, to have a major impact.

I think we will prototype some of the approaches within the nuclear weapon complex over the next 10 to 15 years. There's obviously a need within a more streamlined, smaller production complex to respond quickly to changing needs, with smaller production runs and less specialized equipment.

**Orval:** I recently saw some of the technology used in the Fast-Cast initiative that our materials and manufacturing technologies organizations are pursuing. It's really spectacular, being able to make complex alloy investment castings in a few days as opposed to the 50 to 70 weeks that industry has generally required. There are some very exciting machines that American industry is developing, ahead of Japanese industry.

**Al:** Computer-based simulation of complex systems and processes is also a very important piece of this. Agile manufacturing envisions the ability to go from identification of what the customer wants to design and fabrication — once through, linearly. There's a lot of concurrent engineering to accelerate this process, such as production planning during the design phase. Everything is compacted.

*LN: What about Work for Others — what we used to call reimbursables?*

**Orval:** The point that Al mentioned about calculation, computer simulation, fits very nicely into the seven DoD thrust areas that Vic Reis — who is Director, Defense Research and Engineering — has identified. Those thrust areas are global surveillance, precision strike, air and ballistic missile defense, land battle, sea battle, acquisition, and finally training. And the idea that Vic Reis has in training is to use what's banded around these days as virtual reality, which is based on presenting a life-like situation via computer simulation.

In addition, Gerry Yonas and his staff are working hard on a concept that fits in the first three of the seven. The concept that they're pursuing is called RSTAKA, which stands for reconnaissance, surveillance, target acquisition, and kill assessment. The idea is that Sandia should do systems integration, bringing together a whole concept out of our SWERVE [Sandia Winged Energetic Reentry Vehicle] capability, our SAR ATR [synthetic aperture, automatic target recognition] capability, our remote vehicle capability, our sensors, imagers, and the data fusion

(Continued on Page Eleven)

## Profiles of Sandia's New Center Directors

The LAB NEWS continues profiling Sandia's new directors in this issue. Some were profiled in the preceding issue, and more will be profiled in the next issue. See page three in this issue for profiles of directors based in Livermore.

**JAMES RICE** to Director of Reactor Engineering Technology Center 6500.

"Although this is a new Center, chartered with the safe and efficient operation of Sandia's nuclear facilities and the development of innovative nuclear technologies, its staff and facilities have a long and outstanding record of accomplishment," says Jim.



JAMES RICE

Jim joined Sandia in 1969 as a member of the Experimental Atomic and Molecular Research Division, where he did high-energy ion-atom scattering research. He transferred to the Chemical Physics Division in 1971 and researched and developed hydrogen fluoride and atomic iodine lasers. In 1974, he joined the Advanced Laser Physics Technology Division and did research in electron-beam-pumped excimer laser systems and Group VI laser development.

He was promoted to Supervisor of the Laser Physical Chemistry Division in 1979. Jim's work included research and development of a variety of laser technologies and applications. In 1986, he became project leader for FALCON, a nuclear-reactor-pumped laser technology development program.

Jim was promoted to Manager of the Directed Energy Research Department in 1987 and was responsible for leading research into the physics of pulsed-power-driven X-ray sources, studying the phenomena of electron-beam propagation on ionized channels, and working on a variety of laser development application projects. He was project leader for DELPHI, a charged-particle-beam weapon concept for strategic defense. The department was reorganized in 1990 as the Target Physics Research Department, with emphasis on light-ion-driven fusion targets and pulsed-power-produced high-temperature, high-density plasmas.

Jim has a BA in chemistry from Indiana University and a PhD in chemistry from the California Institute of Technology. He is a member of Phi Beta Kappa, the American Physical Society, and the American Chemical Society.

He enjoys golf and hunting. Jim and his wife Linda have two grown daughters and live in the NE Heights.

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**NEIL HARTWIGSEN** to Director of Facilities Development Center 7900.

"I expect that much of my work with the Facilities Development Center will be in the area of process improvement and other quality issues," says Neil. "Developing a coherent and efficient team with the other Org. 7000 Centers to help Sandia succeed will be a high priority."



NEIL HARTWIGSEN

Neil joined the Labs in 1967 as a member of the Mechanical Components Testing Division, where his work included environmental testing of pressure components. He transferred to the Vibration Testing Division in 1968 and did environmental and func-

tional testing of explosive components. He was with the Advanced Development Division from 1974 to 1980 and worked on access delay technology and systems development and security evaluations. In 1981, he joined the Waste Management Engineering Division and was project engineer for leach/fill technical support for the Strategic Petroleum Reserve Program.

Neil transferred to the Environmental Studies Division in 1982 and was project engineer for the sludge irradiator program. He joined the Nuclear Safeguards Division later in 1982 and worked on vital components monitors, the Savannah River Reactor safeguards upgrade, the Tonopah Test Range security upgrade, the airborne remotely operated device, and the mobile intrusion detection and assessment system.

He was promoted to Supervisor of the Advanced Facilities Protection Division in 1983. In 1989, Neil was promoted to Manager of the Safeguards Applications Department, where he worked on defense programs transportation and began development of the SafeGuards Transporter, a replacement for the safe secure trailer.

Neil received his BS in mechanical engineering from Valparaiso University and his MS in engineering from UNM. Before coming to Sandia, he worked for the Ohio Power Company, the Northern Indiana Public Service Company, and Fisher Governor Company. He is a past member of the Los Lunas Board of Education and was recognized for outstanding service as president of the Board.

He enjoys woodworking and gardening. Neil and his wife Cheryl have two children and live in Los Lunas.

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**PATRICK EICKER** to Director of Intelligent Systems and Robotics Center 1600.

"Sandia must choose a few areas to do truly leading-edge research, and commit to following the



PATRICK EICKER

results of that research to development and then to application," says Patrick. "Another way of saying this is that research is critical to Sandia's future and we must eliminate the chasm between research, development, and application. Just as Dept. 1410 had activities across the full spectrum of research, development, and application, so will Org. 1600. The Intelligent Systems and Robotics Center will continue to seek partnerships with other Sandia organizations having complementary technical skills."

Patrick joined Sandia, Livermore in 1969 as a member of the System Studies Division. His work included systems analysis, a special safeguards study, and energy systems studies. He was promoted to Supervisor of the Energy System Studies Division in 1976. In 1980, he transferred to the Heliostat Development Division and then joined the Solar Program Division in 1981. In 1982, Patrick moved to Albuquerque to join the Future Options Group. In 1985, he transferred to the Intelligent Machine Systems Division. He was promoted to Manager of the Computer Sciences Department in 1987.

Patrick has a BS in math from Regis College, an MS in math from the University of Colorado, and a PhD in mathematical statistics from Colorado State University. He is a member of the IEEE Robotics Society and the Robotic Industries Association.

He enjoys snow skiing and Kaanapali Beach, Hawaii. Patrick and his wife Mary Ann have two children and live in the NE Heights.

**GLEN OTEY** to Director of Strategic Studies Center 4100.

"I am honored to have been selected for this job and to be tasked to find new opportunities, roles, and synergisms," says Glen.



GLEN OTEY

Glen joined Sandia in 1966 as a member of the W68 Project Division, where he did vulnerability testing. In 1969, he was promoted to Supervisor of the W71 Electrical Systems Division and was responsible for warhead electrical system development and nuclear vulnerability test and analysis. He transferred to the Exploratory Development Division in 1971 and worked on advanced fuzing designs, reentry vehicle roll control, Air Force reimbursables, recoverable reentry vehicle development, and rain erosion testing of transportation cooled nose tips.

He headed the Advanced Component Design Division from 1978 until 1979, when he was promoted to Manager of the Light Water Reactor Safety Department. Glen's responsibilities in that department included applied research in core melt phenomena, thermal-hydraulics, combustion and fire protection, instrumentation development, component survivability, and structural analysis of reactor accidents. From 1982 to 1984, Glen was on special assignment in Washington, D.C., as Special Scientific Advisor to the Assistant to the Secretary (Atomic Energy), Office of the Secretary of Defense, at the Pentagon. When he returned to Sandia, he transferred to the Advanced Weapon Systems Department and was responsible for concept and feasibility studies, preliminary design, and testing of prototype warheads for future nuclear weapon needs.

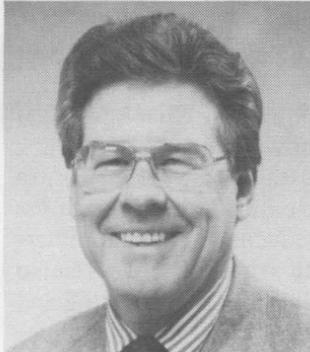
Glen has a BS in nuclear engineering from Mississippi State University, an MS in mechanical engineering from Tulane University, and a PhD in mechanical engineering from the University of California. He is a member of the American Institute of Aeronautics and Astronautics. Before coming to Sandia, he worked for the Boeing Company in New Orleans. He was a Naval aviator from 1955 to 1960.

Glen enjoys bicycling, running, and cross-country skiing. He and his wife Barbara have three grown children and live in the SE Heights.

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**WILLIAM HOLLIS** to Director of Audit Services Center 120.

"I look forward to continuing the Audit Quality Program and strengthening professional auditing standards throughout the DOE auditing community," says Bill.



WILLIAM HOLLIS

Bill first joined the Labs in 1961 as a staff auditor in the Contract Audit Division. He left Sandia in 1964 to join the faculty at Ft. Lewis College in Durango, where he was a professor in accounting and Associate Dean of Faculty. While at Ft. Lewis, he was also in private business for four years before returning to Sandia's Audit organization in 1979. Until 1982, he was on special assignment to develop an accounting cost system for the Center for Radiation-Hardened Microelectronics and reimbursable accounting.

Bill was promoted to Supervisor of the Financial Division at Livermore in 1982. He moved

back to Albuquerque in 1984 to head the Management Information and Results Division. He transferred to the Contract Audit Division in 1985. He was promoted to Manager of the Budget and Financial Planning Department in 1986. In 1990, he transferred to the Audit Department.

He has BS and MS degrees in accounting from Oklahoma State University. He is a Certified Public Accountant in Oklahoma and Colorado and is a member of the American Institute of Certified Public Accountants, the American Accounting Association, and the National Association of Certified Fraud Examiners. He served with the Army from 1958 to 1960.

Bill enjoys outdoor and church activities. He is Dean of the Episcopal Church's Northwest Deanery, Diocese of the Rio Grande. He and his wife Chris have two grown children and live in the NE Heights.

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MAX NEWSOM to Director of Applied Defense Technology Center 9700.

"Our goal is to become the premier technical problem solver for our armed forces in the non-



MAX NEWSOM

an exciting challenge for all of us."

Max joined Sandia in 1956 as a member of the Advanced Warhead Electrical Systems Section. He was on the team that developed the first chopper converter warhead electrical system and led a trouble-shooting team investigating electrical system problems discovered in weapons exposed to a nuclear burst in the Pacific. In 1961, he was pro-

moted to Section Supervisor and led an improved warhead safety group. In 1964, he was promoted to Division Supervisor and led the Exploratory Development Program in Advanced Nuclear Weapon Command and Control Systems. He also conducted studies and did advanced development of accurate low-yield tactical nuclear weapons.

In the early '70s, Max started programs for DARPA and the Air Force to address special purpose conventional weapon systems for use in Vietnam. He chaired a Sandia-Los Alamos study committee that conducted the Super Safe Bomb Study — Project Crescent — initiating the weapon strong link concept, and for the first time, applying insensitive high explosives. Max initiated studies of Sandia's potential role in energy research, established the drilling and well logging research activity, and managed the DOE Geothermal Well Technology Program. He was a member of the US-USSR Temporary Group on Petroleum.

Max was promoted to Manager of the Exploratory Development Department in 1977 and led exploratory development activity that demonstrated the extended range bomb, terrain-aided navigation, and earth-penetrating weapons. In 1985, he organized and led the effort to establish Sandia in the advanced conventional munitions area. He has served as a peer reviewer for the National Science Foundation, and as an advisor to the National Research Council and various DOD agencies.

Max has a BS and MS in electrical engineering from Texas A&M University. He served with the Navy from 1951 to 1953 and is a member of the American Defense Preparedness Association. He enjoys restoring classic Mustangs and fishing. Max and his wife Rose Marie live in the NE Heights. They have four grown children.

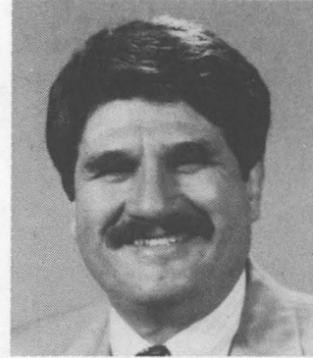
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MICHAEL ROBLES to Director of Diversity Leadership Center 600.

"Diversity is an important business and a strategic issue for Sandia," says Mike. "Diversity, in the broadest sense, is about how we respect, accept, and value people's differences. Diversity is-

sues are not limited to just females and minorities, but are just as important for issues between job classifications, education levels, professional vs. support staff, etc."

Mike joined Sandia in 1969 as a programmer/analyst in the Payroll and Personnel Automated Systems Division.



MICHAEL ROBLES

In 1971, he was promoted to Supervisor of the Operations Section of the Computer Operations Division. He became a member of the laboratory staff and moved to the Production Control Section of the Computer Operations Division in 1974 and helped implement new standards, production control policies, and procedures. In 1976, he was named Supervisor of the Computer Operations and Production Control Section. He became a systems analyst in 1978, working in the Payroll Systems Division.

In 1980, Mike was promoted to Supervisor of the Computer Operations Division. He transferred to the Office Systems and Small Computer Support Center Division in 1983, and in 1988 became Supervisor of the Continuing Technical Education and Training Division. Mike moved to Livermore in 1989, when he was promoted to Manager of the Human Resources and Management Services Department.

Mike has a certificate in data processing from TVI, a BBA from UNM, and an MA in management science from Highlands University. He worked for the US Postal Service before coming to Sandia. He served with the US Coast Guard Reserve from 1960 to 1968.

Mike enjoys outdoor activities that include camping, hiking, and biking. He also likes to travel and read. He and his wife Dolores have four children and are moving back to Albuquerque. •JC

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## State of the Labs 1992

capability we've developed over the years. It builds on the wide strengths of the Laboratories and outside companies and agencies in a GUILD approach. We don't know what will come of it yet, but I think it's the kind of customer-based approach in which we're trying to bring broad, comprehensive solutions to a customer who has particular needs and problems.

AI: I think it's fair to say that the concept is clearly the way to go, and it's going to happen. What isn't entirely clear is the magnitude of the role that Sandia will play in turning it into a reality.

LN: Technology transfer is of course a major mission. What's going on there?

Orval: Technology transfer keeps evolving successfully, though not without difficulty. The difficulty is that here's another example of DOE, ourselves, and others having to do business in a

**"We've been . . . cultivating strategic partnerships that will sustain and enhance our core competencies."**

new way. It takes time and effort to become comfortable with that. But Sandia now has 20 CRADAs in place, along with eight commercial licenses, with many more in various stages of negotiation. Among the DOE defense labs, Sandia is in a more aggressive position than our sister labs. We along with Oak Ridge National Lab were recognized by the Secretary of Energy's Advisory Board as the laboratories that are exercising leadership in tech transfer.

One of the things that has excited me about Sandia's approach to tech transfer, going back to our *Strategic Plan* and our identification of core competencies, is that we've been encouraging and cultivating strategic partnerships that will sustain and enhance our core competencies as well as benefit industry. So again, I think here's another example of the power of the *Strategic Plan*, in understanding what our competencies are and then acting in a consistent way to make the plan come true.

LN: Any final words before we close?

AI: One thing that always worries me about an interview like this is that we're bound to skip some important things. I don't want anybody to feel slighted. Maybe we could recommend that people go back to the Labs Accomplishments edition of the LAB NEWS [Feb. 7, 1992], which covers the spectrum of Sandia activities more fully than we can here.

If people would really pay attention to some of these things that are said and written, and think about them, who knows — we might progress even faster, with less worrying about things that are either unimportant or that we can't do anything about.

Clearly, some of the complaints we hear are the result of the discomfort that change produces. When you're uncomfortable, the first thing you do is give voice to that discomfort by pointing to all the things being done wrong. But there are a lot of good things happening. Sandia is moving positively into the future.

•CShirley(3162)/AEtheridge(3161)

(Continued from Page Three)

## Livermore Directors

where he did optical studies of pulverized coal combustion. In 1981, he was promoted to Supervisor of the Combustion Chemistry Division, where he initiated new programs in flame chemistry and basic state-to-state reaction mechanisms. In 1984, he was promoted to Manager of the Combustion Technology Department, which does applied research in engine and furnace combustion, coal combustion, and computational modeling. Since 1990, he has been Manager of both the Combustion Sciences and Combustion Technology Departments, which conduct a broad spectrum of research activities in Sandia's Combustion Research Facility activities.

Before joining Sandia, Bill worked for Lockheed's Palo Alto Research Center, and then joined the faculty of the Cornell University School of Mechanical and Aerospace Engineering.

Bill holds BS, MS, and PhD degrees in mechanical engineering from the University of California at Berkeley. His recent professional activities include chairman of the Society of Automotive Engineers' Horning Board of Award, co-editor of the Proceedings of the 23rd International Combustion Symposium, the Advisory Board for Brigham Young University's Advanced Combustion Engineering Research Center, and the Board of Advisors to several departments at the University of California/Davis. He is a member of the Combustion Institute and the Society of Automotive Engineers.

Bill enjoys sailing and scuba diving. He and his wife Suzanne have two grown children and live in Oakland. •JC

(Continued from Page One)

## Ombuds Program

travel to all Sandia locations.

The program was designed by an 11-member team led by Renae Dietz, Executive Assistant to the President. Other members of the team were Dolores Chavez (1000), Nancy Clark (2525), Susie Wilson (3435), Marv Torneby (3530), Linda Logan-Condon (4302), Joann Romero (4302), Ruby Cochrell (6400), Jim Bryson (6521), Liz Cox (8360), and Mike Robertson (9300).

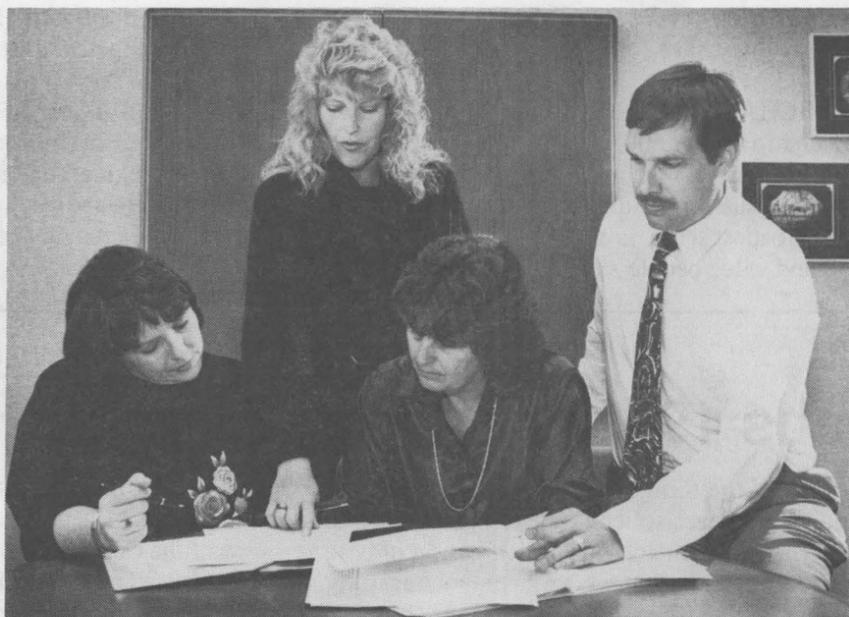
The study was made in response to a recommendation by one of five process management teams formed to address the findings of the Department of Labor audit at Sandia, Livermore last year.

"The Department of Labor report really got our attention and put us into high gear," Renae says, "but our discussions regarding the possibility of such a program started early in 1991. Al Narath

### Other ombuds believe such programs more than pay for themselves in employee satisfaction and productivity.

experienced the benefits of such a program while he was at AT&T and felt that we needed a similar program at Sandia. The more he listened to the concerns of employees, the more he realized the need for such a program."

In addition to adoption by the SMC, initial reaction from employees has been good, she says,



**BUDDING PROGRAM** — Four members of the 11-person committee that designed Sandia's Ombuds Program go over details of their report. Renae Dietz (standing, Org. 1) chaired the team, which included (seated, from left) Susie Wilson (3435), Nancy Clark (2525), and Jim Bryson (6521).

## Ombuds — A New Word Blooms

A sign on a lot of newsroom walls quotes Mark Twain: "The difference between the right word and the almost right word is like the difference between the lightning and the lightning bug."

What are we to make, then, of the word "ombuds"? Is it one or two of them? And if it is two, is one an "ombud" or an "ombuds"? One peer reviewer of the draft report recommending creation of a Sandia ombuds program put the basic question this way: "Is ombuds singular, plural, or both?" and then went on to suggest, tongue in cheek, that two ombuds might be called "ombuddies."

*The American Heritage Dictionary* says the

traditional word "ombudsman" is derived from a Norwegian word — one that we can't print because it contains letters we don't have on the keyboard. But it means steward or manager. Many European governments, especially in Scandinavia, have ombudsmen who are government officials, and who do the same kinds of things the Sandia ombuds will do — help solve problems.

In current American usage, however, "ombudsman" is considered to be gender-linked, so some people prefer to use just plain "ombuds." But, the question remains: Is one really an ombud or an ombuds? We think an "ombuds." Stay tuned.

adding that each of the 11 members of the team had the program proposal peer-reviewed, and the feedback has been very positive.

The new program is expected to increase communication of problems, even though Sandia's personnel manual already provides employees the right to resolve differences, preferably with their immediate supervisors. If resolution is not reached there, they have the right to take the issue to the next higher level of management.

### Other Companies Sold on Ombuds

In the process of designing the new program, team members talked with ombuds at other organizations, including AT&T, Massachusetts Institute

of Technology and McDonnell Douglas. Each of these ombuds, including Toni Perneski, one of 15 ombuds at AT&T, feels that successful ombuds programs more than pay for themselves in increased employee satisfaction and productivity.

As pointed out in the program proposal, Sandia has an existing ombudsman — Marv Torneby — but his position was created specifically to address ethics issues such as fraud, waste, and abuse. Marv's title will be changed to Corporate and Personal Integrity Program Coordinator to more accurately describe his job function and to avoid confusion with the new positions.

Marv has handled some ombuds-type cases during his career. He points out that employees must trust the ombuds to be an absolutely neutral party, because no one wants to discuss a sensitive concern unless that person feels no threat to job or career.

"Ideally," says Nancy Clark, "we'd like to find someone who's already doing this job — informally listening to employees and trying to make changes where possible. The success of the program will depend on the individuals selected to fill these positions."

"In addition to showing appropriate skills and commitment to Sandia's corporate values," says Nancy, "applicants will need to demonstrate broad acceptance by employees, attested to by letters of recommendation from Sandians at all levels."

The positions will be posted next week in a *Sandia Bulletin*. All employees are encouraged to read the posting and either consider bidding on the job, if qualified, or encouraging a favorite manager to do so. Both selections will be made through a participative process. ●HK

(Continued from Page One)

## On-Site Container

bombs, and bulk containers.

In a similar but separate project, Sandia is developing a smaller chemical weapon container for the Army's Chemical, Research, Development, and Engineering Center for use in monitoring the Multilateral Chemical Weapons Convention, an international treaty banning chemical weapons, notes Glenn Hohnstreiter, Manager of Dept. 6322. The smaller container is designed to carry up to 137 different samples of chemical agents to be transported by air to a neutral site for analysis.

The testing and design program for the On-Site Container is a team activity involving Sandians from many departments. Contributors include test coordinator Perry Jones (6323), Doc Stenberg (6323), Dave Cole (2735), Jim Nakos, Walt Gill, Ned Keltner (all 2737), Bill Uncapher, and Mike Arviso (both 6322) for testing; Greg Sjaardema (1562) and Jaime Moya (1513) for analysis; Dick Eakes (2855), Kirk Rackow (5172), and Richard Heckler (2855) for design; Mark McAllaster (6322) for prototype fabrication; and Bill Suderman (2756) for photometrics. ●LD

Switching to Commercial Numbers

## FTS Phone System Changes April 20

You can forget most of the FTS telephone numbers you've been using. When the FTS system changes on April 20, users of the federal government phone network will begin dialing commercial numbers instead.

The only exceptions will be certain numbers that aren't accessible from the commercial network, such as the FTS2000 audio conferencing operator.

Other than those numbers, calling FTS stations will be like commercial use of the phone: You'll still access the network by dialing 8, but then you'll dial the location's commercial area code and commercial number.

For locations without commercial phone numbers, you'll dial 8-700 and then the old FTS number.

Mark Schaefer of Communications Dept. 1955 says there will be a 30-day phase-in period during which both the old seven-digit and the new 10-digit numbers will continue to operate.

"But," Mark says, "after May 20, the old system will no longer allow you to call through.

You'll get a recording that will tell you to look in the directory for the correct 10-digit number."

He says inquiries should be addressed to Fred Jones (1955) at 5-8666. Directories that show the translation from old numbers to new numbers are available by mailing or faxing your name, address, agency, and phone number to: General Services Administration, Office of FTS2000, Technical Services Division, 7980 Boeing Court, Vienna, VA 22182-3988; fax FTS 393-7745 (until April 20) or (703) 760-7745.

Large white posters with instructions about the change are on bulletin boards throughout the Labs area as reminders. ●

## Card of Thanks

My family and I express our thanks to all well-wishers who sent cards and other expressions of sympathy upon the recent death of my father, Norman Ginley. It helps. Thanks.

David Ginley (1154)

(Continued from Page One)

## Secretaries

Kaemper (21), the Labs' Secretarial Supervisor. "We had earlier meetings for OAAs [Office Administrative Assistants, formerly known as



CAROL KAEMPER

division secretaries] and the Management Associate secretaries. Many of them wondered whether their jobs might disappear if their organizations were dissolved. A lot of the concerns have been taken care of through the natural evolution of the restructuring process. But Brown Bag sessions will give us a chance to talk about remaining concerns and to bring up other kinds of issues."

About 30 secretaries attended the Brown Bag session held last week, along with six members of the Secretarial Committee. Topics of discussion ranged from the annual fall secretarial seminar to the importance of computer skills to what happens to records when an organization is dissolved.

"I hope the seminar this year will include topics such as investment possibilities, different kinds of insurance at Sandia, or even how to read our benefits statement," says Shirley Anderson (2815), who made several suggestions to the committee. "A lot of us would like to hear more about practical things and less about personality types or how to be a super-secretary super-mom."



SHIRLEY ANDERSON

Comments about the seminar were useful, says Elena, because in past years the only guides the committee had were evaluations from the year before.

"We would all fill out our critiques at the end of the seminar in October," she says, "but by the time the next seminar rolled around, a different committee was in charge. I think this was the first time

### Next 'Brown Bag' May 7

The next Secretarial Committee Brown Bag is scheduled for May 7 at 11:30 a.m. in Bldg. 822 A and B (outside Tech Area 1). The Brown Bag sessions will recess for the summer, and a monthly schedule is expected to resume in September.

### Notes from the Secretarial Supervisor

## Secretaries Strive for Excellence

"Many secretaries would like to know how they can be a more integral part of Sandia's quality initiative," says Carol Kaemper (21). "They have told me they often feel they're thought of as being way out in left field somewhere. That troubles me terribly, because I can't imagine people who are more concerned with quality than secretaries."

Those remarks to the LAB NEWS echo Carol's perception of the job of a secretary as reported in *Secretary*, the magazine of Professional Secretaries International. Carol is a past president of the local organization and was one of five secretaries from across the nation profiled in the April 1992 issue. In that article, she notes, "Our organization [Sandia] is restructuring and expecting many secretaries to perform



**BROWN BAGGING** — Secretaries exchange ideas with the Secretarial Committee at a noon-hour session. Committee members seated at the table in the front of the room are (from left) Elena Holland (9204), Lola Orr (7810), Karen Smith (2360), Carol Amedeo (210), Michelle Sault (3550), and Diana Perea (3120).

the secretaries really had a chance to say in advance what they would like at the seminar."

Also discussed at the Brown Bag session was the progress of the Labs-wide committee working toward new office software standards. "Even though the committee hasn't made its final recommendations," says Justine McNabb (9205), "it was good to hear about how they're handling the question. We've heard that MASS-11 isn't going to be the standard any more, and I was interested to hear what the committee is thinking about."



JUSTINE McNABB

Betty Hilgartner (3442) told the Secretarial Committee and others at the session that her organization (Material Systems and Security Audit Department) is getting many calls from secretaries affected by restructuring. "There seem to be differences of understanding about what a secretary who has a document accountability station [DAS] should do if the DAS is dissolved," says Betty. "I can go back to my organization with the suggestion that we clarify some of these things."

### More Opinions Welcome

The consensus was that this session made a good start for a series of interactive meetings, says Elena. Shirley suggests that more outspo-

ken participation will lead to even livelier sessions in the future: "I hope more people will speak their minds."

Not many questions directly addressed restructuring this time, but Justine notes that more may come up at next month's Brown Bag session, after further changes have taken place. "I don't yet know where I will be permanently," she says. "I think in a month, we'll be in a better position to talk about some specific questions. A lot of my friends in other organizations tell me their duties are really not going to be changed by restructuring. But 9200 is having some drastic changes, and I think we'll have more perspective next month."

Betty hopes the Brown Bag sessions will serve as a form of networking for busy secretaries. "Because there's so much work in my organization, I don't have the time to get out and learn what's going on as much as I should," she says. "I usually spend lunchtimes trying to read some of the multitude of things that cross my desk. There are a lot of busy people all over the Labs, so there may be less interaction than there should be. That makes meetings like these especially beneficial."



BETTY HILGARTNER

As another extension of communication among secretaries, says Elena, the Sandia, Albuquerque Secretarial Committee and the Sandia, Livermore Secretarial Council plan to meet by videoconference next week. The two groups have previously exchanged representatives for secretarial seminars, but this is the first time that all members of both organizations will be conferring. "It's great that we're able to start using all these different forms of communication to support each other," says Elena. ●CS

## Take Note

The Rio Grande Chapter of the Health Physics Society (HPS) will hold its spring technical meeting on April 24 in Los Alamos. The meeting topic will be environmental health physics, and the president-elect of the national HPS will speak at the post-meeting dinner. Contact Betsy Forbes (7001) on 4-8257 for information about the agenda and registration.



## Sandia News Briefs

### Several Sandians Earn Professional ES&H Certifications

Several Sandians earned professional ES&H certifications recently, says Judith Mead, ES&H Customer Representative Manager 7203. Each recipient met educational and professional experience requirements, demonstrated an understanding of the application of rules and policies, and successfully completed a battery of examinations. The recipients and their certifications:

Certified Safety Professionals — Bill Mairson (5500), Margaret Carroll, Gus Arellano, Mark Seimonisck, and Craig Hauber (all 7732); Certified Health Physicists — Bill Burnett (7010), Hong-Nian Jow (7714), and Betsy Forbes (7001); Certified Industrial Hygienists — Gordon Smith (7205), Don Bridgers (7720), and Betsy Forbes; Professional Engineers — Al Fine (7733), Mike Irwin (7725), Margaret Carroll, and Bob Knowlton (7723); Associate Safety Professionals — Frank Antonich (7733) and Craig Hauber.

### McCulloch and Priddy Honored by Texas Tech

Two Sandians have been named charter members of Texas Tech University's Mechanical Engineering Academy — Bill McCulloch of Innovative Technology Applications Dept. 6515 and Tom Priddy of Defense Programs Training and Manpower Resource Office 5505. Selection is based on professional, civic, or humanitarian accomplishments. Both were inducted into the academy during an April 3 ceremony in Lubbock. As members, Bill and Tom will help lead educational programs of the Texas Tech ME Department.

Bill is a Distinguished Member of Technical Staff and was the first to receive a PhD in mechanical engineering from Texas Tech. Tom is an American Society of Mechanical Engineers (ASME) Fellow and ASME New Mexico Section chairman and director.

### Child Care Fair Is April 30

An all-day Child Care Fair will be held on Thursday, April 30, in the Technology Transfer Center (Bldg. 825). More than 40 child care providers serving infants through adolescents will be on hand to provide information. Sponsored by Sandia's Child Care Resource and Referral Service, the fair runs from 8 a.m. to 4:30 p.m., and box lunches will be on sale from 11 to 1. Child care providers will answer Sandians' questions about services, costs, registration requirements, summer programs, sick-child care, and weekend and overnight care. Children may be enrolled during the fair.

### Sandia to Participate in AT&T's 'Design for X' Conference

Sandians are invited to attend AT&T's "Design for X" (DFX) Conference in Atlanta May 19 through 21. The official invitation defines DFX as "design for manufacturability, testability, installability, maintainability, reliability, serviceability, orderability, safety and liability-prevention, compliance, environment, and other downstream considerations."

Arlan Andrews (4200), on special assignment as an American Society of Mechanical Engineers White House Fellow in the Office of Science and Technology Policy in Washington, D.C., is on the DFX program committee. He says Sandia will have a display at the conference, and Sandians will present three papers. Registration deadline is April 24, and the conference fee is \$300. For additional information, contact Arlan on FTS 395-3637.

Send potential Sandia News Briefs to Editor, Div. 3162.

## Take Note

The Center for Entrepreneurship and Economic Development at UNM's Robert O. Anderson Schools of Management is hosting its first Alumni/Program Banquet on Friday, May 1, at the Ramada Classic Hotel (6815 Menaul NE). The banquet (open to anyone interested in entrepreneurship) will honor all alumni of the Anderson Schools' Association of Collegiate Entrepreneurs, graduates in entrepreneurial studies, and all area students studying entrepreneurship. The banquet will be preceded by a reception beginning at 7 p.m.; the banquet begins at 8. Tickets cost \$12 for students of UNM, TVI, or SIPI and \$15 for all others. Reservation deadline is April 27; call 277-8447.

The Greater Albuquerque Bicycling Advisory Committee advises city, state, and federal agencies responsible for traffic planning and has a strong voice in the Bicycle Master Plan for the city. Committee members include citizens appointed by the mayor who represent the interests of commuting cyclists. Meetings are open to the public and are held at 4:30 p.m. on the second Monday of each month in the City/County Building downtown. If you would like to attend a meeting and address a special issue, you can get an agenda from Mickey Chirigos (City Parks and Recreation) on 768-3550. For information, call John Finger (6252) on 266-8906.

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The UNM College of Fine Arts is sponsoring a Studio Safari tour of five prominent Albuquerque visual and performing artists' studios on Sunday, May 3, from 2 to 6 p.m. The tour, which includes a buffet and entertainment, raises funds for annual scholarships that are awarded to three outstanding students in the college who are pursuing degrees in art, music, and theater. The 1992 Safari features artist Frank McCulloch, lithographer Jeff Ryan, weaver and painter Januz Kozikowski, sculptor and designer Charles Jaeger, artist Lily Fenischel, the Curran Jeffery Players, and jazz from the Thunderamas. Participants will be able to visit with the artists in their studios. Tickets are \$25. Call the UNM Fine Arts Box Office on 277-4402 to make reservations. For information, call Jane Baldwin on 277-2111 or Katy Ely on 247-3406.

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Retiring and not shown in LAB NEWS photos: John Sneathen (2741) and Jack Marron (1343).

## Welcome

Albuquerque — John Emerson (2472), Scott Holswade (2362); Other New Mexico — David Miller (7723).

Elsewhere: Illinois — John Clauss (6471), David Gaynon (3145); Minnesota — Martin Chen (7714); Texas — Steven Gianoulakis (6323); Wisconsin — Timothy Tautges (6418).

## Congratulations

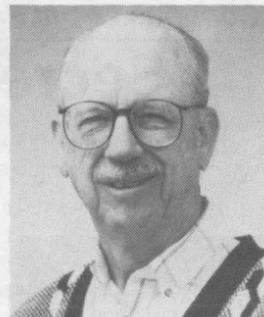
To Carmen and Bob (2858) Dedig, a son, Samuel Joseph, March 11.

## Sympathy

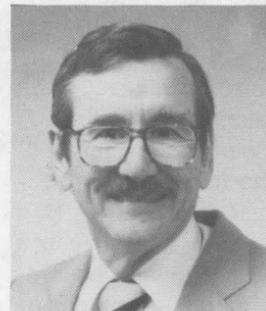
To Mike Senglaub (5151) on the death of his mother in Wisconsin, March 27.

To Dick Newell (367) on the death of his stepfather in Big Springs, Tex., April 6.

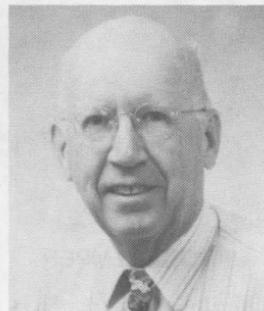
## Recent Retirees



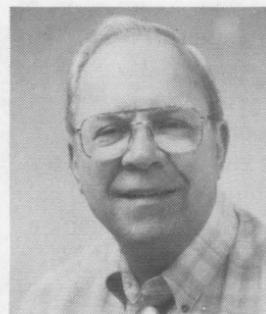
Leon Keck  
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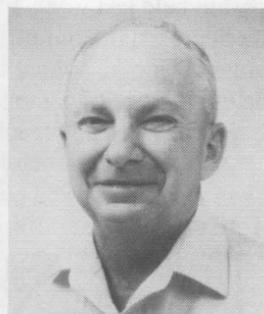
Bob O'Nan  
2346 37



Irwin Janney  
2483 36



Bob Neel  
9522 35



Don Bower  
9538 33

## Fun & Games

**Running** — The Seventh Annual Run for the Zoo is scheduled for May 3 at the Rio Grande Zoo. The 1991 run had 4,200 participants and was featured in *Runner's World* magazine as the best race in New Mexico and in the top 75 of 15,000 national races listed. The run's production team is all volunteer, and all profits benefit the zoo. Participants receive T-shirts, free admission to the zoo on race day, a participation ribbon, post-race refreshments, and assorted coupons and special offers. Overall winners will receive trophies and prizes. Traveling trophies and plaques will be awarded to the elementary and middle schools that register the largest number of students.

The 10K run begins at 7:30 a.m., the 5K at 9 a.m., and the one-mile at 10 a.m. The event is T.A.C. New Mexico State Championship sanctioned and certified. For information, contact the NM Zoological Society office on 842-7280 or 842-7226. Brochures will be sent upon request.

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**Bicycling** — Four options will be available to riders in the Clean Air Bicycle Challenge on Saturday, May 2. Sponsored as part of National Clean Air Week by the American Lung Association of New Mexico, the event features a 15-mile ride for families, a 30 miler for intermediate cyclists, and a hilly 50 miler for advanced cyclists. All three of these options take off into Tijeras Canyon on Route 66. The fourth option offers mountain bikers a 15-mile, off-road ride.

A trip to Hawaii and other fund-raising incentives are being offered. The Lung Association also is sponsoring a Clean Air Talent Contest for kindergartners through 12th graders on May 2. For more information, call 265-0732 or toll-free outside of Albuquerque on 1-800-221-LUNG.

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**Racquetball** — Ron Loehman (1800A) won the men's over-45 division in the New Mexico State Racquetball Championships held March 19-22 in Albuquerque.

## UNCLASSIFIED ADVERTISEMENTS • UNCLASSIFIED ADVERTISEMENTS • UNCLASSIFIED ADVERTISEMENTS • UNCLASSIFIED ADVERTISEMENTS

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

**Ad Rules**

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

**MISCELLANEOUS**

- SEARS KENMORE REFRIGERATOR, 13 cu. ft., white, approx. 10 yrs. old, works fine, \$75. Weber, 275-3719 after 5 p.m.
- DINING ROOM SET, ivory & brass, 6 high back chairs, excellent condition, \$500 OBO; 10-ft. ficus tree, \$50. Cook, 296-9083.
- SOUND ON SLIDE PROJECTOR & RECORDER, 3M Model 625, without remote control cord, have manual, \$30. Chavez, 842-6374 after 6 p.m.
- WARDS ROTOTILLER, 5-hp, front tine, w/attachments, good condition, \$220 OBO; 13-in. snow tires, 2 ea., like new, \$30/pr. Cook, 869-6921.
- KITCHEN TABLE, 42-in. round, white wrought iron, wood Formica™ top, 4 chairs, \$200; desk, wood Formica™ top, gold swivel chair, \$150. Scrivner, 299-0356.
- BOWLING BALLS M/F, Navy 3-1/2-in. scope, '65 Chev. service manuals, will give away. Silverman, 298-1308.
- ARMOIRE, 4-drawer, antique finish, \$125; oval dining table, 38" x 52", extends to 70-in., w/4 chairs, \$175. Beardsley, 292-5910.
- GE ELECTRIC DRYER, can see operating, harvest gold, \$50. Irwin, 291-9382.
- TANDY 3.5 720K EXTERNAL DISK DRIVE, w/cable, \$25; Tandy 1000 EX/SX male serial printer cables, 6-ft/\$1, 12-ft/\$2. Compton, 899-0679.
- TRAILER HITCH ASSEMBLY, complete Reese Equalizer, \$125. Fisher, 881-8072 or 293-0011.
- ENGRAVING MACHINE for laminated plastic, 3 letter types, beveler, cutter, & assorted materials. Williams, 293-1765.
- AIR COMPRESSOR, Power Pal, \$50; Craftsman 1/3-hp grinder, \$30; Craftsman Weedwacker, trimmer, \$18; 50-amp welder, \$25. Bear, 881-7128.
- SMALL ELECTRIC ORGAN, good hide-a-bed mattress, solid-wood captain's chairs, oak dining chairs, oak chest. Neas, 293-3422.
- ANTIQUA DESK & CHAIR, solid maple, \$350; three .38-S&W revolvers, 1 Colt, 2 Ruby, \$50-\$150; Winchester Model 12 12-gauge, \$200. Wehrle, 299-2959.
- OAK ENTERTAINMENT CENTER, twin towers, light bar, 102" x 72", or separate modules, \$295; picnic table, wheelbarrow, exercycle, bikes. Johnson, 294-6932.
- PLAYPEN, \$35; high chair, \$15; baby monitor, \$20; baby girl's clothes, 0-18 mos.; queen comforter, \$10; aquarium, \$15. Caldwell, 821-7110.
- HEART-RATE MONITOR, digital, ear clip, \$100 new, sell for \$50. Lorence, 275-3586.
- MAHOGANY ROLL-TOP DESK, \$150. Aragon, 292-4819.
- SKI BOOTS, Salomon SX-92 Equipe, size 335 (8-1/2 to 9-1/2, w/4 fit adjustments), cost \$375, asking \$175. Schkade, 292-5126.
- HEAVY-DUTY METAL-FRAME SIGNS, "For Sale by Owner" (1), "Open House" (3), \$10/ea., \$35/all. Garcia, 293-2810.
- GORMAN LITHOGRAPH ZUNI (State II), \$1,800 framed; twin bed w/canopy, \$70; GymPack 2000 weight set, \$60; metal desk, \$20. Loubriel, 268-1341.
- '70s VW RF FIBERGLASS FENDER, metal hood, no dings, \$35/ea., bumper MT boat rack, gutter bar, \$70. Madole, 298-6081.
- DRAFTING TABLE, good condition, \$65; large Coleman ice chest, \$30. Barclay, 291-1301, leave message.
- DIABLO 630 LQ PRINTER, w/cables & manual, perfect condition, \$150. Kraft, 299-2157.
- DP JOGGING TRAMPOLINE, new, unassembled, in box, \$17 OBO; Dyna Gym exercise equipment, like new, manual, \$39 OBO. Dixon, 298-5617.
- GAF DUAL 8 MOVIE PROJECTOR, automatic threading, movie & slide screen, projector table, all 3 for \$120. Smith, 299-7151.
- CLASS A TORSION BARS & HITCH for heavy trailers, 2 sets, \$75/set; A&E wind deflector, \$50. Lindsay, 881-0709.
- CENTURY PLANTS (agave), healthy, locally grown, various size up to a foot in diameter, \$5-\$15. Bando, 292-2452.
- WOMAN'S GOLF CLUBS, regripped woods & irons, \$50; 2 painted chests, \$20/ea.; 4 captain's chairs, \$20/ea. Shepherd, 299-9066.
- APARTMENT-SIZE WASHER & DRYER, washer can be converted to sink hookup, \$75/ea. or \$125/both. Austin, 831-2511.
- SKIS, Atomic Module 635 RS, 200cm, slalom/GS w/Marker M46 bindings, never used, \$250 OBO. Peterson, 292-4310.
- GAS STOVE, white, 4-burner, \$85; camper jacks, \$75; rototiller, 5-hp, \$150; iron wheel manure spreader, restore, \$225. Eisenberger, 877-7041.
- SUNBEAM PROPANE BARBEQUE, 2-burner, 5-gal. tank; 40-lbs. large-gauge copper wire; both free to good home. Horine, 266-4534.
- NEW TIRE, Goodyear 8.00-16 L.T., never on ground, 8-ply rating, \$50. Vandt, 293-1249.
- ALCAN CARPORT, 11 x 20; 10-ft. Beachcraft satellite dish; top condition. Baca, 265-2881.
- FOUR KITCHEN STOOLS, heavy maple, \$150; sofa/love seat, golden tan, \$200; C64 CPU w/6 cartridges, \$60. Schaub, 821-7242.
- CARPET, 35 yds., high quality, semi-trackless, w/pad, cream color, excellent condition, \$150. Biffle, 293-7043.
- OAK WATERBED, 4-drawer, firm, 2-1/2 yrs. old, king-size, \$300. Hughes, 821-0971.
- DOT-MATRIX PRINTER, IDS Prism-132, 200 CPS, 24 x 9 pin head, \$40. Hall, 298-8617.
- LUGGAGE CARRIER, w/ladder, for 8-ft.-wide camper/RV, needs minor repair, large size, costs \$175 new, sell for \$75. Tockey, 822-0358.
- KING-SIZE WATERBED, \$200; 1978 World Book Encyclopedia set, \$175; Sears humidifier, \$30; dining room chairs, 5 for \$50. Moreno, 294-4268.
- YAMAHA PSR 70 w/wood cabinet stand, \$250; 50's style auto vaporizer AC (hang outside window), \$30. Fenstermacher, 298-9050.
- WINCHESTER TURKEY GUN, 12-ga., Model 1300 pump, 3-in. magnum, vent rib, WinChokes, new, \$345. Brammer, 266-5158.
- LEER FIBERGLASS SHELL, fits full-size pickup, pass-through window, sliding side windows w/screens, interior light, excellent condition, \$350. Zaorski, 281-9194.
- WALNUT-GRAIN EXECUTIVE DESK, like new, see John at 605 San Mateo NE, \$150. Rea, 296-4620.
- GORHAM STERLING, Fairfax, 8 place settings, extra teaspoons, serving pieces, \$2,250; earthenware, Franciscan Nut Tree, 6 settings, serving pieces, \$75. Rainhart, 292-6380.
- BRICKS, 20-in., scallop edging, 30 ea., \$15 for 30 or 70¢ ea. Leslie, 299-4159.
- DRAWTITE HITCH for '90 Voyager or Caravan, max. trailer weight 3,500 lbs., max. tongue weight 300 lbs., \$50. Schroeder, 296-1011.
- JENNY LIND CRIB w/mattress, \$75; 2 child bicycle carriers, used only several times, \$15/ea. Zirzow, 281-9896.
- '87 SPRINTER TRAVEL TRAILER, 25-ft., self-contained, sleeps 7, excellent condition, paid \$10,731, sell for \$7,500. Vivian, 294-2360.
- PUSH MOWER, \$15. Koenig, 294-2264.
- POOL TABLE, 7-ft., \$350; Citizen 2500 printer, \$50; 2 super-single waterbeds, bookcase headboards, \$75/ea.; propane barbeque grill, \$400. Trussel, 293-7732.
- SHERWOOD FM RECEIVER/AMPLIFIER, 65 W/ch., \$40; JVC CD player, programmable, \$75. Bainbridge, 298-3423.
- COMPUTER TABLE, w/upper shelves, \$150. Jogi, 275-0610.
- DRUM SET (5-piece) & accessories, 2 Zildjian cymbals, 1 ride, 1 crash, includes cases, \$350 OBO. McKay, 294-2935.
- COMMODORE 64 COMPUTER, color monitor, 2 1541 disk drives, MPS-802 printer, assorted software, \$300; Schwinn Airlyne exercycle, \$400. Lukens, 299-1271.
- WINDSURFER SAIL, 5.0m2 Neil Pryde, \$50; Saab 900 Series trailer hitch, '81 and later, new \$180, sell for \$90. Horton, 883-7504.
- MOVING BOXES, free, you pick up. Grieco, 271-9020.
- CHERRY LOG, 6" D x 42" L, dried, ready for lathe working into decorative wooden objects, \$25 OBO. Freyermuth, 299-2053.
- RECLINER, rose color, wall-hugger, new, never used, \$210 firm. Patteson, 836-0140.
- EXERCISE BIKE, \$40 OBO; zoom lens, 80-200mm, has case & filter, fits Olympus OM-1 series, some Pentax, \$40. Mesibov, 898-3725.
- '89 GE REFRIGERATOR, like new, used 1-1/2 yrs., \$300; dresser & twin or double bed, \$275. Drebing, 293-3335.
- EASTER BUNNIES, multi-colored, \$8/ea. Garrison, 869-6979.

**TRANSPORTATION**

- '84 DODGE DAYTONA, 2.2 liter, 4-cyl., 4-spd., AC, PS, AM/FM cassette, tinted windows, 88K miles, \$3,000. Gallegos, 899-9004.
- '78 MONTE CARLO, V-8, all original, one-family owner, old car price, \$2,000. Clark, 296-3924.
- '83 NISSAN PICKUP, 83K miles, AT, new tires, new battery, good condition, \$1,800. Hingorani, 265-5625.
- OFF-ROAD MOTORCYCLES: Yamaha 175 Enduro, 140 Rokon fat-tire, both run, free to good home. Horine, 266-4534.
- 3-SPD. BIKE, \$75. Beardsley, 292-5910.
- '83 JEEP WAGONEER LIMITED, V-8, AC, AT, 4-WD, PW, PL, PS, 100K miles, \$3,995. Irwin, 291-9382.
- '86 TOYOTA 4x4, red/black/gold, 4-cyl., \$5,000 OBO. Padilla, 296-5048 after 5 p.m.
- '91 NISSAN PICKUP, gray, 5-spd., AC, AM/FM cassette, sliding rear window, \$8,000 to cover loan. Gallegos, 839-9048.
- '75 CHRYSLER CORDOVA for parts, \$75; rims for Chev. & Ford 1/2-ton trucks. Padilla, 877-2116.
- '85 FORD CROWN VICTORIA, 4-dr., white, loaded, clean, excellent condition, one owner, 58K miles, NADA \$4,550, negotiable. Kinoshita, 299-6491.
- '85 FORD THUNDERBIRD TURBO COUPE, 5-spd. overdrive, loaded, 51K miles, \$4,400. Shirley, 296-3972.
- BICYCLES: man's Schwinn 26-in. 5-spd., \$45; boy's Road Master 16-in., \$20, good condition; exercycle, \$15, will transport to SNL. Johnson, 294-6932.
- '91 HONDA PRELUDE Si, all equipment & extras, 5-spd., 4,100 miles, \$16,100. Chapman, 292-1198.
- GIRL'S BIKES, \$20 & \$40. Loubriel, 268-1341.
- '87 NISSAN SENTRA, super clean, excellent maintenance, great stereo, \$2,500. Barclay, 291-1301, leave message.
- '73 DATSUN 240Z, good condition, almost a classic, \$2,500 OBO. James, 344-7854, leave message.
- '79 FORD PICKUP, 3/4-ton, utility bed, w/80-gal. propane tank, AT, PS, PB, \$2,500. Savage, 247-9086.
- '87 PONTIAC FIREBIRD, white w/gray interior, 305 V-8, 4-spd., AT, AC, tilt, cruise, 47K miles. Dick, 889-9786 after 5 p.m.
- SENTINAL 10-SPD. BICYCLE, 23-in., \$60. Koenig, 294-2264.
- '88 MERCURY TRACER, 2-dr., AC, stereo, custom wheels, tinted windows, excellent condition, \$3,500. Mora, 877-4934.
- ROAD BIKE, 12-spd. Motobecane, 24-in., \$60. Portman, 298-8661.
- '85 PONTIAC FIREBIRD, V-8, runs well, 90K miles, \$4,800. Hancock, 823-1369.
- '83 TOYOTA TERCEL STATION WAGON, 4-WD, 6-spd., SR5, sunroof, \$2,750. Heald, 281-8826.
- MAN'S BIKE, 26-in. 10-spd., lightweight Raleigh Super Record, excellent condition, \$150. Vanderburg, 836-1169.
- SAILBOAT, 12-ft. topper, complete, travels on cartop, easy rigging, fun & responsive, \$400 OBO. Ashcraft, 884-4934.
- '81 YAMAHA MOTORCYCLE, 550 Maxim, "Pocket Rocket," burgundy, 8K miles, original owner, well cared for, excellent condition, \$950. Bryan, 271-2102.
- '83 WINNEBAGO LESHARO MOTORHOME, 20-ft., 22-mpg, new tires, 30K miles, Class A, \$7,900. Babcock, 299-3121, leave message.
- '87 FORD ESCORT PONY, 2-dr. hatchback, 52K miles, AC, cruise, AM/FM cassette, 4-spd., runs great, \$2,000 OBO. Tanner, 892-6107.
- '85 MALLARD MOTORHOME, Class A, 31-ft., w/car caddy, many extras, top condition, low mileage. Baca, 265-2881.
- JAYCO TRAVEL TRAILER (16-1/2-ft.); '73 Ford truck, w/many extras, \$4,000. Rebarchik, 299-1385.
- '89 CHEV. SILVERADO, 1-ton, dually, crew cab, 454, AT, custom toolbox, 56K miles, \$13,000. Stefanov, 299-7009.
- '82 FORD BRONCO, 302 V-8, 4-spd., priced at wholesale, \$3,100. Richards, 281-9471.
- '69 VOLVO 145, tan, 4-spd., AC, safe & reliable transportation. Caskey, 294-3218.
- '82 CAMARO BERLINETTA, 55K miles, original owner, 5.0L, 302 V-8, AT, PW, PL, PS, very clean, \$4,000 OBO. Schluter, 298-0940.
- '81 HONDA CX500D MOTORCYCLE, low miles, original owner, extras, \$800. Zirzow, 281-9896.
- SCHWINN TANDEM BICYCLE, 4-spd. derailleur, \$150. Linnerooth, 299-6558.
- '72 MUSTANG GRANDE, 2-dr., 351ci, AT, AC, PS, PB, 103K miles, all original, \$2,400. Micono, 884-4463.
- '72 VOLKSWAGEN SUPERBEETLE, white, rebuilt engine, new tires, sunroof, Alpine cassette deck, \$2,300. Hadley, 881-1504.
- '84 TOYOTA COROLLA LE, 4-dr., AT, AC, PS, AM/FM cassette, excellent condition, original owner, just had 75K maintenance, \$2,700. Tsao, 293-1176.
- '83 HONDA ACCORD LX, 3-dr. hatchback, 5-spd., AC, PS, AM/FM, 44K miles, \$2,500. Smith, 294-4531.
- '89 OLDS. CUTLASS SUPREME, maroon, 2-dr., mint condition, cruise, digital dash, brand new tires, one owner. Nelson, 881-7281.

**REAL ESTATE**

- '89 FORD SUNSEEKER MOTORHOME, 24-ft., 460 engine, 9,553 miles, excellent condition, \$27,000. Perez, 873-0643.
- 12-FT. ALUMINUM FISHING BOAT, lightweight, ideal for cartop or pickup, 5-1/2-hp Johnson motor w/gas tank, extras, \$650 OBO. Freyermuth, 299-2053.
- '87 CHEV. REGENCY CONVERSION VAN 20, loaded, new tires, brakes, battery, etc., 66K miles, \$10,500. McEwen, 271-1776 after 5:30 p.m. & weekends.
- '71 MGB GT, 4-spd. w/electric overdrive, 71K miles, below classic book value at \$1,200; girl's 12-in. bike, \$10. Shirley, 296-3972.
- SIX 2-ACRE LOTS, South Mountain area, excellent terms, 30 miles from Sandia, make offer, all or part. Jeys, 1-285-5931.
- 2-BDR. SPORTSMAN'S DELIGHT, Truth or Consequences, 1-1/2 baths, den, double garage, \$49,000, trade for REC, Rio, Albuquerque property. Aaron, 891-2751.
- 1/2-ACRE LOT in Las Vegas de San Juan subdivision, 10 miles below Navajo Lake, \$4,850. Geck, 299-5095.
- 2-BDR. MOBILE HOME, 14' x 50', '84 Baywood, pitched roof, 75-ft. riverfront, 519 Riverside Drive, T or C, neighbor, north shows, \$49,500. Eaton, 869-2847.
- 3 ACRES, Los Lunas (Tome), irrigated, electricity & phone, good view of Manzanos, \$45,000. Grant, 865-0785.
- 3-BDR. HOUSE, 1,358 sq. ft., 1-3/4 baths, 2-car garage w/Genie, fully landscaped front & back, covered back patio, Rio Rancho, \$67,900. Danella, 891-8059.
- 3-BDR. HOME, near Academy & Wyoming, study, 2 baths, double garage, heated pool, \$159,900. Nordyke, 821-2661.
- 2-BDR. MOBILE HOME, Town and Country, 1-3/4 baths, excellent condition, \$16,000. Raines, 275-5854.
- 3-BDR. HOME, 1-3/4 baths, living/dining room, den, eat-in kitchen, pitched roof, great condition, Morris/Indian School, \$89,900. Tapia, 299-1941.
- TWO 1-ACRE LOTS, in North Albuquerque Acres, fenced, telephone & power available, horses permitted, no flood zone, \$82,000. Kallenbach, 869-5237.
- 2-BDR. TOWNHOME, 1,120 sq. ft., 2-1/4 baths, in well-maintained NE community, washer/dryer hookups, wood deck, fireplace, carport, \$64,900. Schwartz, 883-2712.
- 4-BDR. HOME, 3 baths, 3-car garage, redecorated, auto sprinklers, 3 fireplaces, storm windows, Tramway/Indian School, 2,250 sq. ft., \$124,900. Lusader, 298-3469.

**WANTED**

- DRILL PRESS, tabletop, in good condition. Garcia, 294-2512.
- USED PAVING BRICKS, cheap, will pick up. Lachenmeyer, 268-7818.
- SET OF CAMPER JACKS, stand-alone. Hansche, 281-5623.
- CRAFTSMAN LATHE ACCESSORIES, plates, tools, copy crafter, etc. Zirzow, 281-9896.
- NORDICTRACK cross-country ski machine. Jung, 292-8245.
- TOW-MATIC II TOW BAR, with or without mounting brackets for '88 Honda Civic. Garcia, 888-4735.
- SANDIA HISTORY BOOK. Beck, 299-7225.
- WOMEN who would like to join Sweet Adeline chorus singing barbershop harmony. Moore, 294-5646.
- NORDICTRACK. Stinnett, 298-8613.



**Coronado Club Activities****Socialize for a While Tonight**

RELAX after your battle with tax forms — spring is in full swing and the Club is having a social get-together in the Cantina this afternoon and evening. It starts at 4:30 this afternoon and continues until... well, you decide, 'cause no definite windup time has been set. Enjoy your favorite beverages and savor a complimentary buffet.

**EASTER BRUNCH** — The Easter Sunday brunch, April 19, is going to be extra special in the best Club tradition. You can choose from eggs 'n' omelets, ham 'n' bacon, turkey, baron of beef, green chile stew, french toast, and all the accompanying dishes that you could imagine. Brunch is from 10 a.m. to 2 p.m., and a tea dance with Bob

Weiler and Los Gatos follows until 5 p.m. Cost for the brunch is \$8.95 for adults, \$4.95 for kids 4 to 12, and free for the three-and-unders. Reservations required for this one — call 265-6791.

**NEXT FRIDAY**, April 24, you can enjoy a wide variety of menu and music. "Sonny & Co." is returning to the Club with sounds that include country, soft rock, Spanish, and easy jazz. They'll play from 6 to 10 p.m. The chef is offering a 16-oz. T-bone steak (\$11.95), scallops mornay (\$11.95), or an all-you-can-eat buffet featuring green-chile-smothered chicken breast and baron of beef au jus (\$6.95). Take our advice and make your reservations now (265-6791).

**Events Calendar**

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

**April 17-30** — "The Dance of Creation," exhibit sponsored by the Institute of American Indian Art in Santa Fe; 8:30 a.m.-5 p.m. (artist reception 1-5 p.m. April 5), art gallery, South Broadway Cultural Center, 848-1320.

**April 18-19** — New Mexico Orchid Society Show and Sale; 2-5 p.m. Sat., 10 a.m.-5 p.m. Sun.; Albuquerque Garden Center (10120 Lomas NE), 296-6020.

**April 18-19** — The Best of Broadway: "Meet Me in St. Louis," based on the Judy Garland movie musical, a Popejoy Hall 26th season celebration; 8:15 p.m. Popejoy Hall, 277-3121.

**April 20-26** — American Indian Week: special events, traditional Indian dances, arts & crafts demonstrations, wholesale trade show, highlights success and concerns of Native Americans throughout the US; call for times, South Broadway Cultural Center, 843-7270.

**April 21** — Tuesday Night Garden Class: Colorful Flowers in the Garden, how to create a garden with season-long color, instructed by Tom Ellis (Albuquerque Urban Forester and horticulturist); 7-9 p.m., Albuquerque Garden Center (10120 Lomas Blvd. NE), 296-6020.

**April 22** — "Traders, Rugs, and Auctions," lecture by Herman Coffey, held in conjunction with the Maxwell Museum benefit auction; 7:30 p.m., Mitchell Hall 101, Maxwell Museum of Anthropology, 277-4404.

**April 23-26** — "Duet for One," starring Karen Grassle and Tom Connor, drama about famous concert violinist stricken with multiple sclerosis, necessitating her retirement and threatening her marriage, New Mexico Repertory Theatre, presented by special arrangement with the Resource Theatre Company; 8 p.m. Thurs.-Sat., 2 p.m. Sat. & Sun.; KiMo Theatre, 764-1700.

**April 23, 25, & 30** — "Together Again," UNM dance ensembles, featuring ballet, flamenco, and contemporary styles, presented by the UNM Department of Theatre and Dance; 8 p.m., Rodey Theatre, 277-4402.

**April 24-25** — Symphony in the Sunshine: "The Phantom of the Opera," original silent film starring Lon Chaney, live musical score re-created and conducted by Donald Hunsberger, New Mexico Symphony Orchestra presentation; 8:15 p.m., Sunshine Music Hall, 843-7657.

**April 24-25** — Gathering of Nations Pow-Wow: dance competitions, arts & crafts, Miss Indian World contest, more; 10 a.m.-midnight (Grand Entrance noon & 7 p.m.), University Arena (University & Stadium), 836-2810.

**April 24-26** — The Best of Broadway: "The Red Shoes Ballet," classic tale by Hans Christian Andersen, produced by David Chavez and the New Mexico Ballet Company, a Popejoy Hall 26th season celebration; 8:15 p.m. Fri.-Sat., 2:15 p.m. Sun.; Popejoy Hall, 277-3121.

**April 25** — Albuquerque Founder's Day: cultural and historic celebration of Albuquerque's founding, Sat. procession features four bigger-than-life santos (saints), continuous traditional entertainment, food, more, part of the Columbus Quincentennial Celebration; Old Town Plaza (Rio Grande & Central), free, 243-3696.

**April 25** — Smithsonian Event: "Identifying and Preserving Old Family Photographs," workshop con-

ducted by Kim Nielsen of the National Gallery of Art, collectors of vintage photos are invited to bring their photos and picture albums for individual advice about age identification and preservation, included is a short history of photography, how to date photos, and deterioration factors; 10 a.m.-4 p.m., UNM Art Museum, 277-4001.

**April 25** — Hungarian embroidery demonstration by Ilona Guttman; 11 a.m.-3 p.m., free, Maxwell Museum of Anthropology, 277-4404.

**April 25** — Founder's Day Lectures by Joseph Sanchez, director of the Spanish Colonial Research Center, and Rick Hendricks of the Vargas Project; 2-4 p.m., Albuquerque Museum, 243-7255.

**April 26** — Performance by Andy Garcia and the San Juan Pueblo Dancers, 1 p.m., free, Maxwell Museum of Anthropology, 277-4404.

**April 26** — Smithsonian Event: "The Revival of Hispanic Traditional Arts," lecture by Andrew Connors (National Museum of Art); 2 p.m., Albuquerque Museum, 243-7255.

**April 26** — Smithsonian Event: "Up, Up, and Away: A History of Buoyant Flight," by Tom Crouch (National Air and Space Museum); 4 p.m., Albuquerque Museum, 243-7255.

**April 27** — Tuesday Night Garden Class: Vegetables, from asparagus to zucchini, vegetables for Albuquerque, instructed by George Dickerson (NMSU Cooperative Extension Service); 7-9 p.m., Albuquerque Garden Center (10120 Lomas Blvd. NE), 296-6020.

**April 28** — Tuesday Evening Gallery Talk: "Magnificent Mud: Adobe in West Africa, India, and Afghanistan," slide-lecture by Smithsonian curators Jean-Louis Bourgeois and Carollee Pelos, authors of *Spectacular Vernacular — The Adobe Tradition*; 5:30 p.m., UNM Art Museum, 277-4001.

**April 30** — Poetry reading by Jimmy Santiago Baca, author of "Working in the Dark" and "Immigrants in Our Own Land," fund-raiser for Friends of the South Broadway Cultural Center; 7:30 p.m., South Broadway Cultural Center, 848-1320.

**April 30** — People of the Southwest Lecture: "Salado Polychrome Pottery and the Southwestern Cult," by Patricia Crown, assistant professor of archaeology at Arizona State University; 7:30 p.m., Mitchell Hall 101, Maxwell Museum of Anthropology, 277-4404.

*this month in the past...*

**40 years ago...**The Atomic Energy Commission congratulated Sandia for improving its accident record during 1951 to 0.81 reportable disabling occupational injuries per million man-hours worked, a rate that was 68 percent better than the total rate for all AEC operations contractors. The Coronado Club Sunday evening dance and all-you-can-eat buffet cost a buck seventy-five. Sandia was recruiting nationally even in the early years; during the previous month (March 1952), the Labs hired 86 people from 36 states other than New Mexico.

**30 years ago...**Using a leak-detection device called a "sniffer," technical experts at Sandia, Livermore were busy studying various sealing materials to prevent gas leaks in weapons. The Technical and Trades Training Division was offering a 10-hour course on proper use of the dictating machine to save time in preparing written communications. Interest in fallout shelters was high — LAB NEWS ads included a four-bedroom home with steel fallout shelter, and Luke Vortman (ret.) spoke to a local group about fallout shelters, including "comments and estimates of cost figures for shelters to withstand various magnitudes of blast pressure."

**20 years ago...**The Viking lander, a part of the Viking spacecraft, was undergoing a series of balance tests at the Labs in preparation for its journey to Mars; the lander made it to the "Red Planet" in 1976. The Benefits Division was cranking up a formal blood donor program for Sandia, Albuquerque. (Linda Stefoin [3543], who coordinates the blood drives today, estimates that Albuquerque Sandians have donated about 26,000 pints of blood through this program since then. Employees at Sandia, Livermore [much smaller population] have contributed more than 4,300 pints of blood since the program was begun there in 1959. Dorothy Wiemken [8522] coordinates the Livermore blood drives.)

**10 years ago...**"Solar One," the world's largest solar central receiver facility produced its first "net electrical output." Located near Barstow, Calif., the experimental facility used technology developed primarily at Sandia and operated until 1988 (see April 3, 1992, LAB NEWS for plans to test next-generation solar central receiver technology there).



**TUMBLING TIME'S OVER** — Wherever these weeds tumbled in from, their journey ended one recent windy spring day against the fence outside the Eubank Gate. Marty Esquibel, one of the members of the Weed and Litter Section of Albuquerque's Solid Waste Management Department, had his hands and his pitchfork full trying to deal with the growing mountain of dried thistle and other one-time New Mexico ground cover.