

Latest Research Collaborations Involve City, Steelmaker

The City of Albuquerque and a Pennsylvania company on the Fortune 500 list are two of Sandia's newest partners in developing technology for US industry.

Sandia will help the city develop a new portable air monitoring system and will work with Carpenter Technology Corp. of Reading, Pa., to develop special welding technology for stainless steel products.

Both collaborations will occur under terms of cooperative research and development agreements (CRADAs) authorized by the National Competi-

"The kinds of resources [at Sandia] are unavailable to us any other way."

tiveness Technology Transfer Act of 1989. Sponsored by US Senators Pete Domenici and Jeff Bingaman of New Mexico, the act makes the transfer of technology developed at DOE labs to private industry an official DOE mission.

Since last summer, 17 CRADAs have been signed by Sandia. Dozens of others are in various stages of negotiation, says Dan Arvizu, Director of Technology Transfer and Industrial Relations 4200.

"We're pleased with the CRADAs that have been initiated," says Dan, "but we wish more were already in effect. We're working with DOE to streamline the approval process so that US industry can receive timely benefits."

DOE managers from the Secretary's office down have acknowledged that the process seems



ROBERT CARDY (left), President and Chief Operating Officer of Carpenter Technology, and Mike Cieslak of Physical and Joining Metallurgy Div. 1831 look over a Gleeble 1500 during Cardy's visit to Sandia to sign a CRADA for work on welding stainless steel. The instrument simulates the behavior of welds under the influence of heat.

too long and have called for its streamlining.

Robert Cardy, president and chief operating officer of Carpenter, came to Sandia in January to sign his company's agreement and see the facilities where most of the work will be done.

Cardy praises the high quality of research and researchers at Sandia, but also thinks CRADAs should be easier to set up (see "An Often Circuitous Path" on page four).

Carpenter is the largest "long-product" (rods, bars, wire; not sheet or plate stock) specialty steel producer in the United States, Cardy says, and
(Continued on Page Four)

Tech Transfer a Long-Time Tradition at Sandia

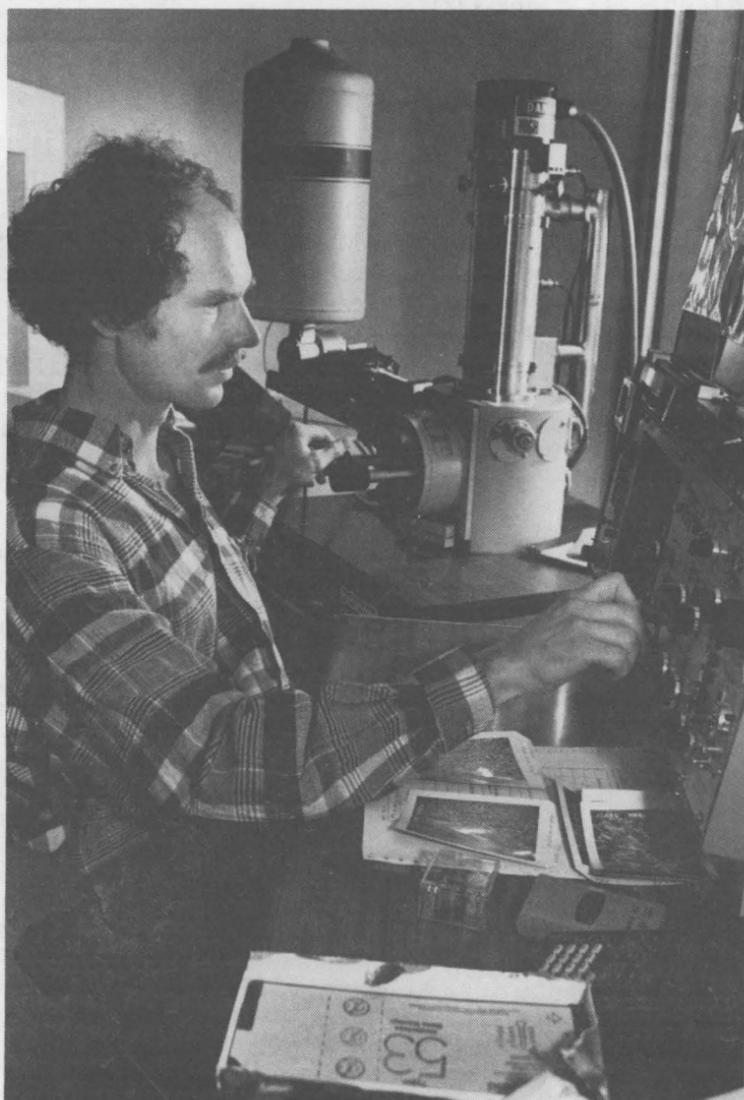
Although the efforts of the past couple of years stem from the National Competitiveness Technology Transfer Act of 1989, sponsored by US Senators Pete Domenici and Jeff Bingaman, Sandia has been transferring technology developed at the Labs to private industry for nearly three decades.

Laminar-flow clean room technology, developed at Sandia for exacting cleanliness in making delicate electronics, has been used by industry for that same purpose, medical applications, and other work for years — a technology whose transfer to private industry is measured annually in billions of dollars of business.

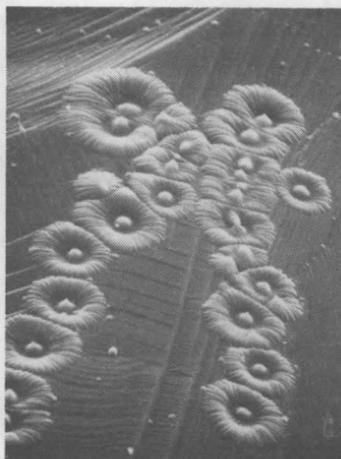
Automobile air bags, touted by experts as a major improvement in safety, are triggered by rolamites, impact-sensitive switches developed at Sandia in the early '60s for a variety of applications, including weapons.

LAB NEWS

VOL. 44, NO. 6 SANDIA NATIONAL LABORATORIES MARCH 20, 1992



HIGH-TECH PHOTOGRAPHY — Barry Ritchey (2472) adjusts the display screen of a scanning electron microscope to produce an image similar to the one below that won him second place in the 1991 Polaroid International Instant Photomicrography Contest. Titled "Flowering Silica on Copper," the photo is a 5,000-times magnification of sub-micron flowerlike growths of silicon that have precipitated on the surface of wet, hydrogen-fired copper. Subsequent X-ray analysis showed the "flowers" to be rich in silicon and oxygen. The image was selected from among 730 entries from 14 countries.



Countdown to Restructuring

New Management Structure Goes Into Effect April 1

The biggest step in Sandia's management restructuring process takes place April 1, when the new center directors assume their duties. These appointments, approved by the Sandia Management Council (SMC) early this month and by the Labs' Board of Directors last week, are reflected in the updated Sandia organization chart on page five. The chart also indicates lateral moves of some current directors. (The new directors, announced to employees in a *Sandia Bulletin* earlier this week, will be profiled in upcoming LAB NEWS issues.)

Described several months ago by Labs President Al Narath as a management redeployment, Sandia's restructuring has been in the works since early last October when Al announced his decision to streamline Sandia's management system. His decision to reduce the number of managers in the reporting chain was made after an employee team studied management structures of organizations similar to Sandia and gave Al a report containing several options.

The most visible change is the removal of most current department managers from the reporting chain and having what are now known as Sandia divisions (called departments under the new system) report to center directors.

New director positions created as a result of
(Continued on Page Five)

This & That

Twelve Days and Counting - "Sandia's new management structure becomes effective April 1." That was the headline we started to put on the restructuring story on page one, but then the thought occurred that "becomes effective" might be a preconceived judgment, so we changed it a bit. Certainly, we all hope that the new structure will "become effective" when it goes into effect!

Impatient? Pound Your Phone - Are you as tired as I am of waiting for the standard spiels on Sandia's voice-messaging system to stop before you can record a message? Well, "pound your phone" when you hear 'em - not literally, but push the pound sign (#), and the system will skip the intro and let you immediately begin recording your message. This helpful hint is courtesy of another Larry whose main virtue isn't patience - Larry Olson (153). Caution: Pressing # only works for Albuquerque phones; for Sandia, Livermore phones, press 1 for the same result.

Upper Echelon Eavesdropping - Overheard from President Al Narath on a recent Friday afternoon as he was walking out of his office with a heavy briefcase and another bunch of papers under his arm: "Wow, Friday already. Only two more workdays until Monday!"

Sandia Sets the Pace! - An item in the Labs Accomplishments section in our Feb. 7 issue noted that Sandia led the way among defense program labs during FY91 in establishing cooperative research and development agreements (CRADAs) with US industry. Many federal R&D labs are eager to expand cooperative work with industry in hopes that it will be good not only for the labs and industry, but also for the nation as we seek to stay competitive in a world market. In this issue, we examine some of the work Sandia is doing with industry through the CRADAs. Technology Transfer and Industrial Relations 4200 is in charge of this program; Howard Kercheval of Community Relations Div. 3163 wrote the story.

An Award for Everything? - Awards are passed out for lots of things these days, but I was a bit startled to read this headline on page one of a central-Nevada weekly newspaper, *The Eureka Sentinel*: "Vandals recognized for an outstanding season." After reading just a few lines, I quickly realized that the high school athletic teams there are known as the "Vandals." But now I'm wondering how/why they adopted such a nasty name. Maybe someone at the Tonopah Test Range can enlighten me.

Call Me Old-Fashioned - We try to use non-sexist language in the LAB NEWS, but I admit that I can't get used to calling a person a "chair," the gender-neutral substitute word for chairman. Personally, I can live with chairman, chairwoman, or even chairperson, but I still think a chair is something you're supposed to sit in. After all, would we say today that the "sand" comes around at night and puts us to sleep?

However, I'm also savvy enough to realize I'm probably fighting a losing battle, so I'll put personal preferences aside and we'll call you a chair in the LAB NEWS if you really want. Likewise, we'll honor your preference if it's chairman, chairperson, or chairwoman (yes, wiseacres, you gotta be a woman to use the last one). I sure hope, though, that we never mistype chairwoman by leaving out the "i" because the trusty ol' computer spell-checker thinks charwoman is a perfectly good word. ●LP

Take Note

A bus tour to the Trinity Site on the White Sands Missile Range is being sponsored by the National Atomic Museum and Que Pasa Recreation Center. Buses leave the Museum on Saturday, April 4, at 6:30 a.m. Tickets are \$16, and are available at the Museum and Que Pasa. On Thursday, April 2, from 7 to 8:30 p.m. at the Atomic Museum, retired Sandia VP Bob Henderson, who headed the Engineering Group in the Explosives Division at Trinity, will give a pre-tour talk about the first atomic explosion at Trinity. For reservations and information, call 5-4636 or 6-2059.

The Annual Symposium of the New Mexico Chapter of the American Vacuum Society will be held May 11 through 15 in Albuquerque. Sessions will cover surface science, electronic materials, applied surface science, and thin films. Papers are solicited. Abstracts should be submitted to Kevin Zavadil (1845), phone 5-8442, by April 6. A five-day short course program will be offered in conjunction with the symposium. For short course information, contact Jay Fries on 1-438-8081. For symposium registration information, contact Rudy Buchheit (1834) on 4-6904.

New Mexico Volunteers for the Outdoors is seeking volunteers to help fence off an old homestead on El Malpais to preserve the site from damage, Saturday and Sunday, March 21 and 22; to help with trail construction and maintenance on the Sandia Foothills Trail Project on Saturday, March 28; and to work on hiking trails, campgrounds, and wooden observation towers on the Bosque del Apache, Saturday and Sunday, April 4 and 5. For more information, call 884-7329.

Nominations are now being accepted for the 1992 New Mexico Inventor of the Year Award. Any living New Mexico inventor can receive the award. The invention must (1) be covered by an unexpired US patent; (2) have been created in or have a significant connection to New Mexico; and (3) have an actual or potential contribution to the economy of New Mexico, to the state's welfare, and the quality of life of its citizens. Nomination forms are available from George Libman (250). Deadline is April 15. For more information, call 768-7281.

Welcome

Albuquerque - Berlinda Gonzales (21-1), Tami Greenwood (21-1), Janice Huskey (21-1), Mary Payne (21-1), Karen Rice (3441), Kelly Rogers (3532), Mary Spear (21-1), Diana Velarde (21-1), Janet Wechsler (21-1). *Other New Mexico* - Linda Chavez (7821), Diane Gaylord (21-1), Paul Toya (3426).

Elsewhere: Arizona - Ann Harper (3122); *California* - Scott Stafford (7712); *Ohio* - Annette Sobel (3320); *Wisconsin* - Brian Swartzentruber (1114).

Congratulations

To Lucille Robinson (3301) and Wendell Forster (3441), married in Albuquerque, Feb. 22.

To Margaret Ann and Timothy (6321) Wheeler, a son, Timothy Andrew II, March 7.



BLACK HISTORY Month at Sandia, Livermore in February featured discussions of the contributions of Afro-Americans to American society. Sandia participants gave presentations at forums titled "Afro-American Profiles of Excellence - Present" and "Afro-American Profiles of Excellence - Past." Other programs included a display of posters of historically prominent Afro-Americans. Discussion participants included (from left) Barry Bolden (5361), guest artist Ron Wells (contractor), who spoke on the history of black music, Beverly (8522) and Marvin Kelley (8441), and Johnny Ellison (8513).

LAB NEWS

Published Fortnightly on Fridays

SANDIA NATIONAL LABORATORIES

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Sandia Co-Sponsors Event**Palo Alto Students Take Top Honors in Science Competition**

None of the eight finalists in the 1992 Regional Science Bowl for high school science students knew the answer to the final question.

But then, how many working scientists could answer the question, "Who was the first man to hit a golf ball on the moon?"

Still, by the time the final buzzer sounded, four elated students from Henry M. Gunn Senior High School in Palo Alto had earned the regional championship title. Coming from behind with one loss, they trounced the previously undefeated team from Foothill High School in Santa Ana, 106-32.

One of the winners called the event "a harrowing experience." Team Captain Anoop Sinha, a senior who wants to major in engineering, said his group won "because we had a lot of teamwork. We didn't lose faith in each other."

Their performance earned them an expense-paid trip to Washington, D.C., to participate in the national competition April 24-27.

Even the Sandia volunteers who hosted the event admit they would have had a difficult time correctly answering some of the questions in astronomy, biology, chemistry, computer science, general science, earth science, math, and physics.

Fifteen High Schools Competed

The Regional Science Bowl, featuring teams from 15 high schools in the East Bay and Los Angeles areas, was held March 7 at Ohlone College in Fremont. The contest was coordinated by Sandia, Livermore and co-sponsored by DOE.

The event was patterned after traditional College Bowl competitions. Two teams equipped with electronic buzzers competed to answer multiple-choice and short-answer questions. Teams con-



CONGRATULATING the winning science bowl team is Ray Ng (8445), educational outreach coordinator for Sandia, with Team Captain Anoop Sinha. Others from Gunn High are (from left) Ameet Ranadive, Adam Breon, Faculty Advisor Dan Peterson, Louis Kruger, and Dmitri Linde.

sisted of four members and one alternate.

Some 30 Sandia volunteers gave up a big chunk of their weekend and contributed many hours to pre-event planning. At times, the tension of the competition rivaled the sweaty palms and nervousness of any athletic event.

Karen Hoexter (8526), a Sandia volunteer, met a group of students flying into Oakland Airport from Los Angeles and opened her home to them. She and Deana Butler (8543) fed the hungry teenagers throughout the day.

Ray Ng (8445), education outreach coordinator for Sandia, calls the Science Bowl an overwhelming success. "We did this to show students that science is fun and exciting and to encourage the top science students in California."

Jim Costa, Supervisor of Organic and Composite Materials Div. 8311, who served as one of the moderators, agrees with Ray's assessment:

"With this much talent around, it had to be successful. Anything about science turned out to be an OK question to ask. By the time many of us reach our specialty, we are very focused, but these kids had a remarkable breadth of knowledge.

"In fact," he jokes, "I'm a little rusty on some of my biology terminology. I barely got the question out of my mouth when the correct response came back — with the pronunciation corrected."

VP John Crawford (8000) notes that it is in the best interest of Sandia and DOE to promote science and math education in the schools. "It is no secret that the US may face a shortage of science and technical professions by the year 2000. So it's our duty to support any and all local efforts that promote science education."

Dan Peterson, chairman of the winning team's science department at Henry Gunn, says his van was buzzing with last-minute science conversations on the way to the event.

"These students live in an academic world," he says, "and this event gave them the opportunity to broaden their experiences and to gain confidence that they will carry with them in their future careers — possibly even at Sandia."

(By the way, the answer to the last question of the day is that Alan B. Shepard Jr. was the first man to hit a golf ball on the moon.) ●

**SANDIA LIVERMORE NEWS****Sandians Receive Research Awards**

Two Sandians received awards for outstanding research for 1991 during a ceremony at the Combustion Research Facility (CRF).

Bob Kee, Supervisor of Computational Mechanics Div. 8245, received the E.K. Bastress Award and John Goldsmith of Diagnostics Research Div. 8354 received the O.W. Adams Award.

Bob was honored for his long-term efforts in developing Chemkin, a computer software system used to solve chemical kinetics problems. His concept of making such a software package both problem-independent and operating system-independent is unique.

Chemkin has been distributed worldwide and has about 1,000 users. It is useful not only for combustion chemistry applications, but also for problems in chemical vapor deposition, fire risk assessment, analysis of lamps, and even research on automobile airbag systems.

Presenting the award on behalf of Sandia, Bob Carling (8362) said, "Bob is being recognized for his development of such an outstanding product and for his enthusiastic support of Chemkin, which has won numerous friends for the Combustion Research Facility and Sandia."

John, who won the Adams Award, was recognized for outstanding technical contributions to Sandia's combustion program. From 1980 to 1990, he was principal investigator of DOE's Office of Basic Energy Sciences (BES) Chemical Sciences program, concentrating on developing laser diagnostic techniques for the measurement of

radical species concentrations in flames.

He was one of the first researchers in the world to recognize the usefulness of multiphoton excitation for detection of atomic flame radicals such as hydrogen and oxygen. His research activities have earned the CRF considerable respect in the international research community, says Bob Carling.

John recently changed research directions to work on Sandia's developing remote-sensing program.

The Bastress Award recognizes an employee who has made a significant contribution to developing a strong and effective coupling of combustion research programs with the needs of US industry. It is named for E. Karl Bastress, who guided the first Energy Conservation-related research activities for DOE. ●



AWARD WINNERS John Goldsmith (left, 8354) and Bob Kee (8245).

The Adams Award honors a Sandian who has made exemplary contributions to the research program of the CRF. It is named for its DOE sponsor, O.W. "Bill" Adams. ●

Watkins Approves Environmental Report for Livermore Site

Energy Secretary James Watkins has approved the combined Draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR) for Lawrence Livermore National Laboratory and Sandia, Livermore.

Watkins' approval sets the stage for public release of the document and a 90-day period for public comment March 11 through June 11.

The document is required for the University of California, which manages Lawrence Livermore, to decide whether to renew its contract with

DOE, which ends Sept. 30. The document evaluates alternatives to continued operation, identifies measures to avoid or offset significant environmental effects, and ensures that such effects are considered in the decision-making process.

Copies of the two-volume, 2,200-page Draft EIS/EIR are available by calling (510) 373-8702, or 1-800-221-9005 (Northern California only). Copies are also on file in local libraries and in Sandia's reading room off the lobby of Bldg. 911 (on East Avenue in Livermore). ●

(Continued from Page One)

Research Collaborations

probably the second- or third-largest in the world. The company employs about 3,600 people, has annual sales of \$550-600 million, serves about 15,000 customers worldwide, and manufactures 450 different alloys in product form from 30 inches in cross section to one-third the diameter of a human hair. Carpenter has 22 distribution warehouses in the US and Canada, and is planning expansion into Europe.

Despite his company's success, Cardy says, the cooperative project with Sandia is essential. "The kinds of resources here are unavailable to us any other way. Without this agreement, the technical issue that we're trying to resolve might have been a permanent stumbling block."

The work, involving a special alloy, will be performed at Sandia. Carpenter will provide part of the financing and all the metal used in the process.

Tracking Emissions from Industry

For use closer to home, the Labs will team with Albuquerque pollution control officers to develop a new portable air monitoring system capable of determining the amount of toxic emissions from industrial sources.

The work will combine Sandia's technical expertise with Albuquerque's experience in ambient air monitoring as an example of the city's focus on strengthening economic development and assembling community resources to solve local problems.

"The largest problem facing Albuquerque and other air pollution control agencies nationwide is the inability to monitor toxic emissions on a continuous real-time basis," says Steve Walker, Manager of the city's Air Pollution Control Division. "We're optimistic that Sandia's technology can be adapted to resolve this critical problem."

The Labs also will benefit from the effort, says Joan Woodard, Director of Environmental and Manufacturing R&D Programs 6600. "We'll be able to expand our expertise in chemometric analysis techniques as applied to effluent monitoring, and, if the instrument is certified by the Environmental Protection Agency, we ultimately will have a system that can monitor emissions at Sandia and other DOE facilities."

Rundown of Current CRADAs

Sandia is now teaming with 17 companies in formal cooperative research and development agreements (CRADAs). Here is a list of them, with a brief description of each project:

Signetics — utilization of Sandia's Microelectronics Quality/Reliability Center for testing and failure analysis.

Motorola — testing capabilities with the goal of eliminating chlorofluorocarbons (CFCs) and other ozone-depleting solvents by substituting a new self-cleaning wave soldering process.

National Semiconductor — utilization of Sandia's Microelectronics Quality/Reliability Center for testing and failure analysis.

Permacharge — investigation of microcellular polymer foam, developed and patented by Sandia, in low-cost, high-performance filters.

Vindicator — testing of a taut-wire security apparatus under development by the company, and development of a taut-wire sensor.

Stellar Systems — assistance in designing and testing an enhanced version of the company's existing electric-field outdoor perimeter sensor.

Dow Corning — investigation of new silica processing methods.

Watkins-Johnson — joint development of a chemical vapor deposition process for copper.

Industry Seeks More R&D Collaborations

An Often Circuitous Path to DOE Labs' Technological Treasure

Cooperative research and development agreements (CRADAs) are both boon and bane to Sandia's technology transfer efforts. They have great potential to help US industry, but sometimes are frustrating to accomplish.

An industry CEO who recently signed a CRADA with Sandia (see main story) had high praise for the CRADA concept but expressed disappointment in how long it took to get final approval. Quick action in seizing opportunities, observers in government and industry agree, is a virtue that should be more clearly reflected in the CRADA process.

Despite frustrations and annoyances with the route, however, continuing interest by industry shows that the destination — in this case, technological innovation unavailable elsewhere — is worth a little worry along the way.

The DOE labs have been called sources of materials and processes that could stoke the furnaces of US industry, especially since the Cold War's end has eliminated much of the labs' work on new weapon systems. DOE Secretary James Watkins went so far as to single them out in his January budget message as "jewels in the American crown."

Sandia will design the system and provide statistical techniques and software for analysis of the data. The city will provide technical assistance in instrument specification, siting and logistical criteria, and field testing of prototype designs.

The city has measured toxic air emissions from industrial sources for several years to ensure compliance with environmental laws. It has been hindered, however, by methods that require labor-intensive data analysis or time-consuming laboratory chemical analysis of samples.

The collaboration on the new system will combine proven chemometric techniques and software from existing Sandia technology to create a new method for rapid and precise analysis of toxic air emissions. The new method also will allow the city to monitor concurrently a variety of toxic pollutants. ●HKercheval(3163)

In defining Sandia's evolving role in a changing world, President Al Narath, Tech Transfer Director Dan Arvizu, and others refer often to the Labs' strategic partnerships for industry, with other labs and universities, and the "Work for Others" program, with other government agencies.

Al recently told a university audience, "We aim to be a leader in innovating ways to create greater value for the taxpayers, as a result of investment in the national laboratories."

Dan told a Labs audience in January, "Our goal is not to bring more money into the Labs — that would be nice, of course — but to help American industry with competitiveness.

"Perhaps our uniqueness is not so much in what we already do, as in what we are capable of doing," Dan said. "We can bring impressive talent to bear on long-range problems — perhaps more than similar labs outside DOE."

The newest CRADAs add to the variety of Labs expertise being employed in collaboration with industry. Previous ones include technologies such as security measures, microelectronics research, microcellular foam filtration, and integrated circuitry.

Dellin Receives Consortium Award

Four of Sandia's first 17 cooperative R&D agreements (CRADAs) now in progress (see story beginning on page one) are due to efforts that won a 1992 Federal Laboratory Consortium award for Ted Dellin, Supervisor of Reliability Physics Div. 2376.

Ted was the driving force behind creation of a Microelectronics Quality/Reliability Center (MQRC) at the Labs. Through the MQRC, Sandia is teaming with semiconductor companies to help private industry adopt quality- and reliability-related technologies needed to remain competitive in a tough global market. Sandia now has CRADAs in this field with Signetics, National Semiconductor, LSI Logic, and Olin Specialty Products; several others are being negotiated.



TED DELLIN (2376)

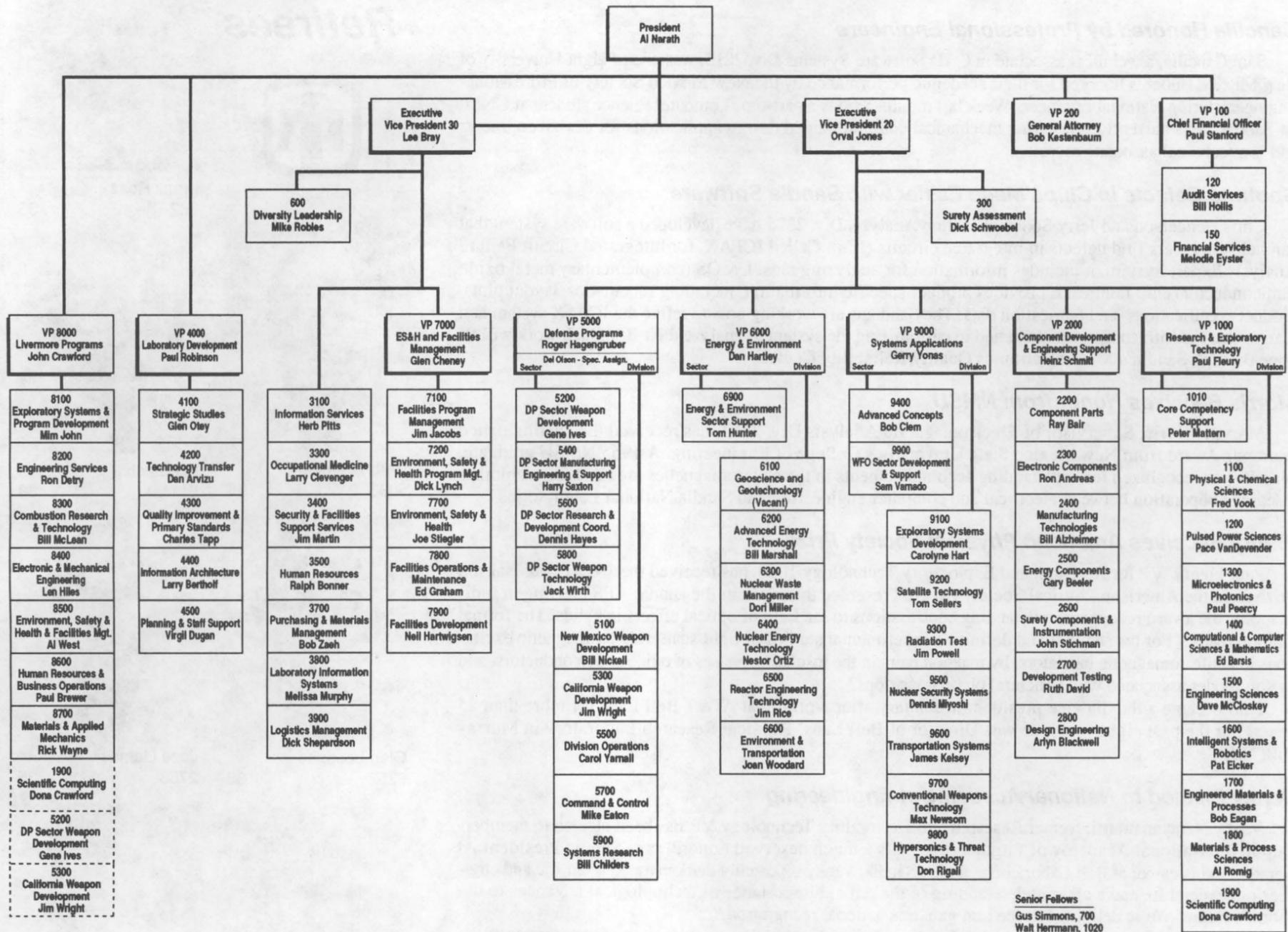
"It took a lot of effort to convince private companies that a national lab could help improve their manufacturing process," says Ted. "We had to develop innovative and cost effective solutions, the kind called for in the *Strategic Plan*, to form 'win-win' partnerships with industry.

"This should definitely be considered a team award," he adds. "The MQRC and the CRADAs are the result of an effective, empowered team of staff and management of the Reliability Physics [2376], Failure Analysis [2375], Packaging Technology [1333], and Tech Transfer Applications [4210] organizations."

Through the agreements involving the MQRC, Sandia is transferring technologies in the characterization of semiconductor production line reliability, failure analysis techniques, assembly optimization, and state-of-the-art test methods to private businesses.

Ted's award will be presented at a Federal Laboratory Consortium meeting in May. The consortium develops and tests tech transfer methods and addresses barriers to tech transfer. ●

Sandia Organization Chart, April 1992



SANDIA AFTER RESTRUCTURING — Here's how the Labs management structure will look on April 1. The organizations headed by vice presidents will generally be known as divisions, and three VPs (5000, 6000, and 9000) will also manage programmatic sectors. The groups reporting to VPs will now be called centers instead of directorates. The broken lines around the three centers at the

bottom of Division 8000 indicate that these directors are based in Livermore but report programmatically to VPs in Albuquerque; these centers are also shown under appropriate Albuquerque VPs. Details about the management structure below the center level will be conveyed to employees through their lines.

(Continued from Page One)

New Management Structure April 1

the restructuring process were filled after special teams encompassing a cross section of employees studied the criteria and qualifications of nominees, interviewed all nominees, and provided input to Sandia's vice presidents.

Proud of Participatory Process

"This participatory process worked well, and I think we should all be pleased with it," says Executive VP Lee Bray (30). "The VPs, of course, had to make the final decisions, but they did so only after considering the evaluations of the employee groups. I think we'll see more and more of this type of thing at the Labs.

"I certainly appreciate the significant effort expended by the resource teams," Lee continues, "and I think it was not only beneficial to the selection process, but was also an important educational experience for the team members."

Although the restructuring created 30 new director positions, it removed about 110 department managers from the functional reporting chain, for a net reduction of about 80 organizational management positions.

As explained in the Jan. 24 LAB NEWS, most current department managers will be reassigned, and current department secretaries and other department-level support staff could have

several options.

"In some cases, department support staff may stay where they are or make lateral moves into new slots," explains Human Resources Director Ralph Bonner (3500). "However, support positions that aren't filled in this way should be filled through the post-and-bid method [advertised in the *Weekly Bulletin*]. This will ensure that all qualified employees can bid on the positions that aren't filled by lateral moves."

Ralph cautions that it will take some time to sort out exactly who will go where: "It can't be done overnight, but now that we know who the directors are, they can define the support positions that they need, and decisions will be made as to how best to fill them. In fact, we've already started on this, and open positions that aren't being filled by lateral moves will begin showing up soon in the *Weekly Bulletin*."

Details about restructuring below the director level will be conveyed to employees through their line organizations. ●LP

Sympathy

To James Dotts (7732) on the death of his father in West Virginia, Jan. 22.

To Karen Winter (111) on the death of her father in Newcastle, Wyo., March 2.

To Tommy (2481), Walter (1273), Charles (2745), and James (9538) Simpson on the death of their mother in Gallup, March 4.

To Bob Evers (6473) on the death of his father in Largo, Fla., March 6.

this month in the past...



40 years ago... First Sandia President George Landry (dec.) left to become Vice President of Western Electric. And from the "costs have gone up" department: The Atomic Energy Commission was seeking bids for a 6,000-sq.-ft. Sandia Corp. Medical Building — construction estimates ranged from \$75,000 to \$100,000.

30 years ago... Educational outreach isn't such a new idea at Sandia. In March 1962, 22 Sandia employees exchanged places with a like number of Albuquerque-area high school science teachers for a day. The Sandians taught classes on March 20 while the teachers attended a seminar at the Labs.

20 years ago... Project Paper Purge was planned at the Labs, with the goal of reducing the volume of records and reference materials by 20 percent. In a State-of-the-Labs message, Sandia President John Hornbeck (dec.) said something that sounds mighty similar to what's being said today: "I see greater emphasis in the area of command and control because of the increasing concern about the security of nuclear weapons, particularly those deployed outside the US."

Sandia News Briefs

Cancilla Honored by Professional Engineers

Sam Cancilla, a technical associate in CAD Software Systems Div. 2815, was one of eight University of New Mexico students honored for their academic performance by the New Mexico Society of Professional Engineers during National Engineers Week last month. Sam is a part-time computer science student at UNM. At Sandia, he is currently supporting mechanical computer aided design applications for design engineers and is a technical associate recruiter.

Spotting Defects in Chips Made Easier with Sandia Software

Chris Henderson and Jerry Soden of Failure Analysis Div. 2375 have developed a software system that can help engineers find defects in integrated circuits (ICs). Called ICFA, for Integrated Circuit Failure Analysis Expert System, it includes information for analyzing most CMOS (complementary metal oxide semiconductor) chip failures. It provides product-specific information, including schematics, layout plots, product specifications, and fabrication data. The Sandians are working now to refine the ICFA system and plan to share it with companies interested in customizing the system to analyze their ICs. Such work will be done through Sandia's Microelectronics Quality/Reliability Center.

Morris Receives Honor from NMSU

Marvin Morris, Supervisor of Electromagnetic Analysis Div. 2753, has received the Distinguished Alumnus Award from New Mexico State University's College of Engineering. A 1965 NMSU graduate, Marvin was recognized for "outstanding accomplishments in the electromagnetics area and for promoting research cooperation between electrical and computer engineering and Sandia National Laboratories."

Fleury Receives American Physical Society Prize

Paul Fleury, VP for Research and Exploratory Technology 1000, has received the 1992 Frank Isakson Prize from the American Physical Society (APS). Presented this week at the annual APS meeting in Indianapolis, the award recognizes outstanding contributions to the field of optical effects in solids. The formal citation reads: "For his seminal and definitive experimental studies of light-scattering by magnetic excitations in antiferromagnetic insulators, by magnon pairs in the insulating phases of oxide superconductors, and by soft modes associated with structural phase transitions."

Paul became a Sandia vice president in January after working at AT&T Bell Labs for more than 25 years. For the past eight years, he was Director of Bell Labs' Physical Research Laboratory in Murray Hill, N.J.

Venky Elected to National Academy of Engineering

Venky Narayanamurti, former Research and Exploratory Technology VP, has been elected to membership in the National Academy of Engineering. "It's a much deserved honor," says Sandia President Al Narath. "In his career at Bell Laboratories and at Sandia, Venky repeatedly demonstrated scientific and engineering leadership, and a clear understanding of the critical importance of technological advances to the nation's future. We're delighted to see him gain this national recognition."

Venky retired from AT&T when he left Sandia in December, but then became dean of engineering at the University of California at Santa Barbara.

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

Medical Corner

When Your Body Complains to You

By Arlene Price, 3300

Maybe you have the "blahs" today. Perhaps you've got a headache or you feel tired or worried, and you're thinking there's something seriously wrong with you. More likely, you're just fine and your worry, if not excessive, is normal. Surveys show that 80 percent of healthy adults have at least one health complaint in any three days.

Focusing on physical symptoms when there's no sign of physical disease is called "somatization." It's often associated with anxiety and depression. The more anxious and depressed a person is, the more likely he or she is to experience bodily complaints. Somatization is common,

though, and most of us get headaches, stomach aches, or other aches and pains and peculiar feelings from time to time.

Certainly when you have aches or pains that don't go away — chest pains, for example — you should be concerned and check with your physician.

But many people worry too much. There's a big difference between having symptoms that are a nuisance and having symptoms caused by serious disease. This is not to say that the nuisance symptoms are only "in your head." Bodily complaints are often associated with stress, strong feelings and emotions, or sensitivity to bodily sensations. Some people feel much better after learning relaxation techniques to ease muscle pain or after realizing that physical symptoms may be related to emotions.

Once you've checked out your health concerns with your doctor, and after you've done the right things for your body — not smoking, improving your nutrition, getting enough rest and exercise — you can probably ignore the occasional "squeaks" and get on with the business at hand.

Program Scheduled for April 3

Medical 3300 is sponsoring a program, "Bodily Complaints," with guest speaker Robert Kellner, MD, of the UNM School of Medicine. Dr. Kellner suggests that minor discomforts can be caused by stress or by oversensitivity to everyday bodily signs. Usually these minor aches and pains are a normal part of life. The program will be Friday, April 3, in the Tech Transfer Center (Bldg. 825) from 12 noon to 12:45. For more information, contact Arlene Price (3300) on 5-8729.



Recent Retirees



Frank Ross
362 35



Herb Loemker
5033 36



Bill Ulrich
5114 36



Glen Loepke
6252 33



Jose Llamas
2756 35



John Snowdon
7855 32



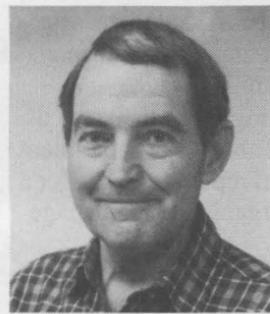
Helen Moseley
154 26

Take Note

The Muscular Dystrophy Association is seeking volunteer counselors to attend its 1992 New Mexico summer camp for children with neuromuscular diseases. The camp will be held at New Mexico Tech in Socorro June 21 through 26. Each volunteer teams up with a New Mexico or El Paso camper to enjoy activities together, including fishing, boating, swimming, basketball, dances, and more. Transportation from Albuquerque is provided. For more information, contact John German (3162) on 262-1721. For a volunteer application, call the MDA office on 828-1331. Volunteers must be at least 16 years old.

Retiring and not shown in LAB NEWS photos: Robert Hogan (9548).

Employee Death



RICHARD BAUGHMAN
his wife Eve (ret.) and two daughters.

Richard Baughman of Advanced Materials and Devices Div. 1154 died March 8 after a long illness. He was 64 years old.

Richard was a senior member of technical staff and had been at the Labs since 1961.

He is survived by

UNCLASSIFIED ADVERTISEMENTS • UNCLASSIFIED ADVERTISEMENTS • UNCLASSIFIED ADVERTISEMENTS • UNCLASSIFIED ADVERTISEMENTS

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

Ad Rules

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

MISCELLANEOUS

HORSE TRAILER, 14-ft., white, black striping, '91 model, used only 3 times, \$1,950 cash. Greene, 898-2594.

UMPIRE EQUIPMENT, used 1 season, face mask, shin guards, chest protector, cap, ball bag, \$40/all. Hammond, 294-2045.

CUSTOM SHEEPSKIN SEAT COVERS for Ford Taurus, dark blue/gray, \$50. Jones, 293-0440.

REFRIGERATOR, Kenmore, 19 cu. ft., side-by-side, harvest gold, clean, needs work, \$75. Gibson, 281-8752.

FENDER HEARTFIELD RR-8 ELECTRIC GUITAR, brand new, active pickups, w/on-board distortion, mahogany neck, new \$800, sell for \$600 OBO. Holmes, 897-0916.

TELESCOPE, 8-in. Celestron, equatorial mount, clock drive, dual drive corrector, electric focus, illuminated reticle, many accessories, \$1,195. Johnsen, 298-1086.

IBM PC, \$150; VGA card, \$20; mouse, \$15; joystick, \$5; Borland C++ 2.0, \$30; other software available. Bainbridge, 298-3423.

MOVING BOXES, w/packing paper, free; 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.

DAYBED w/trundle, 2 mattresses, bedspread w/accents pillows, \$250 OBO. Hatch, 296-2773.

SKI EQUIPMENT, ski clothes, Viola, 2 pr. skis w/bindings, junior size clothes, Ton-Klar, The Danela Viola accessories. McMurtry, 888-1494.

TARGET TELESCOPE, 1-1/4", 14X, Unertl, perfect condition, \$150. Zownir, 256-3753.

TWO TVS, stereos, 6-ft. teakwood/marble bar, bedroom & dining room sets, couch/chair/ottoman, more. Orr, 891-1596 or 892-5670 after 6 p.m. or weekends.

ANTIQUE ENCYCLOPEDIAS, literature, *Great Orations*, & medical library circa 1905, make offer; pony beer keg w/pump, \$40. Daniel, 268-8335.

LAWN MOWER, Sears, gasoline; Coming electric coffee pot; large non-stick waffle iron; make offer. Krahling, 268-8126.

ANTIQUE DINING TABLE & 4 ladder-back chairs, \$300; antique china cabinet, glass front, mirror back, \$600. Torrez, 268-6906.

IBM PC, 640K RAM, color & amber monitors, 2 floppy drives, PC DOS 5.0, PFS:First Publisher, \$550. Brewster, 899-2999.

PIANO, 1926 Knabe, refinished mahogany, 5-1/2-ft. case, excellent condition, \$2,700. Newman, 1-982-4081.

LEADING EDGE MODEL D, 1.2-meg., 5.25 floppy, Sony color monitor, 30-meg. HD, excellent condition, \$420. Dillon, 881-3843.

DINETTE SET, w/expansion leaf & 6 swivel chairs, \$90. Garcia, 298-7340.

LAS CRUCES PECANS, half-pound packages, \$3/ea., proceeds benefit UNM Hospital Children's Cancer Program. Neil, 299-7247 or 296-3901.

QUEEN-SIZE COMFORTER SET, new, cream/beige/chocolate/aqua, \$40; new dark-brown shirred shower curtain & liner, \$15. McQueen, 296-6725.

YAMAHA PSR48 KEYBOARD, 1 yr. old, excellent condition, worth more than \$300, sell for \$220, w/manual. Benavidez, 299-1034.

SEARS REFRIGERATOR, 12 cu. ft., white; Wards upright freezer, 19.3 cu. ft., white; both in excellent condition. Strascina, 299-2285.

JENNY LIND CRIB, w/waterbed mattress & 6-piece matching comforter set, \$200; swing, \$20; infant seat, \$15; excellent condition. Montoya, 822-9181.

TRUST BUILDER SOFTWARE, w/manuals, write your own living revocable trust, paid \$139, sell for \$99. Butler, 299-5626.

DOWN JACKET, beige w/western-style suede leather decoration, Pioneer Wear brand, size med., cost \$160 new, asking \$75. Schkade, 292-5126.

TOWING DOLLY, adjustable width, excellent condition, low mileage, spare included, \$725. Horton, 883-7504.

MIZUNO GOLF CLUBS & BAG, \$120; Nordica air system ski boots, 9-1/2, \$80; Descente racing ski pants, \$50. James, 294-6837.

GAMEFISHER ELECTRIC TROLLING MOTOR, 12.5-lb. thrust, 12-volt, weighs 9.5 lbs.; brand-new Sears Diehard marine battery; both \$100. Freyermuth, 299-2053.

AKC-REGISTERED SHELTY PUPPIES, 4 sable males, parents on premises, first shots. Jacobs, 281-8478.

QUEEN-SIZE MATTRESS/BOX SPRING, firm, "Englander," \$125 OBO; air conditioner, down draft 44-4800 CFM 2-spd. motor, pump, new pads, \$175 OBO. Hole, 255-1444.

STUDENT FLUTE, nickel-plated, w/case & tuning rod, \$75. Linnerooth, 299-6558.

JUNIOR WEIGHT PRESS LIFTING BENCH, good condition, son outgrew it, \$15. Chavez, 842-6374 after 6 p.m.

'77 CHEV. PICKUP MANUALS, complete set, \$10. Lis, 822-1189.

KENWOOD 100W RECEIVER, analog dial, \$75; top-rated 10-in. speakers, \$90 pr. Smith, 265-4080.

HEALTHY 8-FT. PINON, free for removing, located in front yard, NE Heights. Bliss, 296-3752, leave message.

SONY AM/FM CASSETTE, 4-speaker XR-4147; Yonex irons, copper/beryllium woods, 2 P185/75R14 tires; all half price. Finley, 299-0739.

AT&T PC 6300 COMPUTER, color monitor, 640K RAM, 40MB hard disk, manuals, MS-DOS, GW BASIC, \$400. Bacon, 344-8315.

EXERCYCLE, Sears Dual Action Lifestyler 575, excellent condition, \$55. Jensen, 823-9203.

TWO HEATHKIT 25-IN. COLOR TVS, solid wood consoles, \$65/ea., \$100/both; 1 set of manuals & schematics. Barnard, 292-5648.

SKI RACK, locking, Barrecrafters, for rain gutters, adjusts 50" to 62", used once, \$80. Cotter, 897-1470.

PLOW, \$400 & disk, \$500; for small tractor. Patterson, 299-1062.

ARGOSY BY AIRSTREAM, 24-ft., self-contained travel trailer, includes charter membership to Sandia Crest Campground. Benson, 268-4635.

'87 JAYCO 5TH WHEEL TRAILER, Designer, model 30RKSU, 30-ft., new Marathon tires, microwave, TV w/remote, awning, elect. jacks, \$16,000. Grear, 344-2009.

NEW BIKE RACK, carries 4 bikes, includes locks & windbreak, worth \$300, sell for \$150 OBO. Richards, 296-2272.

FULL-SIZE BED, complete, \$60. Miles, 296-2169.

EXERCISE BICYCLE, Schwinn Air-dyne, like new, \$350 Scipes, 298-0207.

FUTON, full-size mattress without frame, almost new, \$75. Johnson, 897-3546.

DOGHOUSE, 3' W x 3' H x 4' D, \$40. Edmunds, 293-3503.

COMMODORE 64C PC, w/1541 C disk drive, BASIC 2.0, Geos software, Epson Homewriter printer, various game software, \$145. Gonzales, 823-9511.

EPSON 1+ 8088 COMPUTER, w/co-processor, WP5.1, Lotus 2.3, plus utilities & more, includes monitor, \$550. Bremer, 292-4912.

QUEEN-SIZE WATERBED, 12-drawer pedestal, bookcase headboard w/mirror, wood is light stained pine, \$325 OBO. Howard, 839-9203.

MICROWAVE OVEN, Formica table & 6 chairs, black love seat & swivel rocker, all \$50/ea.; Wards upright freezer, \$150. Drebing, 293-3335.

BROWN LEATHER MOTORCYCLE JACKET, Bates, 42, \$60; Smith & Wesson revolver, model 36, 38-cal., \$215; solar water heater, \$150 OBO. Mooney, 281-2612.

LEATHER CHAIR & OTTOMAN, navy blue, on sale at American Furniture for \$399 (regularly \$549), mint condition, \$300. Campbell, 294-1380.

POP-UP TRAILER, Viking Deluxe, 21-ft., furnace, awning, independent suspension, electric brakes. Mitchell, 293-8391 after 5 p.m.

YAMAHA TENOR SAX, like new, w/case & accessories, \$575; Yamaha clarinet, good condition, \$135. Aragon, 888-3473.

CENTURY DINING ROOM: 8-piece oval table, lighted china; king-size box spring, mattress, frame; 7-1/2-ft. gold couch; freezer. Mills, 299-2130.

CROSS-COUNTRY SKIS, 180cm, size 39 boots, 120cm poles, \$50; turf/football shoes, black high-top, size 9, \$20. Anderson, 294-8451.

SHOP-VAC, 2-hp, 16-gal., wet/dry cap., casters & all accessories, \$40. Brooks, 275-0056.

RC-10 REMOTE CONTROLLED DUNE BUGGY, tub chassis, full bearings, electronic speed controller, many extras, \$300 OBO. Miller, 281-4397.

MAN'S 2-KT./7-STONE DIAMOND RING, stones are KL, \$2,800 OBO. Stewart, 891-2770.

SOFA-BED, used only 2 weeks for guests, cost \$280, asking \$125. Guttman, 888-5114.

SANSUI TUNER, \$60; verb, \$25; Pioneer speakers, \$125; Akai reel-to-reel, \$250; Garrard turntable, \$10; \$425 complete. Dandini, 296-4975.

BEN FRANKLIN FIREPLACE, complete, \$80 OBO; B.F. Goodrich tire, "The Advantage," P205/75 R14, M+T, new, \$20. Bland, 265-6286.

PIMENTEL GUITAR, excellent condition, W1S model, walnut back & sides, cedar top, case included, \$950. Faculjak, 898-6502.

SALTILLO TILES, 30+, 12" x 12", \$15. Strip, 292-7490.

TWO 55-GAL. STEEL DRUMS, free; Ford rim, 15-in., 5-hole. Yingst, 884-3812.

DELCO 6-WAY POWER SEAT CONVERSION for Ford pickup captain's seat or similar unit, \$175. Lindsay, 881-0709.

TABLE SAW, 9-in., \$45; radial arm saw, \$100. Walter, 884-4282.

TRANSPORTATION

'73 VOLKSWAGEN BUG, w/2110cc dual carb engine, new paint, partially new interior, \$2,700 cash. Leisher, 281-5258.

'70 THUNDERBIRD, classic, good condition, \$3,800 OBO. Sikora, 299-6413.

'84 MACGREGOR 25-FT. SAILBOAT, trailer, outboard motor, 3 sails, extras, excellent condition, complete, ready to sail. Mead, 869-6124.

'75 CHRYSLER CORDOVA, for parts, \$75. Padilla, 877-2116.

'81 18-FT. HOBIE CATARAMAN, w/trailer & sail storage, excellent condition, lots of extras, \$2,800 OBO. Simpson, 296-4588.

SCHWINN "LIL CHICK" BICYCLE, 20-in., \$50. Hatch, 296-2773.

BICYCLES: 23-in. Nishiki road bike w/triple, \$150; 16-1/2-in. Mongoose (IBOC comp.) mountain bike, \$275. Arakaki, 822-0812.

'83 WINNEBAGO LESHARO MOTORHOME, diesel, 20-ft., 22-mpg, new tires, 30K miles, \$8,900. Babcock, 299-3121, leave message & phone number.

'83 THUNDERBIRD, V-8, loaded, leather interior, 76K miles, spotless, always garaged, \$3,500 firm. Kubiak, 265-6525.

'88 DODGE DAKOTA, 3.9L V-6, 8-ft. box, PS, PB, AM/FM tape, 48K miles, VGC, \$5,600 OBO. Eley, 255-2617.

'86 FORD BRONCO II XLT, 4x4, EFI, V-6, 5-spd., AC, PS, PW, PL, AM/FM cassette, \$5,700. Seidel, 298-1791.

'89 NISSAN PATHFINDER, all power, cruise, 24K miles, \$13,500; '88 Honda Accord LXI, loaded, hatchback, \$7,400; both OBO. Lopez, 293-2508 or 292-4455.

'86 DODGE RAM 50 PICKUP, 4-cyl., 2-WD, AC, AT, excellent, 61K miles, \$2,800. Moss, 299-5149.

GIRL'S BICYCLE, 26-in. wheels, 3-spd., clean, excellent condition, used very little, includes spotlight, \$35. Freyermuth, 299-2053.

'81 RED CORVETTE, 43K miles, excellent condition, new seat covers & car cover, \$11,000. Jackson, 293-0262.

'89 CHEV. PICKUP, 1-ton, dually, Silverado package, custom-built toolbox, extras, \$15,000. Stefanov, 299-7009.

'85 DODGE RAM CHARGER, 4x4, 360 V-8, fully loaded, clean inside & out, \$5,300 OBO. Sanchez, 299-0443.

MAN'S 10-SPD. SCHWINN BICYCLE, Varsity style, blue, good condition, \$45. Barnard, 292-5648.

'83 HONDA ASPENCADE, excellent condition, stereo, CB radio, tape deck, extras, \$3,900. Furaus, 293-9799.

'84 HONDA VF700 INTERCEPTOR MOTORCYCLE, excellent condition, approx. 12K miles, red, white, & blue, \$1,999.99 OBO. Howard, 839-9203.

'80 HONDA ACCORD LX, AC, PS, PB, AT, AM/FM cassette, louvers, 86K miles, \$1,150. Gomez, 266-8154.

'89 FORD CAMPER VAN, 4.9L, furnace, 3-way refrigerator, gas stove, water tank, sink, waste tank closet, bed, \$13,000. Hufnagel, 294-5949.

'82 ITASCA CLASS A MOTORHOME, 23-ft., 6.2-ltr. Chev. diesel, 4KW generator, roof air, 61K miles, excellent, \$13,900. Schuler, 821-8944.

'82 CHEV. PICKUP, 3/4-ton, 4-spd., Positraction, PS, dual tanks, 47K miles, AC, \$3,500; 22-ft. Sea Ray Overnighter, w/454 4x4 Suburban puller. Walter, 884-4282.

'88 YAMAHA YZ-125 Pro Circuit, pipe, hand & disc guards, new chain & sprocket, many extras, \$1,400 OBO. Miller, 281-4397.

'90 TOYOTA CELICA ST, extended warranty, alarm system, red, \$9,900. Ashworth, 898-2485.

'89 YAMAHA YZ250WR, excellent condition, adult-riden, loaded w/extras, \$1,900. Wright, 296-3850.

'71 GLASPAR 15-FT. SPORT BOAT, 85-hp Johnson outboard motor, depth finder, travel cover, many extras, \$2,300 OBO. Brusseau, 891-2841.

'76 BROUGHAM MOTORHOME, 24-ft., 318 V-8 engine, Dodge chassis, 48K miles, all options, second owner, have records. Sparks, 880-0324.

'86 WINNEBAGO LESHARO MOTORHOME, 21-ft., gas engine, 18-mpg, AC, generator, new tires, 61K miles, excellent condition, \$12,000. Tyler, 299-3467.

'84 PONTIAC FIERO SE, 4-spd., white, AC, PW, PL, sunroof, cruise, AM/FM cassette, runs great, \$2,600 OBO. Oht, 292-1316.

BOY'S RALEIGH MOUNTAIN BIKE, 5-spd., 20-in. wheels, excellent condition, \$150 new, asking \$85. Dandini, 296-4975.

16-FT. HOBIE CATAMARAN, Tequila Sunrise, double trapeze, many accessories, w/trailer & box, excellent condition, sail ready, \$1,500. Bailar, 865-1518.

'88 PLYMOUTH CARAVELLE, 4-cyl. turbo, loaded, upgraded interior, 18K miles, like new, \$7,000 OBO. Allen, 296-5129.

REAL ESTATE

3-BDR. HOME, 1-3/4 baths, 2-car garage, La Cueva area, excellent shape, \$85,000. Dramer, 821-8107.

2.1 LEVEL ACRES nestled in pine & oak trees in East Mountain La Madera area, utilities available, \$30,000. Romero, 473-9257.

1/4 ACRE in SW, all hookups available, electrical already hooked up, fenced, \$18,000 OBO. Flores, 877-7439.

1/2-ACRE LOT, near Intel in Rio Rancho, all utilities, \$15,000. Patterson, 299-1062.

2-BDR. MOBILE HOME, '84 Cameo, 14' x 72', located in Four Hills Mobile Home Park, \$13,500 firm. Fisher, 275-3904, leave message.

2-BDR. TOWNHOME, 1,000 sq. ft., 2 baths, 1-1/2-car garage, security system, fireplace, skylights, deck, Tramway/Copper, great condition, 8.4%, \$69,000. Mac Cosbe, 293-3492.

2,500-SQ.-FT. BRICK HOME, brand new, on 2 acres in Tome (between Los Lunas & Belen), owner financing, \$165,000. Castillo, 1-864-1962.

3-BDR. RANCH HOME, 1,650 sq. ft., 1-3/4 baths, 2-car garage, fully landscaped, recent upgrades, 14212 Grand NE, \$102,000. Montoya, 296-0454.

WANTED

USED LAWN MOWER, rear bagger, good condition. Doran, 299-2635.

BOY SCOUT TROOP could use donations of used uniforms, backpacks, sleeping bags, tents, cookware, tarps, hiking boots, etc. Cancellia, 293-1620.

PAPER TRACTOR PIN-FEED ATTACHMENT for Commodore printer MPS 803. Mosteller, 256-3227.

VOLUNTEERS WANTED, scholarship program for high school girls, New Mexico Young Woman of the Year. Riley, 869-2119.

14-FT. V-BOTTOM ALUMINUM BOAT, without motor or trailer, will pay reasonable price. Freyermuth, 299-2053.

BOARDER W/1 HORSE, 1-acre turnout, covered stalls, tack room. Beer, 298-5305.

BABY STROLLER, sturdy, good condition. Ruby, 299-0767.

BICYCLE TRAILER. Greer, 281-4688.

SHOPSMITH, older model OK, good condition, reasonably priced. Bacon, 897-2740.

RENTAL HOUSE, 4-bdr., May 15-Aug. 15. Glass, 897-9114.

WINDSURFER SAIL, any size, less than \$50; light-duty trailer for boat, 13-ft.-15-ft. Shapnek, 281-5913.

PING ANSER 5-PUTTER. Underhill, 294-5774.

LECTURERS on aerospace-related topics to Civil Air Patrol cadet squadron. Manley, 281-9446.

BACKPACKING EQUIPMENT, adult & children's. Hogan, 292-8879.

KARATE GI, handgear, etc., adult. Garcia, 881-2835.

SMALL GARDEN SHREDDER, to borrow, rent, or buy. Strip, 292-7490.

LOST AND FOUND

WOMAN'S PETITE GOLD ROLEX WATCH LOST, square diamond face, Tech Area 1 or parking lot at Wyoming & "O" on March 3, reward. Wilson, 298-1452.

14-KT. GOLD TENNIS BRACELET LOST, diamond cut design, reward offered. Mayer, 299-8524.

TIE PIN FOUND near Bldg. 962, silver w/stone. Mosteller, 256-3227.

CASSETTE TAPES FOUND on road near the Price Club, describe & claim. Burke, 294-7548.

SHARE-A-RIDE

CORRALES/RIO RANCHO VAN-POOL, pickup available along Coors. Duran (891-3251) or Kuzmaul (892-4466).

CEDAR CREST VANPOOL, \$35/mo., Frost Rd., N-14, Tijeras. Yelton (281-2893) or Burns (281-3922).



Coronado Club Activities**Tonite: Kids' Karnival at the . . . er, Klub?**

ACTUALLY, IT'S STILL the Club with a capital C — that makes it the C-Club, right? — but the kids can get their kicks today, March 20, from 5 to 8 p.m. at the Kids' Karnival. To help the good times along, there will be games, contests, and entertainment. Special entertainers will be Pixie T. Clown and friends — a fine, funny, tricky crew. And, of course, kid-style meals will be featured. For just 99¢, the kids can munch spaghetti, garlic bread, and a soft drink, or a pizza slice and a soft drink if that's their whim. Adults get spaghetti, meat sauce, dinner salad, a slice of pizza, and garlic bread for \$3.25. And for everybody, a soda fountain will supply lots'n'lots of ice cream.

THEY'RE THE COOLEST. Who? Bob Weiler and His Cool Cats, of course. They'll be playing for the Club's Tea Dance, 1-4 p.m., Sunday, March 22. The Club's famous Champagne Brunch starts at 10 a.m. and continues right up to dance time.

TRIO GRANDE NEXT WEEK: March 27 is the next visit of Trio Grande to the Club. They're on stage from 7 to 11 p.m. to accompany your rompin' and stompin' dancing fun. (Or just sit and listen, if you can restrain yourself.) So that you can get your taste buds set, here's a preview of what the chef is offering for dinner: steak neptune or snow crab (two for \$16.95), shrimp scampi (\$9.95), or an all-you-can-eat buffet featuring baron of beef or baked New-England-style cod (\$6.95). Reserve your table now (265-6791).

CHACO IN APRIL — The Thunderbirds retirees group is sponsoring several trips this spring and summer. T-bird members get first chance, but others are welcome, too. Upcoming: a one-day trip on April 7 to visit the Anasazi sites in Chaco Canyon. Later plans include overnights to Taos and Texas. For more info, call Art Hasenkamp (255-8946) or Bob Butler (299-5626).

WHO COULD FORGET the fantastic every-other-Thursday card-playing sessions of the Thunderbirds? The next few dates are April 2, 16, and 30. Dealing starts at 10 a.m. and the play goes on until 3 or so, with a break for lunch. Cardmaster Jim McCutcheon says C-Club Manager Sal Salas always finds a pleasant place for the T-birders to play, and coffee and cookies add to the enjoyment.

JOIN THE CLUB. If you're not already a Club member, sign up for a year's membership during the March 30-April 3 membership drive and you can choose between two months' free dues or a free pool pass for one (valued at \$25). If you're a member already, bring a new member and you'll be rewarded with two complimentary meals for Sunday Champagne Brunch.

**Events Calendar**

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

March 20-21 — Marketplace Spring Arts and Crafts Show, more than 70 local crafters, door prize drawings; 9 a.m.-5 p.m. both days; Wyoming Mall, 294-1606 or 296-0460.

March 20-22 — Rio Grande Arts and Crafts Festival, featuring 200 exhibitors; call for times, Lujan Bldg., NM State Fairgrounds, 292-7457.

March 20-29 — Exhibit, "Santiago: Saint of Two Worlds," a photo historical exhibition devoted to the history and contemporary presence of St. James, whose exploits (real or in folklore) have been celebrated in Spain, the US, and the Caribbean for centuries; 9 a.m.-5 p.m. Tues.-Sun., Albuquerque Museum, 243-7255.

March 20-29 — "Our Lady of the Tortilla," comedy by Luis Santeiro, presented by the New Mexico Repertory Theatre; 8 p.m. Tues.-Sat., 2 p.m. Sat. & Sun.; KiMo Theatre, 243-4500.

March 20-April 5 — Exhibit, "In the Company of Women," featuring works by women photographers from the mid-19th century to the present; 9 a.m.-4 p.m. Tues.-Fri., 5-9 p.m. Tues., 1-4 p.m. Sun.; UNM Art Museum, 277-4001.

March 20-April 5 — Exhibit, "Whistle Stop for the Stars," photos by William Steele and biographical information about 23 silent film stars who stopped in Albuquerque on their way between Chicago and Los Angeles in the Roaring Twenties; 9 a.m.-5 p.m. Tues.-Sun., Albuquerque Museum, 243-7255.

March 21-22 — Up, Up, and Away Kite Flying Contest, contests for children to seniors, food, entertainment, exhibits, kite-flying exhibitions, model airplanes, sponsored by Albuquerque City Parks and Recreation Dept.; noon-4 p.m., Arroyo del Oso Park (Spain & Wyoming NE), free, 768-3490.

March 21-22 — Annual Rose Pruning Demonstration, Albuquerque Rose Society answers questions about how to grow roses in Albuquerque; call for times, Prospect Rose Garden (8205 Wyoming NE, on the grounds of the Wyoming Branch Public Library), free, 299-6501.

March 22 — "Musica Transalpina (Music Across the Alps)," Musica Antigua de Albuquerque performance of Italian madrigals published in England in 1588 with English translations, program includes vocal and instrumental music from both countries from the late 16th and early 17th centuries; 4 p.m., Central United Methodist Church (Copper & University NE), 842-9613.

March 22 — Symphony in the Sunshine Series: New Mexico Symphony Orchestra performs the music of Mendelssohn, Mahler, and Haydn, featuring mezzo-soprano Kathleen Clawson; 3 p.m., Sunshine Music Hall, 842-8565.

March 24 — Tuesday Night Garden Class, "Lawns and Groundcover," NMSU Cooperative Extension service horticulturist Curtis Smith talks about caring for lawns and selecting alternative groundcovers; 7 p.m., Albuquerque Garden Clubs Center (10120 Lomas Blvd. NE), 296-6020.

March 24 — People of the Southwest Lecture,

"Southwestern Rock Art as a Reflection of Cultural Symbolism and World View," by Jane Young, associate professor, UNM Dept. of American Studies (rescheduled from an earlier date); 7:30 p.m., Maxwell Museum of Anthropology, 277-4404.

March 24 — Tuesday Evening Gallery Talk, "Unfinished Business: Exhibitions of Women's Art in the 1990s," by art historian Sharyn Udall, in conjunction with "In the Company of Women" exhibit; 5:30 p.m., free, UNM Art Museum, 277-4001.

March 24 — "Bugs and Balloons — The Love Bug's Hug," balloon artist creates instant balloon sculptures for children of all ages, introduction to the fascinating world of insects, with costumes, songs, dances, and stories; 10 a.m. and 1 p.m., South Broadway Cultural Center, 848-1320.

March 25-28 — UNM College of Fine Arts 20th Annual Composer's Symposium, contemporary music composers participate in discussions, seminars, "Meet the Composer" sessions, and open rehearsals, an opportunity for the community to talk with composers and learn about the musical composition process; 8:15 p.m. concerts each evening fea-

turing compositions by guest composers, Keller Hall; open to the public, call for information and events schedule, 244-4402.

March 26-28 — Willow Creek Craft Fair; 5-8 p.m. Thurs., 9 a.m.-6 p.m. Fri., 9 a.m.-5 p.m. Sat.; 1205 Lawrence Ct. NE (2 blocks east of Tramway & 2 blocks south of Lomas), 299-3403.

March 28 — "Celebration of Women in the Arts," concert of music by women composers, UNM Composer's Symposium event, includes panel discussion after the concert; 12:30 p.m., Keller Hall, 277-4402.

March 28 — Ecuadorian Flute-Making Demonstration, by Humberto Romero; 11 a.m.-3 p.m., free, Maxwell Museum of Anthropology, 277-4404.

March 29 — Albuquerque Chamber Soloists Concert, music of Beethoven, Rachmaninoff, Ridout, and Faure, presented by the June Music Festival; 3 p.m., St. Paul Lutheran Church (Indian School & University NE), 888-1942.

April 1-5 — "What the Butler Saw," by Joe Orton, directed by Paul Ford, an outrageous comedy presented by the UNM Department of Theatre and Dance; 8 p.m., Rodey Theatre, 277-4402.



HAPPY ANNIVERSARY KOP20 — OK, so it may not be prime boom-box material, acknowledges Bruce Hawkinson (4302), but the Radio Sandia crew had cause for celebration on March 18 — the station's first anniversary. Radio Sandia, conceived by Pace VanDevender (1200), was established primarily to convey ES&H-related news and tips to Sandians before and during last year's Tiger Team visit, but soon expanded its coverage to feature other Sandia news, work-related interviews with managers and employees, and the evolving corporate culture. KOP20 broadcasts 24 hours a day at 1610 on the AM dial. Chuck Woolsey, Pete Gonzales, and Laurel Moore (contractors) help Bruce run the station. An interesting sidelight, notes Bruce, is that members of the National Radio club in Arizona and Colorado have picked up the KOP signal recently when atmospheric conditions were right. The 10-watt signal is designed to reach only a few miles beyond the Sandia transmitter atop Building 957.