

## New Plasma Spray Gun Operating

When a new low-pressure plasma spray (LPPS) system began operating in mid-April, Sandia became the first DOE laboratory to have this new, state-of-the-art technology. The LPPS has been temporarily installed in Area II pending relocation to a permanent home in Area III.

"LPPS is a highly versatile process that can be used to deposit metal and ceramic coatings, fabricate free-standing net shapes, or create interesting new materials," says Mark Smith of Surface Metallurgy Division 1834. "LPPS is a rapidly developing technology that overcomes shortcomings of conventional plasma spray techniques, while providing some important additional benefits. We're fortunate to have this new capability at Sandia, since there are currently only about 30 LPPS systems in the entire U.S. Most of these systems are used for proprietary work in high-technology fields, such as coatings for turbine aircraft engines. LPPS equipment is expensive, typically \$300,000 to \$500,000. However, Sandia was able to purchase a prototype system from an equipment manufacturer at a very substantial savings.

"The heart of our new LPPS system is a 120-kilowatt plasma generator, or 'spray gun,' which ejects a supersonic plasma jet. Powdered coating material injected into this plasma melts and is propelled onto a substrate at very high velocities. A slightly misleading, but useful, analogy is to think of the process as 'spray painting' with metals or ceramics. It's important to realize, however, that the molten particles solidify almost instantaneously upon impact and therefore do not flow across the surface like paint."

LPPS coatings are sprayed inside a large (5-foot-diameter) evacuated chamber, which is a major difference between this process and conventional plasma spray techniques. Conventional spraying is done in the open air or in inert gas cham-

*(Continued on Page Four)*



AT GROUNDBREAKING CEREMONIES recently for Sandia's new \$1.9 million Technology Transfer Center, Senator Pete Domenici tried out one of the new chairs slated for installation in the Center. In background (l to r) are Ray Romatowski, DOE/AL manager; Harry Kinney, Albuquerque mayor; Col. Gary Mears, KAFB commander; and George Dacey, Sandia president. The Center is scheduled for completion in July 1984.



# LAB NEWS

VOL. 35, NO. 11

SANDIA NATIONAL LABORATORIES

MAY 27, 1983

## 94% of Sandians Now Buy Bonds

A record 94 percent of Sandia employees are participating in the U.S. Savings Bond program, according to Dick Andes (0110), Sandia Savings Bond committee chairman. This is a seven percent increase over the 87 percent of employees who were participating at the start of the campaign.

With results essentially complete, the drive data show that Organization 6000 has 100 percent participation, 1000 has 99 percent, 9000 has 96 percent, both 2000 and 7000 have 95 percent, 3000 has 93 percent, and 8000 has 89 percent.

Organization 400 has 100 percent participation, 300 has 97 percent, and 100 has 96 percent.

The following directorates report 100 percent participation: 1500, 1600, 1800, 3500, 3800, and 7200.

"I think this is a significant accomplishment," Dick says, "considering we raised the minimum deduction and required new cards from everyone. The various organization coordinators and supervisors who did the canvassing performed an outstanding job."

## Happy Tenth, INTEC!

Hey, it's May. Graduation. An advanced degree. Take that raw knowledge in, say, science or engineering, sign on with a place like Sandia, then sit back and enjoy security, money, professional recognition, perhaps international fame.

But it doesn't work that way. Oh, maybe, if your field is Early Urdu Gurus, you can know all there is to know — and all that there will be to know — when you graduate. But the sciences and engineering are advancing so rapidly, especially at a "state of the art" place such as Sandia, that your academic knowledge is tottering on the brink of obsolescence even as you are tottering across the stage to collect the sought-

after, sweated-for sheepskin.

And that's where INTEC (In-Hours Technical Education Courses) comes in. Its main purpose is "to ensure the continuing technical vitality of the Labs' staff," says John Cantwell (3520). It accomplishes that end by providing the depth and diversity of technical knowledge demanded by an intellect-intensive industry like Sandia. So INTEC challenges the basic assumption on which traditional engineering education was based: that a few years of intensive formal education can provide an adequate foundation for half a century of professional work.

Hazlet Edmonds of Education and Training Division II 3522 puts it this way: "En-

gineers and scientists are faced with the problem of learning, during their professional lives, what new generations of students are currently learning in school. Otherwise they risk becoming professionally obsolete — or becoming prisoners of specialties that no longer provide rewarding career opportunities. Their knowledge needs to be continuously updated and extended. The answer lies in providing, at the workplace, the education for updating, broadening, and deepening their knowledge and skills."

That's INTEC. Let's face it — at the out-

*(Continued on Page Six)*

# Antojitos

A Mystery Solved--Last issue I remarked on the surprising paucity of out-of-state cars in Hawaii. It seems that Bob Easterling (7223) was over there some time ago and became indignant, as any right-thinking taxpayer would be, upon realizing that Hawaii has received --and spent--interstate highway funds. Bob promptly organized a mainlander's boycott of Hawaii's roads. Looks like it's quite effective.

\* \* \*

Hawaii Again, But Peripherally--Herb Filusch (7311) reports that last May the Base Gym began some extensive modifications. Until that time, an antique (48-star) flag was displayed on a wall there. Modifications were completed some months later, and it may have been reassuring to all--except those who rely on Air Force protection in Hawaii and Alaska--that the same flag was once again on display. The flag was recently replaced with the 50-star version. Herb, a taxpayer too, was much in favor of the dollars apparently saved for 24 years, but he agrees that it's comforting to know that the two new states have received their just recognition.

\* \* \*

How to Know Whether to Call That PhD "Doctor"--Truth to tell, the more precarious the degree-granting institution and the more dubious the degree itself, the more the bearer insists on its importance. As a rule of thumb, anyone who has ever received a doctorate from an institution whose football team has won the national championship and has later been placed on NCAA probation is certain to insist that everyone--including children, spouse, and mother--address him or her as "Dr." --Stephen Maloney, Ragan Report, 3/14/83 ●BH

Al decir las verdades se pierden las amistades. (Tell the truth, lose a friend.)



## News

Here are a couple of current volunteer opportunities. If you are interested in any of them, call Karen Shane (4-3268)

**SPECIAL OLYMPICS** is a nationwide program of sports training and athletic competition for mentally retarded children and adults. State meets, including swim, track, and gymnastics, will be held in Albuquerque on June 3-5. Entrants need "buddies" for a day who will escort them to each event, lunch, awards, etc.

**NEW MEXICANS AGAINST DRUNK DRIVERS** is a newly formed organization that needs someone with secretarial and office skills.

**VOLUNTEERS FOR THE OUTDOORS** seeks new members for five-day stretches to maintain trails in the Pecos Wilderness this summer.

## Strained-Layer Superlattices To Be Announced

The development of Strained-Layer Superlattices, a new class of semiconductor materials, will be announced publicly within the next two weeks. SLS is a major Labs effort involving several members of the Solid State Sciences Directorate 1100. The June 6 LAB NEWS will provide full details.



Published Fortnightly on Fridays

**SANDIA NATIONAL LABORATORIES**

An Equal Opportunity Employer

ALBUQUERQUE, NEW MEXICO  
LIVERMORE, CALIFORNIA  
TONOPAH, NEVADA  
Editorial Offices in Albuquerque, 87185  
Phone 505/844-1053 FTS 844-1053  
In Livermore 415/422-2447 FTS 532-2447

BRUCE HAWKINSON, Editor  
DON GRAHAM, Assistant Editor  
CARL MORA, NORMA TAYLOR, writers  
LOUIS ERNE, photographer  
GERSE MARTINEZ, assistant  
BARRY SCHRADER, Livermore reporter

Member, International  
Association of Business Communicators



AMERICAN INDIAN LEADERS DAY was celebrated recently at Sandia with presentations, films, tours (here, the PBFA complex), and a luncheon. Guests included tribal leaders, officials from several federal agencies, the city, and the state. President Dacey and Governor Bennie Salas of Zia Pueblo addressed the group at lunch, each stressing the need to encourage Indian youth to consider careers in science and engineering. VP Ray Powell (3000) noted that Sandia now employs 190 American Indians, an increase of over 100 since 1976.

## NUWAX Simulates Weapon Accident

A joint Nuclear Weapons Accident Exercise (NUWAX-83), conducted at the Nevada Test Site May 5-11, involved some 1100 people from DOE, DOD, Federal Emergency Management Agency, U.S. Navy, the Commonwealth of Virginia, and other federal agencies.

Included in the exercise were eight Sandians, four of whom were a part of the initial Accident Response Group that served as advisers to the Navy Explosive Ordnance team in recovering three damaged nuclear weapons from the simulated crash. The four were Bob Peurifoy (9300), Frank Murar (8322), Don Gregson (8160), and Don Lewis (7231). Three other Sandians — Bill Ulrich (9325), Art Clark (7210), and Richard Stump (3312) — took the roles of umpires who evaluated the performance of the participants. Barry Schrader (8212) acted the part of a news reporter covering the accident.

The setting was a small Atlantic coastal community called Port Gaston, Virginia, adjoining an also fictitious Naval Ordnance Facility. In the scenario, a Navy helicopter carrying three nuclear weapons crashes at the edge of the town, spreading radioactive material over the area. A simulated explosion of conventional high explosives in the weapons was made realistic by the actual spraying of low level radioactive Radium 223 and Palladium 103 over the crash site. This material's short half-life resulted in its disappearance over a 120-day period, and it was spread carefully to ensure the safety of NUWAX participants.

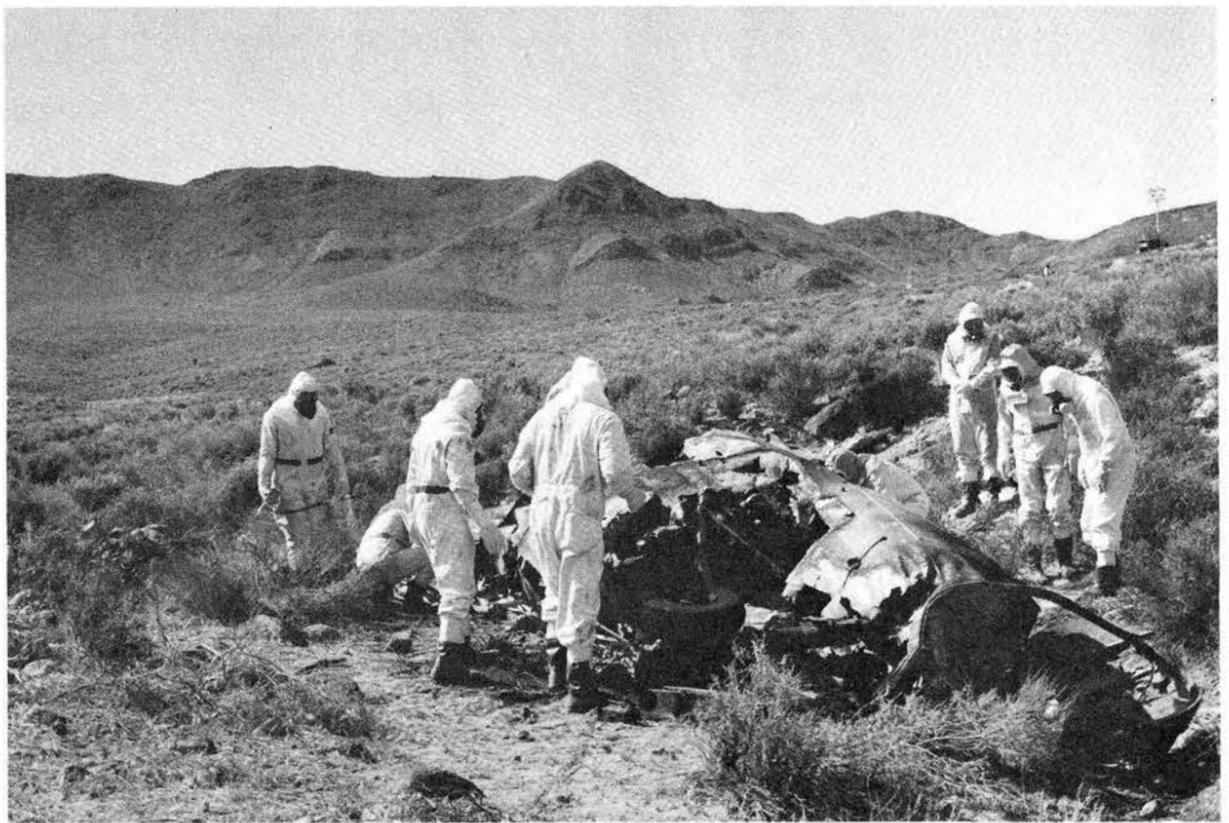
Purpose of this third nuclear accident exercise in five years was to test national, military, state, and local response plans that would be used in the event of a real crash. The response included rapid deployment of trained participants from the military, the national labs, FEMA, and other agencies. The teams followed preplanned procedures designed to protect the residents, secure the site, monitor and identify potential hazards, and make the area safe for occupancy again.

The latest exercise also provided a realistic evaluation of new concepts in nuclear weapon accident response preparedness and enhanced the national radiological response capabilities.

Those involved in the scenario had to deal with approximately 65 acres covered with radioactive material from the accident, six dead helicopter crewmen, six civilian fatalities, a number of people exposed to the scattered radioactivity, and recovery of the weapons and other classified material.

Because the fictional community was in Virginia, that state provided some 60 participants from its Office of Emergency and Energy Services plus other regional and local agencies for the event. Gov. Charles Robb and other state officials visited NTS to witness part of the recovery and cleanup operation.

The U.S. Navy was the lead military branch in the exercise because the script used a helicopter based at a Navy facility in the simulated accident. To add further realism, people chosen to represent the news



SANDIANS involved in NUWAX-83 at NTS are shown working with the U.S. Navy Explosive Ordnance Disposal team that recovered the damaged nuclear weapons from the simulated helicopter crash.

media, townspeople, and lawyers (filing suits on behalf of community residents) were introduced into the event each day. Court sessions were even conducted under Virginia's jurisdiction at the site to require legal responses from the Navy and federal government. A newspaper was published and television videotape newscasts were

produced on-site for six days to provide realistic coverage of the events.

### **Sympathy**

To Edith Milatzo (8260) on the death of her father in Cheyenne, Wyo. on April 30.

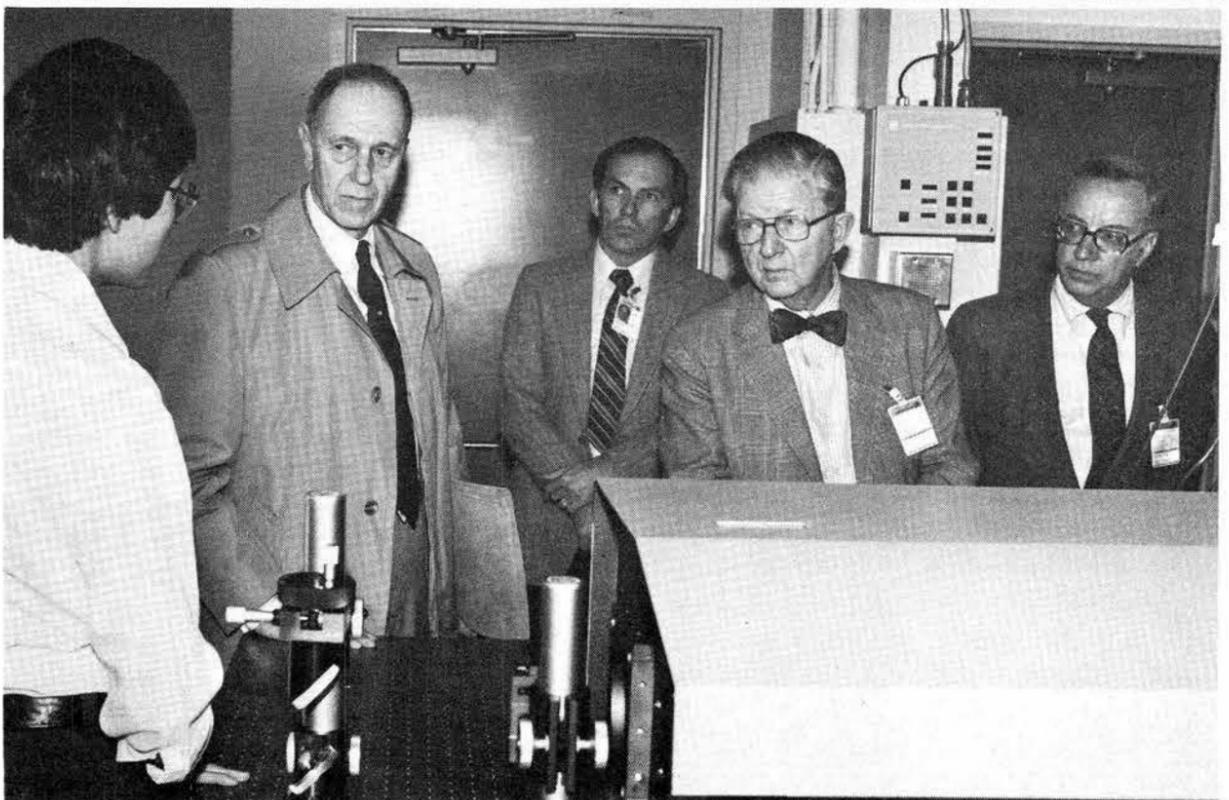


## SANDIA LIVERMORE NEWS

VOL. 35, NO. 11

SANDIA NATIONAL LABORATORIES

MAY 27, 1983



SEVERAL MEMBERS of the Energy Research and Advisory Board (ERAB) recently visited Sandia Livermore for a daylong meeting and tour of the Combustion Research Facility. ERAB's role is to advise the DOE on how best to spend federal energy research dollars. From left to right are Roger Farrow (8342) showing a central laser system to Eric Reichl, former head of Conoco Coal development; Dan Hartley (8500); former UC Berkeley president Charles Hitch; and Milton Kline of the Electrical Power Research Institute.



**WOMEN'S COMMITTEE**, headed by Yolanda Padilla-Vigil (3511), includes wide SNLA representation. The group of women in both technical and administrative positions defines current concerns among Sandia women (especially those that have Equal Opportunity/Affirmative Action implications) and carries out a plan for remedial action (counseling, workshops, management attention, etc.). Sandia women who wish the Committee's assistance with job- or career-related concerns can call any member: from left to right, Patricia Martin (3723), Helen Finley (2120), Shari Houk (1131), Bonnie Roudabush (7223), Katrina Haines (7324), Janda Panitz (1834), and Yolanda. Not shown are Gloria Zamora (0400), Kathleen McCaughey (2543), and Gloria Padilla (9444).

*Continued from Page One*

## Plasma Spray

bers at atmospheric pressure. Spraying in a vacuum (low-pressure) environment increases the length and velocity of the plasma jet, which improves particle melting and greatly increases impact velocities. The vacuum environment also permits pre-cleaning of the substrate surface by a sputter etching process. Obviously, environmental problems, such as trapping of gases in the coating and the formation of oxide or nitride contaminants, are also reduced. The net result is superior coatings that are more dense (less porosity) and more adherent to the substrate than conventional plasma spray coatings.

"For many applications, LPPS offers some important advantages over alternative processes such as electroplating or vapor deposition," says Mark. "Perhaps most significant is the exceptionally high deposition rates achievable with LPPS. Rates as high as 1 millimeter of coating thickness per minute can be attained with some materials. This compares to maximum rates of only microns or mils per hour for typical plating or vapor deposition processes. High deposition rates make it practical to build up very thick (millimeter to centimeter) 'coatings' and to rapidly coat large surfaces. Thick deposits can also be sprayed onto removable mandrels in order to make free-standing parts.

"Another advantage of LPPS is a wide selection of process-compatible materials. Nearly all metals and many ceramics have been plasma sprayed, as well as a few other materials such as glasses and even nylon. By spraying various powder mixtures, composite materials such as cermets (a ceramic-metal combination) can be produced. If the powder mixture is varied while spraying, graded coatings with smoothly varying properties can be de-



MEASURING the substrate holder are Joe Fedzuga (left) and Mark Smith (both 1834). In the right background is the low-pressure plasma spray system (LPSS) that began operations in April.

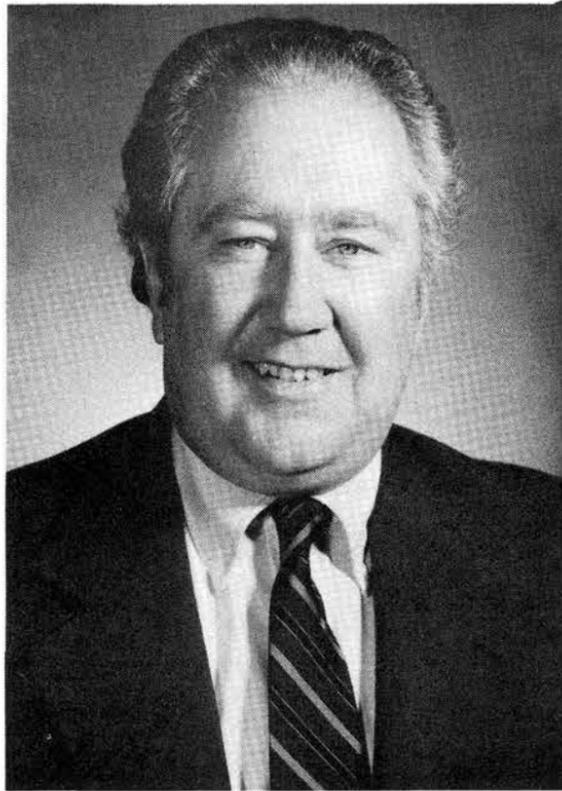
posited. For example, transition zones of graded thermal expansion have been sprayed to reduce stresses between a high-expansion metal substrate and a low-expansion ceramic coating."

Plasma spraying has been used to create other unusual materials with interesting properties. For example, filament-reinforced composites have been made by alternately spraying and filament winding. High solidification rates achievable with plasma spray have produced microcrystalline ferrites that have very intriguing magnetic properties. So-called compliant ceramics that can withstand up to 2.4 percent strain have also been made by plasma spray techniques. "The possibilities for producing other unique materials are very exciting," says Mark.

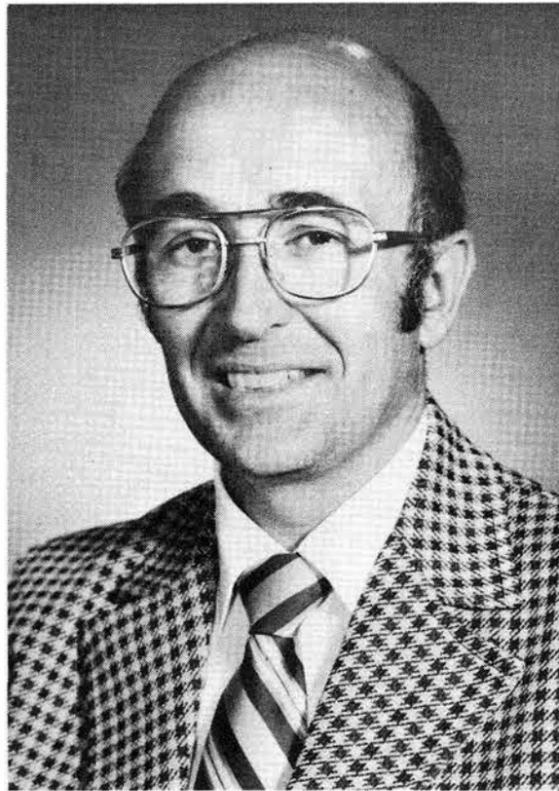
"Our primary application for the LPPS system at the present time," he continues, "is to research and develop new coatings

for first wall and other plasma interactive surfaces in magnetic fusion energy devices such as tokamaks and mirror machines. The coating technology used in existing fusion machines is inadequate for the requirements of future machine designs. The capabilities of LPPS should be very valuable in developing new coating technology to meet anticipated design requirements.

"As part of the fusion energy coatings program, basic research will also be conducted to improve understanding and control of the LPPS process. In addition, we're working to develop additional applications for LPPS at Sandia. Currently we're reviewing problems in various organizations which might benefit from LPPS, and we invite other interested parties to contact us. This new system is a valuable resource that should benefit many programs here at Sandia."



HEINZ SCHMITT (2400)



RON DETRY (2600)

## Supervisory Appointments

JOHN CANTWELL to manager of Education and Training Department 3520, effective May 16.

After joining Sandia in September 1964 as a methods analyst in the Comptroller's organization, John was selected to participate in the Outstanding Staff Member Development Program, which included rotating assignments in Wage and Salary and in Education and Training. John took a two-year leave of absence to work with the U.S. Office of Education at the National Center for Educational Research and Development in Washington, D.C. He returned to the Training organization where his primary assignment was to make a national survey and literature search on continuing education for engineers and scientists. This work ultimately led to the formation of INTEC at Sandia; John was named head of the INTEC division in 1977. Since 1980, he has supervised Community Relations Division 3163.

John received his bachelor's degree in accounting from the University of Texas (Arlington), and his MA in economics and PhD in American studies from UNM. He has served two years of a six-year-term as a board member of APS. He is an adjunct faculty member of the Anderson School of Management at UNM, works with United Way on its staff training programs, and is active in the NM Council for Computer Users in Education. John and his wife Glo have six children — one still at home — and live in the NE heights.

\*\*\*

FRANK DUGGIN to supervisor of Purchasing Division B, 3713, effective May 16.

Frank has been at the Labs for 35 years; he's worked in the Purchasing Department since 1955. During his early years at Sandia, he was an expeditor with the Road Department.

Frank attended UNM. He enjoys softball (playing and coaching), he bowls in a city league, and is an active supporter of the Lobos. Basketball fans will remember Dave Duggin, Frank's son, who just graduated from UNM. Frank and his wife Patty and their two sons live in the SE heights.

## Two Directors Named

Heinz Schmitt was named Director of Design Information Center 2400, effective June 1.

Heinz joined Sandia in July 1960 as a member of the Technical Development Program. He received his BS in ME from the Brooklyn Polytechnic Institute, his MS in ME from UNM, and his PhD in ME from Oklahoma State University.

During his first few years at the Labs, Heinz worked in several organizations — quality control, computing, component design, and structural and dynamic analysis. In early 1968 he transferred to exploratory systems development and he was promoted to division supervisor later that year. In 1974 he joined the weapon development group and he has been manager of Weapon Development Department II 9340 from 1976 until his present promotion.

A member of ASME and AIAA, Heinz was recently elected to Director of the New Mexico ASME chapter. He was symposium chairman for last week's annual ASME Technical Symposium on CAD/CAM/CAE held in Albuquerque. He coaches youth soccer and has been actively involved with this

group for about 10 years; he also enjoys tennis and skiing. Heinz and his wife Barbara have two children and live in the NE heights.

\*\*\*

Ron Detry has been named Director of Computing 2600, effective June 1.

Ron has been with the Computing Directorate since he joined Sandia in July 1969. His first assignment as a member of the technical staff was with the Mathematical Computing Services division. In March 1973 he was promoted to supervisor of the Applied Mathematics division. He later headed the Scientific Computing division and, in May 1977, was promoted to manager of the Computer Applications Department. He became manager of Data Processing Applications Department 2620 in 1978.

He graduated from the Illinois Institute of Technology where he received his BS, MS, and PhD in applied mathematics. He is a member of the Association for Computing Machinery. Ron coaches a Little League team; he also enjoys camping and hunting. He and his wife Faye have two children and live in NE Albuquerque.

## Events Calendar

May 27-28 — Fishback Dance Recital, 7:30 p.m., Popejoy.

May 27-June 12 — "A Shot in the Dark," Tues.-Fri., 8 p.m.; Sat., 6 & 9 p.m.; Sun., 2 p.m., Albuquerque Little Theatre, 242-4315.

May 28-29 — Arts in the Parks program — cultural entertainment sponsored by City Parks & Recreation Dept., noon-4 p.m., Rio Grande Zoo, 766-7430.

May 30 — Albuquerque Philharmonia Orchestra, free concert, Highland H.S. Fine Arts Theater, 8:15 p.m.

June 1 — "The Adventure of Dance," spring dance recital, Lilka School of Music & Dance, 7 p.m., KiMo.

June 3-4 — Albuquerque Ballet Company's "Winnie the Pooh & Tigger Too," Fri., 7:30 p.m.; Sat., 2:30 p.m., KiMo.



FRANK DUGGIN (3713) and JOHN CANTWELL (3520)

# Happy Tenth, INTEC!

set there were those who saw the program as counterproductive, as a lure to engage in some R&R away from the desk or the lab. But, again from the outset, program administrators made it quite clear that INTEC is a two-way commitment: the company provides the course instruction and some time off the job; the student must provide a matching amount of personal time for homework.

And there's a lot of homework — "I have to work as hard on many INTEC courses as I did in most university graduate courses," says Dwight Hill (2113), perennial seeker of Truth (he's taken 18 INTEC courses).

From the company point of view, the matching commitment concept is sound. Says VP Gene Reed (2000), who now heads the Education Committee and who in 1968 founded the Bell Labs program that is similar to INTEC, "We believe that the program is not a luxury; it is essential. INTEC pro-

## Some INTEC Statistics

Years	Course Offerings	Completions
1972-73	9	250
1982-83	47	956
Total 72-83	391	10,014
* * *		
<b>1982-83 Instructional Staff:</b>		
	Video Proctors/ Tutors	Self-Paced Course Tutors
Instructors	43	28
Guest Lecturers	11	3
	UNM Profs	Contractors

vides a supportive educational environment in which Sandians can teach and learn from one another. Such education does, of course, use a portion of their time and of their intellectual energy, but this investment seems essential for those who must work creatively at the frontier of knowledge."

Gene came to Sandia in late 1975 and was instrumental in expanding INTEC in 1977 to include a wider spectrum of technical courses — courses designed to develop broad technical and analytical capabilities applicable to the Labs' overall mission as well as capabilities primarily applicable to specific assignments.

INTEC has, over the years, responded to changing needs by providing courses that help the technical staff perform Sandia's weapons mission and become competent in new scientific and engineering areas such as energy, computer science, and materials science.

Some other innovations: an Instruction Television (ITV) facility in 1974; an Individualized Learning Center in 1981; and the introduction of a large number of computer science courses providing basic and advanced material on software design and applications, also in 1981.

But the emphasis has remained constant through the years — courses that are applicable to the tasks Sandia is expected to excel in. To be an INTEC instructor, mastery of a block of recent technical knowledge and the ability to communicate that knowledge are simply not enough. Each

course must be firmly based on the realities of the Sandia mission — what do we need to do? what necessary skills are lacking?

To ensure this kind of applicability, an efficient system of checks and balances is in place. Under the Education Committee is an OPEC that has nothing to do with oil production. Rather it's the On-Premises Education Committee, and it determines the need for courses — on a Labs-wide basis. Then it selects course supervisors, and, finally, assesses how well courses meet predetermined needs. John Crawford (2500) has been chairman for the past five years. Other members are Glen Brandvold (0301), Dennis Hayes (1510), Harry Saxton (2520), Tom Grissom (2560), John Cantwell (3520), Jerry Kennedy (7130), Bill Alzheimer (8150), Dan Hardin (9350), and Ron Fugazzi (3522).

Once selected by OPEC, course supervisors choose the best people available to serve as instructors. The latter may be outside contractors (often UNM professors) or, more likely, Sandia employees with the requisite skills, including a willingness to contribute to the professional development of fellow Sandians. Course supervisors then work with the instructor to determine course goals and content as formulated by OPEC. They also serve as a liaison between instructor and students.

Instructors, naturally enough, instruct. They codify course objectives, develop course notes, select texts, teach the classes, assign homework, prepare tests, and provide student feedback and inspiration. Frequently, they star in videotapes used by students who had to miss a class or who want to cram electronically for an exam.

Other kinds of instructors are the proctors and the tutors, who lead classes based on videotapes. They are usually subject-

## INTEC from the Student Point-of-View

*"Sandia made impressive plans for a continuing education program for years, but nothing came of them. Until INTEC. Finally — application-oriented schooling. It's excellent. I've taken 15 courses, and I've used everything I've learned."*

— Bob Baker (9331)

\* \* \*

*"I have something inside me — curiosity, I guess — that makes me want to keep up with different disciplines. INTEC gives me that opportunity. I've taken 16 courses. They're good."*

— Ragon Kinney (2334)

matter experts who deal with either Sandia-produced video courses or with video courses from the outside world. Basically, their functions are similar to those of real instructors. Another type of tutor deals with self-paced modular courses.

These people — OPEC members, course supervisors, instructors, and a consultant from Education and Training (one for each course) — make up an INTEC team.

The Most Valuable Players on that team are the instructors. Collectively, they're an impressive team. Although they're experts

in the fields they teach, they invariably mention to an interviewer the excitement they feel when they're stimulated by inquiring, challenging students in the classroom.

One such instructor is Sam Stearns (7111). He has been with INTEC since its inception and was the original instructor for two courses in digital processing. "I love to teach," says Sam. "I really like the opportunity to do both teaching and research — just like in a major university, but without the hassles of university politics.

"Teaching is worth doing," he continues. "It's a way to make a lasting contribution — to Sandia, to the profession, to society — one that continues indefinitely."

Sam also throws in an unsolicited testimonial for the course consultants in Education and Training — "They're great at administering these courses, really concerned."

Delores Etter is an associate professor of electrical engineering at UNM. She's currently teaching a course in digital signal analysis here at Sandia. Not one for professional jargon, she calls it "a fun class. It's been more different from UNM teaching than I expected. Sandians are very curious about, if not conscious of, the potential and real applications in the field. So I'm able to move closer to the realities of how digital signals get used. The experience has made me a better instructor at UNM as well as at Sandia."

Dick Brodie's (9371) course is a bit different from most INTEC classes. Instead of taking place in the ITV facility (a place Delores calls "great to teach in"), it is held in a classified weapon display area. That's appropriate because the class Dick has been teaching for five years is a Survey of Weapon Development and Technology, and he (like most INTEC instructors) believes in hands-on experience. But he also includes enough theory that those new to the weapons field (including qualified non-Sandians) can understand the why, as well as the how, of weapon development. "Student quality is high," says Dick. "They're quite perceptive. And the outsiders add a great deal.

"In the end, if students didn't seem to care, I wouldn't do it. But they do care, and I get a great deal of satisfaction from my teaching."

So, with another May and another graduation month and the end of the tenth anniversary year, comes a well-earned satisfaction, shared by students, instructors, and all the others on the INTEC team. It's great to be a part of an effort that set some high goals — and is meeting them. • bh

## INTEC at Livermore

Sandia Livermore also has an In-Hours Courses program. It's structured differently because of its smaller size and because of its proximity to several institutions that can provide instruction to employees directly via television. But the purpose of the Livermore program is identical to that of Albuquerque's.



ESSENCE OF INTEC is the student-teacher relationship, one built on the needs of the student rather than on the preferences of the teacher. That relationship is dramatized here by Ed Neidel (2361), who has completed 13 IN-

TEC courses, and Drayton Boozer (1622), teacher of classes in Parametric Estimation.

## Early INTEC Memories

Dave Nokes (9344) was the first teacher of the first INTEC course, in Materials Science. Long before that first course was offered, he was a member of a project team under the guidance of a Technical Education Committee — Klaus Bowers, Ted Church, Jerry Hood, and Ed Franzak. Dave worked with Ted and with Training's John Cantwell (then a staff member but now the Department Manager) in defining the INTEC approach. He remembers most clearly how adamant Orval Jones was about making the proposed courses applicable to Sandia.

\* \* \*

Says Orval Jones (now 7000; then a member of the INTEC formation committee): "Dave's memory is probably accurate. I remember our concern with providing employees with an attractive alternative to university courses. For one reason, too few employees were taking them. For another, those courses too often weren't concerned with the knowledge Sandia really needed.

"We also realized that INTEC needed to be complemented by a means for revitalizing employees to change to new jobs within Sandia once they had acquired the skills needed for those jobs. Our current post-and-bid system is thus a necessary follow-on to INTEC."

\* \* \*

John Cantwell (now 3520): "My recollection of the early days was that it was one of the most stimulating and demanding periods of my career. As training representatives, we indicated that we wanted to be full-fledged partners with the instructors and course supervisors in the design and delivery of INTEC courses. We didn't want to simply schedule classrooms and Xerox materials. We believed we had a professional contribution to make — such as sequencing and organization of materials, course evaluation, videotaping techniques, and instructors' workshops. In the beginning not everyone agreed that we had a substantive role, so we had to work hard to demonstrate that we were committed to assisting in developing courses that were second to none from the technical standpoint and were likewise first-rate as instructional packages. We worked very hard with some of the best people in the Labs."

\* \* \*

Dick Prairie (7223) taught the second INTEC class, Statistical Analysis for Engineers. He remembers the push to ensure that classes were student-oriented, in contrast to university classes that too often become professor-oriented. "I was told to always leave an empty chair in my class for Jack Howard. And I did, but Jack never showed up."

Dick was the first INTEC instructor to have his course videotaped. "The first lec-

ture took me two days to script. Later I could do it in half an hour. I missed having an audience to teach to so I had to pretend that the video cameraman knew what I was talking about."

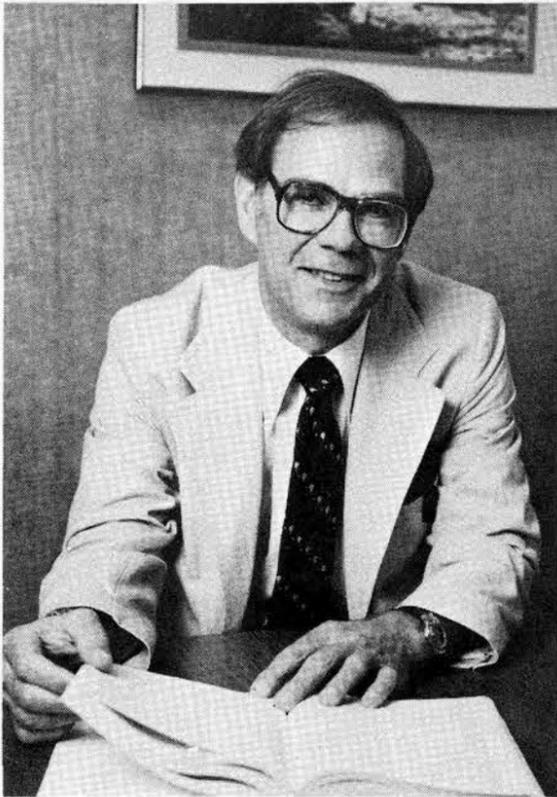
### **And a Look at the Future**

John Crawford (2500), chairman of the On-Premises Education Committee responsible for INTEC: "I believe we'll continue the current emphasis on computer science, especially in areas like high-level languages and microprocessor architecture. And since there's a need for it, we'll likely add courses in particle and radiation beams and in radiation effects, maybe conventional weapon and sensor technology too.

"We may well increase our use of UNM faculty, especially in computer science. Incidentally, while professors seem to enjoy teaching here, it's a bit difficult for some to adjust to non-captive students. Sandians stay in a course if it's meeting their needs; if not, they just don't show up.

"INTEC may, someday, be involved in a Rio Grande Corridor kind of 'applied university,' with two-way live television beaming lectures and student responses back and forth among places like New Mexico State, UNM, Los Alamos, and Sandia.

"OPEC's most challenging task will be to continue to respond to Sandia's future needs, as well as current ones, but not to lead."



HAROLD FOLLEY (6110) is the newest member of the Labs' legal staff. He transferred to Sandia from Indiana Bell, where he had been an attorney since 1971. He's happy with his move to the Southwest — both he and his wife are avid skiers, he enjoys hunting and fishing, and he's also interested in hot air ballooning.

## A New Way To Give

Curtiss Moses (9351) has a unique method for helping one of his favorite organizations — the Chamber Orchestra of Albuquerque. Through friends on the board of trustees of the orchestra, Curtiss learned that the group had established a permanent fund from business and private donations. However, the amount in the fund was too small to earn a high interest rate.

Curtiss loaned COA \$2500 for three months. His loan plus the orchestra's own money will keep the account balance at a high enough level to double the interest COA had previously been earning. At the end of the three-month loan period, Curtiss gets his money returned; COA keeps the earned interest and gives Curtiss a receipt for the contribution of the interest.

"I prefer helping the orchestra this way," Curtiss says, "instead of making a cash contribution. This way, the group benefits from the interest on the combined amount of money, and I still have a charitable contribution for tax purposes."

COA performs a six-concert subscription series plus some special events during the year. For others interested in following Curtiss' idea, COA offers these guidelines: The minimum amount needed is \$500; several individuals can join together for larger sums. The loan must stay in the COA account for at least a month (they prefer three months), and lenders can get their money back with 30 days' notice. They will also receive a receipt from COA for the contribution of the interest. For more information, contact Curtiss or COA's vice president, Sara Receconi, 881-9700.



SCIENCE DEFINITIONS  
FOR OUR TIME

ARITHMETIC *n.* An obscure art no longer practiced in the world's developed countries.

— *New Scientist* quoted in *World Press Review*

## Art Exhibit by Gertrude Butler Scheduled in June

Gertrude Butler, who retired in 1971 after almost 21 years in Sandia Field Test communications, will exhibit her recent work as an artist at the W.R. Lovelace Corridor in Lovelace Medical Center during the month of June. A public reception is set for Sunday, June 5, from 2 to 4 p.m.

Gertrude's seascapes and New Mexico landscapes, done in compressed pigments called pastels, will share honors with the water color still lifes and animals by Marge Lange at the invitational show.

"A gift of an oil painting set and easel at my Sandia retirement party sparked my interest in painting," Gertrude says. "Now, it's what I do."

Gertrude works at her painting several hours each week and attends a weekly art workshop at the Highland Senior Center conducted by Sandia retiree Felix Padilla.

She also attended art classes at a community college in Astoria, Oregon, where she and her husband Charlie lived for three years after retiring.

"It's hard to decide which I like to paint most," Gertrude says, "the dramatic Oregon coast or the New Mexico desert so I paint both."

In Oregon, Gertrude exhibited in hospitals, libraries, civic centers and galleries. She liked living there but rain, fog, and mist finally drove her and Charlie back "home" to Albuquerque.

While Charlie operates his ham radio



ARTIST GERTRUDE BUTLER works in pastels, painting Oregon seascapes and New Mexico landscapes. She retired in 1971 after almost 21 years at Sandia. Her work will be on display at Lovelace Medical Center during June.

station, Gertrude paints and writes poetry. Several of her poems have been published. She stays in shape with weekly swimming sessions.

## feed back

*Q. In replacing an inoperative pocket calculator, I was told that division supervisor approval would authorize procurement of a calculator, but department manager authorization was required to obtain custody of a usable calculator located in Reclamation. Are these approval levels required through oversight or by intent?*

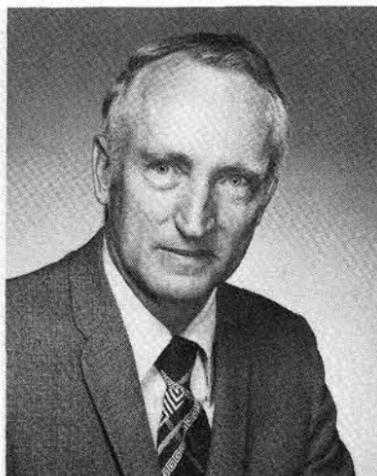
A. The approval levels you were quoted are correct. A section or division supervisor can authorize procurement of a pocket calculator costing less than \$500; but a department manager must authorize the withdrawal of any item from Reclamation. This policy was established to enable organizations to obtain needed items and, at the

same time, to discourage stockpiling of "may be needed sometime" items.

Approval requirements for items purchased from external suppliers or fabricated in-house are based on costs, which tends to ensure adequate review and accomplish the Laboratories' objective. However, excess items in Reclamation are valued at a significantly lower cost, and while it is to the Laboratories' benefit to use those items where possible, it is a false economy to obtain and store them when they may never be needed. To assure appropriate management review of such need, it was decided to require department manager approval.

P.M. Stanford - 0100

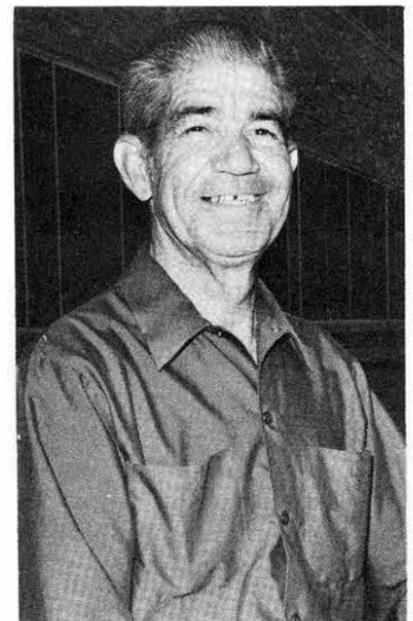
## Retiring



Charlie Bild (2400)



Bob Spence (7584)



Willie Baca (3417)

# Take Note

"The Chaco Phenomenon" is an exhibit opening at the Maxwell Museum on June 12 that, in the announcement's words, does *not* attempt "to recreate in its entirety The Chaco Culture National Historical Park within the walls of the main exhibit gallery . . . . No, for one thing, you'll have to provide your own red ants, rattlesnakes, lizards, sunburns, and wood for your campfire." But almost everything else will be included in the form of replicas of the matchless stone masonry of 11-12th century artisans. (See next item)

\* \* \*

Gene Frye (7472) is the author of an article, "Replication of Ancient Masonry," accepted for publication by *Curator*, journal of the American Museum of Natural History. Gene's article describes the construction of full-scale, exact copies of sections of the Chaco Canyon Indian ruins, a project that made liberal use of Sandia volunteer labor (LAB NEWS, June 11, 1982).

\* \* \*

The 4th IEEE Pulsed Power Conference will be held June 6-8 at the Albuquerque Convention Center where all technical sessions and most social functions will be held. The conference hotel will be The Regent, adjacent to the Convention Center. For reservations and other info, call Tom Martin (4-2270)

\* \* \*

President George Dacey will participate on a panel, "The Engineers' Role in High Technology and Economic Development in New Mexico," at the 36th Annual State Convention of the New Mexico Society of Professional Engineers" (June 2-4). The aforementioned panel is from 2 to 4:30 p.m. on June 3 at the Sheraton-Santa Fe Inn. For accommodations call 505/982-5581. For registration or info call 247-9181.

\* \* \*

Douglas Salmi (1846) was recently awarded the Kahn Memorial Prize as a co-recipient of the 1983 outstanding chemistry student award at UNM. Doug received his bachelors degree in chemistry in December 1982, earned in three years under Sandia's Educational Aids Program. He had previously received a BS in biology from UNM in 1979.

\* \* \*

A film strip on the engineering profession, developed by the Bell System for presentation to junior high school students, is available from Yolanda Padilla-Vigil (3511). The package may be borrowed by anyone interested by calling 4-9342.

\* \* \*

A tactual exhibit, "The Raised Line Embossings of Paul Ré: An Artbook for the Blind and Sighted," will be on display at the Albuquerque Public Library, 5th and Copper, June 1-30. Hours are Mondays-Thursdays, 9 a.m. to 9 p.m.; Fridays-Saturdays, 9 a.m. to 5:30 p.m. The exhibit includes 20 embossed panels from the artbook the artist has made over the past 10 years for the blind and sighted. (Paul is the son of Sandia retiree Ernest Ré.)

Summer session of *L'Ecole de l'Alliance Française* begins June 6. Conversational French and French for Travelers are offered in evening classes. Registration deadline is May 31. More information from Margery Storrs, 821-5788.

\* \* \*

Attention, retirees — UNM's Department of Communicative Disorders is conducting a study of hearing and auditory perception in older people. Needed are males ages 74-80. Participants take part in one hour of testing, which includes a hearing test and listening to tapes of distorted speech. All testing is conducted at UNM (BCMC) Hospital. Transportation can be arranged, and each participant is paid \$5. Call 277-4453 or 881-3885 if you can help.

\* \* \*

The staff of the New Mexico Natural History Museum has issued a call for help. Volunteers are needed — receptionists, typists, filing clerks, accountants, graphic artists, draftsmen, and photographers. The paleontology department needs field workers, cartographers, photographers, TV cameramen, and resource people. If you can help, call the Museum office, 841-8836.

\* \* \*

Retiring this month and not shown in LAB NEWS photos are Mary LeFrenz (2433), Tom Cook (7262), Phil Higgins (7533), C.R. Eisenhour (9268), Bill Weinbecker (7482), and Fernando Lopez (3435).

\* \* \*

The Albuquerque High class of '48 is looking for classmates who have not been contacted about their 35th reunion to be held in July. If you know of anyone or if you would like to join the party, contact either T.J. Williams (2361) at 821-2058 or Jack Willis (2153) at 281-2340.

\* \* \*

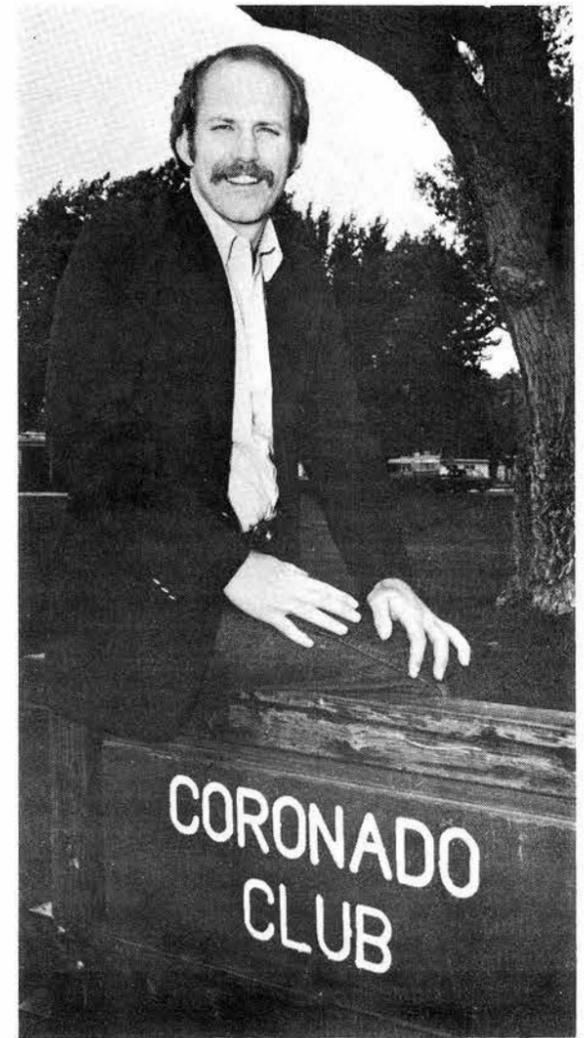
La Compañía de Teatro de Albuquerque opened its 1983 Summer Festival Season last week with "Bodas de Sangre," by Federico García Lorca. The production will run through June 26. La Compañía is New Mexico's only bilingual theater company. The summer festival will include works in Spanish and English, modern experimental plays, and children's theater. Nuestro Teatro is located at 3211 Central NE. Performances are on Fridays, Saturdays, and Sundays at 8 p.m. For ticket information, call 256-7164.

\* \* \*

The Albuquerque Little Theatre will hold auditions for the fairytale play, "Sleeping Beauty," on May 28-29 at 2 p.m. Roles are available for 13 adults and two children: six women, ages 16-45; seven men, ages 21-50; boys between the ages of 10-12, and girls between 6-8. The play is full of movement, thus, dancers are welcome. For more information, call the Theatre at 242-4750.

\* \* \*

Members of the American Physical Society who believe that the APS needs more emphasis on instrumentation are in-



## Mitch Griffin Appointed New Club Manager

Mitch Griffin is the new general manager of the Coronado Club, replacing Pat Corcoran who resigned. Mitch has served as assistant manager since November 1982.

Before joining the Club, Mitch worked at Four Hills Country Club. He has also been part of the management staff of Wentworth-by-the-Sea, a resort hotel near Portsmouth, New Hampshire. He earned a BS degree in hotel management from the University of New Hampshire in 1978.

Mitch and his wife Catherine have a two-year-old son and are expecting a new addition to the family in August. They live in the NE heights.

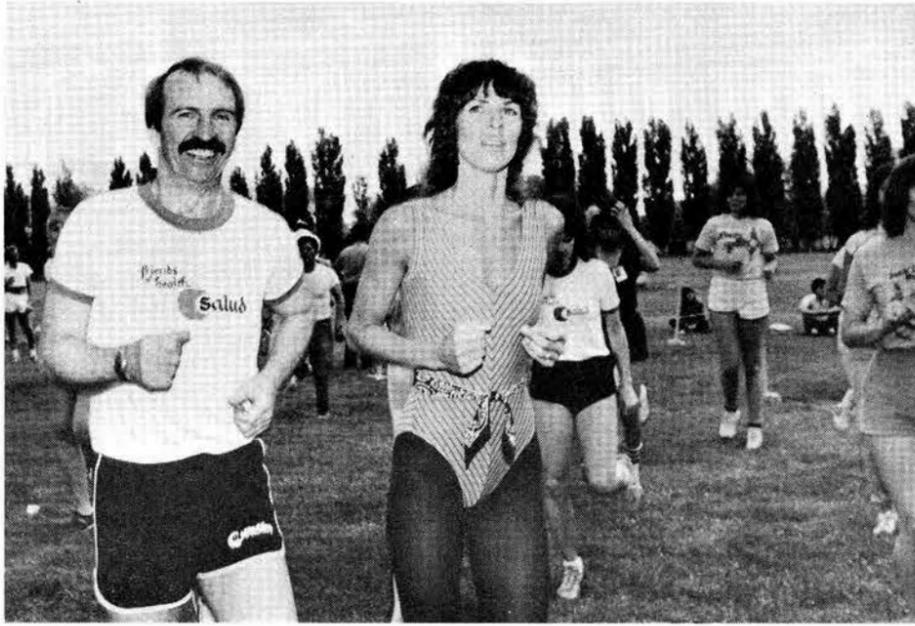
When not at the Club, Mitch participates in football, baseball, and basketball teams. His basketball team recently took the city's A-league championship.

---

vited to express their support for establishing an Instrumentation and Measurement Science Division within APS by signing a petition to that effect. The proposed new division would be sponsored by the APS publication *Review of Scientific Instruments* (of which John Panitz in 1134 is an editor). Petition forms are posted in Bldgs. 802, 806, 807, 821, 823, and the cafeteria. More info from John on 4-5457.

\* \* \*

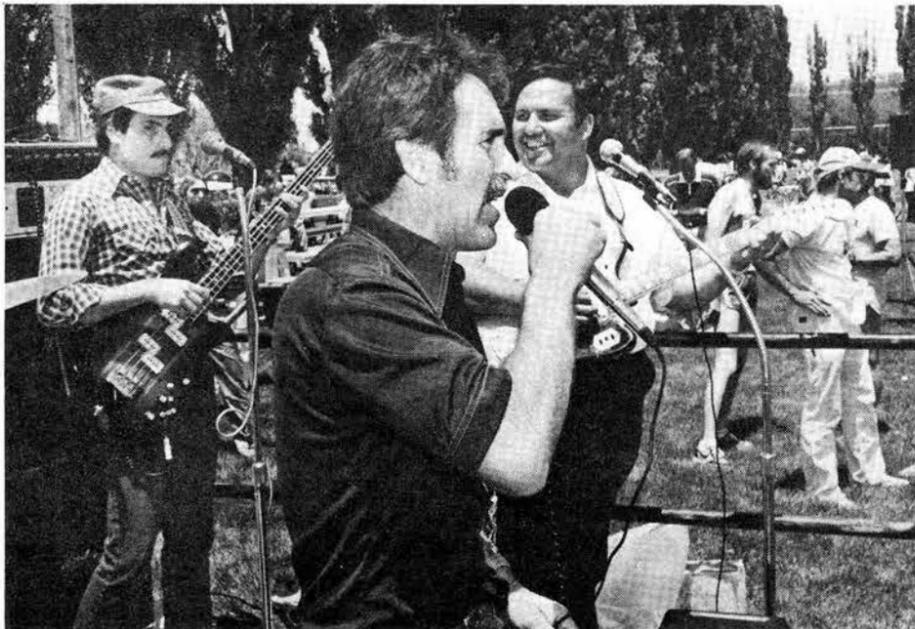
Retiree Bill Carstens has a lead role in Adobe Theatre's first 1983 production, *The Sunshine Boys*. Dinner in a Corrales restaurant followed by a show in the historic old theatre *nee* church is a tradition — or should be. Tickets are \$5, the show opens June 3-5 and continues for two more weekends, and 898-3323 is the number for reservations.



AEROBICS . . .



EXERCISE . . .



MUSIC . . .



FOOD AND FUN filled the noon hour on May 13 during the most successful Fitness Day yet. Sponsored by the Friends of Health committee, the event attracted 800-1000 participants and spectators.

## Fun and Games

**Rafting** — The 9th Annual Great Race Down the Rio Grande sponsored by the Albuquerque Parks and Recreation Department happens Saturday, June 4. Rafts, canoes, and kayaks launch from North Beach (off Highway 528 some 7.8 miles north of Coors and Corrales Road) at 10 a.m. Trophies, prizes, and T-shirts will be awarded winners in several categories. To enter, pay fees (\$5 per craft, \$5 per person) at the Mesa Verde Community Center, 7900 Marquette NE. For more details, call 766-7427.

\*\*\*

**Youth Art** — New Mexico youth (K-12) are invited to enter their art and craft projects in the 22nd Annual New Mexico Arts and Crafts Fair Youth Exhibit. Entries may be original or non-original (such as a pattern or kit). More info from New Mexico Arts and Crafts Fair Office at 2745 San Mateo NE, Suite G, in Albuquerque (on Monday and Thursday mornings) or by mail.

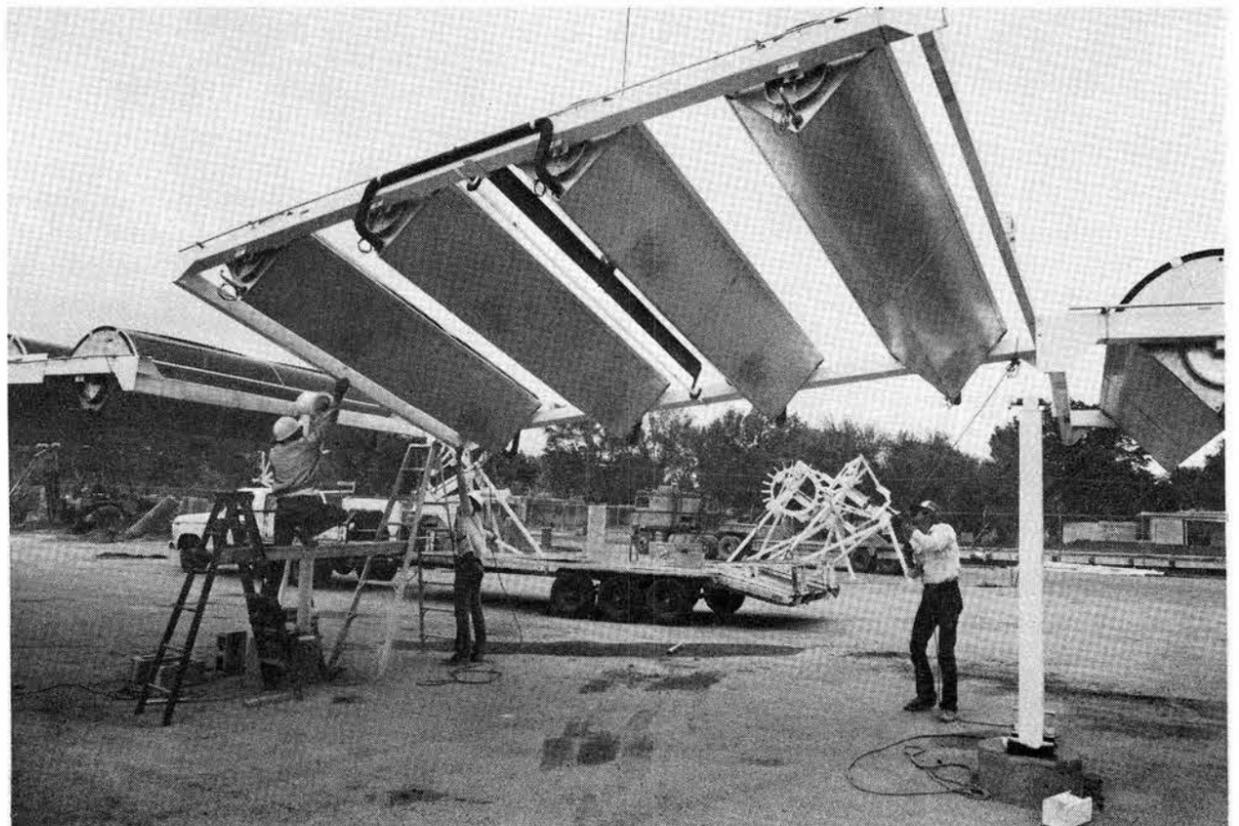
\*\*\*

**Camping** — Blue Triangle Day Camp is open for boys and girls grades 1-7 for six 2-week sessions beginning May 31. Registrations are being taken now at the Northeast and Downtown YWCA centers. Each camp session is \$70 for youth members (\$5 annual fee) which includes the cost of transportation to and from camp. The day camp is only one of several YWCA summer all-day programs for children. Contact the YWCA on 293-7400 for more info.

\*\*\*

**Running** — The 6th Annual Leroy Bearman Memorial Run (5 miles) will be held Sunday, June 5 at 8:30 a.m. at Kit Carson Park. You can preregister at any Garden-

swartz store for \$4.50; on race day, it'll cost you \$5.50. Cash prizes and Nambé trays for winners, and free T-shirts and visors for everybody.



PASSERSBY on Tuesday, May 3 probably noticed all the busy-ness at the Photovoltaics Test Facility just east of Bldg. 832. And with reason — 18 frames, each holding four collectors, were being installed as part of the Photovoltaic Concentrator Research program. Manufactured by E-Systems Inc., the array, which consists of 72 linear focusing Fresnel lens collectors, will undergo extensive testing over the next two years. These lenses focus the sunlight on the photovoltaic cells at 40 times the natural intensity. Says project engineer Miguel Rios (9724): "The system has a peak power rating of 25 kilowatts electrical and produces 92 kilowatts of thermal energy with a fluid outlet temperature of 63°C. In other words, it's an energy system that produces both thermal and electrical energy simultaneously with a total solar conversion efficiency of 60 percent."

## Congratulations

Dan (9238) and Chris Pritchard, a daughter, Megan Lori, April 14.

Mary Richgels (1523) and Mat Sagartz (1522), married in McFarland, Wisc., May 14.

Lovann Grady (2424) and Sioney McAhren (9412, RSS, Inc.), a daughter, Leslie, April 27.

## Sympathy

To Wilma Salisbury (3523) on the death of her mother in Bernalillo, May 13.



SANDIA'S NOMINEE for outstanding small business entrepreneur of the year won the regional competition and received his award in ceremonies at Sandia recently. He's Gus Hutchinson, owner of Solar Kinetics of Irving, Texas, a Sandia supplier. Presenting the award was Greg Devijan (right), acting director of the Small Business Administration in Albuquerque. Hutchinson was nominated by the Purchasing Directorate 3700 headed by Dick Russell (left). Sandia nominees have won the regional competition in eight of the last nine years.

UNCLASSIFIED ADVERTISEMENTS • UNCLASSIFIED ADVERTISEMENTS • UNCLASSIFIED ADVERTISEMENTS • UNCLASSIFIED ADVERTISEMENTS

### CLASSIFIED ADVERTISING

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

#### RULES

1. Limit 20 words.
2. One ad per issue per category.
3. Submit in writing. No phone-ins.
4. Use home telephone numbers.
5. For active and retired Sandians and DOE employees.
6. No commercial ads, please.
7. No more than two insertions of same ad.
8. Include name and organization.
9. Housing listed here for sale is available for occupancy without regard to race, creed, color, or national origin.

### MISCELLANEOUS

ENCYCLOPEDIA BRITANNICA, 14th Edition, retailing at \$100, sell for \$75. Sandia buckles, silver/\$8, gold/\$20. South 14 Village Project, LAB NEWS, Bldg. 814.

55-GAL. metal drums, \$5 ea. Norwood, 262-0073.

DYNAMO Foosball table, \$350. Dink, 293-0299.

NEW 24" fireplace damper, \$20; Ford 3/4-ton 6-lug wheel, \$15. Bland, 265-6286.

ELECTRIC dryer, \$35. Wymer, 294-6654.

6-GAL. gas tank for Johnson outboard, w/hose, \$20; drip coffee maker, \$5; blender, \$10. Pritchard, 293-5297.

ACTIVE solar heating system parts, collectors, tanks, pumps, controls, large system. Gubbels, 884-3711.

FREE MULCH & goat manure. Davis, 877-0839.

GAS lawn mower w/grass catcher, \$25; chicken plucker, never used, \$175, sells new for \$350. McFadden, 292-2789.

3 MOTORS for parts. Padilla, 877-2116.

AKC Labrador Retriever puppies, born 3/8, 6 males, all black, first shots given (parvo & distemper). Riley, 869-2763.

NAVAJO Christmas collector plates, 1971-76, best offer over \$350. Hoover, Livermore, 415-455-9947.

RECLINER CHAIR, yellow-gold fabric w/walnut sides, \$35. Dobranich, 298-4547.

GOLF SET: youth size for age 10-14, 1, 3 woods, 3, 5, 7, 9, P irons, bag, \$45. Holmes, 292-0898.

KENMORE RANGE, coppertone, \$150; Craftsman duplicator for wood lathe, never used, \$50. Smith, 298-2704.

NIKON F, pre-A1 F2 Nikkor; Vivitar 80-205 zoom, all for \$225. Strip, 255-7230.

TOILET, tank & bowl complete, white, no chips or cracks, \$10. Freyermuth, 299-2053.

DUNCAN, 991-page Quality Control & Industrial statistics textbook, new, \$10; Black Socialite patent leather pumps, 6B, new, \$10. VanDeVelde, 255-8174.

REAR BUMPER, chrome for early Blazer, \$45; freezer, 19 cu. ft., upright, \$70. Bentz, 299-3448.

2-CUSHION SOFA, muted lavender, \$100; dbl. box springs & mattress, frame, \$35. Simpson, 884-7617, 9 a.m.-noon.

CANOPY bedroom set, French provincial type, dbl. bed w/mattress & box springs, dresser & mirror; Schwinn Varsity bicycle, 22" men's 10-spd. Hall, 299-0009.

KODAK Instamatic color film, 4 rolls, 10 pictures ea., \$20. Andersen, 294-8624.

TIME-LIFE Library of Photography, full set of 17 vols., \$125 or best offer. Kramer, 898-7149.

WINDOW, steel casement, 6 pane, 56"x29", \$9. Geck, 299-5095.

WARDS sewing machine w/buttonholer, 1 reg., 6 stretch, 6 decorative stitches, \$75. Chavez, 298-2405.

WURLITZER organ, orig. price \$5K, sell for \$3500 firm. McDaniel, 299-6189.

SIGNATURE refrig., 12 cu. ft. w/top freezer, \$100; True Temper cordless weedeater, \$25; two 155x13 tires, \$5 ea. Gorney, 821-9623.

2 CHEV. rims/tires & tubes, 6-hole, 6-ply, 6.50x16, 500 miles on ea., 1 snow tread, \$35 ea. Getz, 299-4865.

GEMEINHARDT flute, Model 35, solid silver head joint, body, foot joint; open hole, \$770 replacement value, sell for \$550. Christopher, 299-5712.

FREE KITTENS, black, black/white, tiger, 6 weeks old. Swain, 873-0108 or 877-7587.

BENCH SEAT for full-size Chevrolet pickup, non-tilt back, grey color, fits '72-'80, \$45. Womelsduff, 281-1693.

TROLLING MOTOR, 7.5 hp, Sears Gamefisher, used 1 season, \$375. Abrams, 243-2433.

AMPLIFIER, Pioneer stereo 20 watts per channel, volume, bass, treble, loudness, solid state, \$35; speaker, 10" woofer, cabinet, \$5. Barham, 298-7304.

ELECTRONIC music synthesizer, EML101, \$850; Rickenbacker 400 1 bass, \$550; bass speaker cabinet w/2 15" Gauss speakers, \$300. Hubbard, 842-9431.

DRY BAR, \$225; 4 bar stools, \$25 ea. Sandoval, 299-5789.

HAMMOND organ, spinet model, \$1500 or best offer. Anderson, 298-0477.

QUEEN size folding sofa bed couch, gold velvet upholstery, \$150. Gerstle, 298-7854.

DINING table, oval, wood w/wood-finish top, 2 leaves, expands to 40"x70",

\$75; 3 side chairs, wood, upholstered, \$25 ea. Fortman, 298-2550.

WHEEL for '78 Datsun 210, 13"; 14", 5-hole wheel for Ford. Hall, 298-8617.

MOTOR, new 1/2 HP 3450 RPM, 115V, 5/8 shaft, 5/6 frame for jointer, etc., wired cord set w/switch, \$50. Hastings, 881-6789.

GRANDFATHER CLOCK, 3 chimes, moon dial; Wards power reel mower. Jones, 299-9032.

SINCLAIR ZX 81 home computer w/attachments, \$40; 4-post water bed frame w/headboard, \$60; 86" sofa, velvet pattern, \$65. Stuart, 265-7315.

NEW TI-business analyst calculator, new push reel mower w/bag; 96"x84" 2 panel bluegreen insulated drapes; Shur V15-III phono cartridge. Richey, 268-7620.

BABY CRIB frame & springs, no mattress, \$50; Sears stationary exercise cycle, \$50. Marrs, 822-0367.

STEREO console, Philco, AM/FM turntable, 72" long, dark wood, \$100. Hole, 255-1444.

TRAILER for hauling older Jeep/other small car, \$500; 14" RCA color TV, needs power supply repair, \$30. Falacy, 293-2517.

BUTCHER BLOCK kitchen island, 25"x36", \$50; fancy iron twin bed frame, \$50; 150cm skis w/bindings, \$25. Connor, 268-9497.

CAMPER, 10' overcab, sleeps 4 routine, easily adapted for 6 or 7. Stixrud, 298-0478.

### TRANSPORTATION

'68 MUSTANG convertible. Clark, 888-4440.

'78 HONDAMATIC Hawk 400, elec. start, cover, kept in garage, less than 3400 miles, \$975. Zownir, 298-1603.

'74 SUBARU 2-dr. coupe, 4-cyl., 4-spd. front wheel drive, engine all new, \$1350. Frazier, 299-6933.

'78 FORD Thunderbird, white, AT, AC, AM/FM, \$3500. Furman, 822-0373 after 5.

'81 DATSUN 310 GX, all available options, 20K miles, sell at wholesale \$4250, shop manual included. Gallo, 281-1908.

'79 RABBIT, 4-spd., AM/FM, luggage rack, \$2500. Baker, 294-3334.

'74 MUSTANG II hatchback, 4-spd., one owner. Brooks, 265-8612.

'73 BLAZER, 4-spd., 350 V8, AC, PS, PB, skid plates, hubs, hitch, 10.50x15's, 104K miles, \$2400. Ghiglia, 897-1461.

'77 OLDS Omega, AT, AC, PS, PB, AM/FM stereo, V6 engine, 45K miles, one owner, \$2900. Gross, 821-3761.

'67 MUSTANG convert., V8, PS, PT, AT, disc brakes, 81,200 miles, blue, \$6000 firm. Hodges, 822-0366 after 5.

'69 CHEVELLE, AT, PS, 6-cyl., \$650 or best offer. Strip, 255-7230.

'79 FORD Fairmont wagon, 6-cyl., AT, PS, PB, AC, new paint, luggage rack, \$2995. Daniel, 821-4665 after 5.

'74 PONTIAC Catalina, PS, PB, AT, AC, AM-FM, just tuned, new tires, 90K miles, \$1400 or make offer. Clauss, 821-8840.

'80 FORD EXP, 21k miles, 4-cyl., 4-spd., 2-dr., AC, AM/FM cass., removable sun roof, \$7K. Montoya, 821-5189 after 5.

'70 MAIL JEEP, \$350 or best offer. Mooney, 293-2867.

'80 SUZUKI RS 175 motorcycle, \$795. Roybal, 864-2510 after 6.

'82 FORD EXP, fully loaded, take over payments. McDaniel, 299-6189.

'65 KARMANN GHIA, completely rebuilt, new paint, new upholstery, new tires, \$3200. Browne, 884-1343, 881-3772.

SAILBOAT, 14' Sunfish w/trailer, \$850. Maloney, 821-6661.

'75 HONDA XL350, 8500 miles, \$550. Hubbard, 842-9431.

15' SNIPE sloop rigged sailboat, \$1500 or best offer. Rice, 884-5472 after 5.

MINI-MOTOR HOME, 4-spd., '79 Bonanza (Toyota) pop-top, low miles. Reger, 268-9358.

BICYCLES: girls' 20" banana & 26" 3-spd. Diegle, 294-5565.

MOTORCYCLE, Honda XL-350, \$350. Shunty, 265-1620.

MODEL A FORD, 1931 Tudor, fully restored, police head, trunk, CB motometer, extras, \$10K, Cabriolet, 1930 Ford, orig., running, unrestored, barn-stored 30 yrs., \$10K, Boehmke, Livermore, 415-447-6670.

'80 CHEVY Luv pickup, AT, 65K miles, new paint-brakes-shocks-tires, below loan value @ \$2895. Roeschke, 298-0365.

'64 CORVAIR MONZA 110 coupe, rebuilt engine & AT, new shocks, radials, \$1375 or best offer. Patrick, 883-1413.

'73 VW VAN, 7-pass., 1700 cc engine, AC, \$2400. Walker, 821-2275.

'68 DODGE van, long body, windows all around, 318 V8, AT. Gerstle, 298-7854.

'77 SCIROCCO (VW), 50K miles, new paint, louver windows, AM-FM cassette stereo, radials, Blue Book price. Pierce, 883-2719.

14' LONESTAR alum. deep V fishing boat w/equipment, \$200; 9.9 Johnson motor, 1979, low hours, \$800, will sell separately. File, 881-2550.

'75 HONDA 175XL, street/dirt bike, 4-cycle, low mileage, extra tires & tubes, \$395 firm. Cropp, 298-1877.

'78 HONDA Twinstar CM-85T, 10K miles, \$725. Rozelle, 298-0396.

'71 HONDA 500-4 motorcycle, maintained by owner, price negotiable. Gyure, 292-6369.

20" BIKE, 5-spd., front & rear handbrakes, black & chrome frame, \$45. Connor, 268-9497.

'80 OLDSMOBILE Cutlass Supreme, 2-dr., AC, tilt steering, cruise control, 22K miles, \$6500. Falacy, 293-2517.

'79 FIAT Strada, front wheel drive, L4, 5-spd., AC, AM/FM cass. stereo, new steel radials, \$500 under @ \$2700. Whittet, 281-2216.

### REAL ESTATE

NEW paint, linoleum, carpeting; 2 bdr., 11K sq. ft., fp, garage, landscaped, 245 Morningside NE. \$62K or best offer. Sanchez, 242-2256.

3-BDR., FRM 1 1/2 baths, lg. rec. rm., dbl. garage, RV parking, many extras, 2209 sq. ft., \$91,500, owner finance @10%, 28% down, Vigil, 293-7140, 836-4566, after 5:30.

BRICK custom home, 3-bdr., 1 1/2 bath, dbl. garage, Sandia HS district, park-like back yard. Brewer, 884-4726.

3 or 4-BDR. house in Heritage Hills, tri-level w/views, extra lg. landscaped lot, 10 1/2% assumable FHA mortgage. Irwin, 822-1931.

CEDAR CREST: 1 acre, community water, covenants, borders Nat'l. Forest, appraisal, \$25K. Eagan, 281-5696.

SOLAR HOUSE, new, envelope passive, 3-bdr., 2 bath, \$1500 below appraisal, some energy credits, 9004 Natalie NE. Martinez, 821-8692.

FAR NE near Mtns., 4-bdr., 1 1/2 bath, den, breakfast nook, L/DR, built-ins, fp, 2-car garage w/opener, other extras, no down payment. Rea, 298-8800.

1.15 ACRE west of Pagosa Springs, \$3100, cash/take over payments of \$55.74/mo., bal. of \$3900. Whittet, 281-3649.

### FOR RENT

ASSIGNED to D.C. temporarily: 2 bdr. furnished house in the mountains, Edgewood, beamed ceilings, fp, 2 acres, \$250/mo. + gas. Roser, 281-5790, 892-6727.

### WANTED

ROOMMATE to share my home in Rio Rancho, \$200/mo. Roser, 892-6727.

EXPERIENCED seamstress or alteration lady. Brockway, 344-1901 before 12:30 p.m.

TENT trailer in good working order. Hesch, 294-3298.

TRAILER that can make it to NY. Swenson, 821-8363.

DRESS form for sewing, prefer push-button adjustment style, will consider other. Romine, 281-5682.

OCCUPANT(s) for 2-bdr. home, rent-free 6 weeks, some gardening, no pets, near base, about 6/13-7/28. Reed, 255-9991.

FURNISHED 1- or 2-bdr. apt. or house for visiting scientist, June 18-Sept. 2. Gerstle, 298-7854.

CENTURY infant car seat; portacrib. Stixrud, 298-0478.

### WORK WANTED

YARDWORK, teenager working for soccer team travel expenses, references. Luke Atkins, 298-5762.

HOUSE & pet sitting, \$5/day or \$25/week. Kevin Shenk, 296-6015.

### SHARE-A-RIDE

LIMITED seats available on vanpool from Belen/Los Lunas area to KAFB at introductory reduced price — over 60% off for 1 week. Sandia Commuters Assoc., 865-6844.

## Coronado Club Activities

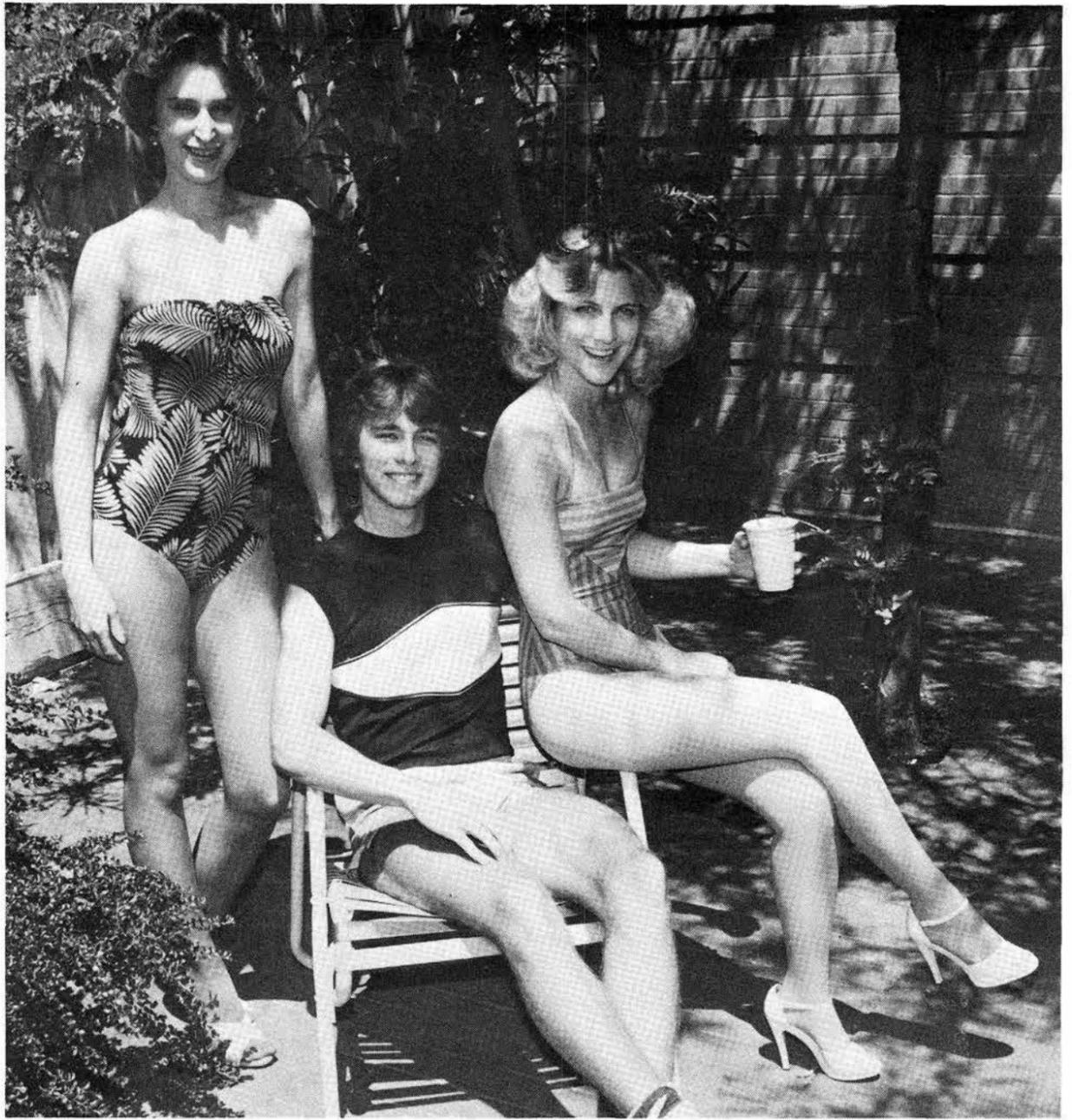
# Isleta Poor Boys Play Tonight

TONIGHT, a country western group called The Isleta Poor Boys makes the dancing music while the kitchen staff spreads a super buffet of roast suckling pig. Happy Hour prizes are in effect from 4:30 until 7:30, the buffet (\$5.50 per person) is served from 6 to 8, and the band plays until 11:30.

ON MONDAY celebrate Memorial Day at the grand opening party for the Club's pool and patio area. The gates open at 11 a.m., a fashion show of summertime fun fashions is set from 11:30 until 12, a special luncheon barbeque buffet (\$2) is available through the afternoon while contests and games for all ages are held — three-legged races, sack races, wheelbarrow races, competitive swimming events, and a balloon toss. A western band — "Stomper" — plays under the gazebo from 2 to 4 p.m. Or, you can simply relax, enjoying the sun and shade and a special 50-cent price for a mug of beer from the beer truck. Members show Club cards for admittance; guests pay \$1. The Club board of directors invites all Sandia, DOE, and KAFB-affiliated employees to be guests at the party. Take a look at the nicest outdoor swim facility in the city.

ON TUESDAY, May 31, the Club offers a lobster or prime rib dinner for two at a special price of \$12.50. Enjoy the candlelit atmosphere and the entertainment of pianist Alex Montoya. Two-for-one dining will be offered every Tuesday in June with a variety of specials available. On June 7, it's chicken breast teriyaki at \$7.95 for two. The Arlen Asher Trio will entertain on Tuesday, June 14, while the special is New England stuffed flounder at \$9.95 for two.

ALSO STARTING in June will be a wider food selection for Friday night Happy Hour



A FASHION SHOW of summertime fun fashions from Anthony's (Eubank and Montgomery) is part of the event-packed grand opening day for the Coronado Club's pool and patio on Memorial Day, Monday, May 30. Models are Brenda Sprague, Tim Snyder (C-Club lifeguard), and Annie Coleson. Starting from 11 a.m., games for both kids and adults are planned, a western band will perform in the afternoon, and a special luncheon will be available for \$2. Members are admitted free, guests pay \$1.

events. In addition to advertised specials (such as the beef ribs for \$6.95 on June 3), a new menu service will be available. The menu will feature a selection of appetizers, steaks, seafood, chicken, and chef's salads at very attractive prices.

VARIETY NIGHT on Saturday, June 4, features a Walt Disney cartoon classic — *The Three Caballeros*. Donald Duck tours Latin America, meets Joe Carioca (a Brazilian parrot) and Panchito (a Mexican rooster), rhumbas in Mexico, sambas in Brazil, and has a fiesta of fun. So will you and your family. Super sandwiches are available at 5; the movie starts at 6. Admission is 50 cents per person.

THE BIG ONE on the June calendar is the annual Luau, traditionally one of the finest parties of the year. It's scheduled Saturday, June 25. A fantastic Hawaiian menu is planned including a whole roast pig. Freddie Baker's Polynesian Review will entertain.

TRAVEL — Two pre-trip meetings are scheduled next week that are open to anyone with questions about Coronado Club travel packages. On Thursday, June 2, the Caribbean cruise group meets at 7 p.m. in the El Dorado Room. The cruise is scheduled Oct. 28-Nov. 6 with prices starting at \$1095. The China tour group meets Wednesday, June 8, at 7 p.m. The China trip is scheduled Sept. 18 - Oct. 7. The price is \$2810. There is an option for an additional layover in Hawaii for four days for \$150. See Shirley McKenzie (2432) in the Club lobby tonight between 5 and 6 for more details.



"Oh, those are just the INTEC students — every spring they have a microchip raid."