

# Sandia Launches Safety Studies On Breeder Reactors

The nation's goals for electrical power around the year 2000 are pinned on the concept of the Liquid Metal Fast Breeder Reactor (LMFBR) — a reactor system that produces enormous power and creates more fuel than it consumes.

Sandia is currently undertaking a new experimental research program, funded by AEC's Division of Reactor Safety Research, that will attempt to answer fundamental questions about the safety of the breeder reactors, now in their conceptual and development stages.

The research program will take advantage of Sandia's unique facilities, including the Annular Core Pulsed Reactor (ACPR), Sandia Pulsed Reactors II and III, plus the huge Hermes II, REBA, and Hydra electron beam accelerators which were developed to produce intense radiation environments for studying and simulating radiation effects in weapon systems. The studies to be undertaken will involve similar technology but will concentrate on simulating transient reactor environments to understand the response of the reactor system. In addition, Labs capabilities in high-temperature testing of materials will be employed.

As part of the program, Sandia expects to upgrade the ACPR, increasing its power three-fold. With this tool, which would be a unique U.S. capability, it will be possible to better simulate peak transient conditions in a breeder reactor core. Funds are presently being budgeted by the AEC for upgrading ACPR in FY76. This upgrade will include a new high-temperature core, a new control system, and cooling system. Design and development work for the ACPR upgrade will be done in-house.

"The research program covers very complex tasks," says Jack Walker, Manager of Simulation Sciences Research Department 5220, where the work will be centered. "We will generate and examine data on various hazards associated with fast breeder reactor operations. We have been working hard in the past year to determine ways of applying Sandia's unique radiation effects simulation capabilities to solutions of the nation's energy problems. Technically, these studies offer Sandia a most challenging opportunity.

"This research program is part of a larger Sandia Laboratories' Nuclear Fuel Cycle program in organization 1700 which is aimed at contributing significantly to solving problems associated with U.S. nuclear power generation. This program utilizes the experiences and expertise of a number of Sandia organizations. The LMFBR work is in Reactor Studies Division under Dick Coats."

The LMFBR experimental program will concentrate initially on the "first generation" reactor fuels,  $UO_2$  and  $PuO_2$ , with studies of their dynamic response under rapid heating, their heat transfer characteristics and their interactions with other system materials such as the sodium coolant. In the future the effort will be extended to studies of advanced fuels such as the carbides and nitrides.

Other materials data such as enthalpy, heat capacity, heat of fusion, thermal conductivity and thermal diffusivity will be obtained over extreme temperature ranges to support the in-pile experimental program as the need arises. • dg



CORE of Sandia's ACPR reactor, immersed in 30 feet of water, is inspected by (clockwise from lower left) Dick Coats (5222), Max Morris (5221), Joe Rivard and Ted Schmidt (both 5222). ACPR will be upgraded, output increased three-fold, as part of a new Sandia research program to answer questions on safety of future breeder reactors.

## LAB NEWS

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SANDIA LABORATORIES • ALBUQUERQUE NEW MEXICO • LIVERMORE CALIFORNIA • TONOPAH NEVADA

### Special Early Retirement Offered Staff Employees

Sandians who meet certain eligibility requirements may retire with a special early retirement allowance during the month of December. Applications for retirement under this program must be submitted by Nov. 22nd.

In addition to the regular monthly retirement pension, a special allowance of one year's salary is being offered, subject to certain limitations. Only staff employees are eligible. To qualify, the staff employee must be age 55 or older and have 15 or more years of service as of Dec. 31. Employees scheduled to retire at the Labs' initiative and Bell System people are not eligible.

The special allowance is payable in monthly installments for up to five years depending on the age of the retiree. Other retirement benefits such as Group Life Insurance and Health Care coverage are unchanged.

Sandians eligible for this program have received individual letters explaining the program in detail. A Management News Brief, dated Oct. 25, carries additional information.

The special early retirement program is aimed at helping the Labs meet budget problems resulting from substantial reductions in funding for FY '75.

# Head Colds & Air Travel Hard on Ears

by Dr. A.S. Verdesca,  
Medical Director WE

Good hearing is something many of us take for granted and, as a result, we sometimes don't take as much care of our ears and hearing as we should. We all expect that our hearing, along with our eyesight, will decrease in range along with the aging process and we know that much of this decline is inevitable. Illnesses or accidents can, however, markedly accelerate this hearing loss, but, if we follow some elementary rules, we can minimize the likelihood of such loss.

There is a canal, from the outer ear in to the ear drum, where wax accumulates and where children like to store small foreign objects. Behind the ear drum is the middle ear, where the three ear bones transmit the sound from the ear drum to the inner ear or cochlea. The Eustachian tube leads from the middle ear down to the back of the throat. It's because of this passage that we hear the click of the equalization of pressure on both sides of the ear drum when we yawn or move our jaw vigorously.

The inner ear is a bone-encased circular set-up on which the middle ear bones terminate in the transmission of sound. This fluid-filled inner ear structure not only serves for hearing but is also instrumental in maintaining our balance. From the inner ear two nerves (which are really an extension of the brain and not part of the ear itself) carry the hearing and balance sensations to appropriate portions of the brain.

Increase in air traveling has brought to the fore a condition called aero-otitis. Troublesome and painful, the condition can lead to permanent damage to hearing. What happens in such cases is that the person has a head cold with all the customary nasal, sinus and throat congestion. Often the throat side of the opening of the Eustachian tube becomes swollen or the tube itself is congested.

The free passage of air up and down the tube thus becomes impeded, leading to a complete or partial loss of ability to equalize pressure on both sides of the ear drum. Ordinarily, this isn't too serious, but when the person with such a condition experiences different pressure levels, as in flying, there may be a real problem. When the plane ascends, pressure upon the outer ear is reduced. Meanwhile, the pressure in the

middle ear with its congested Eustachian tube remains unchanged — higher than that in the outer ear. In most cases, the middle ear pressure continues to build up and eventually forces its way out through the swollen Eustachian tube. Equal pressure in the middle and outer ear results.

The situation, unfortunately, is different when the descent begins. Now the pressure in the outer ear begins to rise but the middle ear pressure remains relatively lower. In this case, the blocked Eustachian tube acts like a one-way valve: it will let an increased air pressure leak out from the middle ear down to the throat but it will not, generally, let an increased air pressure in the throat go up to the middle ear. Consequently, a relative vacuum results in the middle ear.

In mild cases, the person will experience stuffiness of the ears on descent which is not relieved by yawning. The ear drum will retract inwards, pushed by higher air pressure in the outer ear. Since the bones that transmit sound through the middle ear are attached directly to the ear drums, hearing also is affected.

In more severe cases, the person may suffer excruciating pain, and hemorrhages may occur in the middle ear behind the ear drum. Because pressure equalization can't take place through the blocked Eustachian tube, the middle ear fills up with bloody fluid from its own lining. The fluid helps in preventing the ear drum from rupturing inwards. These symptoms usually clear up in a day or two, but the condition can last up to three weeks.

What to do about all this? With mild colds a doctor should be consulted to see if medicines will help shrink the congested Eustachian tube membranes before going on a flight. If this procedure doesn't work, don't fly. And don't fly when you have a moderate or severe upper respiratory infection. If you've experienced such discomfort on a flight, see a doctor promptly.

## T-VI, DSP Programs Open

Pre-registration for T-VI's winter trimester runs from Nov. 25 to Dec. 13, while registration itself takes place on Jan. 2 and 3 for those accepted into classes. Sandians may enroll in evening courses on a cost-free basis provided the course is job-related or relates to a job to which the employee may logically aspire. Pre-registration forms and T-VI catalogs may be obtained from Ruth Brooks in Education and Training Division 3131. The forms as well as Sandia enrollment cards must be validated by Div. 3131 if you wish to take the T-VI course at no cost. T-VI classes start the week of Jan. 13.

The Labs' Doctoral Study Program for 1975 is now accepting applications. Under DSP, an employee attends school at reduced salary for the length of time required to gain his or her PhD — usually up to two years. Candidates must be nominated by a director, be at the MS level, and have at least two years of Sandia experience by January 1975. Other details on DSP are given in SLI 4558, or you may call Jack Hueter, ext. 6508 (Jim Smith, ext. 2150 in Livermore). Applications and supporting documents should be submitted promptly to meet the mid-December deadline. Those selected for DSP will begin the program in September 1975.

## Supervisory Appointment



**TOM GRISSOM** to supervisor of Hybrid Engineering Division 2432, effective Nov. 1.

Tom joined Sandia in April 1970 as a staff member in Atomic and Arc Physics Division where he worked on the development of vacuum arc ion sources, vacuum switch tubes and neutron tubes.

He earned a BS in physics from the University of Mississippi in 1962, attended graduate school at Duke University for a year, and was employed by the Army Missile Command in Huntsville, Ala., for three years. Tom returned to the Univ. of Miss. and received his MS in physics in 1966; in March 1970 he was awarded a PhD from the University of Tennessee.

In his new job, Tom and his division are responsible for the development of hybrid microcircuit technology for application to Sandia electronic components.

Tom is a member of the American Institute of Physics. He and his family enjoy camping, backpacking and archery. Tom and Joann and their three children live at 3809 Tewa NE.

## Death



Charles Armstrong of Stock and Materials Management Division 4821 died Oct. 31 after a brief illness. He was 59.

He had worked at Sandia since September 1952.

He is survived by his widow.

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# LIVERMORE NEWS

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## Along the John Muir Trail with Tom & Hanloy

Want to really get away from it all? Or perhaps take a few inches off the waistline? Try hiking in California's High Sierra for a couple of weeks, suggest Tom Jefferson and Hanloy Quock (both 8322).

Returning about 15 pounds lighter and a good two inches slimmer, the two highly recommend their recent backpacking trip over the John Muir Trail which runs from Mt. Whitney some 220 miles north to Yosemite Valley. "A great experience," recalls Hanloy, "although we were surprised the trail wasn't more crowded. Didn't see a soul for hours at a time."

"Definitely a terrific vacation," comments Tom, "but certainly not a pleasure trip for most people. Hiking an average of 15 miles a day with all of your food and equipment on your back becomes more like a challenge. After 12 hours or so, you're ready to make camp which, by the way, must be at least 100 feet off the trail, stream or lake. And by then, it's dark."

Tom did manage, however, to keep a short diary of trail life: **1st day (6 miles)** — Off bus at 6:45 a.m. On trail at Whitney Portal (elevation 8360 feet) at 11:20. Lots of agony — my pack weighs 65 pounds, Hanloy's 60. Stopped just short of Trail Camp.

**2nd day (14.7 miles)** — Up at 7. Reached 13,777 feet at Trail Crest. Arrived Crabtree Ranger Station at 4:10 in afternoon. Camped above Wallace Creek (10,720 feet). About 1 a.m. bear was up the tree after my pack. Stones and beating on pan drove him away for half an hour. Didn't return after his second visit.

**3rd day (13.5 miles)** — Got over Foresters Pass. Still agony for me. Camped about two miles further on.

**4th day (12.6 miles)** — Today was supposed to be easy, but Glen Pass was brutal. Trail down was rocks which beat our feet to bits. Camped at Rae Lakes — southernmost. Hanloy's feet are killing him.

**5th day (6.5 miles)** — All downhill to Woods Creek. Now Hanloy's knee is killing him. Camped at creek.

**6th day (12.6 miles)** — Hanloy's knee too bad to go on. We split up at 10 a.m. — he for Cedar Grove and home; I for Yosemite. (Gave up tent, extra food and garbage. Hanloy plans to rejoin me near Devil's Postpile National Park.) Almost turned around when the 3600-foot climb started getting me, and Hanloy had taken all the salt tablets. Got to Pinchot Pass at 4:10 in afternoon — wasn't that bad after all. Spent the night about four miles from Mather Pass.

**7th day (18 miles)** — Reached top of Mather Pass at 11 a.m. Easiest pass so far, maybe because I got to it in the morning. Trail down Palisade Creek later was much worse — many switchbacks. Tried to reach Little Pete Meadow for night, but couldn't — too exhausted. Stayed next to a falls on Middle Fork Kings River.

**8th day (17.8 miles)** — At 7:30, started up Muir Pass. What a horrible trip! My heels are killing me and I got my first blister. Pass about as bad as Glen Pass. Muir monument at the top. Both sides of pass were stark and

uninviting — rocks and little else. Just past Evolution Lake the surroundings change abruptly — lots of trees. Camped near Colby Meadow on a stream with a waterfall in distance, not right next to my sleeping bag like last night. Evolution Valley is most beautiful area so far.

**9th day (16.3 miles)** — Cooked breakfast for a change and got off at 8:15. Downhill all the way to Blayne Meadows trail. Then up 2400 feet to Sally Keyes Lakes where I made camp. Switchbacks up to Senger Creek were gruesome.

**10th day (18.6 miles)** — Up early and away at 7:15. On top of Selden Pass at 8:15. This pass was nothing. My feet bothered me all day — both heels. Changed socks three times; at the start of trip I could go all day with the same socks — no more. Stopped for the night at North Fork Mono Creek. First half hour in camp spent trying to put ropes in tree to keep food bag away from bears. That bag is getting light.

**11th day (20.4 miles)** — Forgot to wind clock — probably on trail about 6:30. Started up to Silver Pass and passed camp of English fellow I met yesterday. About 45 minutes later he passed me, but forgot his contact lens and had to go back. Never saw him again. On way down pass a guy bilked me out of salt and fruit bars. Told me some wild story about fasting; told other hikers different story. Camped at Deer Creek.

**12th day (14.4 miles)** — Hiked to Reds Meadow by about 11 a.m. and called Livermore. Washed my socks and waited there rest of day for Hanloy who arrived at 7 p.m. Stayed overnight in cabin — was terrible.

**13th day (14.4 miles)** — Ate packer's breakfast at the cafe there and started hiking about 8. Got just past Thousand Island Lakes where we camped. Mt. Banner especially beautiful over lakes.

**14th day (16.3 miles)** — Started around 7:15. Hanloy's knee still bothering him, so I carried his sleeping bag which seemed to help. Island Pass was nothing. Got past Donahue Pass and almost to Tuolumne Pass Trail Junction for night.

**15th day (17 miles)** — Through Tuolumne Meadows and past Merced Lake High Trail. Camped in what evidently was a bear den. Bear went up the tree before any food was there. Returned at eleven, one, four and six o'clock — not much sleep.

**16th day (8.6 miles)** — Raced to Yosemite Valley. Finished at 11:35 a.m., in 15 days, 15 minutes — 219.1 miles.

Backpacking is a great sport, but not all that inexpensive as Tom and Hanloy discovered. Their freeze-dried food, approximately two pounds a day, cost over \$150, including \$30 for beef jerky. In addition, each spent \$70 for a pack, \$50 for boots — now completely worn out, and \$28 for bus tickets.

On future trips they say they'll take lighter-weight boots and more moleskin for their feet. They'll also pack differently to save weight — especially less food, clothing, gasoline and soap — and take only tube tents.

## Supervisory Appointment



Marge York to supervisor of Information and Distribution Section 8266-1, effective Oct. 16.

Marge joined Sandia in July 1969 and three months later was promoted to secretary for two technical departments. In March 1971 she became secretary to the Director of Staff Services 8200. Previously, she was a secretary at General Electric Vallecitos, assistant to the credit manager at American Optical Company, a real estate salesperson, and a secretary at Bechtel Corporation in San Francisco.

She attended the College of San Mateo and California State University at San Francisco, and is currently working toward an AA degree in business administration at Chabot College.

Sponsor of a Camp Fire Girl's group for three years, Marge also enjoys water skiing, camping, sewing and her two sheltie dogs. Marge, her husband Ron, and their two daughters live on Jillana Avenue in Livermore.

## Speakers

Jim Swisher (8313), "Behavior of Hydrogen in Steels," Staff Seminar, Atomic Weapons Research Establishment (AWRE), Aldermaston, England, June 17.

Ray Mar (8313), "Vapor Pressure and Heat of Sublimation of Boron," IME Boron Conference, University of Leeds, England, March 27.



BEGINNING of John Muir Trail at Whitney Portal — Hanloy Quock (left) and Tom Jefferson (both 8332). Below, Tom breaks for lunch.





LIAL BREWER (3311) uses the Atomic Absorption Spectrophotometer to check a beryllium sample in the spectrochemistry lab.



CHARLES GRAY (3311) runs through a titration technique for determining toxic gasses in an air sample. Charles is currently revising the handbook used as a reference in the analysis of laboratory samples.

## Environmental Health

# Chem Lab Helps to Conserve Health

To conserve your health and that of other Sandians, some 4000 samples of various types are analyzed each year in the environmental health chemistry lab. Staffed by Lial Brewer and Charles Gray, the lab is part of the Environmental Health Operations Division 3311 supervised by Bill Burnett. The facility was recently accredited by the American Industrial Hygiene Association. Only 26 chemistry laboratories in the U.S. have received AIHA accreditation.

"Industrial hygiene really means 'clean industry,'" Lial says, "and our responsibilities are recognizing, evaluating and controlling health hazards."

Hazards are detected by analyzing samples. In areas where potentially harmful materials — such as uranium, beryllium, and tritium — are handled, the air is sampled, and swipe samples are taken by wiping a filter over exposed surfaces — walls, desk tops, etc. If exposure to these materials is high enough, yet infrequent, the field investigation group may recommend that employees use respirators; however, if exposure is repeated or continuous some local exhaust ventilation system or other engineering controls are recommended.

In operations where toxic materials are present that are excreted by the human body as metabolic products — such as for lead, mercury, tritium, plutonium, uranium, trichlorethylene — people also are monitored. The lab keeps a complete bioassay record on all employees known to be exposed to these hazards. This separate program is

conducted as an additional safeguard to the primary mission of minimizing the exposure.

The well-equipped lab is often asked to perform tests for other Sandia organizations. For example, it has been asked to identify contaminants in vacuum systems, to monitor for toxic decomposition products from plastics being tested in a controlled temperature furnace, to perform analyses of dust generated by computer paper, and to detect air leaks. "We have one of the more sensitive tritium counters at Sandia," Charles says, "so sometimes we're asked to run liquid scintillation tests of tritium for research laboratory personnel."

On occasion the lab has been asked by the city to perform analysis of water from city water wells, and to run a series of flash point tests on hydraulic oils for the Air Force. Samples from Tonopah Test Range and, when requested, Livermore are also tested. Analyses of water from drinking fountains and nuclear reactors, the determination of the flash point of solvents and paints, new product testing or product identification (who lost the label?), and calibration of portable detectors which measure carbon monoxide, chlorinated hydrocarbons and ozone levels are additional tasks.

Charles has been at Sandia for six years while Lial, a 12 year employee, has been a member of the AIHA laboratory accreditation committee since its inception in 1971. AIHA developed the accreditation program at the request of the National Institute for Occupational Safety and Health

— technical advisors to OSHA. Stringent requirements and periodic review and proficiency testing ensure high quality laboratories. "And that's good," Lial says, "because data from industrial hygiene labs are the basis for decisions and actions with wide health and economic impact — our information has to be accurate." •nt



THE ANDERSON AIR SAMPLER separates dust by particle size and deposits the particles on glass disc. Charles and Lial examine one of the discs before insertion into the sampler; later the deposits will be analyzed to determine if toxic dusts are present.

# feed *back*

To get a response to your comments and questions about Sandia Labs, complete a Feedback form (available near bulletin boards) and return it to the Feedback administrator. The substance of questions and responses of wide interest is published in LAB NEWS.

*Q. Can't something be done about the drainage at the gates? Last Friday (September 20th) I took off my shoes in order to keep from ruining them to wade the water to get to the car. (We park in back of medical.) This happens almost every time we get much of a rain.*

A. Personnel from the Plant Engineering Department investigated this problem immediately after the rain storm on September 20. From observation of several catch basins in the vicinity, it is apparent that the storm sewer lateral between Gate 4 and G Street is plugged. We have issued a work order on the Maintenance Department to check and clean the storm sewers in this area. Drainage from the usual rain storm should be adequately disposed of when the sewers are cleaned. During extremely heavy downpours, such as occurred on September 20, we may have some temporary ponding of water due to the runoff caused by paving in this area.

R. E. Hopper - 9700

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*Q. A suggestion on bike thefts in the Tech Area: as each cyclist goes thru the gate the guard would issue a tag or button to be attached to the badge. Anytime he or she returns to the gate the tag is returned or the bike stays in the Tech Area until proof of ownership can be established.*

*This would limit thefts to owners themselves, which would be very remote.*

A. There is concern for the number of thefts (of a variety of items) which have occurred at Sandia facilities, in and out of our security area. There has been, however, only one case of bicycle theft inside a security area.

Your idea has merit and certainly incorporates controls which would greatly reduce the possibility of bicycle theft. It also, however, would introduce considerable inconvenience and administrative detail. Hopefully we have seen the last bike theft in our security area. We are keeping your suggestion on file; and if we need it, we'll use it.

Luther J. Heilman - 9500

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*Q. Why can't we have a sidewalk on the north side of H street from Gate 1 out to Wyoming? During inclement weather this area becomes a sea of mud. Even during fair weather the sand and gravel is a nuisance to walk through.*

A. A sidewalk on the north side of H Street hasn't been provided because pedestrians are supposed to walk on the south side of the street where there is a sidewalk. This pattern is for safety reasons since the cars exit on the south end of the parking lot. There used to be a barricade to pedestrian traffic on the north side. The Safety Department has been requested to investigate the need for a barricade or for a sign.

R.E. Hopper - 9700

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*Q. In the last wage-price freeze many of us were caught. Fortunately, when the 90-day freeze was lifted we received our raise and back pay. However, with the continuing unrealistic inflation, a new wage and price freeze is certainly possible. Has Sandia done anything, policywise, to insure that all raises approved from July 1 thru December 1 are considered "accomplished" once the first group of raises (i.e., July 1) has been started?*

A. Sandia does consider that schedule increases are "accomplished," since it is not equitable to implement part of a program and suspend the other part. However, it is possible for a new law to override existing company policy. Thus, on the last freeze increases were held up long enough to obtain clarification that it was legal to complete the program. The raises were made retroactive to their originally-scheduled dates and no money was lost by the employees involved.

Likewise, in any future freeze we would be subject to the regulations then in effect, and we are unable to predict what those might be.

R.J. Edelman - 4200

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*Q. There is much attention in the news about companies providing large across-the-board pay increases (7% is typical) to aid employees in keeping up with the high rate of inflation. Some companies are reviewing their salaries more frequently, like every six months or even three months. (Business Week, Sept. 7.) Sandia's compensation program is based in part on surveys of industry. Is any special effort being made by Sandia to respond more quickly than on an annual basis to the effects of inflation upon wages?*

A. Sandia conducts and participates in salary surveys continuously. The fact that we adjust annually does not mean that we pay attention only annually. Management's policy is to maintain a clearly favorable position with relation to its competitors for equivalent talent. The amount of the salary-review budget in any year includes the increase money necessary to accomplish this.

It is incorrect to assume that this money only catches us up to the levels observed as of the last survey date. Actually we project the movement of the market so that at the time of increase we are about a half-year's movement ahead of our target position. As various others make their moves, our relative position changes and a year later we again "correct" our relative position.

R.J. Edelman - 4200

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*Q. Re: Anniversary pictures in LAB NEWS — why can't there be some uniformity as to size?*

*Just a mug shot is sufficient for some employees, while others get a large shot that includes a view of their desk, truck, or work area. Furthermore, space could be saved by using all mug shots.*

A. The use of different size photos in the Milestones section of the LAB NEWS is the editor's way of giving the pages variety and eye appeal. A "rogues gallery" arrangement of mug shots, all one size, is monotonous and unappealing, in my view and according to authorities on page layout. The selection of people for the at-work shots is random.

Incidentally, a few years ago the LAB NEWS discontinued the anniversary pictures altogether, but there was a loud cry of protest. The present arrangement was instituted when the feature was restored, i.e., using pictures of varying sizes and mixing up the photos instead of grouping employees by years of service.

It is true that some space could be saved by reducing the size of some photos, and even more space could be saved by using "thumbnail" size mug shots as many publications do, but we feel that the present layout strikes an appropriate balance in reader interest and space usage.

K. A. Smith - 3100



At NTS last month there was considerable activity by Sandians in support of underground experiments. We came across this group of researchers, who claim association with Org. 5000, as they emerged from their hole in the ground. The little researcher (second from left), the group's spokesperson, characterized experiment results as "encouraging," which accounts for the jubilant expressions of his colleagues.

# Take Note

10th annual New Mexico Accounting and Management Seminar meets next week, Nov. 15, from 8 to 5, at the Hilton Inn. Theme of the program: national defense, costing standards, integrated systems, energy and economy. Keynote speaker is Harold Agnew, Director of LASL. Marvin Coon (4273) is also among the scheduled speakers, and he will describe integrated procurement systems. Contact Mike Coleman (4154), ext. 1435, for further information on the seminar.

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A Diabetes Detection Drive will be held in two locations on Saturday, Nov. 16, from 10 a.m. until 4 p.m.: (1) Winrock Center stage area and (2) K-Mart, 4208 Central Ave. S.W. (across the river).

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Calla Ann Pepmueller (3140) has been appointed to the New Mexico State Library Commission. The two-year appointment was made by Governor King. The Commission oversees general services for all state libraries, including expenditure of state and federal funds.

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Eugene Venturini (5132) will present "Magnetic Resonance in Weak Ferromagnet: BaMnS<sub>4</sub>," at the 5100 Seminar Nov. 12. The seminar meets Tuesdays at 8:30 a.m. in Bldg. 806, room 201.

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## Salvage Yard Schedule

Operating schedule for Sandia's Salvage Yard is now the first and third Friday of each month from 12:10 to 1 p.m., according to Andy Blain, supervisor of Redistribution and Marketing Division 4822. If a holiday falls on one of these Fridays, an alternate date will be scheduled. For information, call ext. 1839 or 3845.

## Sympathy

To Harold Maciolek (1525) on the death of his mother in Milwaukee, Oct. 27.

To John Wheeler (4251) on the death of his mother, Oct. 24.

To Leo Bressan (9532) on the death of his son Bill in an auto accident near Taos, Oct. 23.

## Congratulations

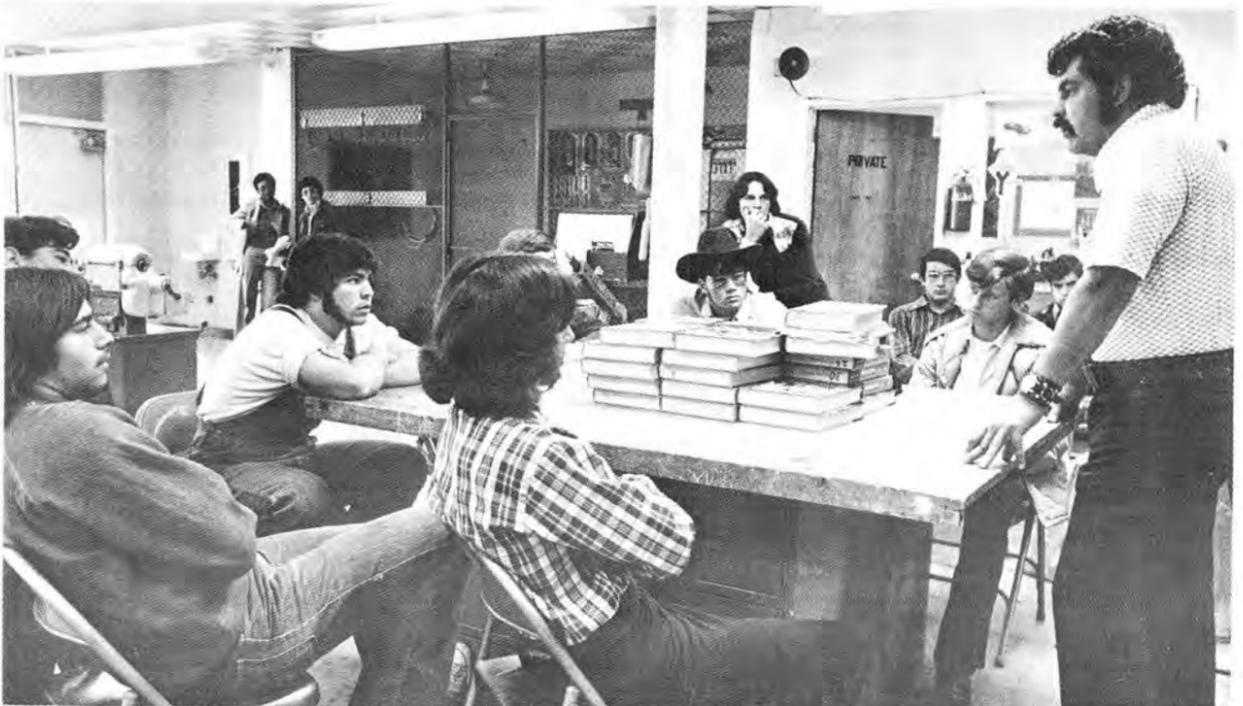
Mr. and Mrs. Mark McAllaster (5832), a son, Chad Ryan, Oct. 21.



THE NAVY & AIR FORCE landed at Sandia last month for briefings on Labs programs. Admiral Gayler, at right, is Commander in Chief of Pacific Forces, while Lt. General Warren Johnson of the Air Force (not in photo) who accompanied the Admiral, is Director of DNA. Rear Admiral Swanson (left) is Commander of DNA's Field Command on KAFB. President Sparks was host to the visitors.



SAFEGUARDS— how nuclear material is protected in transit is the subject of a TV documentary being filmed by Boston's station WGBH for the program Nova. Here Jess Allen (1733) gets set for a scene. Nova is shown locally on education channel 5.



THE WAY WE WORK — Sandia's Gil Padilla, head of section 3645-1, explains to a group of students at Rio Grande High School the work of a machinist at the Labs. Other Sandians made similar presentations on work in electronics and plastics. Aim of the presentations is to bring to the students first-hand information on various occupations.



## Definition: See Below

# Philately (fi-LAT-uh-le)

If horse racing is the queen of sports, then philately is the queen of hobbies. Like that sport, philately (popularly called stamp collecting) is seductive, sometimes obsessive. And while the aficionado of either can make — or lose — a good deal of cash, that's not the name of the game. In fact, it's been said: "That which actuates collectors (as opposed to philatelists) is cash value."

Jim Cocke (1514) didn't say that but subscribes to the sentiment. He's been a philatelist for most of his adult life. "Lots of boys start collecting when they're nine or ten, keep it up till they discover girls, then start collecting them."

"But I went through these phases, then returned to collecting stamps after I got married. That's over a quarter century ago."

Most philatelists specialize in one small area — purple pre-war Patagonian or open-cockpit airliners or whatever. Not Jim. "When I say I collect stamps, I mean I collect stamps — new ones, old ones, foreign, American, cancelled, uncanceled."

"I currently order nearly all the new stamps listed in the weekly *New Issues of the World*. In addition, I keep my eyes open for estate sales by other collectors. And, of course, I trade. Currently, I have 110 or 120-thousand stamps."

"Yes, it takes time and money — name something worthwhile that doesn't. But I'm not spending 40 hours a week on it anymore (I've discovered sailboating), and, as for the money, the collection is worth a good deal more than what I've put into it. That's why I keep much of it in safety deposit boxes."

He knows which stamps he has and which ones he doesn't. His office is stuffed with albums, catalogs, order forms, reference works, trade journals, all the paraphernalia of collecting. It looks random, but it isn't — to Jim: his mental retrieval system would put several computers to shame.

His interest in stamps has led to membership in the American Philatelic Society, the Albuquerque Philatelic Society and the New Mexico Philatelic Association;



JIM COCKE (1514) & a few of his stamp albums.

he's been vice-president of the latter. And his knowledge of stamps has led to work as a consultant for collectors who need tax estimates. All this is enjoyable, often rewarding.

But why collect stamps? "Well, there's the aesthetics, of course; many stamps are works of art and enjoyable on that level. And there's the excitement of stumbling onto the one stamp you need to complete an album — or even onto a really rare one — once in a while."

"But, really, it's simply that philately is satisfying — for me, at least. I feel good when I'm working with stamps. Given that, it's not 'Why collect stamps?' It's 'Why not?'" • bh

## Recreation Notes

### FUN & GAMES

**Golf** — '74-'75 season officers of SGA(W) are: Clara Gearhart (3141), president; Kathy Brady (212), vice president; Esther Perea (1700), secretary; and Helen Watkins (3721), treasurer.

Betty Chappell (AEC ret.) and Lena Valerio (1111) were first and second flight winners of the President's Cup. Pat Anderson (9415) and Sybil Milligan (ret.) were first and second flight winners of the Association Championship.

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**Tennis** — The '74 season was long — February to October — and active. In singles ladder play some 200 challenge matches were played by 48 players. John McKiernan (1642), Herman Smith (AEC), and Don Hardesty (5131) were top ranked on the ladder. In doubles ladder play, the number one team at the closing was (as usual) Charlie Chavez (3733) and Bob Scipes (4123).

\*\*\*

**The Watery Set** — The Coronado Aquatic Club is made up of offspring of Sandia, Lovelace, AEC, and military people, and the youngsters do neat things like practice swim

five miles daily — at five and six o'clock in the morning. The rigorous regimen has paid off though, and CAC has done quite well in the many swim meets they have taken part in. Rita Benson (wife of Jay, 1115) reports that the Club now has openings for more swimmers. If your son or daughter is interested, call Rita on 256-1350 for information.

In case you're confused about Olympic Pool hours, they are 11 to 1 and 4 to 7 pm, closed on Mondays. Sandia employees may use the pool but can't bring a guest.

\*\*\*

**Sandia Bicycle Ass'n.** — At the City Council meeting last Monday (Nov. 4), the resolution to adopt the Bikeway Network plan and Phase I of the pilot project was passed unanimously by the Council. Passage of the resolution means that bikers can look forward to 60 miles of bikeways by July '75 and up to 300 miles ultimately depending on city growth. To Sharla Vandevender (4734) and her hard working Bikeway Committee goes the credit for development of the Bikeway Plan and for seeing it through the bureaucratic process.



## Elegant Commuting

If you'd like personalized transportation between home and work, the Southeast Heights Van Appreciation Society needs new members — Sandians (or AEC people) who live east of Yale and west of San Pedro, and who want punctual pickup and delivery. Alice Brinkley (at 4-8036) has more info.

## Authors

R.D. Bland, G.J. Kominiak and D.M. Mattox (all 5834), "Effect of Ion Bombardment During Deposition on Thick Metal and Ceramic Deposits," Vol. 11, No. 4, THE JOURNAL OF VACUUM SCIENCE AND TECHNOLOGY.

C.W. Frank and L.A. Harrah (both 5811), "Excimer Formation in Vinyl Polymers. II. Rigid Solutions of Poly (2-Vinylnaphthalene) and Polystyrene," Vol. 61, No. 4, THE JOURNAL OF CHEMICAL PHYSICS.

D.M. Mattox and R.R. Sowell (both 5834), "High Absorptivity Solar Absorbing Coatings," Vol. 11, No. 4, THE JOURNAL OF VACUUM SCIENCE AND TECHNOLOGY.

J.A. Borders and S.T. Picraux (both 5111), "Characterization of Silicon Metallization Systems Using Energetic Ion Backscattering," Vol. 62, No. 9, Proceedings of the IEEE.

L.R. Edwards (5132) and L.C. Bartel (5151), "Magnetic Properties of the  $Fe_{0.65}(Ni_{1-x}Co_x)$  and  $Fe_{0.65}(Ni_{1-y}Mn_y)_{0.35}$  Alloy Systems," Vol. 10, No. 5, PHYSICAL REVIEW B.

B.L. Gregory (2113) and C.W. Gwyn (2114), "Radiation Effects on Semiconductor Devices," Vol. 10, No. 5, PHYSICAL REVIEW B.

H.T. Weaver and R.K. Quinn (both 5154), "Nuclear Resonance and Susceptibility Study of Pt-Rh Alloys," Vol. 10, No. 5, PHYSICAL REVIEW B.

W.A. Von Riesemann (1541), "Nonlinear Continua," Proceedings — Structural Mechanics Computer Programs: Von Riesemann with J.A. Stricklin and W.E. Haisler (Texas A&M Univ.), "Large Deflection Elastic-Plastic Dynamic Response of Stiffened Shells of Revolution," JOURNAL OF PRESSURE VESSEL TECHNOLOGY, May 1974.

R.D. Bland (5834), "Substrate Heater for Bias Sputtering and Ion Plating Applications," Vol. 11, No. 5, THE JOURNAL OF VACUUM SCIENCE AND TECHNOLOGY.

C.W. Frank (5811), "Excimer Formation in Vinyl Polymers. III. Fluid and Rigid Solutions of Poly (4-vinylbiphenyl)," Vol. 61, No. 5, THE JOURNAL OF CHEMICAL PHYSICS.

C.B. Norris (5113) and E.P. EerNisse (5112), "Ionization Dilation Effects in Fused Silica from 2 to 18-keV Electron Irradiation," Vol. 45, No. 9, JOURNAL OF APPLIED PHYSICS.

A.R. Shouman, A.B. Donaldson (both 1543) and H.Y. Tsao, "Exact Solution to the One-Dimensional Stationary Energy Equation for a Self-Heating Slab," Vol. 23, No. 1, COMBUSTION AND FLAME.

I.J. Fritz (5132) and R.A. Graham (5131), "Second-Order Elastic Constants of High-Purity Vitreous Silica," Vol. 45, No. 9, JOURNAL OF APPLIED PHYSICS.

S.T. Picraux (5111) and H.J. Stein (5112), "Ion-Channeling and Optical Absorption Studies of Implantation Disorder in Germanium," Vol. 45, No. 9, JOURNAL OF APPLIED PHYSICS.

B.M. Butcher (5167), et al, "Shock-wave Compaction of Porous Aluminum," Vol. 45, No. 9, JOURNAL OF APPLIED PHYSICS.

# MILEPOSTS

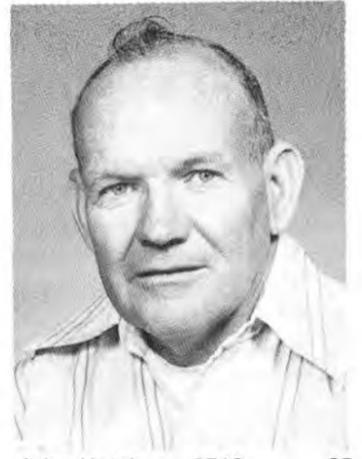
## LAB NEWS

November 1974



Salomon Baca - 9754

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John Hatcher - 9712

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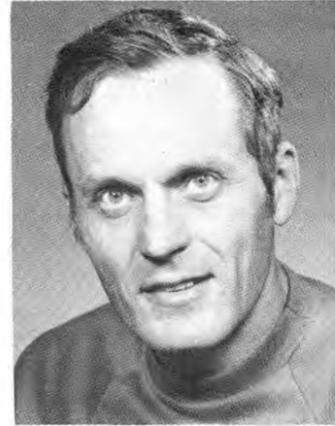
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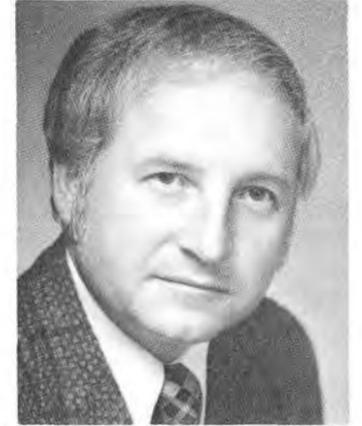
James Brewer - 9524

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Leonard Beavis - 2413

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Lou Selder - 8254

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John Cantwell - 3132

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C. M. Laskowski - 3613

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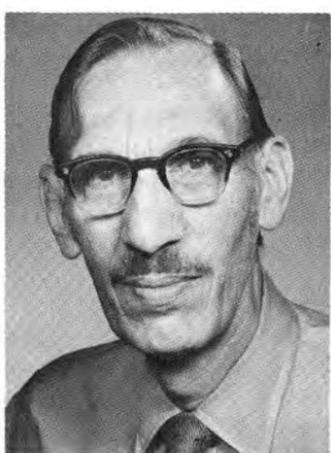
Jesse Bozone - 9514

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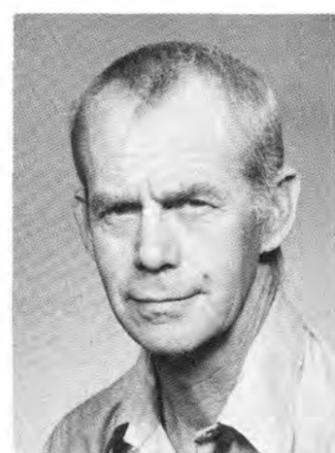
Lucille Larrabee - 2510

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Frank Francis - 5814

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Norman Smith - 4822

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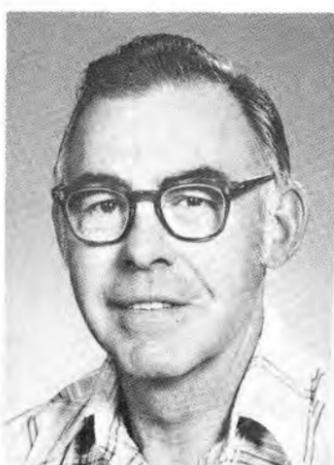
Bob Marmon - 8412

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Joan Madsen - 8330

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Howard Phillips - 3645

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Regina Kamp - 8161

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Dick Shimada - 8431

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Henry Aira - 4822 20



Rudy Grund - 8257 15



Helen Bond - 8412 15



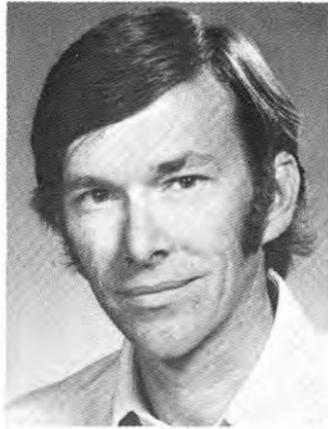
R. A. Vermillion - 3623 25



Hovey Sealey - 9550 25



Ken Chappell - 8413 15



Dick Shead - 9611 15



Betty Barnhouse - 8433 15



Les Anderson - 1247 15



John Nielson - 5625 10



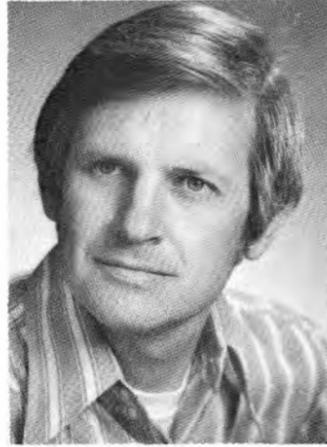
Marilyn Rozelle - 2631 15



Bob Flaxbart - 9710 25



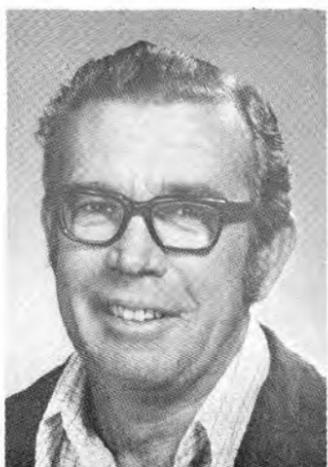
Harry Wheeler - 9341 20



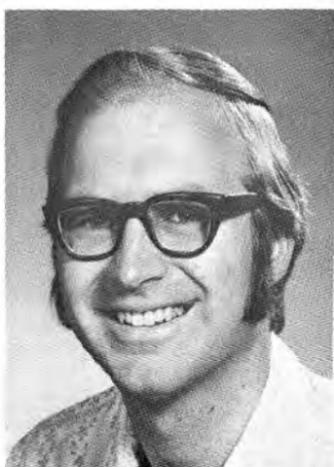
Ken Tschritter - 8332 10



Mary O'Shea - 8266 15



Cecil Morrisett - 9742 15



Richard Beegle - 9343 10



Dick Strome - 3155 25



Marjorie Geisler - 6021 15

## Speakers

A.D. Swain (1642), "Human Errors in Nursing: Causes and Cures," Industrial Nurses' Association, Oct. 2, KAFB West, Albuquerque.

J.M. Hueter (3131), "PR is Really People Relations — A Membership Opportunity," Council IV, Toastmistress International, Sept. 28, Albuquerque.

R.K. Quinn (5154), "Variation of Electrode Surface and its Effect on Charge Transfer Parameters," UNM Chemistry Dept. Analytical Seminar, Oct. 4.

L.F. Shampine (5121), "Solving Non-stiff Ordinary Differential Equations — The State of the Art," C-Division Seminar, Oct. 8, LASL, and Oct. 23, SIAM '74 Fall Meeting, Alexandria, Va.

J.H. Gieske (9352), "Some Applications of Computerized Ultrasonic Data Acquisition and Display System," and D.C. Bushnell (9352), "Correlation of NDT and Mechanical Properties," Automated Inspection and Product Control Conference, Oct. 15-17, Chicago.

B.L. Gregory (2113), "Radiation Hardening Technology"; R.A. Lefever, W.F. Windle and T.D. Harrison (all 2334), "Silicon-Germanium Hot-Pressing Parameter Study"; W.H. Smyrl (5831), "Current Transients During Stress Corrosion Crack Propagation"; S.M. Myers (5111), "Ion Backscattering Study of LiOH-to-Li<sub>2</sub>O Conversion on LiH Substrates," 146th Meeting of the Electrochemical Society, Oct. 13-17, New York, NY.

D.H. Loescher (2433), "The Use of Fluorocarbon Gases to Prevent Arcover in dc Capacitors"; J.P. Brainard (2412) and D. Jensen (2413), "Measurements of the Charge Distributions on an Alumina Insulator in Vacuum Resulting from High-Voltage Stress"; R.A. Anderson (5814), "Role of the Secondary Electron Emission Avalanche in Surface Flashover of Insulators in Vacuum," Conference on Electrical Insulation and Dielectric Phenomena, NAS, Oct. 21-23, Downingtown, Pa.

S.M. Myers (5111), "Implantation Into Metals: Compound Formation and Damage Production"; S.T. Picraux (5111), "Solid State Surface Analysis on Ion Backscattering and Channeling Techniques," Third Conference on Application of Small Accelerators, Oct. 21-23, North Texas State Univ., Denton, Texas.

P.H. Holloway and G.C. Nelson (both 5825), "Low Temperature Diffusion of Chromium Through Thin Gold Films"; H.J. Rack (5832) and R. Krenzer (DRF), "A Preliminary Examination of Thermomechanical Treatment in 6061 Aluminum"; T.V. Nordstrom, R.W. Rohde (both 5832) and D.J. Mottern (deceased), "Explosive Strengthening of a Cu-Be Alloy"; J.C. Swearingen (5847) and J. Lipkin (5162), "The Mechanical Response of Aluminum Alloys Subjected to Complex Thermal Histories," Fall meeting of the Metallurgical Society of AIME, Oct. 21-25, Detroit, Mich.

H.J. Rack (5832), "Mechanical Testing for Materials Development/Process Selection — An Overview"; A.G. Beattie (9352), "The Use of Computers in Analyzing Acoustic Emission Data," ASM Conference, Oct. 21-25, Detroit, Mich.

M.M. Robertson, E.A. Igel, E.J. Bernard and G.E. Staller (all 2441), "Simultaneous Radiometry and High Speed Photography of Electrodes During Pulsed Vacuum Arcs," American Society for Nondestructive Testing Conference, Oct. 21-25, Detroit, Mich.

C.L. Olson (5241), G.W. Kuswa, D.W. Swain (both 5242), and J.W. Poukey (5241), "Ion Sources for a Collective Ion Accelerator"; J.E. Boers (2414), J.R. Freeman and J.W. Poukey (both 5241), "Computer Simulation of Focused Ion Beams," Symposium on Ion Sources and Formation of Ion Beams, Oct. 22-24, LL/Berkeley, Calif.

G.C. Tisone and J. Hoffman (both 5212), "Formation and Destruction of XeO(1S) in High Pressure Xe and N<sub>2</sub>O and CO<sub>2</sub> Mixtures"; F.W. Bingham and A.W. Johnson (both 5216), "Quenching Rates for Rare-Gas Excimer Molecules and Excited Atomic Oxygen"; J.B. Gerardo (5210), J.R. Freeman, F.O. Lane (both 5241), and A.W. Johnson (5216), "The Helium Afterglow," 27th Annual Gaseous Electronics Conference, Oct. 22-25, Houston, Texas.

D.O. Smallwood (9332), "A 12,000 Lb/m 8-Inch Displacement Portable Hydraulic Seismic Simulation"; L.O. Seamons (9333), "A Davis Gun Penetrator Launch System"; H.W. Nunez (9333), "Impact Testing Using A Variable Angle Rocket Launcher"; J.D. Tebbs and D.O. Smallwood (both 9332), "Extension of Control Techniques for Digital Control of Random Vibration Tests"; D.W. Doak (1544) and J.V. Otts (9333), "Dynamic Response Measurements at Water Impact"; M.B. Gens (1542), "The Dynamic Environment of Forklift Transport"; F.H. Mathews (9321), "Explosively Propelled Rotating Plates for Oblique Impact Experiments," Shock & Vibration Symposium, Oct. 22-25, Dayton, Ohio.

J.P. Hickerson (5832), "Results of Experiments on J Integral Fracture Theory," Invited Paper, J. Integral Task Force of ASTM Committee E24 on Fracture Testing, Oct. 23, Pittsburgh.

**Note: If you don't find your name, Speakers or Authors, it's probably because I couldn't decipher your signature on the review and approval form. Please print! • nt**

R.E. Jones (2642), "OMESH: A Self-Organizing Mesh Generation Program"; L.C. Beavis, W.G. Rigby (both 2413), L.A. Doyal and H.F. White (both 2114), "A System for Measuring Small Helium Flow Rates with Computer Data Reduction and Data Acquisition Control"; D.R. Porter (9344), "Shock Laboratory Data System"; D.B. Hayes (5162) and J.W. Nunziato (5131), "Wave Propagation Calculations in Solids with Internal State Variables; Application to Phase Transforming Bismuth"; R.B. Worrell (1653), "The Set Equation Transformation System: A Symbolic Manipulator for Boolean Algebras"; L.C. Bartel (5151), "Computer Simulation of an In Situ Shale-Oil Retort"; L.D. Berthold (5162) and W. Herrmann (5160), "Computational Methods for Stress Wave Propagation in Nonlinear Solid Mechanics"; D.M. Darsey (9344), "Programmable Calculator Measurement System"; Darsey, "A Testing Facility Computer Hierarchy Network"; Darsey, "Automation of Environmental Test Facilities"; G.R. Case (2114), "SALOGS — A 6600 Program to Perform Digital Logic Simulation and Fault Diagnosis"; D.L. Hicks (5162), H.S. Lawson (5166) and M.M. Madsen (5162), "Development of TREEDY: A Three Dimensional Wavecode Using Operator Splitting and Wave Fitting on a Movable Mesh"; W.W. Shurtleff (9344), "Switch, Motor, and Relay Tester (SMART)"; C.W. Gwyn (2114), "Computer Aided Design of Integrated Circuits at Sandia Laboratories"; M.R. Scott and H.A. Watts (both 2642), "ORTHOD — A Computer Code for Two-Point Boundary-Value Problems Via Orthonormalization"; F.R. Norwood (5166), "Application of the Algebraic Manipulation System Reduce 2 to Analytic Solutions in Wave Propagation"; F. Biggs (5223), "Fredholm Integral Equations of the First Kind in Engineering," The CUBESymposium, Oct. 23-25, LLL.

M.L. Lieberman (5843), "Interrelations Between Processing Matrix Microstructure, & Properties of CVD/Felt Carbon/Carbon Composites — A Review," B.L. Butler, D.A. Northrop (both 5843) and T.R. Guess (5847), "Isostatically Pressed Carbon Composites: A Tailored Material," Pacific Coast Regional meeting of ACS, Oct. 23-26, Los Angeles.

E.L. Patterson and R.A. Gerber (both 5212), "Characteristics of a High Energy HF Laser Initiated by an Intense Electron Beam"; C.E. Hackett (5642), "Evaluation of Laser Velocimetry for Chemical Laser Nozzle Diagnostics"; D.A. McArthur (5226) and P.B. Tollefsrud (5220A), "Observation of Laser Action in CO Gas Excited Only with a Nuclear Reactor," 4th Conference on Chemical and Molecular Lasers, AIP and IEEE, Oct. 21-23, St. Louis, Mo.

E.H. Beckner (5200), "Inertial Confinement Fusion"; J.G. Kelly, D.W. Swain and S.A. Goldstein (all 5242), "Measurements of Plasma Properties in Electron Accelerator Diodes," NM Academy of Science Annual Meeting, Oct. 11-12, Highlands Univ., Las Vegas.

R.F. Davis (2643), W.B. Boyer (5243) and J.L. Krone (2643), "Computer-Based Diagnostics for the Four-Beam Laser"; J.A. Biffle (1541), "Interactive Graphics Aided Structural Analysis"; G.J. Hockrein (5644) and D.E. Larson (5625), "A Computer Program for Thinning Large Sets of Data," CUBE Symposium, Oct. 23-24, LLL.

R.J. Eagan (5846), R.D. Bland (3621) and C.R. Pennington (3621), "Glass-Ceramic Neutron Tube Insulators"; A.C. Switendick (5151), "Influence of the Electronic Structure on the Ti-V-H Phase Diagram," 8th US/UK Neutron Generator Symposium, Oct. 21-25, SLA.

C. Arnold (5811), "Adiprene/Moca Replacement Studies at SLA," Compatibility Conference on Weapons Materials, Oct. 22, Oak Ridge Y-12 Plant.

D.J. Sasmor, P.S. Pickard, J.B. Rivard, R.L. Coats (all 5222), J.A. Reuscher and J.S. Philbin (both 5221), "Fuel Selection Considerations for the Annular Core Pulse Reactor Performance Improvement"; D.A. McArthur (5226) and P.B. Tollefsrud (5220A), "Measurement of Optical Gain on Vibrational Transitions of CO Gas Excited Only by Fission Fragments"; T.R. Schmidt (5222) and D.W. Croucher (UNM), "Thermal Stress in Cladding During Simulated LMFB Overpower Transients"; G.J. Jones (2334), J.E. Selle and P.E. Teaney (both Mount Labs), "PuO<sub>2</sub>/T-111 Compatibility Studies"; G.J. Lockwood and G.H. Miller (both 5226), "Improved Calorimetric Measurement of Bremsstrahlung Dose"; J.S. Philbin, B.F. Estes and F.M. Morris (all 5221), "Flux Depression Characteristics of a Large Capacity Triga Fuel Storage Container"; T.R. Schmidt (5222), J.A. Reuscher (5221) and E.T. Laats (Idaho State Univ.), "Temperature Dependent Internal Friction for Uranium, U-0.78w/o Ti, U-6 w/o Mo, and U-10 w/o Mo"; Reuscher and Schmidt, "Material Property Determination for Fast Pulsed Reactor Fuels by Rapid Fission Heating," American Nuclear Society Winter Meeting, Oct. 27-Nov. 1, Washington, D.C.



**CLEARINGHOUSE** — This is Katrina Person of Affirmative Action Division 211 who has volunteered to match up interested Sandians with community-oriented activities. For example, if you'd like to tutor a young person she can put you in touch with a student in need of tutoring in your subject area. Katrina would also like to hear from Sandians willing to talk about their work to groups of students and from Sandians interested in volunteer work in the community but uncertain where to start. If you know of a tutoring or community need, Katrina would like to have that information too — ext. 1949.



**DUANE ARLOWE (9474)** was shopping for new safety shoes last week after this one was mutilated by a rotary power lawn mower. His toes are still intact, however. The mobile safety shoe store van is at Gate 1 every second and fourth Monday from 8:30 a.m. to 4 p.m. Every Thursday the van is at Gate 1 from 8:30 until noon, at Gate 6 from 12:30 to 4 p.m.



**A GRIN for a good thing.** Used to be that people entering Bldg. 892 could too easily swing the doors in unison and get a nasty pinch when their hands got squeezed twixt the door handles. Frank Lesperance (9713) to the rescue. He conceived and constructed the oak and rubber blocks (near top of doors) which now prevent mishap.

# Freedom High — Alternative Education

"Alternative education" is one of the hottest ideas going in educational circles today. Freedom High School in Albuquerque is one of the reasons why. Now in its fifth year of operation, Freedom High keeps its academic standards high but moves its classrooms into the community — for instance, students in social studies visit municipal offices and observe courtroom procedures, ceramics are taught by a professional potter in his studio, and the same is done for jewelry-making.

"Most of our students are dropouts from other city high schools," says Esther Shumaker, the school coordinator. "Freedom High represents their last chance. They haven't done well in a structured classroom so we offer one with more flexibility. We stress individual study, individual counseling, and we give credit to students who work and receive training on the job. They must still complete the customary academic requirements — English, history, social studies, math and science."

It works. In the past four years, Freedom High has graduated 95 percent of its seniors. And these were kids in academic trouble.

"Responsibility is the first thing they have

to learn here," Esther says. "They must attend their classes, they must finish their contracts (an agreement to complete a specific amount of work), they must get to class on time. The staff is here to help and we care about each student, but they are the ones who need the education. When they realize that, they get to work."

Esther is small and animated, and she heads a staff of seven teachers who share her enthusiasm. They love to talk about their success stories:

"There was this boy from West Mesa. He had dropped out before, reenrolled at West Mesa and was not doing well. The counselor there referred him to Freedom High. In our counseling we discovered that he had emotional problems and a crippling lack of self esteem. We gave him a series of small tasks which he completed rapidly. This bolstered his confidence and we encouraged him to get a job — suggested several leads — and gave him a pep talk before every job interview. He did get a job and, earning his own money, he felt better. Academic testing revealed that he was very bright — learned quickly. Well, he finished our program, graduated, and we guided him into a



ESTHER SHUMAKER, coordinator of Freedom High School.

scholarship at UNM. He's a law student now and he will go far."

Esther augments her staff with volunteers. Professionals in many career fields teach students in classrooms, teach them on the job. It's a tremendous scheduling chore but, again, it works. The students respond. Current enrollment of Freedom High is 188.

The name was chosen by the first group of students who attended. Their quarters used to be in an old church at 5th and Marble streets. Now, Freedom High occupies part of the old Albuquerque High School building.

"It's a good name," Esther says. "Young people who come here learn what 'freedom' is all about."

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 Deadline: Friday noon prior to week of publication unless changed by holiday.  
 A maximum of 125 ads will be accepted for each issue.

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2. One ad per issue per person.
3. Must be submitted in writing.
4. Use home telephone numbers.
5. For Sandia Laboratories and AEC employees only.
6. No commercial ads please.
7. Include name and organization.
8. Housing listed here for rent or sale is available for occupancy without regard to race, creed, color, or national origin.

### MISCELLANEOUS

- SOFA, 3-piece sectional, \$75; platform rocker, \$25; pole lamp, \$10. Williams, 299-2747.
- SWIFT micro illuminator, model SSL-10A, \$25; Lafayette "micro dapter" w/case (99-70801), \$50. Villa, 298-0435.
- 2 TWIN BEDS (were bunk), maple; child's drum; electric organ; woman's better dresses, size 7-8; portable electric heater; 10-spd. boy's bike, 26". Rhoden, 293-8928 after 5 p.m.
- STUDIO couch w/matching chair, almost new, \$70; blue vinyl recliner, \$10; man's Inlay Thunderbird watch band, \$75 or best offer. Ortiz, 296-9758.
- DRAPES, royal blue, lined, 125" wide, 83" long w/light blue sheers, \$40. Ristine, 298-8383.
- TWO oil burning stoves (kerosene) w/some vent pipe, \$20 ea.; Lindsay automatic water softener, model 1020-C, \$40. Sutherland, 266-1734.
- SILVER dollars, 9 Carson City uncirculated from Government auction, 1879 thru 1885 plus 2 1880 overdates, \$1200. O'Bryant, 268-9049.
- CAR top luggage carrier, heavy duty molded plastic, approx. 4x4x1, \$40. Meyer, 296-9066.
- ANTIQUA vanity/desk w/mirror, burl walnut finish, scalloped front, decorative legs, \$295. Gover, 296-3928.
- MEDIUM sized dog house, 23"x32", commercially made w/wire run stakes & chain, \$25. Mills, 299-2130.

- SHERWOOD stereo receiver, less case & speakers, cost \$375, take \$50. 6500 Cochiti Rd SE, space 56, Hiltunen.
- REFRIGERATOR, large, 1 yr. old, frost-free, \$150; washer, GE, 7 yrs. old, \$50; round table, 2 chairs, new, fruitwood, \$75. Shipman, 294-5955.
- SKI eqpt.: Head 360, 195cm w/Nevada bindings, alum. poles, 4-1/2 ft., Koflach boots, 10-1/2m w/carrying stand, \$125. Hewitt, 265-2439 after 5.
- ANTIQUA picture frames, various sizes, \$25-\$35; Sears vinyl car top carrier, fits all sizes, \$25. Adams, 293-2928.
- WATER softener, Culligan Mark-2 recently reconditioned, \$190; child's buckle ski boots, size 10, \$10. Balr, 296-3505.
- SKIS for beginner or intermediate, Kastle CPM-70, 195cm, \$40. Flanning, 268-6597 after 5.
- DIVAN, Kroehler, 3-cushion, olive color, 85-1/2 wide x 36" deep x 36" high (back), \$100. Reynolds, 294-1349.
- ELECTRONIC organ w/matching bench, 88 key, 13 bass pedal, 3 footages, Leslie speaker, built-in repeat percussion, reverberation, \$475. Wolowicz, 298-0434.
- 8 EA. Champion spark plugs, J-12 Y, \$4; 1 ea. water pump for '66 Chev., 8-cyl., 283 engine, \$9.50. Boyer, 298-3893.
- SANYO 4-channel receiver, AM/FM radio, 8-track player, cassette recorder/player, turntable & 4 speakers. Silva, 255-1710 or 298-2796.
- HEATH HR10B ham receiver, \$50; HalliCrafter Sky Champion (1947) general coverage receiver, \$20; girl's Schwinn bike w/basket, \$30. Miller, 298-3534.
- GAS room heater, vented. Donaldson, 255-4024.
- HAND mower w/catcher, \$5.50; women's golf shoes, 8-1/2, \$3; Webcor stereo, \$15; gold rug, 7-1/2' x 10', \$9. Quinlan, 296-1852.
- TRUNDLE bed, needs refinishing, \$30. Rand, 299-1048.
- GENERAL Elec. refrig., \$125; twin

- bed w/mattress & box springs, matching maple chest, both for \$90. Shipley, 298-2433.
- SKIS, Skitique 180cm, \$30; wide angle lens, Vivitar f/2.8, \$40; baby mattress, \$5; Argus slide projector, \$10. Hardesty, 294-3430.
- TERRARIUMS. Miller, 268-5992.
- BAR stools, Cosco, black w/chrome, brand new, 4 for \$80. Olsen, 881-2761.
- POODLE puppy, 7 weeks old; tiny toy Fox Terrier, 9 weeks old. Davis, 298-1957.
- NAVAJO rugs, collection of quality Navajo rugs from the 4-Corners area. McGee, 299-0661.
- SUNBEAM 10-spd. Mixmaster w/2 sets of beaters & 2 new glass bowls, \$15; wall-mounted brass pull-down light fixtures, \$4. Gullford, 255-6294.
- NAVAJO sand paintings, small collection, \$18-\$70 ea. Fishburn, 299-7370.
- BLOND 3-piece bedroom suite; free, fill dirt, you haul. Cericola, 298-2426.
- PUPPIES, red female dachshund, 9 wks. old, purebred but not registered. Kroth, 293-9565.
- POODLE, silver, female, 1-1/2 yrs. old, w/night cage & dog house. McIntire, 298-7136.
- INEX ski bindings, \$30. Schroeder, 344-1011.
- FROSTLESS side-by-side refrigerator; end tables; crushed velvet L.R. set; walnut bedroom set, single bed, misc. Atkins, 256-0322.
- BABY furnishings: crib, \$30; Porta-Crib, \$22.50; car bed, car seat, high chair, potty, step-stool, Gerry back pack, sterilizer, bottles, etc. Caskey, 296-6372.
- DOBERMAN puppies, AKC, \$75. Martin, 877-7989 after 5:30.
- SKIS, Head, std., metal, 180cm, \$30; ski boots, woman's, Henke, leather, buckle, size 8, \$15. Garst, 299-5870.
- TWO white French provincial single dressers w/mirrors; bulletin board. Peabody, 296-6239.

- DROP-leaf dining table, 6 chairs; 4 30" bar stools; double oven gas range; orange shag rug. Forsythe, 299-2785.
  - SKI stuff, Marker bindings, \$10; Javelins with Salamon bindings, 210's, \$18; Miller fiberglass, 205's, \$10; Miller metals, 210's, \$10. Shunny, 265-1620.
- TRANSPORTATION**
- '64 TRAVELALL, 4WD, 3-speed, 126,000 miles, overhauled at 108,000, \$995. Lassiter, 298-2461.
  - \$2900 BUYS either: '73 Ford LTD 4-dr., fully equipped, or '59 Mercedes 190SL convertible, completely rebuilt. Young, 298-6927.
  - '65 FORD Futura, AC, 289 V8, new tires & brakes, engine overhauled, \$500. Kurowski, 265-0014.
  - 125CC MONARK dirt bike, less than 300 miles, all lights, speedometer, Sachs engine, 6-spd., \$675. Martin, 299-6768.
  - DK. BLUE Ford Gran Torino wagon, below book, PS, AT, AC, rack, AM/radio, jump seat, 350 engine. Chacon, 294-0065.
  - '72 VEGA GT, 4-spd., hatchback, approx. 24 mpg, \$1750. Baczek, 255-3429.
  - '68 FORD, 3/4-ton, 4-WD, 4-spd. w/shell, 68,000 miles, 3 ea. 16-gal. tanks, \$2000. Nielsen, 299-0198.
  - '74 GMC 1/2-ton truck, short wide bed. Patterson, 293-2540.
  - '65 FORD Mustang, 2-dr., HT coupe, 289CI, \$400 or best offer. Champlon, 299-0163 after 6:30.
  - '63 MERCURY Comet, 2-dr., 4-spd., convertible, 260 V8, \$250 or best offer. Wolf, 298-4746.
  - '65 MGB, rebuilt engine & radiator, new radial tires, \$500 (Jeff); '63 Corvaair Monza, best

- offer (Gary). King, 281-3186.
  - '70 MONTE Carlo, PS, PB, AC, radial tires, stereo tape, vinyl top, \$1800. Browne, 898-6823.
  - '72 OLDS. Custom-Cruiser station wagon, 2-seat, AT, AC, PS, PB, HD cooling system. DeWerff, 298-1029 evenings.
  - '63 PLYMOUTH Signet convertible, needs work but runs, \$150. Ross, 296-9794.
  - '71 HONDA 350-CB, 7000 miles, 2 helmets included. Gearhart, 294-1981.
  - TWO 10-spd. bicycles, \$50 & \$110; latter is Gitane Interclub w/cotterless crank & sew-ups. Copeland, 344-1133.
  - '62 GMC 1/2-ton pickup, SWB, V6, 4-spd., positraction, \$600. Lisotto, 298-6211.
- REAL ESTATE**
- 3-BDR., den, 1-3/4 baths, 1505 Willys Knight NE, \$28,750, \$1150 down on new loan. Cotton, 299-2237.
  - TWO 1-acre lots, Brazos Lodge (near Chama), \$2900 ea., terms negotiable or trade for N. Hwy 14 property. Lassiter, 298-2461.
- WANTED**
- VIOLIN, full size, high quality. Moss, 298-2643.
  - BEAR Paw type snow shoes. Stone, 298-4620.
  - TO JOIN or form a car pool from area bounded by Indian School, Menaul, Juan Tabo and Chelwood to gate 10. Erdman, 298-3097.
  - SKI equipment for adult male: Skis, boots, poles, etc. Ross, 296-9794.
  - HOME for black male cat, 6 mo. old, loves children. Clark, 298-4605.
- LOST AND FOUND**
- LOST — Dark rim bi-focal safety glasses; man's black glove; light tin Rx wire rim glasses; brown key case w/6 keys. LOST AND FOUND, tel. 264-2757, Bldg. 832.

• BARBECUE • C-CLUB • YOLANDA • REDMONDS • DIXIELAND • WAGON WHEEL •

FRIDAY	SATURDAY
8 — HAPPY HOUR ROAST ROUND OF BEEF Adults \$2.95 Under 12 1.95 Dixieland On Stage FRANK CHEWIIWE	9 — Tickets by today for WILD WEST BARBECUE Members \$4.50 Guests 5.50
15 — HAPPY HOUR BAKED HAM BUFFET Adults \$2.75 Under 12 1.75 Glad Rags On Stage MELLOW TONES	16 — WILD WEST BARBECUE 6 — Dinner 7:30 - Wagon Wheel Square Dancers 8:30 — SHILOH

TONIGHT — it's Happy Hour with beef and Dixieland for eating, for listening. Then Chewiwe away the evening. Mr. Freebee too.

BARBECUE — Wild West Rio Grande style, is a time to: wear your boots, jeans, and Stetson; feast on BBQ ribs and BBQ chicken; enjoy the Wagon Wheel Square Dancers, dance to Shiloh, maybe win a free turkey. It's all on the 16th with the chuckwagon open at 6 — plenty of time to make the Lobo game. Tickets by tomorrow.

TECH — Area talent makes up part of the Mellow Tones. Yolanda Adent (9426) is organist, Paul Metoyer (3171) is drummer. They team up with a New Yorker who plays sax, trumpet, and clarinet (in series, not parallel), a young guitarist, and a singer-swingler or two to make music you'd really like to dance to. And you can — Happy Hour on the 15th.

SKIS — waxed? Sharpened? Next step is to join Ski Clubbers and learn how to handle self + skis on the slopes. Fritz Tatzler, head of Purgatory's Ski School, will explain their teaching techniques, and generally inspire, inform, and entertain. Films, info on Purgatory, ski safety talk by Bill Horton (AEC), and free refreshments round out the



AT THE C-CLUB (l to r), Carolyn Harman, Byrch Williams, Pam Barger, and Dick Venters will appear with other Wagon Wheel Square Dancers for the barbecue on the 16th. Wagon Wheel is a University-based club with lots of young people, lots of vitality.

evening — at 7 on the 19th.

DAZZLE — yourself at Sanado's Color Daze, a fall fashion show that dares to ask the question "What shall I wear?" For men too — a chance to lower the daze level. Fashions from Redmonds modeled by 10 lively Sanadoes. Sue Meyer coordinates, comments. When it comes to fashion shows, Sanado does it up beige. Reservations with Ann Tapp (821-0644) today.

LAST — chance for Mexico City and

environs. Deadline is today for your \$100 reservation. Whole package is \$319 (or less if lots sign up). Then there's Greece next spring: \$799 and up.

MORE INFO — 265-6791.

LAB NEWS  
PAGE TWELVE  
NOVEMBER 8, 1974



MELLOW TONES • PURGATORY • TATZER • SHILOH •

Events Calendar

- Nov. 8 — UNM Music Dept., Mexican Art Songs of the 20th Century, 8:15 p.m., Keller Hall.
- Nov. 8 — University of Alb., Piano Recital, William Leland, 8:15 p.m. on Stage 2.
- Nov. 8 — Guild Theater, "The Misfits" thru Nov. 14, 265-0220 for more information.
- Nov. 8-10 — Southwest Arts & Crafts Festival, New Ag Bldg., State Fairgrounds.
- Nov. 9 — Rio Grande Kennel Club Dog Show, Tingley Coliseum & Hobby Bldg. (William Jacklin, 264-3115).
- Nov. 8-9 — Old Town Studio, "Who's Afraid of Virginia Woolf?" 8 p.m., 242-4602.
- Nov. 10 — University of Alb., Lecture Series, by former Gov. Jack Campbell, "The Potential," 7:30 on Stage 2.
- Nov. 11 — UNM Music Dept., UNM Jazz Band Concert, 8 p.m., Keller Hall.
- Nov. 12 — Harvest & Corn Dance Fiesta, Jemez Pueblo.
- Nov. 14-15 — Alb. Opera Theater, "Tosca," 8:15 p.m., Popejoy Hall, 243-0591.
- Nov. 10 — NM Mt. Club, Ladron Peak, 6 miles, K-Mart, 7 a.m.

- Nov. 16 — Moving Pictures Ltd., "Days & Nights in the Forest," 10 a.m. & noon at the Guild, 268-6879.
- Nov. 16 — NM Mt. Club, 3-Gun to Embudito, 10 miles, Western Skies, 8 a.m.
- Nov. 16 — Football, UNM vs BYU, 7:30 p.m., UNM Stadium.
- Nov. 16 — Cultural Entertainment Series: "Move Over Mrs. Markham"; 17th "School For Wives"; 18th "Henry IV, Part One," 8:15 p.m., Popejoy Hall.
- Nov. 17 — Old Town Open House, all shops & galleries.
- Nov. 18 — ASUNM Lecture, Thomas Szasz, psychiatrist, 8 p.m., SUB Ballroom.
- Nov. 20 — Community Concert Series, Six Stars of the Ballet, 8:15 p.m., Civic Auditorium.
- Nov. 20-21 — Alb. Symphony Orchestra, Christopher Parkening, Guitarist, 8:15 p.m., Popejoy Hall.
- Nov. 29-30 — The Houston Ballet Co. with Alb. Symphony, "The Nutcracker," 8:15 p.m., Popejoy Hall, 2 & 8:15 on 30th.

