

MEET PROTO 1, Sandia's newest and largest electron accelerator. With it, Plasma and Electron Beam Physics Research Department 5240 will study the feasibility of using electron beam fusion to generate electricity. Proto 1 will develop 2 to 2-1/2 trillion watts during its 24 billionths of a second pulse. If experiments at those levels succeed, a second accelerator will be built. It would be capable of fusing

substantial numbers of nuclei in the deuterium-tritium target pellet by producing about 40 trillion watts during a 10 billionths of a second pulse. Commercial e-beam power plants would have to be even more powerful to generate more electricity than they consume. Proto 1 is an early step on a long journey.

LAB NEWS

VOL. 27, NO. 11

MAY 30, 1975

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

Sandia Studying Nuclear Waste Disposal

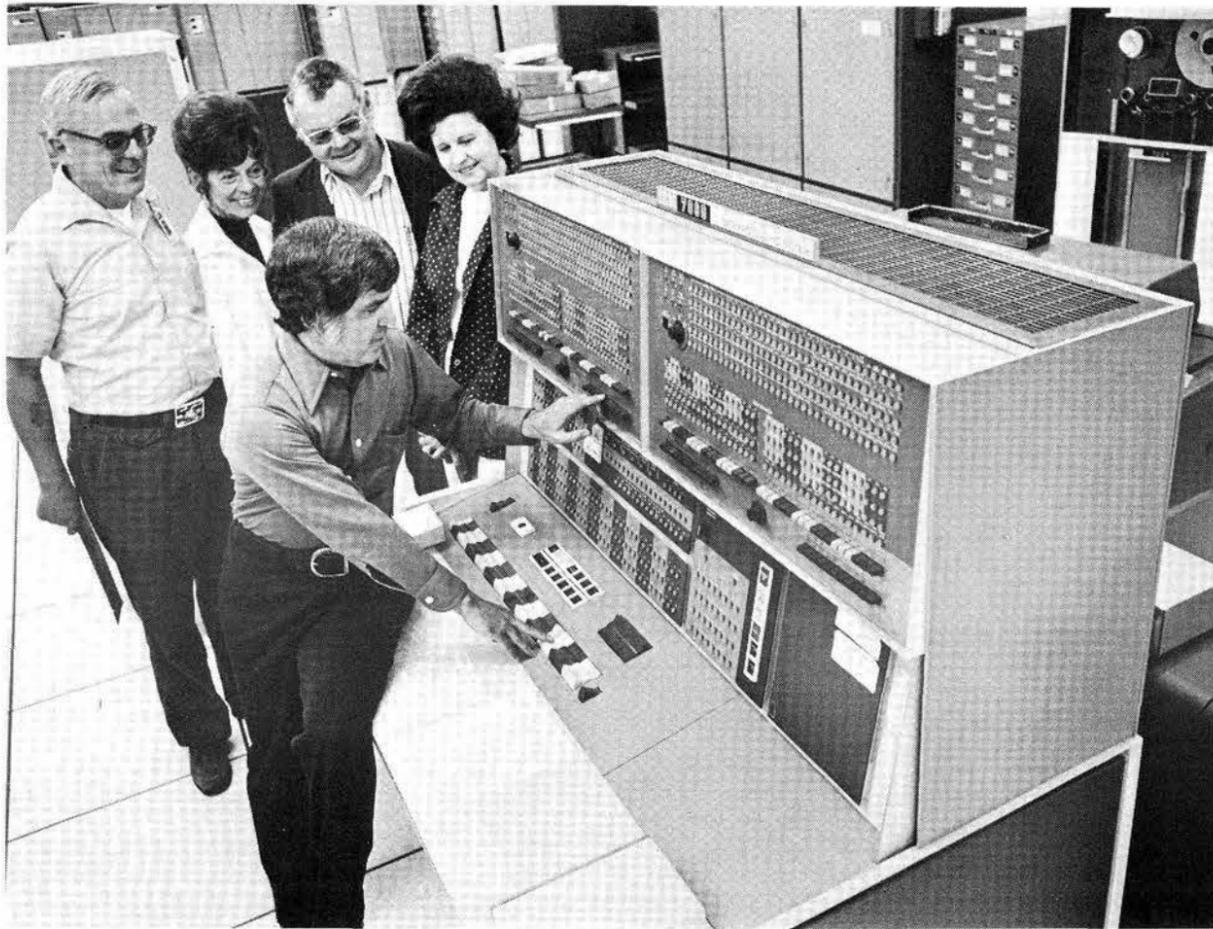
With \$450,000 in new FY '75 funding from ERDA's Division of Waste Management and Transportation, Sandia Laboratories has launched a program whose objectives are intimately associated with the national drive for energy independence. Nuclear power plants are currently producing radioactive waste and these wastes will be increasing in quantity exponentially over the next two decades. Proper management of this waste is a necessity for a successful nuclear power program. Sandia's program aims to

answer basic questions about disposal of radioactive wastes in underground formations of salt through design and development of a pilot plant facility.

The program will center around a site in Southeastern New Mexico and will continue work started by the Holifield National Laboratory (formerly Oak Ridge National Laboratory) several years ago. At Sandia the program will be centered in the 1100 organization. Wendell Weart, supervisor of Underground Physics Division 1111, is

project manager. Work will be performed by Nuclear Waste Technology Division 1113 under Les Hill and Nuclear Waste Engineering Division 1136 under Leo Scully with support from throughout the Labs. Mel Merritt of Test Effects Department 1150 will head an effort to prepare an environmental impact statement for the program.

"ERDA (AEC) has worked for years on the disposal problem," Wendell says, "and it has been a multi-laboratory effort. The
(Continued on Page Five)



IS THERE life after phase-out? This IBM 7090 computer wants to know. It was ceremoniously retired last week after 14 years in service. The original crew (above), a few of the many Sandians who worked with this machine, pay their last respects. At console panel is Ben Garcia (2631). Standing from left are Phil Arnold (9424), scientific programmer; John Logan (3141), business programmer; Gwen Cosstick (2633), keypunch leader; and Billie Starceovich (4151), tape librarian.

feed *li*back

Q. A lot of reserved car pool spaces are just another fringe benefit for husband and wife teams at Sandia. Why not require a minimum of three people, or two drivers, not related, to share a reserved car pool spot?

* * *

A. The SLA Reserved Parking Policy Committee specifies, "A car pool consists of at least two individuals riding in a single vehicle on a daily basis." This policy maximizes car pooling; it is simple to understand and simple to administer. It is recognized that some employees get a reserved parking space for doing something they were already doing. And this may result in "just another fringe benefit for husband and wife teams" as you state. But the committee is not convinced that any other definition would not also give a reserved parking space to those who were already car pooling. A number of husband and wife teams, now car pooling, drove separately before the reserved parking program was offered. It was just more convenient to them when they worked in different areas and it was not all that costly. In addition, your proposal, denying husband and wife teams participation, would give single people who are roommates but not related a reserved spot. Two brothers who do not live very close to each could not participate, yet non-related next-door neighbors could. These are not imagined examples but, in fact, are cases that have been considered by the Reserved Parking Policy Committee.

L. J. Heilman, 9500

Events Calendar

May 30-June 12 — NM Mt. Club, La Luz Trail, 14 miles, 8 a.m., Eastdale.
May 31 — KHFM (98.3), full score of "Paint Your Wagon," 6:40 p.m.
Through June 1 — NM Charity Horse Show, Horse Arena, State Fair, events all day, performances 7:30 p.m.
Through June 1 — San Felipe de Neri Fiesta Celebration, Old Town Plaza.
Through June 1 — Rose Show, Flower Building, State Fairgrounds.
June 1, 4, 8, 11 — June Music Festival: Fine Arts Quartet & local artists, 8:15 p.m., Woodward Hall, UNM.
June 2-7 — "ReDiscover NM" Exhibit, Winrock Shopping Center.
June 3 — Channel 5, Nova, "Red Sea Coral & The Crown of Thorns," 8:30 p.m.
June 6-8 — NM Art League, Church Street Arts & Crafts Festival, Old Town Plaza.

June 6-8 — Antique Show, Convention Center.
June 7-8 — NM Mt. Club, Pedernal Peak, Bob Babb, 256-9016.
June 8 — NM Mt. Club, Crest to I-40, 17 miles, 7 a.m., Western Skies
June 8 — Arts In The Park, performances all day, 9 to 4, Los Altos Park.
June 8 — Jemez Arts & Crafts Club: show by professional artists & craftsmen, 10 to 5, Hummingbird Camp north of Jemez Springs.
June 10 — Club Culturale Italiano: Two films "Augusta" & "The Holy House," 7:30 p.m., Reception Center, 146 Quincy NE.
June 10 — Channel 5, Book Beat, "Clout: Mayor Daley & His City," 7:30 p.m.
June 13 — Old Town Studio: Neil Simon's "Last of The Red Hot Lovers," 8 p.m.

Variable Annuity Unit Value	
June	1.362
May	1.228
Average 1974	1.336

Retiring



Leota Hoffert (3172)

CU Bulletin Board

The Sandia Credit Union earned a Thrift Honor Award from the National Credit Union Administration for its success in stimulating savings. The monthly growth rate of 2.2 percent on share accounts under \$20,000 was above the average for Federal credit unions of similar size. On March 31, 8465 members had saved a total of \$18,868,271. The National Credit Union Administration conducts its Thrift Honor Award Program as an incentive for Federal credit unions to encourage members with small accounts to save regularly as part of their family financial management plans.

Congratulations

To Kay Savage (9718) and Alfred Montoya (former Sandian) on their marriage in Albuquerque April 11.

To Mr. and Mrs. Mike Lucas (3622) a daughter (first girl born in the Lucas family in seven generations), Christina Marie, May 8.

LAB NEWS

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 bill laskar does picture work
 gerse martinez lends a hand
 &
 lorena schneider reports on livermore

Take Note



GROUND-BREAKING CEREMONY was held recently at the site of the new Sandia/Livermore Credit Union building. Don Wagner (8212), Credit Union board member from SLL, turns the first earth as president Earl Simonson (4152), right, and employees look on. At a reception following the ceremony, Jim Boemke (8423) won the door prize, a color TV set. Contract for construction has been awarded, and building completion is expected around Sept. 1.

Sandia/Livermore employees who contribute to LEAP were recognized recently for their support last year of CHAD (Combined Health Agencies Drive). 1974 LEAP vice chairman Bill Ryan (8264) accepted an award on behalf of the employees from Dr. Jess Bromley, Alameda County CHAD chairman. In 1972 Sandia was one of the first Bay Area companies to participate in CHAD. Twelve major voluntary health agency fund drives are brought together through CHAD.

* * *

"Paul Bearers" took first place in this year's Sandia Mixed Handicap Bowling League's winter competition. Finishing second was the "Snoopy's What" team.

Individual awards went to: High Scratch Game — Don Bauman (8431) and Jan Inzerilla (8323); High Scratch Series — Don Starkey (8156) and Shirley Carson (8323); High Handicap Game — Pat O'Brien (8161) and Eva Leong (8433); and High Handicap Series — Mike Rogers (8158) and Gayle Tschritter (husband Ken Tschritter, 8332).

* * *

Sandia/Livermore again served as host during the Career Day sponsored annually by the YMCA for local high school students. Aim of Career Day is to give to students a first-hand look at a career or profession they might like to pursue. About 200 students participated along with some 37 Livermore Valley business people.

At Sandia, five students joined Walt Dzagan, Personnel Division 8212, Ken Bennett, Visitor Control Section 8261-1; and Evelyn Foote, Secretarial and Clerical Development Section 8212-1 for a view of their work. The day's activities included tours of various technical areas.

LIVERMORE NEWS

VOL. 27, NO. 11

LIVERMORE LABORATORIES

MAY 30, 1975

Congratulations

Mr. and Mrs. Terry Heidelberg (8323), a daughter, Natalie Shiela, May 13.

Cancer Screening Program for Women Announced

The Breast Cancer Screening Center for Northern California, located at Merritt Hospital in Oakland, is one of 27 such centers established to provide free screening examinations for women in the Bay Area. Goal of the five-year research program is to determine whether early signs of breast cancer can be detected and treated while in a curable stage.

Women between ages 35 and 75 are eligible for the program, providing they can participate in the program for five years and are free of an existing pathological condition. Not all applicants can be accepted, however, because for research purposes a cross section of women of different ages, races, religions, income groups, and family histories is needed.

Further information, instructions and applications are available in Medical, Bldg. 911.

Sympathy

To Ron Gorniak (8313) on the death of his father-in-law in San Francisco, Apr. 26.

To Bob Setchell (8115) on the death of his mother in Pasadena, Calif., May 12.



SCALE MODEL of weapon now under development was built for Structural Design Division 8157 for wind tunnel testing. It represents over 1500 hours of machining and is the work of (from left) design draftsman Bob Graham (8432) and machinists George Dawson, Andy Cardiel, Dell Houser and Bill Lavinsky of Machine Shop Section 8423-1. The intricate model has over 50 separate parts; Roger Everett is project engineer and Roger Page test engineer.

Labs Develop Maxi-Power Pulsed Laser

A team of Sandia Laboratories scientists has produced a 4.2 kilojoule pulse of laser energy with an electron-beam-driven hydrogen-fluoride laser, making it the most energetic pulsed laser yet reported. Bob Gerber and Ed Patterson are the principal investigators; Jim Hoffman and Gary Tisone performed much of the experimental work. All work in Bob's group, the Laser Physics Research Division 5212.

Pulse widths for the laser ranged from 20 to 30 nanoseconds; peak power was about 200 billion watts. The 4.2-kJ pulse is nearly double the previous record pulse for an HF laser, also an electron-beam-driven system located at Sandia.

The HF pulse was produced by injecting an intense beam of electrons from the Labs' REBA accelerator into a 2.3-meter-long, 15-centimeter-diameter tube filled with hydrogen, fluorine, sulfur-hexafluorine, and oxygen at pressures up to two atmospheres. A 3-kilogauss magnetic field guided the electron beam along the axis of the gas-filled cell. REBA delivers a 50-kiloamp beam of 2-MeV electrons in a 70-nanosecond-wide pulse.

The electron beam ignites two chemical reactions which continue until either all the hydrogen or all the fluorine is consumed. The reactions create a population inversion in the vibrational level of the HF molecules, and the molecules lase on vibrational-rotational transitions whose wavelengths lie between 2.7 and 3.5 microns. A well-collimated laser beam (4-milliradians divergence) is produced.

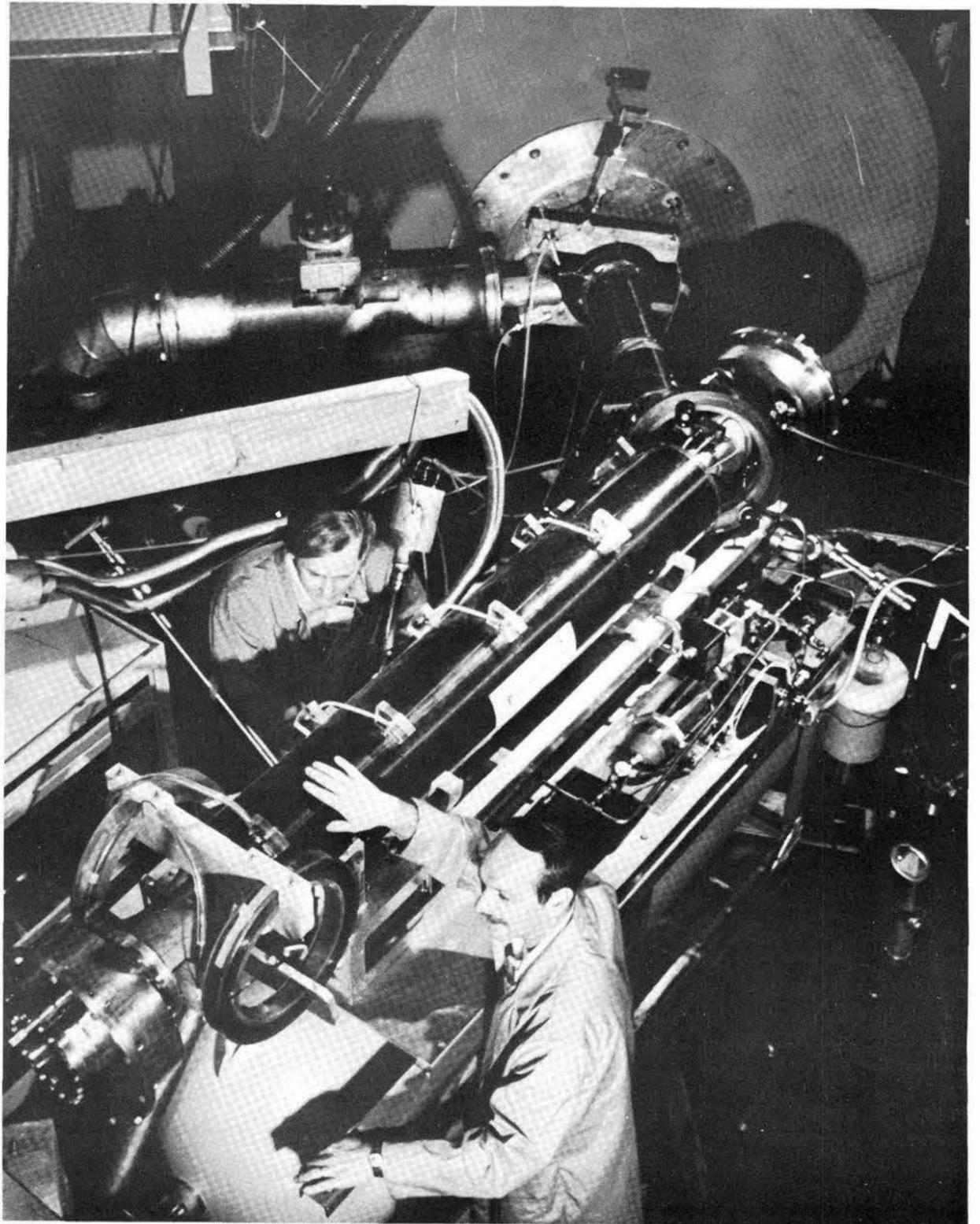
HF lasers have only recently created interest among high-power laser developers because the maximum power previously available was limited by the slowness of the chemical reaction. However, use of the electron-beam trigger greatly accelerates the reaction, accounting for the substantial increase in laser energy. Sandia researchers believe the electron-beam technique will be applicable to a wide range of chemical lasers and that it will have a significant impact on development of high-power lasers.

Sandia is working to develop a high-power laser which can be used for laser fusion experiments. The HF laser is not ideally suited for ultimate use in a laser fusion reactor because the pulse width is too broad and the wavelength is considered too long for optimum absorption by a fuel pellet. However, it appears that HF lasers can be rapidly scaled up in size so that they could be used to perform critical, interim fusion experiments requiring very large lasers.

The Sandia researchers believe that large HF lasers can be developed within the next two or three years. In two years of experimentation at the Labs, the energy output of such lasers has been increased from 10 joules to the present 4.2-kJ. It is felt that optimized systems can ultimately approach energy levels of 100 kJ or more.

Sandia's work in electron-beam-driven HF lasers was begun in 1973, when a mixture of sulphur-hexafluoride (SF_6) and ethane (C_2H_6) was excited with an electron beam. This was a non-chain-reaction system in which the electron beam removed fluorine atoms from the SF_6 molecules, and these atoms then reacted with the C_2H_6 to produce excited HF molecules. This laser produced up to 370 joules of energy and had a maximum electrical efficiency of 14 percent.

A major attraction of electron-beam-



WORLD'S most powerful pulsed laser is readied for shot by Gary Samlin (left) and Bob Gerber (both 5212). By using an electron beam to initiate chemical reactions in a mixture of gases, the HF laser has produced more than 4,000 joules of energy, about twice that previously achieved with this type of laser.

driven HF lasers for fusion applications is their high electrical efficiency, which results from the energy multiplication caused by the chemical chain reaction. In the recent Sandia experiments, electrical efficiency of the laser approached 200 percent (conversion of electron-beam energy deposited in the gas to laser energy extracted). The laser energy extracted was as high as 10 percent of the total exothermic energy contained in the laser chamber.

Most lasers, including the large neodymium glass and carbon dioxide systems now being built for laser fusion studies at other laboratories, typically have an efficiency of less than one percent. For those systems, an electrical energy in excess of 10 megajoules must be used to produce 100 kilojoules of laser energy. An electron-beam-driven HF system can achieve such an output with a 100-kJ electron-beam machine, a size which is readily available today.

Future Sandia experiments will focus on shortening the pulse width of the HF laser. Two approaches will be explored: increasing the pressure of the gas mixture and introducing a short-pulse oscillator into the system.

Experiments to date have used gas pressures up to two atmospheres. As the pressure is increased from this level to 10 atmospheres, the pulse width should shorten

to about five nanoseconds. The major disadvantage of this approach is the difficulty in making stable mixtures of H_2 and F_2 at such pressures. Sandia experimenters have determined, however, that it is possible, though tedious, to make such mixtures.

Previous experiments indicate that a relatively low-power, short-pulse laser beam from an oscillator can be used to extract the laser energy from the excited HF gas. However, for efficient extraction of energy and pulse compression to one nanosecond, a new oscillator must be developed. It must produce a sequence of short pulses containing many spectral lines. Such an oscillator should ultimately allow pulses to be shortened to about a nanosecond.

In future generations of high-power, electron-beam-driven HF lasers, a short-pulse electron-beam accelerator will be needed. Work on such a machine is currently a high-priority program at Sandia. Much of the technology developed at Sandia for electron-beam fusion is directly applicable to laser excitation and, thus, progress on development of a short-pulse, high-power machine is expected to be rapid.

Jim Gerardo, manager of Laser Physics Research Department 5210, is presenting a paper on this work at the IEEE/OSA Conference on Laser Engineering and Applications in Washington, D.C.

Nuclear Waste Disposal

consensus is that underground salt beds offer a good bet for repositories. We are talking about protecting the biosphere from the waste for a long, long time — perhaps several hundred thousand years. Underground salt deposits offer a stable medium free of water. This is important since hydrologic transport is the most significant method of moving radioactivity through geologic formations. The New Mexico deposits have been there 200 million years, and will likely remain little changed for a long time yet. Also, salt formations tend to “heal” themselves — pressure from overhead strata forces cracks or voids in the salt to close up as plastic deformation occurs. Salt also offers the advantage of more rapid dispersal of heat from the high level wastes which produce significant thermal power.

“A general area in Southeastern New Mexico was identified during previous studies as meeting all criteria for safe radioactive waste disposal. The Salado salt formation starts 1000 feet below the surface and extends downward another 2000 feet. A very important consideration in selection of this area is that for a distance of two miles around the site, boreholes do not penetrate the salt beds into the underlying strata. This avoids the troublesome issue of salt dissolution due to circulating ground water — one of the technical factors which had to be considered at Lyons, Kans., when that site was under consideration as a repository.”

The program calls for extensive site characterization. Hole drilling will begin in early June. Geologist Bill Vollendorf (1133) will direct the drilling effort. There will be complete core sampling through the salt-bearing formation, as well as hydrologic tests in the strata above. These tests will allow estimates of direction and rate of migration of radioactivity if some unforeseen circumstance should result in a breach of the salt formation.

Surface features reflect typical Southwest desert — sparse grass, mesquite and sagebrush baking in the sun. Less than twelve inches of annual rainfall is experienced. The site is about midway between Hobbs and Carlsbad in an area identified on topographic maps as “Los Medanos.” This name is quite descriptive since low sand dunes are common over much of the area.

Concurrent with site characterization studies, Sandia will prepare a conceptual design for the pilot plant, establish operating procedures and a detailed safety and environmental analysis. By next fiscal year, between 20 and 25 Sandians will be engaged full time in the program.

No disposal of commercial high-level radioactive waste will be conducted at the site at this time, Wendell emphasizes. When the plant is built, initial operations will be with low-level wastes with careful progression to higher level wastes when warranted. Primary purpose of this program is to gain an operational understanding of and experience with the problems involved.

“However,” Wendell says, “the demonstrated ability to safely handle and dispose of all levels of radioactive wastes is crucial to the country and to the world. The expansion of nuclear power in this country is critically dependent on this capability.”

Jesse Williams Makes Wine

“Have a drink on the house,” Jesse Williams (3644) says. We’re standing on the roof of his house in the NE Heights looking over his long grape arbor. I sip the wine.

“M-m-m-m-m, that’s good stuff.”

“That’s last year’s crop,” Jesse says. “Medium light, kind of dry. It was a good year.”

“M-m-m-m.”

“Year before last was the best year. Harvested 700 lbs. of grapes. Made a hundred gallons. Big, full-bodied, full flavored.”

“M-m-m-m-m.”

“Most years average about 500 lbs. Makes about 50 gallons. Funny, I always use the same recipe — three pounds of grapes, two pounds of sugar, and add water to fill a gallon — and each year the wine is different, has its own character. That’s ‘68 there.”

“M-m-m-m-m.”

“Planted these dozen vines 14 years ago. Now they cover the arbor, the back fence and they’re growing up the telephone pole. Trim them a little each year. They’re Beta grapes — small, purple with quite a few seeds. Great for making jelly as well as wine. Here, have some more.”

“M-m-m-m-m-m.”

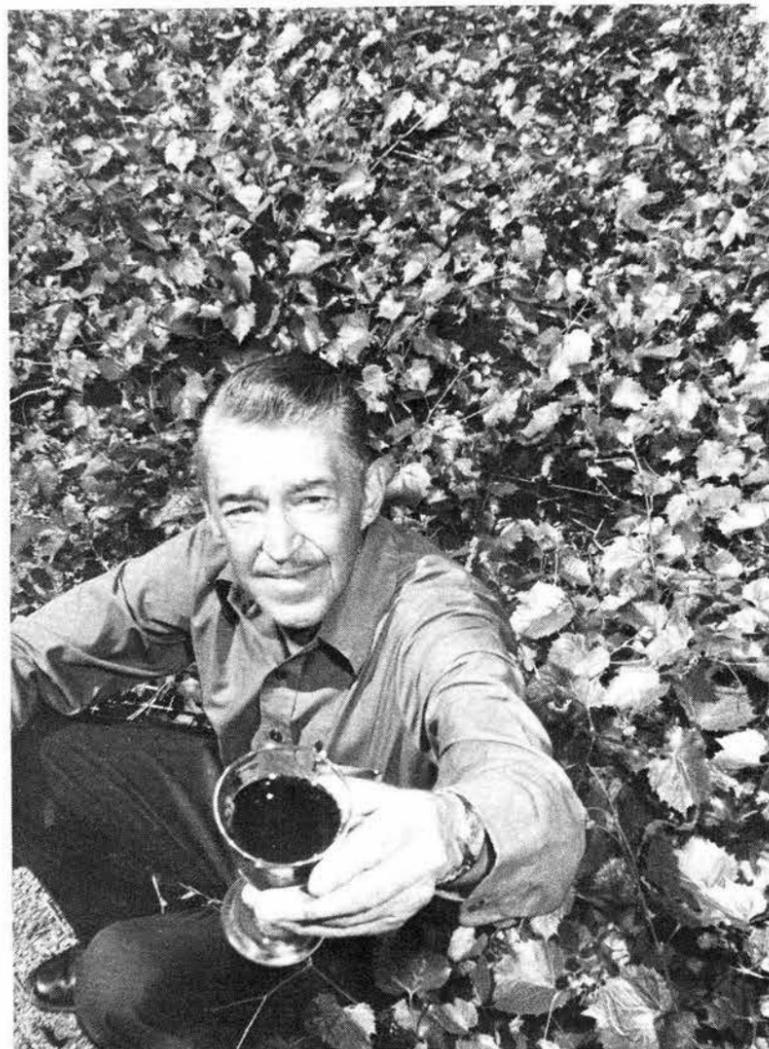
“The family helps me pick them. We toss them in the big 50 gallon wooden barrels and crush them with a baseball bat. We add the sugar and water and let it work for a couple of weeks. Then we run it through a wine press and strain out the seeds and skins and then back into the barrels where it bubbles away for a couple of months. Then we open up the barrels and find out what we have for the year. Always different, always tasty.”

“M-m-m-m-m.”

“Made my first wine back in 1940 when I picked some wild grapes along the river during a fishing trip near Wichita, Kansas. Made good wine, almost as good as this.”

“M-m.”

“New Mexico is great for growing grapes.”



JESSE WILLIAMS (3644), winemaker.

More people ought to try it. I’ve had a crop every year. And making wine is easy. Very enjoyable hobby. It’s legal to make 200 gallons a year. How about a refill?”

“M-m-m-m-m.”

“Y’know I’ve been saving the seeds. One of these days I’m going to take an airplane ride with a friend and toss grape seeds up and down the Rio Grande. Turn the whole bosque into a vineyard. That ought to shake up the ecologists!”

“Um-hum.”

“Hey, do you think you can make it down the ladder? Good thing you took the picture first.” • dg

Recreation Notes FUN & GAMES

Sandia Golf Ass’n. — In the May 10th Socorro Tournament for Women, Pat Anderson (9415) was low gross winner and Rose Hainlen (Ret.) was runner-up; Betty Chappell (Ret.) was low net winner and Lillian Mancuso (3321) was runner-up. In the second flight, Alice Smith (3141) was low gross and Eleanor Kelly (4213) runner-up; Clara Gearhart (3141) was low net, and Kathy Brady (212) runner-up.

Sandia Bicycle Ass’n. — Warm weather has brought cyclists out in force, and the entry game at the Wyoming Gate is going very smoothly (who says we report only bad news?).

Tom Mayer (1247) plans a bike “Tour of Colorado” in early June and invites other bikers to join him. Starting point is Durango, and the route would head north to the Black Canyon of the Gunnison and, possibly, Telluride. The group should average 75 to 100

miles a day and will camp along the way. Call Tom on 294-3368 if you’re interested.

Sandia Runners Ass’n. — About half of the SRA survey forms have been returned, and Jimmie Martin (3714) is compiling the results. We’ll summarize them in a later issue.

The Roadrunners meet next Tuesday, June 3, at Montgomery Park (San Mateo & Ponderosa NE) and offer the customary wide range of running events. At 6:30, the men’s open 2-miler will be run. Later events include a men’s intermediate 4-miler, a women’s run-for-your-life 1-miler, as well as other running contests.

Next meeting of the Southwest Masters Running Club is slated for June 16 at 7:30 p.m. in the hospitality room of the Alb. National Bank, Washington and Central. Chief items of business are election of officers and approval of by-laws.

Authors

R.K. Traeger (2431), "Evolution of the Chromium-gold Thin Film Metallization," Vol. 12, No. 1, THE JOURNAL OF VACUUM SCIENCE AND TECHNOLOGY.

B. Granoff (5826), "Microstructures of Carbon-Felt/Carbon-Matrix Composites," Vol. 12, No. 6, CARBON.

M.A. Duguay and J.N. Olsen (both 5243), "Observations of Picosecond X-Ray Pulses," Vol. 11, No. 4, IEEE JOURNAL OF QUANTUM ELECTRONICS.

W.B. Gauster (5111) and S.R. Dolce (5226), "Positron Annihilation in Neutron-Irradiated Copper Crystals," Vol. 16, No. 7, SOLID STATE COMMUNICATIONS.

C.W. Mendel and J.N. Olsen (both 5242), "Charge Separation Electric Fields in Laser Plasmas," Vol. 34, No. 14, PHYSICAL REVIEW LETTERS.

C.J. Northrup (5824), "The Uranium-Hydrogen System," Vol. 79, No. 7, THE JOURNAL OF PHYSICAL CHEMISTRY.

J.W. Nunziato (5131), E.K. Walsh (Univ. of Fla.), and D.E. Amos (5122), "Shock Wave Structure in a Linear Elastic Mixture With Binary Chemical Reactions," Vol. 42, No. 1, JOURNAL OF APPLIED SCIENCES.

G.J. Simmons (5120), "The Regiment Problem Revisited," Vol. 17, No. 1, SIAM REVIEW.

I.J. Fritz (5132), "Ultrasonic Velocity Measurements Near the 250°K Phase Transition in BaMnF₄," Vol. 51A, No. 4, PHYSICS LETTERS A.

R.C. Hughes (5814), "Hole Mobility and Transport in Thin SiO₂ Films," Vol. 26, No. 8, APPLIED PHYSICS LETTERS.

G.A. Carlson (5167) and H.S. Levine (5824), "Dynamic Tensile Strength of Glycerol," Vol. 46, No. 4, JOURNAL OF APPLIED PHYSICS.

P.J. Feibelman (5151), "Self-Consistent Calculation of the Surface Photoelectric Effect," Vol. 34, No. 17, PHYSICAL REVIEW LETTERS.

P.C. Lysne (5131) and C.M. Percival (2411), "Electric Energy Generation by Shock Compression of Ferroelectric Ceramics: Normal-mode Response of PZT 95/5," Vol. 46, No. 4, JOURNAL OF APPLIED PHYSICS.

R.B. Pettit (5842), J. Silcox, and R. Vincent, "Measurement of Surface-Plasmon Dispersion in Oxidized Aluminum Films," Vol. 11, No. 8, PHYSICAL REVIEW B.

Our Town

Special Camp, Special Kids

"Mental retardation means learning is slower, not stopped. People who are mentally retarded can progress toward normal lives if they have the opportunity. That's why going off for a week at a special camp in the Jemez Wilderness is even more important for the retarded than for the ordinary child."

Cherie Hymes knows more than most of us about the subject; she's executive director of the Albuquerque Association for Retarded Citizens, one of the groups supported in part by United Way contributions. Sandians such as Bob Neel (1538), Pat Liguori (9654), Paula Stronach (9632), and Bob Stromberg's (5717) wife Pat are involved in AARC's activities. They agree that the camp program is a vital part of what they call the "normalization" process.

Most parents of retarded children tend to overprotect them. It's easy and natural when a child doesn't catch on as fast as other children. "You automatically tie shoelaces, serve the cookies, make the bed," says Katy Silsby (she heads the camp program on the state level), "because it seems easier and quicker. Some children become almost totally dependent."

"And dependent children become dependent adults," adds Cherie. "But it doesn't have to be that way. The mentally retarded can become self-sufficient, often to a surprisingly high level. It just takes time — and opportunity."

One of the opportunities is the group home system operated by AARC. In these, retarded people old enough to be away from home live together and learn survival skills: cooking, cleaning, shopping, catching a bus,



The outdoors is for everyone

and performing useful and salable work. "Going off to a group home is like going off to college," says Cherie, "Members make their own decisions, learn to accept responsibility. It speeds up the maturing process tremendously."

Going off for a week at Camp Shaver (the YMCA camp above Jemez Springs) is a capsule version of a group home. Eighty campers a week (nine years and up) go hiking, learn crafts, build campfires, tell stories, go fishing (the favorite activity), and generally do what all kids do at all camps — enjoy the outdoors, learn a lot, and survive homesickness. The counselor-to-camper ratio is 1:4 so they're well protected, but the emphasis is on independence. "Before my daughter went to camp," says Katy, "it was 'Mom, get me a cookie.' After camp, it was 'Mom, can I have a cookie?' and she'd get it herself."

This year, for the first time, most of the kids from the institutions — Los Lunas Hospital and Training School, Fort Stanton, Villa Solano — will have a chance to go to camp too. That's if 50 more scholarships can be rounded up — the AARC operating budget doesn't stretch to cover campers' tuitions (\$60 each).

So if you recognize the benefits of the "help them become self-sufficient" approach, you may want to help: for making donations, for registering kids, for getting the AARC newsletter, or just for more info, call 344-3404. • bh

YOU think you've had moth problems. Over in the east end of the Personnel Bldg. they've been feeding on those press releases issued by Public Information Dept. 3160 and — well you can see the result. Laurie Krebs and Bob Gall of that group do the honors.



ENERGY SAVINGS

COMPARED WITH USAGE IN BASE PERIOD - JULY 1972 THRU JUNE 1973
CURRENT REPORTING PERIOD ENDING APRIL '75

ELECTRICITY	BASE PERIOD 77377 MWH	21.3% SAVED
	1975 60908 MWH	
STEAM PLANT FUEL EQUIV. OIL	BASE PERIOD 193344 BBLs	12.6% SAVED
	1975 169055 BBLs	
VEHICLE MILES	BASE PERIOD 2080000 MI	25.1% SAVED
	1975 1559000 MI	

Sympathy

To Joe Lucero (2515) on the death of his mother in Las Vegas, N.M.

To Sam Jeffers (1536) on the death of his son in Albuquerque, May 14.

To Mary Gonzales (3622) on the death of her mother in California, May 15.

Speakers

W.S. Saric (5641), "A Perturbation Method for Two-Dimensional Hydrodynamic Stability Problems"; R.L. Fox (5641), "Multipoint Distribution Function Analysis of Turbulent Flow," UNM Applied Mathematics Seminar, April 29.

H.H. Patterson (1730), "Mexico and the Sea of Cortez," April 24, Freedom High School class.

B.W. Marshall (5717), "A Look at Solar Energy Activities in the United States," April 25, Science NOW Program, Las Vegas, Nev.

D.M. Mattox (5834), "Thin Film Characterization," The International Workshop on CdS/Cu₂S Solar Cells and Other Abrupt Heterojunctions, April 30-May 2, Newark, Del.

T.B. Linnerooth, C.D. Longerot and C.W. Gwyn (all 2114), "Microelectronics Data Acquisition System," IEEE Western Region Technical Conference, May 7-9, Univ. of Utah, Salt Lake City.

W.P. Bishop (1721) and D.R. Anderson (5813), "Nuclear Wastes in the Deep Seabed," Second Biennial Topical Meeting on "The Ocean, Nuclear Energy and Man," May 7-9, Tarpon Springs, Fla.

J.P. Martin (1712), "Buried Line Sensor Evaluation for BISS - Part II," Carhahan Conference on Crime Countermeasures, May 7-9, Lexington, Ky.

M.L. Knotek (5155), "Surface Studies of Superionic Conductors: Flash Desorption as a Means to Study the Energetics and Kinetics of Ion-Surface Interactions," Research Seminar at Louisiana State Univ., May 8, Baton Rouge; "Hopping Conduction in Disordered Systems: Variable Range Hopping in a Uniform Density of States and Correlated Hopping in the Presence of a Coulomb Gap," Research Seminar at L.S.U., Baton Rouge, May 9, and IBM, T.J. Watson Lab., Yorktown Heights, N.Y., May 16.

R.G. Easterling (1643), "Reliability Estimation and Sensitivity Testing," Second Canadian SRE Symposium, May 9, Ottawa, Ontario, Canada.

R.J. Lawrence (5162), "Pulsed Jet Nozzle Operation," Third International Symposium on Jet Cutting Technology, May 11-13, Chicago, Ill.

J. Lipkin, M.E. Kipp and L.D. Bertholf (all 5162), "A Study of Hypervelocity Single Particle Impact"; R.A. Schmidt (5163), "Fracture Toughness Testing of Limestone"; A.G. Beattie (9352), "An Analysis of the Frequency and Energy Characteristics of Acoustic Emission Signals from Tensile and Structural Tests"; A.G. Beattie, "Acoustic Emission Instrumentation, The Current State-of-the-Art," Society of Experimental Stress Analysis Meeting, May 12-16, Chicago, Ill.

P.H. Holloway (5825) and J.N. Sweet (2431), "The Effects of Interfacial Oxides on the Contact Resistance of W on Si-Ge"; J.G. Fossum (2141), "Calculated Performance of Silicon Solar Cells in Multi-Sun, High-Temperature Environments"; R.K. Quinn (5154) and M.L. Knotek (5155), "Electrode Surface Area Effects on Metal Deposition Reactions"; Knotek and Quinn, "AES/Depth-Profiling Techniques Applied to Electrode Penetration Studies"; R.K. Traeger (2431), "Considerations in Lid Sealant Selection for Hybrid Microcircuits"; V.A. Wells (2141), "Boron Surface Concentration Control for Solid State Diffusion"; S.T. Picraux and S.M. Myers (both 5111), invited paper, "Compound Formation in Metals by High-Fluence Ion Implantation"; J.A. Borders (5111), "Ion Backscattering Study of Cu₂S Layer Formation on CdS," Electrochemistry Society Meeting, May 11-16, Toronto, Canada.

D.H. Loescher and C. Gumley (both 2433), "How Heat Treatment Affects Film Foil Capacitors"; J.L. Jellison (5833), "Effects of Surface Contamination on the Thermocompression Bondability of Gold"; R.E. Knutson (2432), "Analysis of a Tantalum Nitride-Chrome Gold Thin Film Metallization System as a Function of Substrate Material," 25th Annual Electronic Components Conference, May 12-14, Washington, D.C.

J.J. Ramirez (5245), "Anomalous High Breakdown Strengths in Uniform-Field Gaseous Spark Gaps"; J. Chang (5242), M.M. Widner (5241) and G. Yonas (5240), "The Interaction of a Single Intense Relativistic Electron Beam with a Spherical Pellet"; M.M. Widner, J. Chang and G. Yonas, "Two-Dimensional Hydrodynamic Response of REB Targets and Subsequent Witness Plate Damage"; D.H. McDaniel (5245), "Studies of a Multichannel Self-Break Water Switch"; D.A. McArthur (5225), T.R. Schmidt (5222), P.B. Tollefsrud (5220A) and J.V. Walker (5220), "Preliminary Designs for Large (~1 MJ) Reactor-Driven Laser Systems"; M.J. Clauser and M.A. Sweeney (both 5241), "Electron Beam Fusion Targets"; A.J. Toepfer, L.P. Mix, J. Chang, J.G. Kelly (all 5242), J.R. Freeman and M.J. Clauser (both 5241), "Interaction of Intense Relativistic Electron Beams with Spherical Targets," 1975 IEEE International Conference on Plasma Science, May 14-16, Ann Arbor, Mich.

L.R. Wilson (9715), "Custodial Maintenance Operation"; C.A. Wells (9718), "Apprentice Training," meeting of maintenance managers and supervisors, ERDA/ALO, April 16-18, Albuquerque.



POLLY HORNE (4154) displays her needlepoint projects. The tapestry which she is holding is about three-quarters completed. Design is printed in color on a small mesh canvas, and Polly is using a fine French tapestry yarn for the embroidery.

Needlepoint — The Ageless Art

The popularity of needlepoint doesn't surprise Polly Horne, senior clerk in Payment Processing Section 4154-2. "I've enjoyed doing needlepoint since college days," she says. "It's relaxing."

Needlepoint is a type of embroidery, usually a simple even stitch, worked on canvas, across counted threads. The mesh size of the canvas determines the weight of yarn used.

Since January, Polly has worked daily in her spare time on an 18" x 40" tapestry of a woodland scene. Last year, as a Christmas gift for their daughter in Houston, Polly and her husband made a needlepoint tapestry

measuring 40" x 50". When Polly completes a large canvas she relies on professional cleaning, blocking and framing. "Some people enjoy doing the complete piece, from designing the canvas to framing the picture," she says, "but I like to do the stitchery." Friends and family attest to the quality of the work, but Polly insists there's nothing difficult about needlepoint as long as you have the patience to finish a large canvas.

For beginners or those with little patience, Polly suggests starting with a small kit — a miniature which includes canvas, yarn and frame.

A Different Approach To Pre-School Education

Many parents are convinced that pre-school education is a good thing. The ages from two to six, they feel, are years when kids not only enjoy learning — and learn easily — but actually have a need to learn and are possessed of an intense curiosity about the mystifying world around them.

"Tapping that curiosity, and presenting children with challenges they are ready for, and can learn from, is what Montessori schools are all about," says Linda Peterson, mother of Donovan (4), wife of Gary (5112), and, like Gary, board member of Escuela del Sol Montessori School. "Too many pre-schools do little more than babysit."

Montessori schools *are* different. The visitor can't help but notice how totally engrossed the kids are with whatever materials they're working on. Note the photographs accompanying this article.

The concentration isn't accidental. The "toys" are specially designed to challenge and involve the child. They teach concepts (like sizes, shapes, colors, numbers) and skills (like tying, pouring, buttoning). Rewards come from the activity of the job itself, not from its completion or from the teacher. It's like reading a good book just because it's enjoyable. The result is an independence and self-motivation that amazes parents accustomed to "see what I did, Mommy?"

"Danny doesn't say 'I'd rather do it myself,'" explains Bob White (5151). "He says 'I can do it myself.' And he can. He has the motivation, and he has the capability."

The materials, or "toys," range from the very simple to the very challenging. The kids usually have a sense for the ones they'd enjoy working with and learn from. But a teacher (more precisely, a helper/guide/friend) likes to see herself/himself as an extension of these materials. Each teacher serves as intern to a certified Montessori teacher before handling a school.

"My job," says Gretchen Behm, one of two certified teachers at Escuela del Sol, "is to discern each child's needs and interests. That way I'm ready to guide them, to present a successful way for them to use the materials."

"We emphasize creativity too — the children learn to really use their senses, to see a variety of potentials in everyday things."

The Montessori environment gives kids a sense of order. Materials are arranged



PIPE FITTINGS can be used in an infinite number of ways.

Montessori

logically and attractively on low shelves to make them easy to remove and easy to return. One project is put away before the next one is taken out. Messes are cleaned up immediately — by the messer. (Sponges, mops, towels are stored where the kids can reach them.)

"Children like order. It's reassuring," says Gretchen. "The world is a perplexing place. Here, the children feel they have some control over their environment."

Montessori schools (five in the Albuquerque area) take kids from 2-1/2 to 6 years. A "graduate" may well be far ahead of other first-graders in terms of arithmetic and reading and motor skills, but it seldom causes a problem because he or she is even farther ahead in self-reliance and an ability to analyze and solve problems.

Says Gary Peterson, "Montessori enables children to develop to their fullest potential. And they are really 'together' in the best sense of the word."

For more info, contact the parents listed above or Gary Derbenwick (2141). •bh



YOU MEASURE ME and I'll measure you.



STUDENT — teacher conference

Annual Budget Review Held

The staff of ERDA's Division of Military Application (DMA) met at Sandia last week with Labs officials to review the company's programs and budget. Budgets for FY '75, '76, '76A and '77 were covered.

The DMA visitors included Ron Bartell, Stu Milam, Ralph Ross, John Carlson, Larry Killion, Carter Cobb, Phil Pack and Jim Andrews. Representatives from ALO and SAO also attended.

In addition to budget matters, the DMA staff was briefed on Labs programs and made tours of a number of facilities.

Gordon Moe to New Post

An alumnus of the Labs has been appointed Technical Assistant in ERDA's Office of the Assistant Administrator for National Security. He is Gordon Moe, who left Sandia in 1970 to take an appointment as Technical Assistant in the Office of Science and Technology in the White House, and who later became Military Technology Advisor to the National Security Council.

In his new role, Gordon will be responsible for directing the ERDA study regarding the feasibility and desirability of transferring military application and Restricted Data programs to the DOD, or to some other Federal agency. Sandia is one of the ERDA contractors likely to be affected by any such transfer. Gordon's present office is located at 1717 H St. in Washington (202-245-3400); he will move into the new ERDA Headquarters building as soon as it is completed.

Take Note

Registrations are being accepted for fall classes at the Kirtland Kindergarten/Pre-School for children ages 2 through 5. Application can be made in Bldg. 1850 (East) or the Mecca Club (West). For more information, call 264-3827 (East) or 264-9670 (West).

KAFB Youth Care Centers have announced their summer program for elementary school children ages 6 through 12. Activities include bowling, swimming, baseball, picnics and cook-outs, cultivating flower and vegetable gardens, movies, craft projects, and field trips. Day Care Centers are located in Bldg. 1850 (East) and Bldg. 404 (West), and are open to children of Sandians. Program hours are 9 to 4:30, Monday through Friday with enrollment on a monthly, daily or hourly basis.

11th Annual N.M. Charity Horse Show is being run this weekend in the Horse Arena at the State Fairgrounds. Sponsored by the American Saddle Horse Ass'n. and the Kappa Kappa Gamma Alumnae Ass'n., the show is raising money for the coronary care unit at Presbyterian Hospital and for various scholarships. Five hundred horses are competing in 156 classes. Events take place throughout the day and performances are scheduled each evening at 7:30 and on Sunday afternoon at 1:30. Admission is one dollar.

MILEPOSTS

LAB NEWS

May 1975



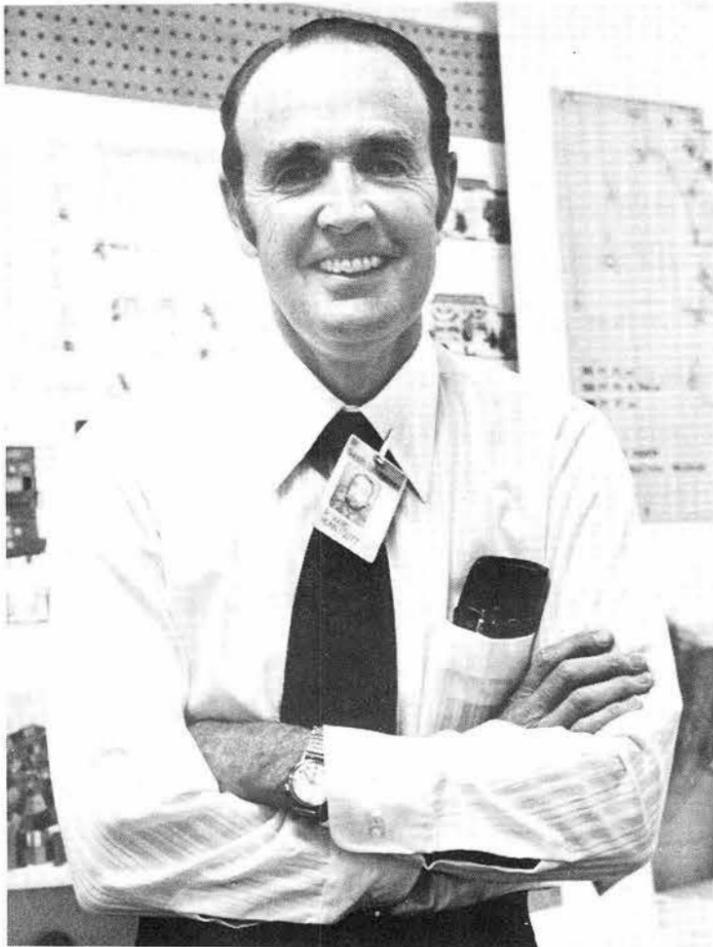
Dick Koppel - 9473

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Rollie Baack - 9526

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Ward Hunnicutt - 9750

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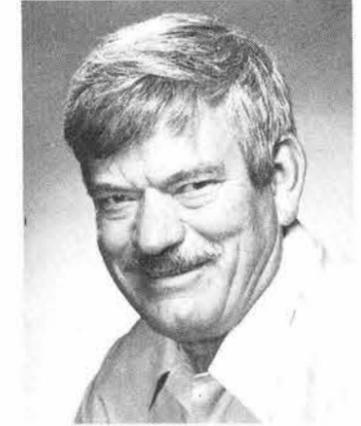
Candido Montoya - 9717

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Sam Varnado - 4736

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Ray Opperman - 2414

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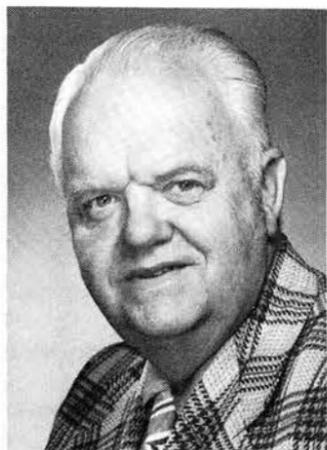
Fred Palkovic - 9718

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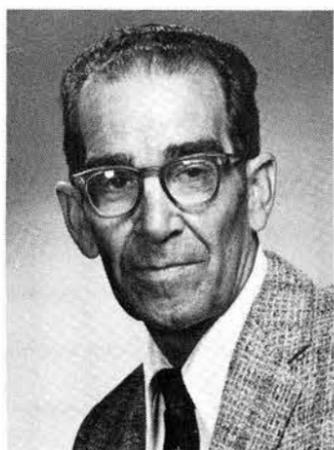
Avelina Dubois - 9631

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Frank Anderson - 9531

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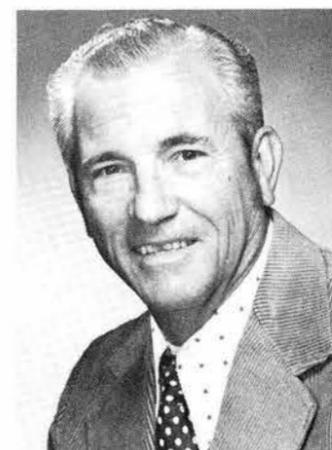
Emilio Chavez - 9717

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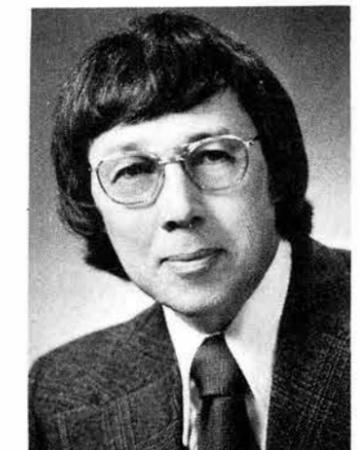
Ray Hooper - 9552

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Don Knott - 9742

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Gordon Ross - 8212

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Delores Molina - 4154

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Burl Duncan - 4151

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Betty Wolf - 9631

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Bill Schmedding - 8423

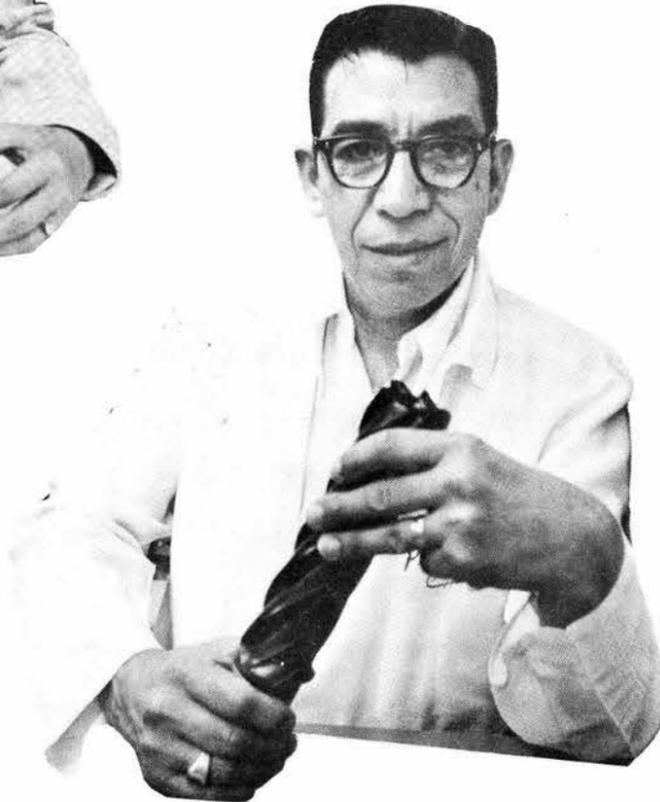
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FERN ROBINSON (3732), Purchasing receptionist in Bldg. 800, estimates that 400 supplier representatives visit Sandia monthly.



OUR LADY OF DECALS, Nadine, ponders tab run listing precisely 14,561 cars, pickups, motorcycles, bikes and what-have-you that Sandians drive on Base.



PROCOPIO LOPEZ (3644-1) operates the tool crib in Bldg. 840. He's responsible for more than 175,000 tools used in the Development Labs. There will be more as Sandia converts to the metric system.

sandia PEOPLE Report



VOLLEYBALLERS wound up a busy season this month. Winning team captains were Harry Blechinger (9484), Ben Duggins (9321) and Bonnie Vigil (1643); Dick Pettit (5842) is president of the group. Marshall Berman (1722) here reveals mean streak with power shot.



AFTER THE COLDEST spring season in 17 years, Sandia weather forecasters Mary Hall and Cliff Olson (both 9411) report that summer is finally here. To get daily recorded weather information, call 4-3468.

RECENT GRADUATES of a 44-month Development Labs on-the-job training program are Mike Lucas (3622-2), plastics technician; Dave Sandoval (3622-1), ceramic technician; and Gary Romero (3623-1), microcomponents technician. Training included 12 Tech Institute level courses in Sandia's out-of-hours education program.



CREDIT WHERE CREDIT IS DUE — Anne Martin learned that lesson at her father's knee (which belongs to Bob in 1713). So when he banged up the corner of her car, she provided proper attribution.

JUNK • GOODIES • TRASH • ANTIQUES • KLUNKERS • CREAM PUFFS • HOUSES • HOVELS • LOST • FOUND • WANTED • & THINGS

CLASSIFIED ADVERTISING
Deadline: Friday noon prior to week of publication unless changed by holiday.

RULES

1. Limit 20 words.
2. One ad per issue per category.
3. Must be submitted in writing.
4. Use home telephone numbers.
5. For Sandia Laboratories and ERDA 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

- PACHENKO machine, needs adjusting, \$25. Roberts, 255-9527.
- PING-PONG table, 3/4" thick, folding roll-away, net & 4 Pro paddles, half price. Lenz, 298-9121 after 5.
- POP-UP tent trailer, has built-in sink & icebox, capable of sleeping 6, almost new, canvas & tires. Gay, 869-2781.
- 3/4 HP capacitor start ball bearing motor, \$30; metal table w/casters, \$10; 5" jointer, \$10. Fite, 255-6943.
- WATER conditioner (softener) & house pump, 1-1/4" complete. Garcia, 877-3826.
- 2 CRYPTS, Chester T. French Memorial Mausoleum. Holloman, 344-3274 after 6.
- POCKET calculator, Sinclair Scientific, trig functions, logs, scientific notation, used 2 mos., \$40. Miller, 255-7716.
- 19.3 CUBIC ft. Whirlpool harvest gold refrigerator, 8 mos. old, \$295. Spath, 293-2949.
- 1 SET of Ni-Cad wet cells, 24 cells in set, \$25; 6 volt dry cell Ni-Cad, \$10, both rechargeable. Bennett, 299-1144.
- BICYCLE, lady's, 1-spd., hand brakes, package carrier, new tires & thorn resistant tubes, new pedals, \$28. Joseph, 299-6989.
- WESTERN saddle, \$245; English saddle, \$165; pool table, full size, fully equipped, \$85. Traver, 294-2138.

- GIRL'S std. bicycle, 20", thornproof tubes. Miller, 281-3189 after 6.
- '71 31-FOOT Holiday Rambler Travel trailer, loaded, \$2600 down & take over payments. Noel, 883-0568, 298-2142.
- WELL driver, made from 4 ft. long 6 in. dia. steel casing, plus 90 lbs. of lead, \$25. Kannolt, 299-1835.
- SHARE of '62 Cessna 172, \$700; 2 camper tires & wheels, 12.00 x 16.5, 10-ply, Uniroyal, tires fair to good, \$95. Caudle, 298-9120.
- 18 FT. Chrysler fiberglass boat, Volvo I/O, full canvas, travel cover, Dilly trailer, accessories included, \$2750 cash. Miller, 293-6437.
- POLAROID Land camera No. 104, flash attachment & case, \$25. Eads, 266-2446.
- 2 STADIUM seats, \$5; photo print washer, \$5; skis, poles & boots 11-1/2, \$15; 2-1/2 gal. Hudson sprayer, \$10. Campbell, 299-8071.
- LARGE old refrigerator, \$25; city trash bags, \$3 per box. Rufsvold, 881-4358.
- DEMON-DUSTER rear axle, complete w/spring, wheels; '52 Chevy pickup cab stripped; Honda 50, \$50. Workhoven, 281-3246.
- CHEVROLET under-dash air conditioner, \$35; fireplace andirons, \$8; typewriter & stand, \$15; hedge trimmer, \$5. Warrick, 344-5057.
- BABY furniture, stroller, car seat, bathtub, walker, bouncing chair, scale, bedroom curtains & bedspread. Stanford, 298-2772.
- GREEN porcelain lavatory w/trim, \$15; light duty trailer hitch, \$2.50; 2 handle bathroom sink faucet, \$2.50. Baxter, 344-7601.
- KING size bed set. Werkema, 293-4700.
- PIONEER SR-202 stereo reverberation amplifier, \$85. Brammer, 266-5158.
- STEEL twin bed frame, \$10;

- canary bird cage, \$8; microscope, \$10; battery powered tape recorder, \$15. Field, 345-1470.
- CAMPER shell, short/narrow, home made; 5.50 x 12.00 4-ply tire w/rim. Padilla, 877-2116 after 5:30.
- CAMPER, Coleman metal top, canvas sides, sleeps 4; bicycles, boy & girl's, 20", Sears, Spider. Boeck, 298-6495.
- KITCHEN sink, mounted in 9' cabinet top, \$12; Sears floor polisher, 2-spd. w/scrubbing brushes, etc. Allen, 268-3654.
- STEREO, Admiral, 6 speakers, \$25; golf clubs, 7 irons, 2 woods, bag, \$25. Baca, 299-3340.
- 2 SCHWINN Suburban 10-spd. bicycles, \$75 ea.; Wards Kraft bench grinder, 1/3 hp, \$35. Shoup, 299-6360.
- 18 CUBIC ft. refrigerator, \$75. Coughenour, 296-4146.
- CAIRN Terrier, registered, male, 8 wks. old, \$125. Walkington, 881-4027 after 6.
- 2 EA. 24" louvered doors, \$10 ea.; 1 30" louvered door, \$15; 1 set 24" x 6" louvered shutter, \$10. Newell, 299-3236.
- 2 SETS wooden bi-fold doors for 4' opening, both sets, \$50. Hayes, 296-3909.
- CATALINA stereo, compact, phono/8-track, AM-FM, w/speakers & cabinet, \$175; lady's watch, Benrus, 17 jewels, 14K gold case, \$30. Spencer, 294-6671.
- SEARS full size sofa bed, innerspring mattress, needs reupholstering, \$35; Thomas transistor organ, model 135, percussion system, bench, \$550. Marrs, 299-3865.
- REFRIGERATOR, Admiral, 12 cu. ft., white, \$75. Nagel, 298-2779.

REAL ESTATE

- 4-BDR. home, 2-1/2 baths, Four Hills view of mountains and city, 2332 sq. ft.,

- \$59,900 CTL. Alcone, 294-2169.
- PART ownership in a 15000 acre working cattle ranch on Elephant Butte Lake, minimum investment \$5000, terms possible. Crain, 299-1509.
- 4-BDR., 1-3/4 baths & 1-bdr. apt., Zone C-1, adjoining lot available, 125 ft. frontage, \$23,500, 1211 Coors Blvd, SW. Sanchez 242-3625.
- 5 ACRES, Tijeras area, county road, utilities nearby. Pearlman, 299-6079.
- 1 ACRE lot in Colorado on Blanco river in mountains, National forest nearby, \$2500, discount for cash. Martin, 877-7989.
- 20 ACRES in Manzano mountains, year round stream, ponderosas, meadow, 30 miles from Albuquerque. Hanchey, 299-8723.
- 4-BDR., 2-1/2 baths, den, formal dining, extra large heated garage, Glenwood Hills. Lot bounds city limits & Gallegos Grant, \$53,000. Zanner, 294-7613.

TRANSPORTATION

- 10-SPEED bike, \$45; 4-man inflatable assault boat for river running, \$60. Copeland, 344-1133.
- '65 BONNEVILLE convertible, AC, PS, PB, full Tonneau cover, \$650. Pierce, 298-4013.
- '69 TOYOTA Corolla station wagon, radial tires, tape player, recent valve job & brakes, new paint, \$725. Prevender, 299-5253.
- '74 YAMAHA 250, \$850; '73 Yamaha 125 Enduro, low mileage, \$625. Williams, 296-6998.
- '65 BUICK, 4-dr., AT, PS, PB; '68 Honda 350, street/dirt, as is or fix to your fetish. Johnson, 836-3164.
- '64 MK-10 Jaguar, \$1250; '71 boat, I.O. "120", low profile, high performance hull, \$3000; '73 Matador, \$1650; '73 Yamaha 250-MX. Hansen, 869-2716.
- '71 FORD station wagon, fully

- equipped, low mileage, will trade for Pinto or small station wagon or highest bid. Browne, 881-3772.
- '73 HONDA, 350cc, 4-cyl., 9000 miles, includes crash bars plus Bell Star & RT helmets. Weber, 256-0889.
- '69 INTERNATIONAL Travelall, AC, PS, PB, AT, \$1400. Newell, 299-3236.
- '70 SUZUKI, TS-250, 6000 miles, helmet, \$500. Shear, 296-6055.
- '61 CORVETTE, V8, new top, new paint, 4-spd., new tires, custom wheels. Zamora, 265-5476.
- '70 CAMARO, 8-cyl., vinyl top, AC, AT, PS, PB, R&H, \$1500; set of 4 wheels from 240-Z Datsun, new, \$35. Smelich, 242-0431.

FOR RENT

- SANDIA KNOLLS, 2-bdrm, fireplace, carpeted, AC, completely furnished, view, bus to labs, \$185 plus utilities, \$75 damage deposit. Hawkinson, 281-5239.
- 4-BDR., dbl/garage, completely furnished, available June 7-Aug. 15, \$250, utilities included, NE Heights, near Coronado Center, children OK. Pierson, 881-1952.

LOST AND FOUND

- LOST — Wallet; car and house keys, on leather keyring; date book, half-glasses; MG key; key holder w/3 keys; gold earring in shape of old fashioned ship.
- FOUND — Silver ring model; long silver coil earring; long silver earring w/turquoise; snapshot of man and child; silver charm w/picture of child. LOST AND FOUND, Bldg. 832, tel. 264-3441.

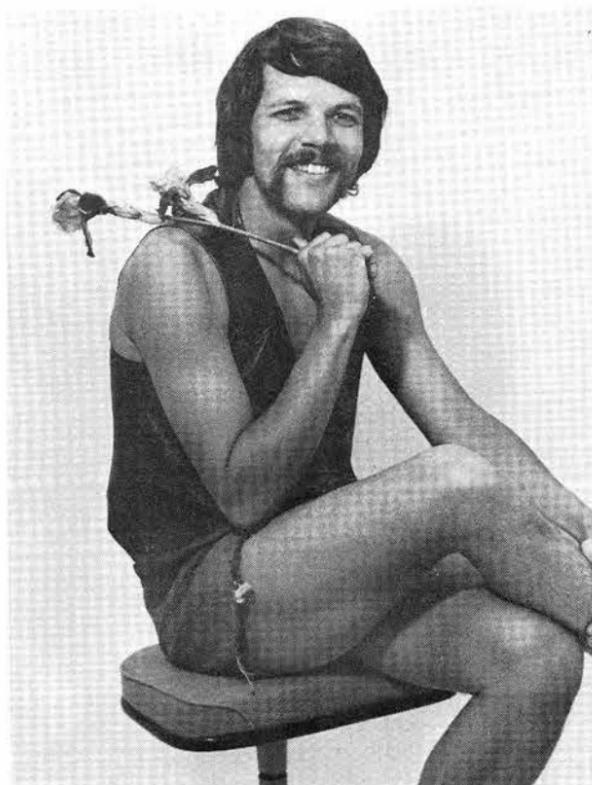
FRIDAY	SATURDAY
30 — HAPPY HOUR NEW ENGLAND SEAFOOD Adults \$2.95 Under 12 1.95 <i>Tim & Paul On Stage</i> Fashions @ 8:30 UP-COUNTRY @ 9	31 — SOUL SESSION MIDNIGHT SPECIAL 8:30 - 12:30 Members Free Guests \$1.00
6 — HAPPY HOUR BARBECUED BEEF Adults \$2.95 Under 12 1.95 <i>Slidin' By On Stage</i> WESTERNAIRES	7 — FAMILY VAUDEVILLE Jabberwock Contest Winners \$1,000,000 Duck Food @ 6 Show @ 7 Members Free

LOTS — of attractions at tonight's Happy Hour: Antonio's Boutique has furnished 28 summer fashions; Soila Candelaria (1537) has lined up seven models to wear them; Bruce Davis, Asst. Club Mgr., has mastered 28 appropriate comments. Seafood too, music to eat it by (Tim and Paul), and Up-Country for dancing.

OF — course all C-Club members can use the new horseshoe courts (pits?) (fields?). Check out equipment at the Club, and check out your skill at the sport.

SLEEP — aboard the *Angelino Lauro* as it cruises the Caribbean; eat in exotic ports-of-call; relax on remote, romantic islands. And that's just one of three new travel packages available in June. The others: a deep-sea fishing tour out of Topolobampo, Mexico; a sightseeing tour of Chihuahua, Los Mochis, and Copper Canyon. All are low-cost, 7 or 8-day family vacations. For dollars and details, call the Club soon.

IS — cool Switzerland in hot August more appealing when you make your own accommodations? You can save \$100 off the already low package price if you'd like roundtrip airfare only. Leave with the group, return with the group, be anti-social in between. Tote your sleeping bag, rent a cycle, and spend a week in Swiss bliss. Reservations by June 5.



FASHIONS FLOWER, casualler and casualler. Barbara McHaffie (5716) models an almost traditional outfit, Archie Stannish (3731) a recycled blue-jeans two-piecer, Sarah McHaffie an unbleached muslin set. And Al Spencer (9743) goes ultimate casual. See all (but Al) tonight at 8:30 at the Club.

AN — energetic group called Slidin' By makes its premiere Club appearance at Happy Hour next Friday. Good pop music (for mom too) adds spice to the buffet (BBQ beef, corn-on-the-cob, baked beans). That's just the right menu for kicking off an evening with the Westernaires.

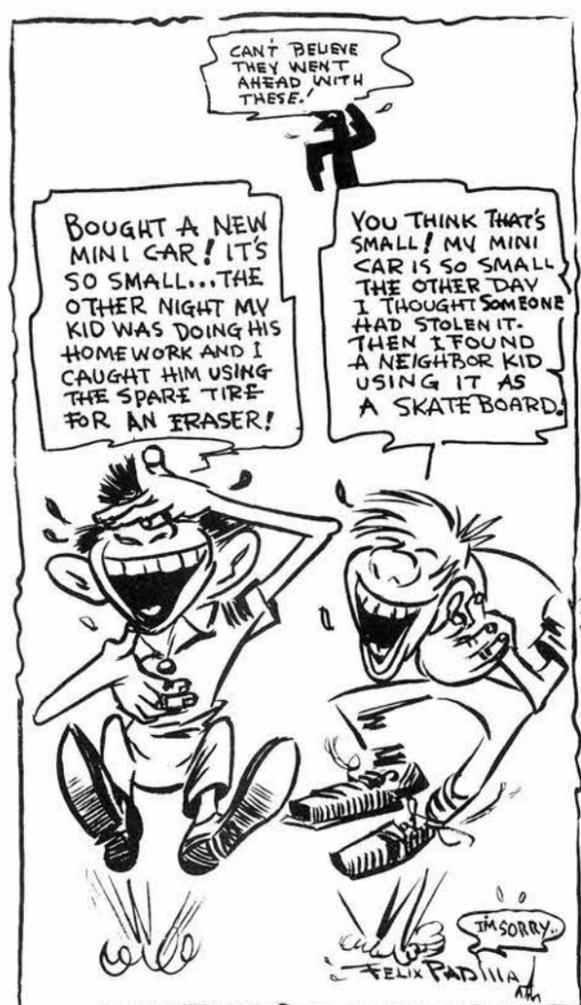
EXCELLENT — talent on parade at Family Vaudeville on the 7th. Winners of Delta Sigma Theta Inc's Jabberwock Contest — singers, dancers, comedians, whatever (we don't know yet; the contest is the 1st) — will perform. Then it's \$1,000,000 Duck time. That's not a high-priced new menu item, that's a certified wacky movie — one yolk after another.

CURE — any lethargy problems at the Souler Energy Session tomorrow night. Whatever your loco motives, Midnight

Special will get you on the right track. Brake other dates, switch your plans, and prepare your engineers to get all steamed up.

FOR — Sanadoes who'd like to be Sanadoughs, it's an enlightening, entertaining event on the 3rd: "What Every Woman Should Know About Money" by Edna Rae Gross of A.G. Edwards and Sons. Great chance for a Gross profit. Reserve immediately with Sandra Ruth, 12021 Donna Ct NE, 87112.

INSOMNIA — is what you won't have July 21-27. It's the Club's week-long 25th Anniversary Celebration: nostalgia night, sports celebrities, bingo, patio brunch, Birthday Ball. More Specials than Safeway! More Info. Call 265-6791.



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