

LAB NEWS

VOL. 28, NO. 5

MARCH 5, 1976

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



NEW PROGRAM—Sandia instrumentation emplacement is checked at oil shale experiment site near Rock Springs, Wyo. Labs has been awarded a new \$1.1 million program to develop oil shale technology.

Near Rock Springs, Wyoming

New \$1.1 Million Oil Shale Program Starts

Sandia has started work on a new \$1.1 million oil shale project in the Green River Basin near Rock Springs, Wyo. Hap Stoller, manager of Geo Energy Technology Department 5730, reports the aim of the project is to develop and demonstrate a "true in situ oil shale technology."

Sandia is working with ERDA's Laramie Energy Research Center (LERC) on the oil shale program. LERC has demonstrated in previous experiments that the in-place burning of an oil shale formation beneath the surface of the earth with subsequent recovery of oil and gas is feasible.

Emphasis of the current project will be to fully understand the process and to develop technology for the most efficient recovery of the oil and gas.

Before any retorting (combustion) of the oil shale can take place, the formation must be rubbelized" — explosively reduced to small fragments — so that air to support combustion can be pumped through.

Drilling at the site has started. Target area is an oil shale formation some 12 metres thick (40 ft.) lying about 45 metres (150 ft.) beneath the surface. Two main holes for the emplacement of explosives will be drilled into the formation as well as a number of other holes for the emplacement of instrumentation. Seismic, acoustic and other sensors will monitor the explosions.

After the rubbelizing blasts, a form of grout will be pumped into the formation to

"freeze" the fractures. Extensive core sampling will reveal the character of the rubbelizing. Between the three detonations, about a week apart, studies of the underground water flow through the formation will be made.

According to Al Stevens (5734), project manager, much effort is going into the design of the field experiment. "An understanding of the rock mechanics involved is what we're after," he says. "This is fundamental for developing successful oil shale technology. An extensive analytical effort will be made to perfect mathematical models of explosive fracturing in oil shale. LASL is a partner in this effort."

"In addition," Al continues, "advanced instrumentation for oil shale technology is being developed. We're working on new concepts for sensors to characterize the rubbelized state of the formation and new techniques for bore hole interrogation."

A considerable amount of this activity will have been completed by the end of the fiscal year, Al reports. With continued funding, a full scale field retort experiment will be mounted in an adjacent area of the Green River Basin. Environmental factors of the underground burn will be one of the prime considerations of the forthcoming experiment.

Department 5730 is receiving widespread support from throughout the Laboratories for the program, particularly from Field Engineering Organization 1100 and Solid Dynamics Research Department 5160.

ERDA Honors Sandia VP Jack Howard

Exec. VP Jack Howard has received ERDA's Distinguished Associate Award, an award which recognizes "individual efforts or achievements on the part of the individual contractor employee."

Consisting of a citation and bronze medal, the award reads: "For significant contributions to the Energy Research and Development Nuclear Weapons Program, for superior technical and administrative leadership in the development of weapon systems, for innovation and drive in pursuit of new and imaginative ideas in the areas of safety, security, and command control, for consistently superior skills in analyzing difficult problems and carrying through to sound solutions, and for outstanding professional abilities that have greatly contributed to the upgrading of the effectiveness, safety and security of the nuclear weapons program."

International Meet Held On Seabed Disposal Of Nuclear Waste

The program to investigate the feasibility of using deep ocean basins as possible disposal sites for nuclear waste (featured in the last LAB NEWS) was the subject of an international workshop in February.

Scientists and engineers from Canada, the UK, France, Germany, Austria, Belgium, Japan and Australia, as well as the US, convened in Woods Hole, Mass., to develop an international program for the investigation and assessment of seabed disposal. The problem of nuclear waste disposal is especially acute for smaller countries with relatively few suitable disposal sites on land.

This country's program is looking into the feasibility of placing canisters of high-level radioactive waste in the sediments of the floor of the sea in highly stable areas where there is little plant and animal life, few minerals, and where the extreme depth serves to preclude intrusion, planned or otherwise, by man.

Dan Talbert (9422) served as the workshop coordinator.

Happy Birthday Livermore

See Page Six

Afterthoughts

Styles of English--Last time we commented on our illiterate offspring and the difficulty they face if their skill with the English language remains on a basket-case level. A surprising number of readers called, expressing their agreement and then, fortuitously, this letter came across my desk; it's from a graduate student at a well-known school, and nothing has been changed:

"Dear Persons,

I am in the process of collecting data for a semi-tech. research paper on vertical axis windmills.

Would send me detailed info. on the Parrieus-Savonius combination you are now working on and any other general info. on windmills you have.

ei) the eff., cost-power ratios, wind dynamics, energy potential, etc.

Will pay for postage & handling. Send to: ... "

Crude, yes? We felt it illustrated the point nicely. On the other hand, we'll have no problem filling his request--the operative words are there, more or less in the right places. It's English in the me-Tarzan, you-Jane tradition and perhaps is to be preferred to the turgid prose that comes out of bureaucratic institutions. We clipped this nugget from a recent issue of Focus:

"On the effective date of the Defense Officer Personnel Management Act (DOPMA), all officers, except those who have failed promotion to a higher permanent grade, will assume a DOPMA (permanent) grade that equals their temporary grade and date of rank, according to Air Force officials... Reserve officers who hold a permanent grade higher than their temporary grade will keep the higher permanent grade but will continue to serve in their active duty grade, officials say."

Somehow the grad student's stumbling request achieves communication. But we're still puzzling over the other--is it English?

* * *

So much for nostalgia--"Those who compare the age in which their lot has fallen with a golden age which exists only in imagination, may talk of degeneracy and decay; but no man who is correctly informed as to the past, will be disposed to take a morose or desponding view of the present." Thomas Babington, Lord Macaulay, History of England *js



LINCOLN HAWKINS shows President Sparks one of the few places on the globe he hasn't visited as a speaker on his specialty--plastics. With Bell Labs (where the two met) since 1942, Hawkins holds 26 patents related to the protection of plastics against oxidation and is the author of numerous articles and a book. While in town he spoke to the Society for the Advancement of Materials and Process Engineering (SAMPE) on "Stabilization of Organic Polymers for Minimizing the Effects of Long Term Aging."

Recreation Notes

FUN & GAMES

Cruising down the Grand — A few openings remain on each of three Grand Canyon raft trips, with starting dates of June 16, June 22, and July 6. A group rate is being offered by the outfitter (Cross River Tours) for the trips, which range in length from 8 to 10 days. Kids are welcomed on the June trips, mature (or even immature) adults on the July expedition. Call Bruce at 4-7841 for details.

* * *

Bowling — January winners in the High Score Series were Elsie Wickham (2632), Women's Scratch, 576; Iris Troncosa (2000), Women's Handicap, 677; Joe Stiegler (1750), Men's Scratch, 681; and Dan Bitner (ERDA), Men's Handicap, 676.

* * *

Biking — Last time we described the bicentennial transcontinental bike ride and since then we've obtained the detailed itinerary. For example, the bikers will be in Gallup July 9, Grants the 10th, then Belen, T or C, Las Cruces, and on July 14 into Fabens, Texas. It would be fun to bike with the group even for a few days — they'll average about 75 miles a day — and if you're interested give us a call on 4-1053.

* * *

Running — You can get a measure of your fitness tomorrow by having a go at the 1 1/2 mile or 12-minute run in the aerobic fitness trials being sponsored by the SW Masters Running Club. Your fitness is a function of your time for the mile-and-a-half, or your distance completed in the 12-minute run. Pete Richards (5132) says that special certificates will be awarded to those qualifying for "Good" or "Excellent," according to standards adjusted for age, sex (which, not whether), and our 5000-ft. altitude. The program starts at 10 at the Highland High track.

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&
lorena schneider reports on livermore

Take Note

The Suicide Prevention and Crisis Center will conduct a training course for volunteers this month. The course consists of five sessions conducted by a group of professionals — psychiatrists, psychologists, social workers, lawyers and others — who also donate their time. Three sessions will be on-the-job training at the Crisis Center where trainees will work with experienced volunteers. For additional information call the Center at 265-7557.

PAGE TWO
LAB NEWS
MARCH 5, 1976



Sympathy

To Bob Hopper (9700) on the death of his sister in DeKalb, Miss., Feb. 21.



WORK WITH THESE? Then you need this. "These" are classified documents, like the one Dody McKelvey holds. "This" is a new guide to survival with them; Etta Moore holds a copy. The two compiled the guide and designed the course for secretaries which the guide accompanies.

New Course

Secretaries Get Secret Word

To teach secretaries what they need to know to complete the forms (about 40 of them) and follow the procedures (even more of them) associated with classified document control. That's the goal of a new course and reference work designed by Dody McKelvey and Etta Moore of Security Administration Division 9551 and approved by the Secretarial Coordination Committee.

Document accountability is no simple task. Classified documents must be transferred from one accountability station to another, taken to offices and conference rooms, read by one or many, retained for a long or short time, be downgraded or not, and ultimately be destroyed. Somebody has to know where each document is at all times. That somebody is the secretary.

The new course is a secretary's guide to current practices. Foundation of the course is the new reference text which provides samples of completed forms and guidelines for their use. Leading discussions and answering

questions will be Etta and Dody, the text's authors.

"The text doesn't replace the Office Procedures Manual or the SLI's," says Etta. "It's a quick reference tool which deals with the common routines and major problem areas. It includes all the latest procedures — some even the experienced secretaries may not be familiar with."

"We've cross-referenced it," adds Dody, "so it tells where to find more information, even which organizations to contact for help with an uncommon problem. And it's in binder form so it can be updated easily."

The course, which takes three half days, includes discussions; speakers on classification, design information, and library documents; and tours of the Library and the Mail Room. Each secretary will be scheduled for the course by the Education and Training Division 4231 with the assistance of the Secretarial Coordinators; the first course begins March 16.

Bargains & White Elephants, Inc.

Elaine Wilson of the Base Thrift Shop called to ask that we remind Sandians of their right to buy and sell at the Shop. It's essentially a humanitarian operation with proceeds going to charity; the Shop is staffed by volunteers.

If you want to sell that moosehead Uncle Fud gave you for your wedding, tote it over to the Shop. They'll put it on display, for up to 60 days, and will take a 20% commission if and when sold. No sale, no commission. Your wife or husband may also patronize the Thrift Shop; she or he will be asked for identification upon entering and will be issued an ID card for future visits.

Their schedule follows: Monday, Tuesday & Thursday — 10:30 to 2:00 (get there by 1:00 if you're bringing stuff over to sell); Wednesday — 3:00 to 6:00.

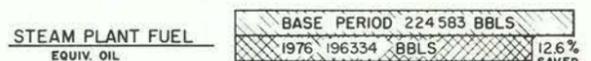
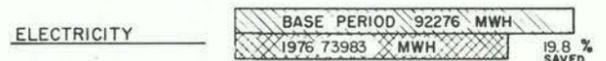
The Thrift Shop is situated just south of the Bank of New Mexico, maybe three blocks from Bldg. 800. Stroll through at lunch sometime. There's rack after rack of stuff you don't want, but you'll probably succumb to the bargain prices.

Retirees, Please Note

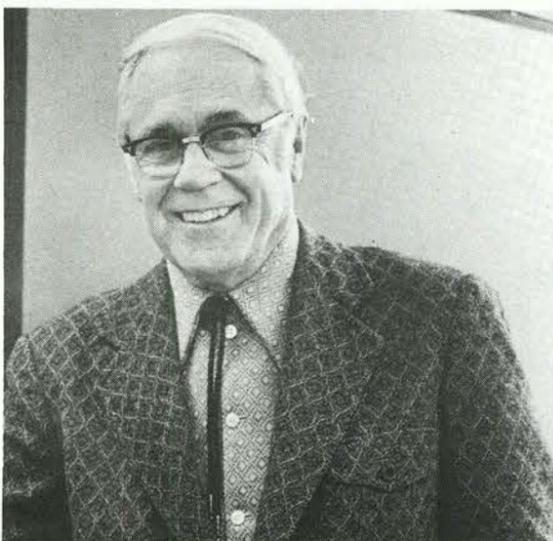
Date of the Annual Retiree Picnic at Albuquerque has been moved up this year to *June*. Since this affair is one you won't want to miss, be sure to keep Wednesday, June 2, open for getting together with your Sandia friends. Invitations will be mailed about May 1, but for now make your plans around June 2, the date of the '76 Retiree Picnic.

ENERGY SAVINGS

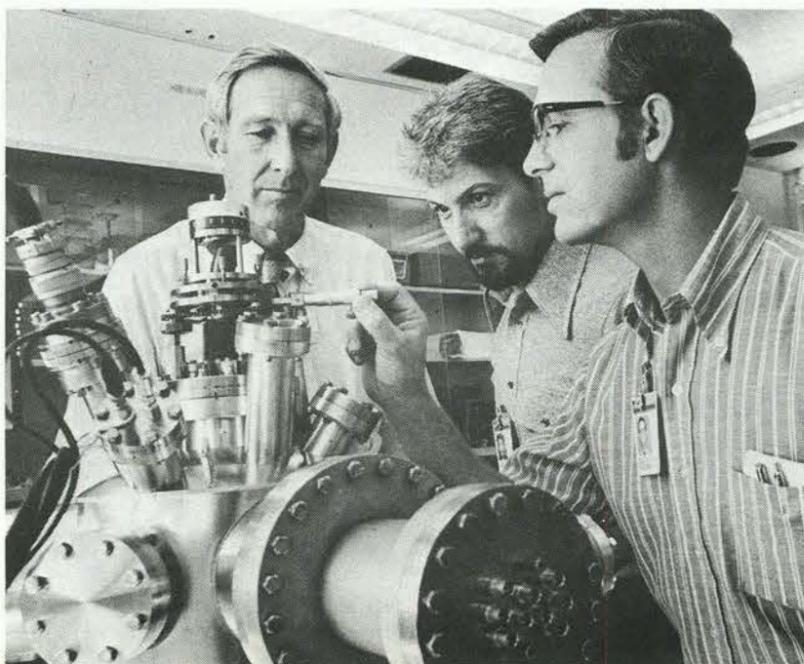
COMPARED WITH USAGE IN BASE PERIOD - JULY 1972 THRU JUNE 1973
CURRENT REPORTING PERIOD ENDING JAN. '76



Retiring

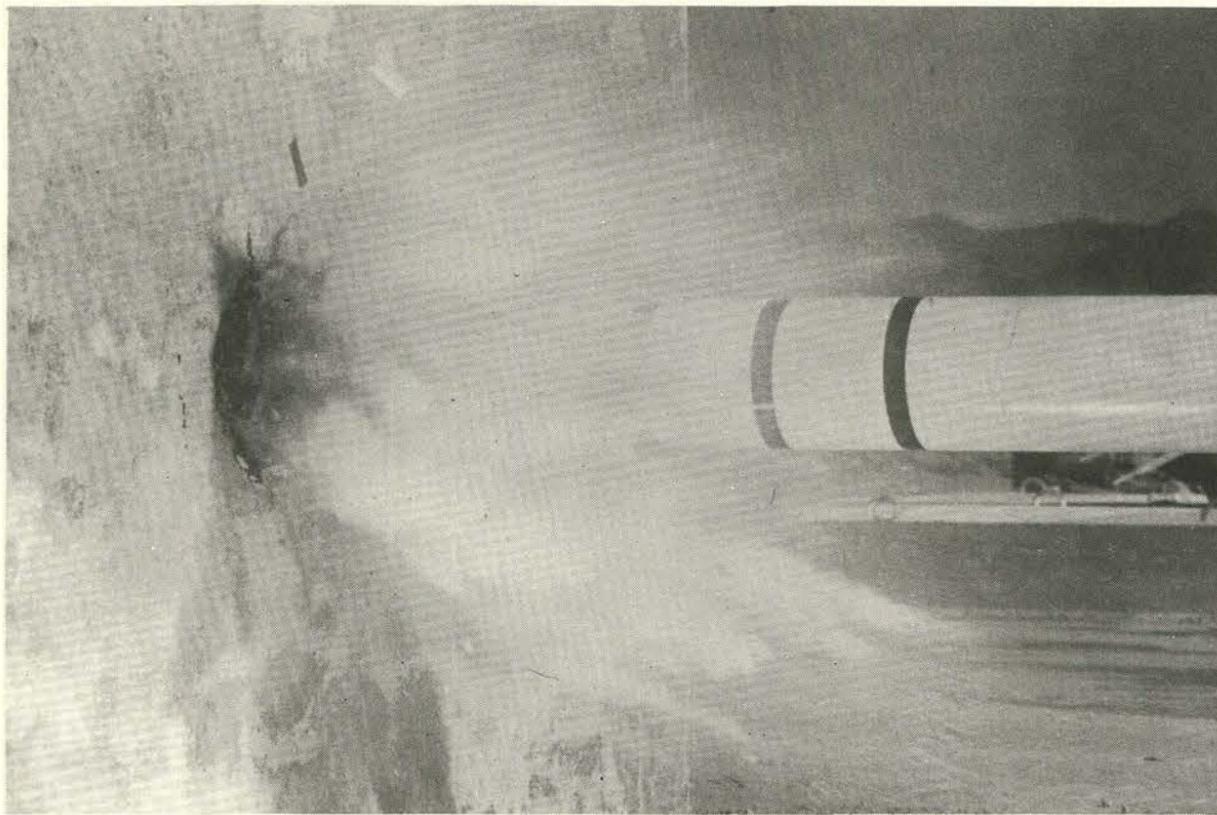


C.E. Abraham (1313)



WARREN TAYLOR (9531) and George Kominiak (5934) watch Paul Holloway (5825) position a sample for analysis on the auger electron spectrometer. They are preparing for the 12th Annual Symposium of the N.M. Chapter of the American Vacuum Society to be held at the Four Seasons, March 15-17. Paul is conference chairman; Warren and George are responsible for the vacuum science and technology courses. The keynote address will be by Harold Agnew, Director, LASL; numerous Sandians will present papers.

TTR Simulates Tornado Forces



IMPACT of a 12-inch pipe with a reinforced concrete slab at 66 metres per second (200 fps) simulates tornado damage. Test is part of \$600,000 study Sandia is performing at Tonopah Test Range for the Electric Power Research Institute and ERDA.



DAMAGE on back side of a 29,000 kilogram (32 ton) reinforced concrete slab after impact of 12-inch pipe is assessed by Al Stephenson and Jack Windsor. During impact tests, the slabs are grouted to a massive fully-instrumented frame.

Tornadoes create winds of incredible force — up to 580 km/h (360 mph). They could rip up telephone poles and hurl them like spears through solid concrete walls.

So what do you do if you are in the nuclear power generating business and you're concerned about every possible contingency?

You determine to build walls for your plant strong enough to fend off the tornado-borne telephone pole — perhaps a million-to-one shot, but no one cuts any corners in this business.

So how strong does it have to be?

Al Stephenson (9473) at Tonopah Test Range, under a program funded at \$600,000 by ERDA and the Electric Power Research Institute, is finding out.

With the support of Recco construction crews at TTR, Al is building huge reinforced concrete slabs (44 tons) and, using a rocket sled, is firing a series of projectiles into these simulated walls. A massive support frame is fully instrumented to record results of the test.

The sled track is a 39.5 metre (130 ft.) steel I-beam. The sleds are fabricated in the TTR shops. Any number of HVAR rockets may be used to power the sled depending upon the requirements of the test.

Al is compiling a catalog of damage, the results of tests using a number of projectiles — one-inch steel rebar, three-inch pipe, twelve-inch pipe and (starting this week), a 35-foot utility pole weighing 1500 lbs. Velocities range up to 128 metres per second (420 fps). Target wall thicknesses, built using standard reinforced concrete construction techniques, vary from 12 inches to 24 inches.

Upcoming tests include a series using cinder-block walls and six-inch concrete walls as targets and another series simulating the effect of huge — 3600 Kg or 8000 lb. — steam turbine segments exploding into concrete walls.

“When the program is complete,” Al says, “we will have sufficient data to create analytical techniques for predicting tornado damage, techniques which do not exist at the moment. This will be useful not only to the Nuclear Regulatory Commission but also to the world's construction industry. It will be possible to balance safety and cost effectiveness requirements.” • dg

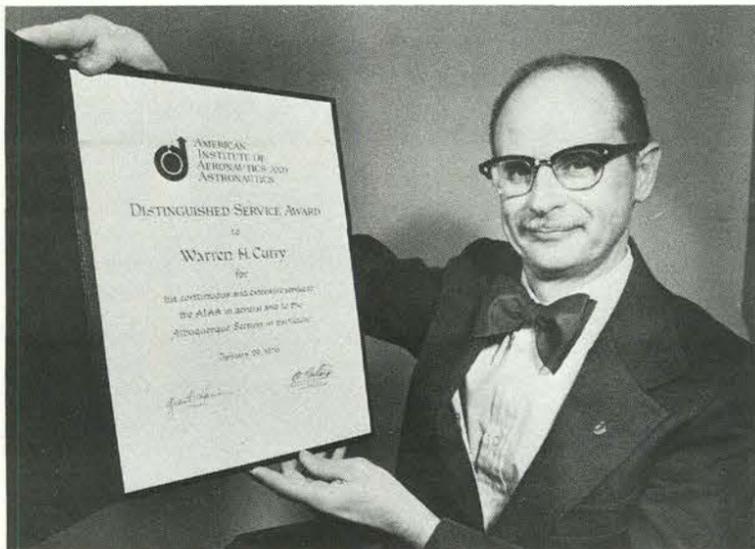


ROCKET SLED track at TTR used for the tornado safety studies is constructed from steel I-beams with welded safety cage. At left is project leader Al Stephenson with Jack Windsor (both 9473).



SPEBSQSA BARBERSHOP quartets, including the Desert Sounds—Charlie Jackson (1754) Gil Wallace (3624), Cliff Schumann (AFWL) and Oz Wehlander (ERDA)—will present a Bicentennial program March 20, 8 p.m. at the Convention Center. Program includes selections by a 50-man chorus. Proceeds of tickets (\$3.50) will benefit the Easter Seal Society.

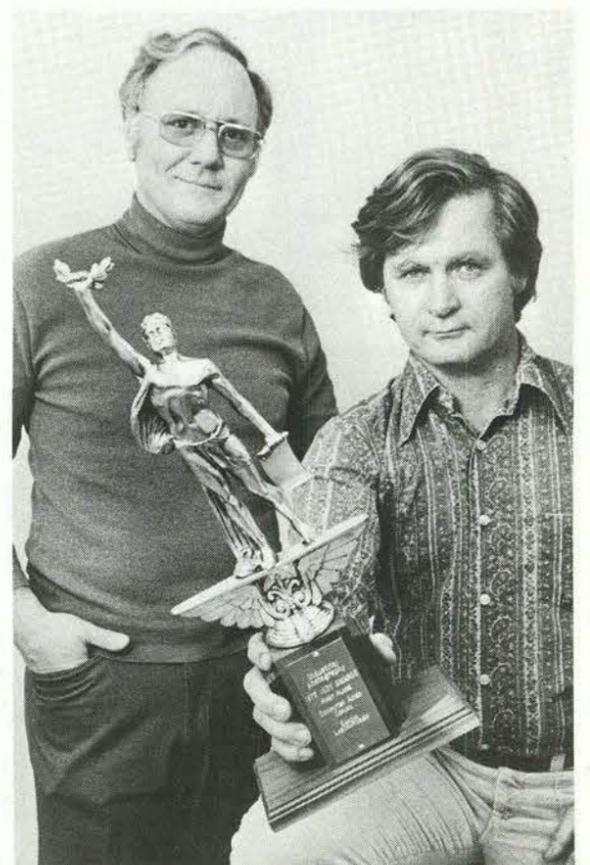
sandia PEOPLE Report



"For continuous and extensive service to the AIAA in general and to the Albuquerque Section in particular," Warren Curry of Aeroballistics Division 1331 received the Distinguished Service Award from the American Institute of Aeronautics and Astronautics. Award was presented during AIAA's 12th Annual Meeting in Washington, D.C. Currently an Associate Fellow, Warren has been a member of AIAA since 1945.



VISITING SANDIA LABS last week to discuss materials problems in fusion reactors was Dr. Hans Vernickel (center), Max Planck Institute for Plasmaphysics, Garching, Germany. With him are Fred Vook (5110), left, and Tom Picraux (5111).



INDY AWARD for first place in a competition for film makers, sponsored by *Industrial Photography* magazine, was awarded to Chuck Cockelreas, writer/producer, and Wayne Gravning, cinematographer/editor, (both 3153) for their film "Computer Aided Design at Sandia Laboratories."

LIVERMORE NEWS

VOL. 28, NO. 5

LIVERMORE LABORATORIES

MARCH 5, 1976

Nostalgia at SLL

Would You Believe —We're 20?

This month Sandia Laboratories Livermore observes its 20th anniversary as a research and development facility supporting the country's nuclear weapons program.

Sandia/Livermore's official history began on March 8, 1956, when the then Atomic Energy Commission designated Sandia to perform ordnance engineering functions with UC's Radiation Laboratory at Livermore (now Lawrence Livermore Laboratory).

An advance cadre of 15 Sandians came from Albuquerque in the fall of 1955 to set up shop in an old wooden barracks building on the grounds at LLL. Over the years, this small group has grown and today SLL's personnel figure stands at 900, with a payroll of more than \$16 million a year. The modern installation now occupies 160 acres, and buildings and equipment are valued at \$53 million.

Of the original 15, three remain on roll at Livermore — Gayle Cain (8412), Bill Little (8430), and Orval Wallen (8412). Here's what they recall of the early days.

Orval — "We were working on the last Pacific test, and I was involved in setting up machine shop subcontracts in the Bay Area. This meant a lot of traveling and long hours. But it was a closely knit group, everyone was congenial and we all worked to meet deadlines. The atmosphere was informal and communications were good and you had to be flexible because there were just a few people.

"Our shop setup was such that you really had to be innovative to get the job done. I recall a plastic mixing device we came up with that we nicknamed the 'dairy queen,' a takeoff on ice cream mixing — it worked. And I won't forget the heat in our first machine shop over in the LLL swimming pool building. Without air conditioning the temperature would sometimes get up around 120° and we'd have to close down."

Gayle — "One practical problem was the telephone. All calls had to go through a local operator, and then the phone company went on strike for a month. It took 30 minutes to make a Rad Lab call, and any time someone



Orval Wallen (8412)

was lucky enough to get a call through to Albuquerque, we'd hang onto that connection for hours, passing the phone around.

"Situated on the same side of the street, working side by side with LLL in the assembly of devices, making pit checks and providing parts was new and exciting. It's different now, although we still work closely with them.

"I had driven my old '49 Chevy — which I still have — from Albuquerque, not realizing that several inches of good New Mexico dust had accumulated in back. The winter of '55-56 brought a record amount of rain to the Bay Area and a short time later a horrible sloshing noise became evident in the car. After much searching we discovered the problem, and I remember vividly poking a screwdriver in the bottom and draining out about six gallons of Rio Grande-type water.

"Not only was SLL small in those days, less than the size of a department, but the population of Livermore was like 11,000 and you could drive around and see the entire town in 10 minutes. I liked that."

Bill — "I recall the day George McCarthy and I looked over the old barracks that was to be our Sandia home. Opening the door, we cut our way through cobwebs to find rolling floors with little pockets full of water. It was an absolute mess. But the Rad Lab did a beautiful job of fixing up the building and when we moved in it was pretty habitable, though there were only space heaters. If you plugged in more than two on any one side of the building you'd blow a fuze. It was so cold everyone wore a heavy coat. Wouldn't you know, it was a hot day in June when the heating system finally went into operation.

"Our first work bench was an old packing crate from Albuquerque which we used for months. The early days posed many challenges because you usually had no materials or parts — one example is the drop tower we built over in the hangar out of scaffolding. We used it for quite some time. Much of our test equipment was entirely homemade.

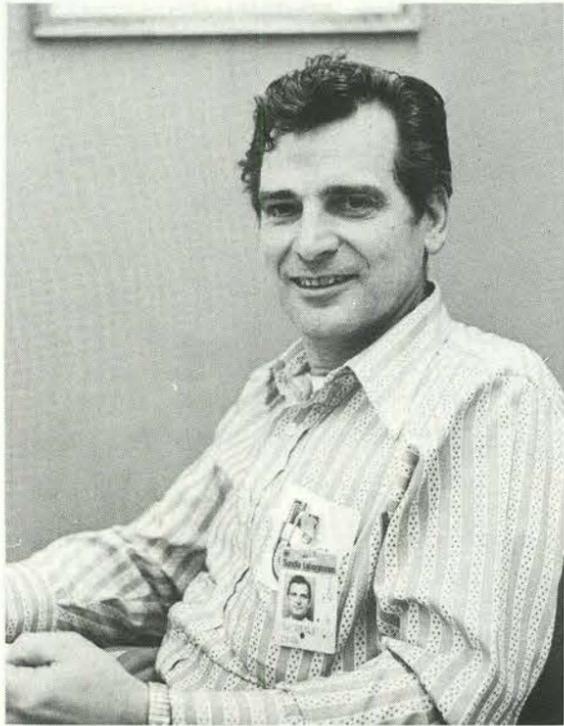
"We grew rapidly and today an average division has eight or ten people. As a comparison, at one time I had 43 people in my project section, with responsibilities including full scale test, field test, environmental test and electrical design. Needless to say, it was impossible to supervise very much. Everyone just did what they were supposed to do. There was great spirit — never saw morale so high."



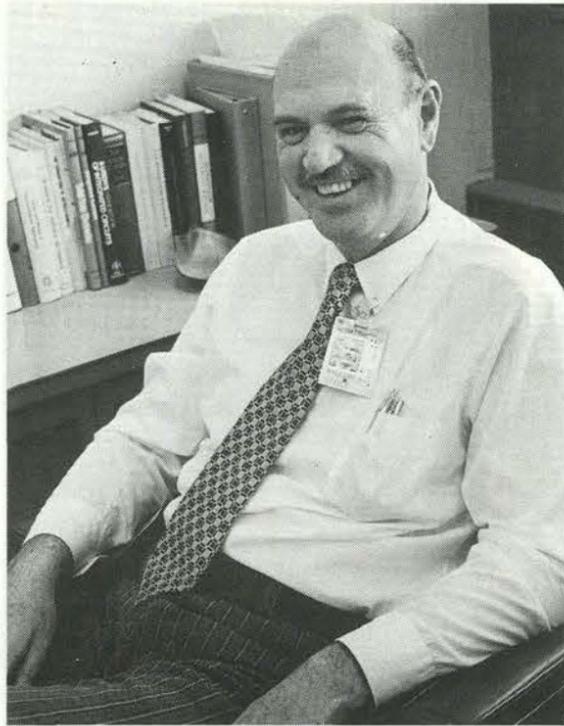
SANDIA/LIVERMORE'S Administration Bldg. 911 under construction in August 1957.



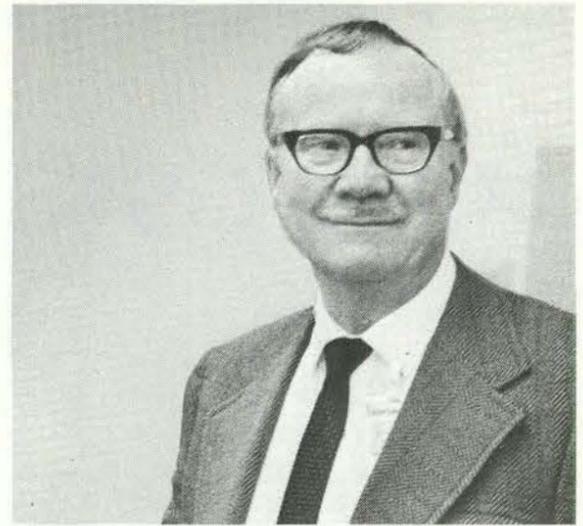
BLDG. 911 today.



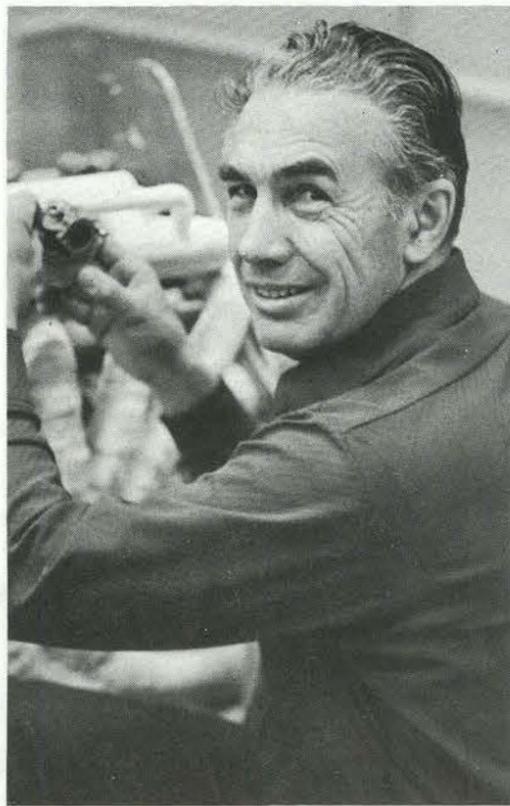
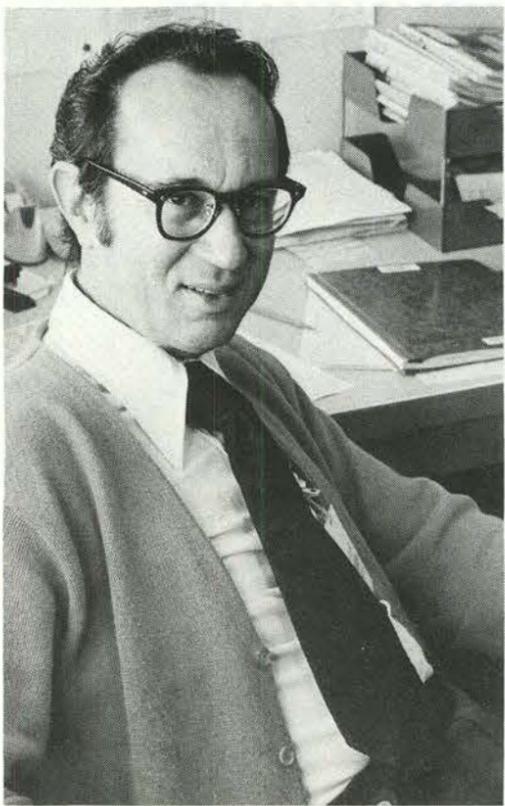
Gayle Cain (8412)



Bill Little (8430)

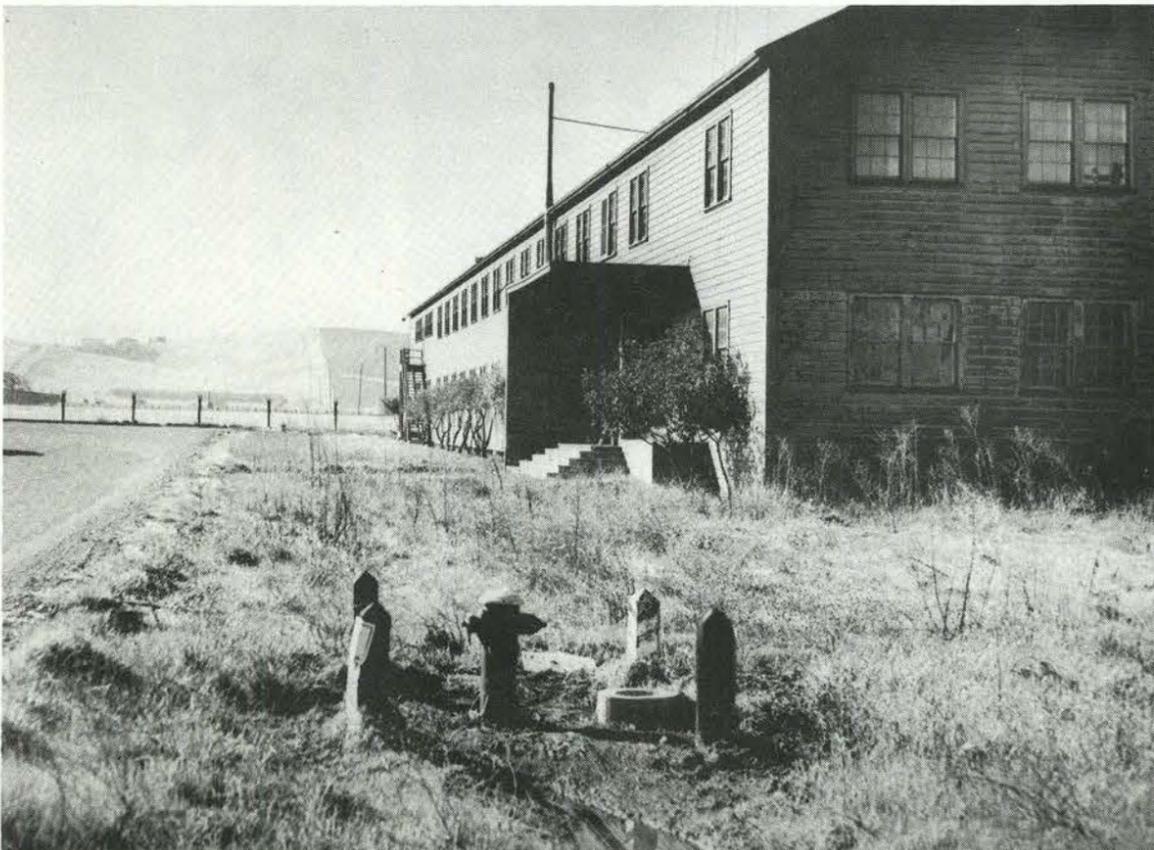


LIVERMORE'S FIRST 30TH SERVICE ANNIVERSARY. Staff Services Director Hilt DeSelm (8200) is the first employee at Livermore to mark 30 years of service with Sandia. Joining the Labs in Albuquerque on March 4, 1946, Hilt was a department manager from 1950 until 1958, when he became Director of Surveillance and Operations. He was named Personnel Director in 1959, and transferred to his present position at Livermore in 1961.



OTHER EARLY TRANSFEREES to Livermore included Frank Murar (8345), left and Harvey Pouliot (8116). Both arrived in early '56. Early SLL'ers now at Sandia/Albuquerque include: Charles Barncord (3200), Ray Brin (9410), Jack Howard (2), George Martin (9651), and Charlie Winter (4010).

AGGIE VAN BROCKLIN (Sandia retiree), one of the first two women transferred to Livermore, with her supervisor Jim McMinn who headed the original Services Section.



SITE of SLL's Administration Bldg. 911 was occupied by a WAVE barracks (see Helen Bond photo caption), part of a WW II Naval Air Station Training. Similar wooden barracks were renovated at LLL for Sandia use until October '57 when the first permanent facilities were completed.



EX-WAVE Helen Bond (8412) displays a picture of her unit that was housed in the barracks where Bldg. 911 now stands. A seaman first class and parachute rigger's assistant at the Livermore Air Station, she says large fields surrounded the barracks, at the time the only structure on Sandia's side of the street. She also recalls playing softball where Bldg. 916 is now located.

MILEPOSTS

LAB NEWS

March 1976



Vicente Garcia - 9721

25



Rudolph Walter - 3725

25



Elias Gabaldon - 9713

20



James Hiser - 9550

25



Fred Gonzales - 3617

25



John Wiesen - 1220

25



Joe Gurule - 9721

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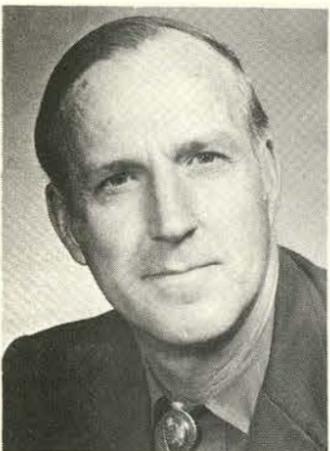
Norm Richardson - 5825

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Keith Mead - 5844

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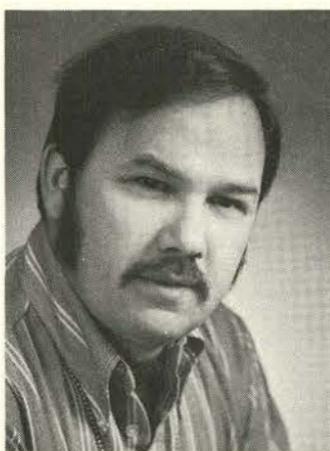
Dale Pipher - 5422

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Carl Shoenfelder - 8313

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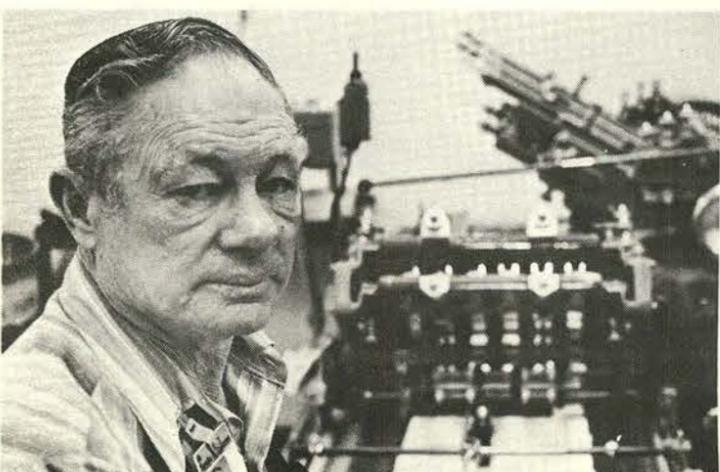
Bill Childers - 8346

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Andy Landis - 3163

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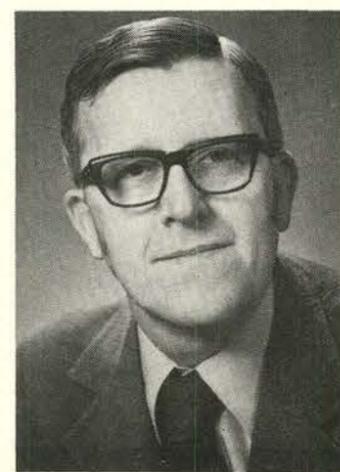
Ralph Carter - 3172

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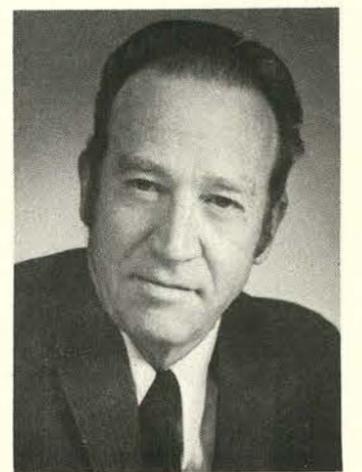
Bob Bedford - 8181

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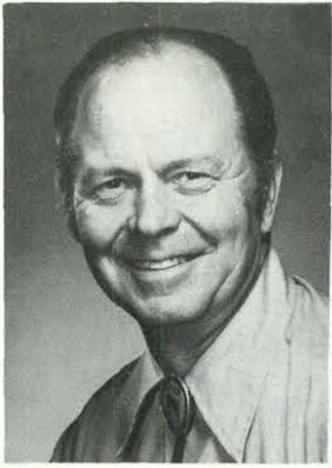
Alan Skinrood - 8184

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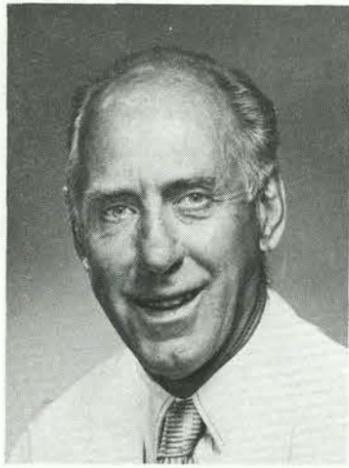


Charles Drummond - 8432

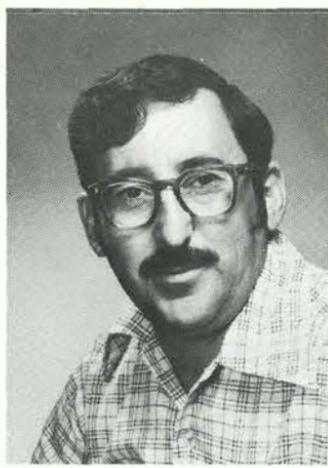
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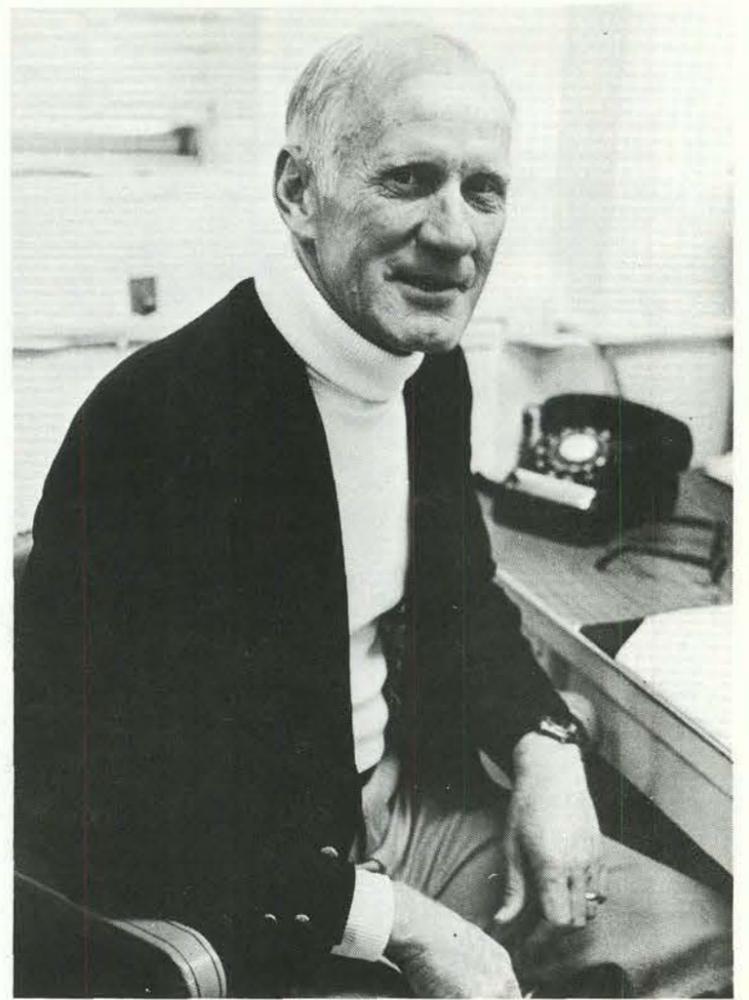
Herbert Loemker - 1244 20



Walter Suiter - 1254 20



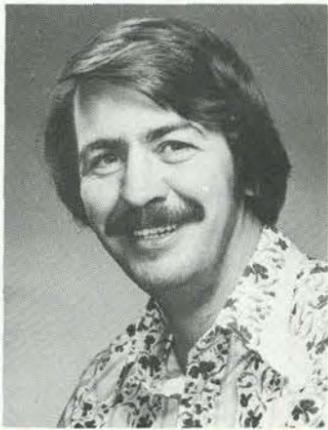
Nick Fajardo - 9713 10



Bob Gall - 3161 15



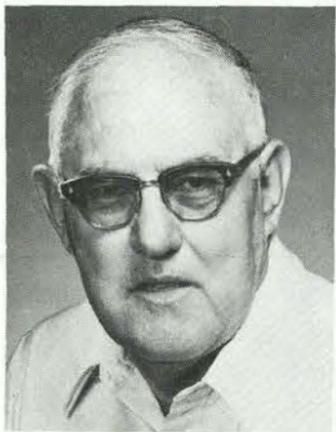
Don Graham - 3162 20



Robert Gardner - 3171 15



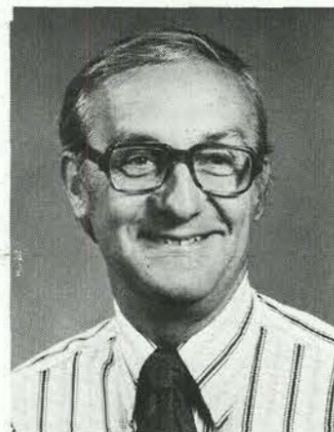
Moses Loretto - 9721 25



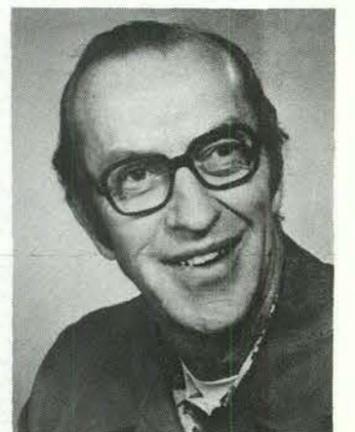
Frank Sanchez - 3617 25



Ann Shiver - 5411 20



Marvin Guier - 3242 25



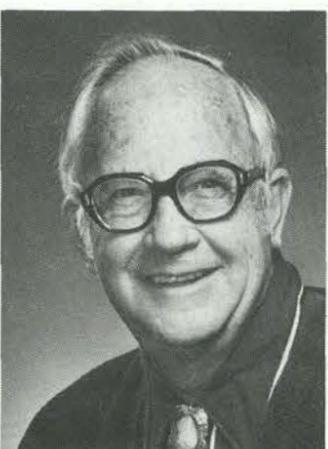
Ed Domme - 2632 25



Edward Clark - 1334 10



Allan Beck - 1311 25



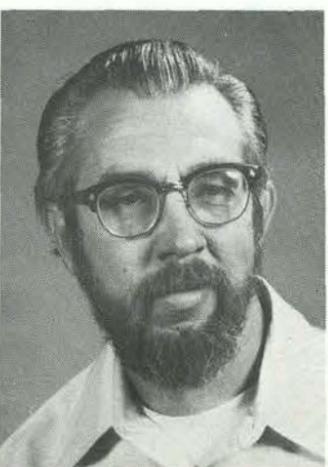
Charles Abernathy - 3714 30



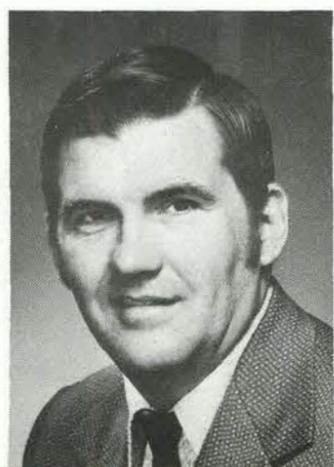
Tom Conlon - 1221 15



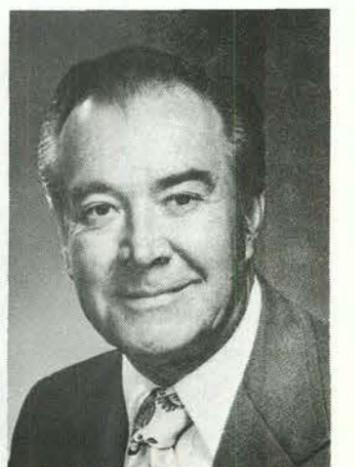
Harold Payne - 3645 25



Alan Beattie - 9352 10



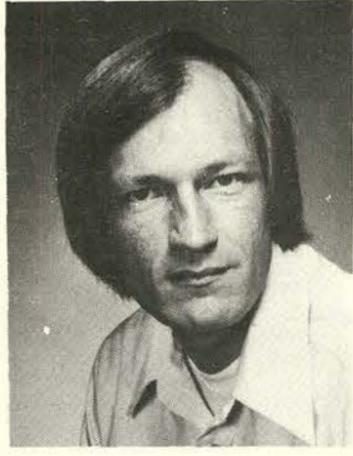
Bill Emrick - 4351 15



Clayton Guynes - 1000 25



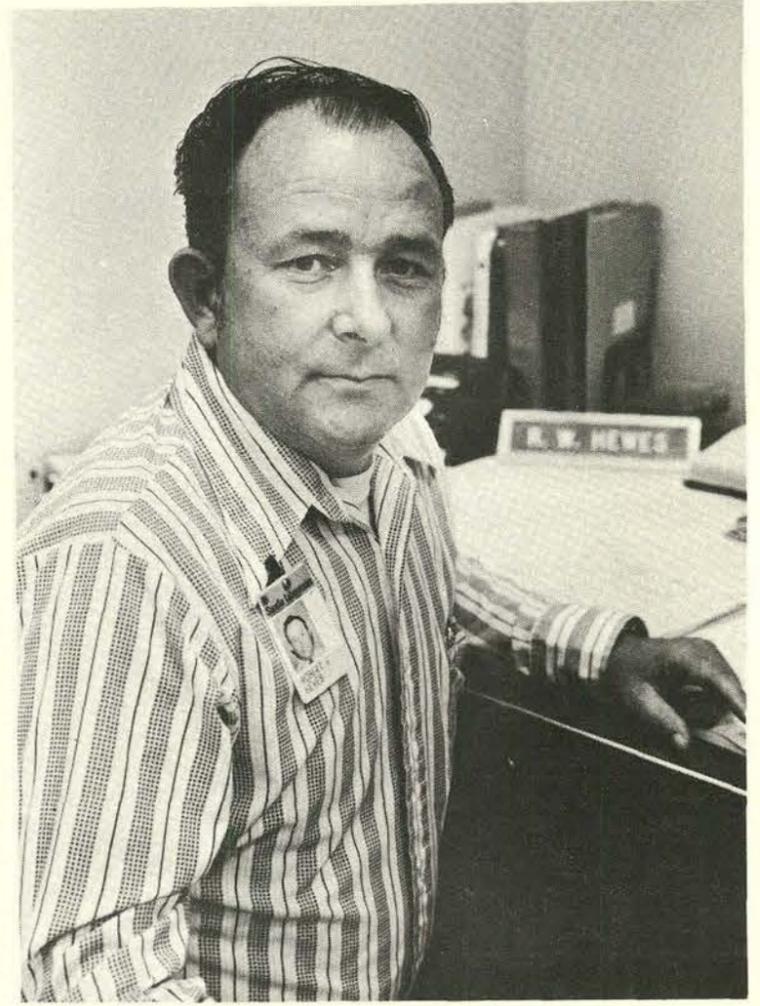
James Coleman - 3254 25



Fred Gustke - 9344 15



Willard Flowers - 3617 25



Bob Hewes - 1135 25



Gino Carli - 9624 25



Chester Claghorn-9484 15



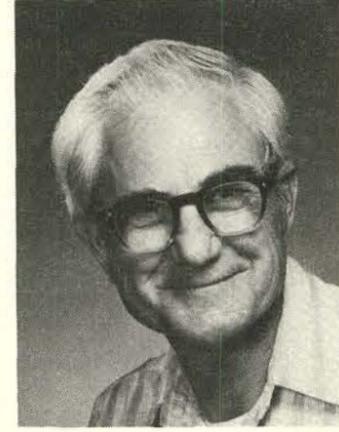
Paul Stickler - 1732 25



Eufemiano Garzo - 9721 25



Gil Weaver - 9721 25



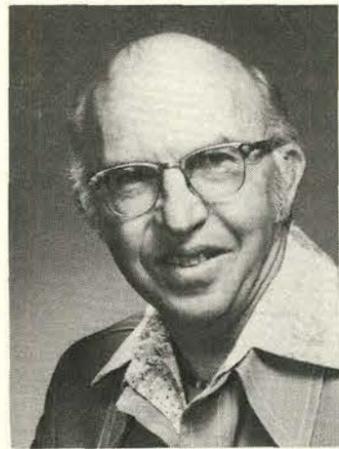
Melvin Oberst - 1245 20



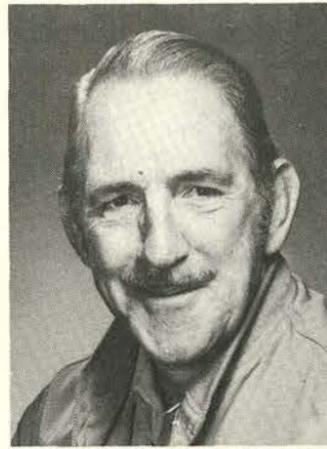
Josephine Arnold - 1210 10



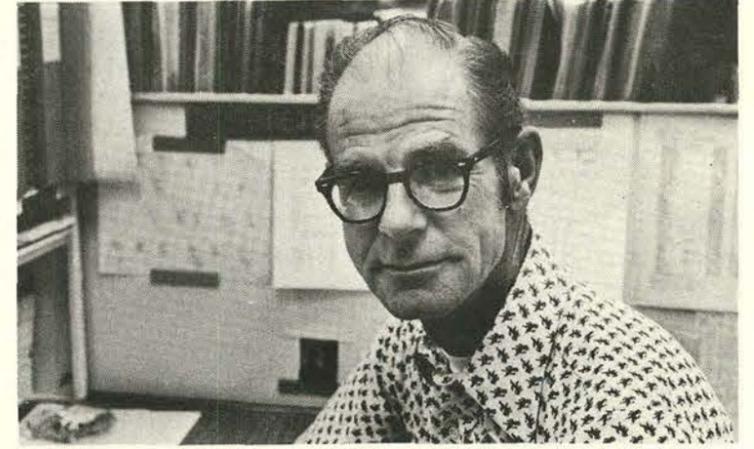
William Short - 9718 25



Phil Dailey - 9536 30



George Davies - 9550 25



Paul Kirby - 2623 25



Dave Watt - 3621 25



Billie Palmer - 3622 20



Gail Sievert - 3725 25



Dorothy Evans - 3616 25

March 5-6, 12-13 — UNM Theatre Arts Dept.: "The Birthday Party," by Harold Pinter, 8 p.m., Rodey Theatre, 277-4402.
March 5-8 — Theatre Dept., U of A musical, "Dr. Faustus Lights the Lights," 8 p.m.
March 5, 9, 10, 13, 14 — Hockey at Tingley Coliseum at 7:30 p.m.
March 6-7 — N.M. Gun Collectors Annual Spring Antique & Modern Gun Show, Convention Center.
March 6 — Basketball, UNM vs Texas El Paso, 7:30 p.m., UNM Arena.
March 7 — Ski Touring, Santa Barbara campground, Curt Frank, 294-3445.
March 7 — NM Mt. Club, La Luz & a bushwhack scramble, hike 7 or 14 miles, 8 a.m., Eastdale.

March 8 — San Francisco Ballet with the Panovs, 8:15 p.m., Popejoy.
March 9-19 — Barn Dinner Theatre, "Plaza Suite," 281-3338.

Events Calendar

March 10 — Wild Scandinavia, Audubon Film-Lecture, 7:30 p.m., Popejoy.
March 11 — Friends of Library, used book sale, main library, 6-8:30 p.m.
March 11 — UNM Theatre Arts Dept.:

"Lysistrata" by Aristophanes, 8 p.m., Rodey Theatre.
March 11-13 — NM State High School Basketball Tournament, UNM Arena.
March 12 — New Mexico Heritage, historic costumes and life styles, 7 p.m., Convention Center.
March 12-13 — Albuquerque Symphony Orchestra, pianist Lorin Hollander, 8:15 p.m., Popejoy.
March 13 — NM Mt. Club, Painted Cave, Bandelier, hike 12 miles, 7 a.m., Gulf Mart.
March 14 — Allen Lenicheck piano recital, 4 p.m., benefit for scholarship fund, U of A, Stage 2.
March 18 — KHFM celebrates birthday of Rimsky-Korsakov.

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

BOOKS bought, for S. 14 Village Project, paperbacks 15¢, 1 to 100, Del Norte HS parking lot, Sunday, 2-5.
 WALL furnace, nat. gas, dual rated 40-65,000 btu w/blower, ideal for large room addition or garage heat, \$60. Stevens, 266-0314.
 SMALL M.T. lathe, jig saw, gem maker, MDL-1400, all with motors. Roberts, 255-9527 after 6.
 KNEE Hole desk, \$50 or best offer; Kroehler hide-a-bed, rose upholstery, \$75. Fisher, 266-2266.
 YOUTH saddle w/bridle, black, \$100. Mason, 296-7267.
 ANTIQUE gas heater; Coleman camp stove; b&w table television set; wheels & tires to fit most GM cars. Snelling, 294-5751.
 120 BASS accordion w/case; sewing machine. Johnson, 344-9369.
 SWIMMING pool, above ground, 4'x15', filter, cover, etc., you dismantle, \$175; medium dog house, \$15. Schubeck, 299-6411.
 DBL/BED, matching dresser w/mirror, white Italian Provisional w/gold trim by Dixie furniture, \$125. Miller, 298-0108.
 BOX springs & mattress, dbl/bed size. Jefferson, 299-1125.
 LOVE seat, new, orange, gold & brown striped velvet cover, \$175. Burgess, 296-4254.
 HEATHKIT test gear, all assembled, IT-27 transistor tester; HM-102 watt-meter/SWR bridge; SB-650 digital frequency display, make offer. Pappas, 881-3440.
 '73 RCA Accucolor television, 17" diagonal, \$200. Harper, 293-9534.
 MOTORCYCLE trailer w/14" wheels & lights, \$150; Hot Point heavy duty washer, \$50. Hammons, 296-6339.
 BABY equipment & clothing; walkers, back pack carriers, infant seats, tub, crib, bumper pads, twin clothing. Rasmussen, 881-0359.
 HIDE-A-BED, needs upholstery. Arnold, 293-7824.

CRIB, maple finish Simmons w/deluxe mattress, \$65. Longcope, 821-8423.
 WATER bed, king size w/liner and frame, \$50. Pierce, 298-4013.
 CAMSHAFT s.b. Chevy, Sig Erson 320F, 320° duration, .500" lift, solid lifters, removed in order, 3000 miles, \$45. Marchi, 299-3653.
 APOLLO drum set, 5 drums, bass, tom-toms, snare, floor tom w/covers, cymbals, \$400 value, \$300. Hillman, 299-8438.
 CERAMIC greenware, 16 piece Nativity set, average size, \$17.50; bird cage w/stand, \$10; 4 matching picture frames. Demmel, 299-5639.
 VOLT ohm millimeter, Triple H model 630, like new, half price. Kraft, 299-2157.
 MATTRESSES, 1 double, 1 single, both for \$20. Laskar, 299-1024.
 TRUNDLE bed w/wood frame, can be set up as twin beds or bunks. Erdman, 298-3097.
 KONIKA Autoreflex-T 35mm camera w/manual, \$250; 2 little used 10-spd. bikes, 1 w/child carrier, both for \$150. Schildknecht, 299-5540.
 GE dishwasher, deluxe model, copper color, undercounter. Petterson, 299-0164.
 WATER bed, \$25; pair of laundry tubs w/stand, \$8; water skis, \$5. Guttman, 243-6393.
 MEDITERRANEAN end table cabinet, 27" square, pecan, \$30; 2 coffee tables, iron legs, \$15 ea; armchair, hardwood frame, \$35. Dalphin, 265-4029.
 '66 CONSOLE color TV, \$25; youth golf clubs, bag, \$15; golf cart, \$10; 20" boys bike, parts, \$10; port. phonograph, \$8. Shirey, 298-6362.
 '71 NASHUA mobile home, 12'x64', 2-bdr., 1½-bath, Wyoming Plaza Mobile Home Park, assume note at Credit Union. Ward, 256-0574.
 FIREPLACE screen w/andirons, \$25. Singleton, 299-1613 after 5.
 4 TIRES, 9.50-16.5, Highway Tread, 8-ply rating, best offer over \$100. Harlan, 299-5337.
 LABRADOR Retrievers, black, whelped 1/16/76, excellent pedigree, Registered litter. Hueter, 242-1620.
 HOOVER Handivac, light-weight vacuum cleaner, \$12. O'Bryant, 268-9049.
 USED building material, approx. 700 red bricks, 10¢ ea; steel casement window, \$40; cabinet top, dbl/sink, \$25. Freyermuth, 299-2053.
 CHANDELIER w/5 lights, silver colored, \$20; 35mm slide projector, \$15; Hoover vacuum, \$15. Reed, 299-7425.
 OLD school chalk board, 73"x-

48", \$10; sturdy wood screen door, 80"x36", \$10. Anthes, 877-7805.
 SPLIT rims for sale or trade, 6 lugs, 5½" dia., have 5 rims. Gunkel, 299-3543.
 MAYTAG gas dryer, 6 yrs. old, \$80. Smith, 281-5065.
 CAMBERSHELL for short narrow bed, \$175; countertop w/dbl sink faucet, \$20; 2 rolls insulation, 100 ft. ea. Aragon, 294-0225.
 CAMPER wheels for 10.00-16.5 tires, 2 ea., fit ¾-ton Chevy GMC. Cook, 294-2348.
 BABY stroller, \$10; floor polisher, never used, \$25; baby carrier for bicycle, \$10. Bishop, 299-8782.
 DINETTE set, table 48"x36", extends to 72", dark walnut formica top, wrought iron legs, 4 padded chairs. Auerbach, 296-1489.
 TWIN bed, padded headboard, \$5; baby dressing folding table, needs repair, \$3. Larson, 299-2384.
 CHROME glass coffee, dining, end tables, \$150; Dupler stole, \$35; motorcycle helmet 7¾, \$20; fur rug, \$35. Young, 298-1083 evenings.
 NAVAJO rugs, small collection of Navajo rugs from the 4 corners area, 20% below retail. McGee, 299-0661.
 RANCH oak bunk beds, \$100. Barnes, 898-2375.
 FLUORESCENT lights, 14 ea., new, 4-40 watt tube, 4' recessed fixtures with 4 new tubes & ballast for \$24 ea. McCoach, 298-5960.
 TAILGATE for '68 Chev., new ¾-ton, from my stolen truck. Dollahon, 881-7952.
 RABBIT hutch, \$10; Registered Guernsey bull calf, \$30; 5.5'x16' tandem wheel trailer, \$350; '61 Ford P.U., \$500. Holley, 898-1777.

TRANSPORTATION

'74 YAMAHA DT 125-A motorcycle, 1-cyl., \$475; 10-spd. bike, Schwinn Continental, green, \$75. Baczek, 255-3429.
 '73 4-DR. Century Luxus Buick, all power, new tires, vinyl top, 32,000 miles, \$2995. Carter, 256-9166.
 '75 MERCURY Monarch Ghia, 2-dr., loaded, \$4695; 6' air hockey, \$150. Hopper, 292-3059.
 26" SCHWINN boys bicycle, \$25. Porter, 298-3623.
 '74 HUSQVARNA 400cc WR, \$1100; mans 10-spd., 21" frame, U-8 Peugeot, \$110. Ward, 256-0574.
 '73 YAMAHA 360 Enduro, \$425. Pierce, 883-7086.
 '72 FIAT 128, 4-dr., 4-spd., white, below book, Laabs, 266-2224 after 5.

'75 HONDA 4-spd. sedan, front disc brakes, radio, CVCC model w/stratified charge engine, Schubeck, 294-5666.
 '73 FORD Ranger XLT, F100, PS, PB, AT, AC, AM/FM stereo, fiber glass shell, \$3000. Anderson, 266-6342.
 '69 DATSUN 510 station wagon, 1600cc, new battery, radio, below book, make offer. McCulloch, 296-4465.
 '75 HARLEY Davidson Sportster, stock, adult ridden, \$2300 or best offer. Miller, 298-1037.
 '74 DATSUN pickup, mags, s.b. radials, air, radio, HD bumper, camper shell, boot, West Coast mirrors, 20,000 miles, yellow. Rader, 256-3069.
 '68 CHEVY, AC, std. trans., \$200. West, 281-3460.
 '73 SUZUKI T-500K Titan, 500cc, including fairing, back rest, sissy bar, helmet, shields, snowsuit. Joseph, 293-1694.
 '73 TORINO; '70 Ford Maverick, below book. Tony, 298-5973.
 10-SPD. bike, Peugeot, 25" frame, price open. Wentz, 881-7125.
 '70 NORTON fast back, 750cc, factory fiberglass tank & fender fairing, \$650. Anthes, 877-7805.
 '62 CHEVY Nova coupe, needs 2nd gear synchro-mesh, runs well in 1st, high & reverse, new tires, air shocks, \$200 firm. Mistretta, 821-0611.
 '73 SUBARU 4-dr. sedan, low mileage, new radial tires. Barton, 281-3349.
 '71 SUBARU, including shop manuals, \$950; tested 35 mpg true rural, 25 mpg city, 4-dr., R&H. Swain, 265-0098.
 '74 MAVERICK, low mileage, air, PS, deluxe interior; '71 Honda Trail 90. Wilkinson, 299-8327.
 '75 YAMAHA RD-350, loaded, low mileage, make offer. Campbell, 293-3115.
 '73 FORD, ¾-ton, lwb, 4-spd., blue & white, \$2375. Dollahon, 881-7952.

REAL ESTATE

3-BDR., Eastdale shopping area, no qualifying, family room, fireplace, 1¼-bath, price & terms negotiable. DeHann, 268-6120.
 ALL brick home near Base, 3-bdr., 2-bath, large kitchen, covered patio, storage shed, \$27,500, \$3000 down, after 5. Johnston, 265-8618.
 COTTAGE at Conchas Dam, \$12,000, near golf course/airport; 35 yds. green nylon carpet w/pad, \$75. Chandler, 296-3323.
 80 ACRE mountain tract adjoining National Forest boundary, 26 miles from area 1, easy commuting, terms. Causey, 881-7534.

FOR RENT

MOBILE HOME just inside Tijeras Canyon, 12 min. from Sandia Labs, \$160/mo., share utilities. McCampbell, 292-2762.
 CONDOMINIUM Purgatory Ski Basin, 1-bdr., fireplace, equipped kitchen, sleeps 6, ski to lifts & your door. Smatana, 299-6278.
 MOBILE home, 2-bdr., furnished, water paid, in Sandias near Bella Vista, garden with sprinklers, \$150/mo. Smith, 281-5065.

WANTED

BICYCLE to fit 6 yr. old boy. Gough, 881-2473.
 SINGLE car garage door, roll-down sectional type, 7'x8'. Fenimore, 298-8052.
 ODD jobs after school for a 16 yr. old boy, jobs of any kind. Charles, 265-8607.
 LEFT-OVER yarn, any weight, color type, for knitting project for St. Jude Express. Vera, 255-4322.
 CONSTRUCTION type wheelbarrow, good condition. Navratil, 293-5527.
 VAN 6 or 4-cyl., good gas mileage, '70 or earlier; shop manual, '64 Ford; back issues of Executive Health. Swain, 265-0098.
 TRADE 13" Dart/Valiant wheels for 14" Dart/Valiant wheels, will trade 2 for 1. West, 281-3460.
 PICNIC table & benches. Shieler, 881-8723.
 TELEPHONE answering device, any make will be considered if in good working order. Ashby, 299-5451.
 16 GAUGE shotshell loader. 293-9508 after 5.
 WINCHESTER 410 ga. pump shotgun. Svensson, 898-3078.
 GOOD skis for adv. jr., 160cm range. Wentz, 881-7125.
 USED guitar in good condition, less than \$100. Larson, 299-2384.
 TABLE saw with or without motor. Nogle, 299-3863.
 MAGAZINES, for resale by S. Hwy. 14 Village Project, Technical, general interest, hobby, etc., send to Lab News, Bldg. 814.
 SUMMER help for Coronado Club snack bar; must be over 21 and available May 29-Sept. 6. Foster, 265-6791.
 USED wheelbarrow in working condition. Olson, 898-8909.

LOST AND FOUND

LOST — Blue brief case & 2 books; keys on Sandia key chain; safety bi-focal glasses. FOUND — Honda key. LOST AND FOUND, Bldg. 832, 4-3441.

●SHRIMP●C-CLUB●FISHING●FASHIONS●TRUE-LIFE●GREECE●JEANE RICH●IMAGE

LIVING — it up comes naturally at tonight's Happy Hour. You'll have sights: Flair models parading in the newest spring and summer styles; women's from The Image, men's from The Lancer; Rosario Ayers coordinating; at 7. You'll have sounds: *Jeane Rich and Her Friends* will make music to model by, then shift to dance gear for you and yours; at 9:30 Thomás and Marcia will be found in the Lounge making sounds abound. And you'll have smells: the aroma of roast beef *au jus*, baked potatoes with sour cream, delux salad table, and more. It's a sensory, sensational evening.

IT — again is time for that peeling feeling: the March 20 Saturday Night Special is a Shrimp Peel. If you haven't attacked a crustacean lately, come on out and learn why Shrimp Peels are so popular (except with the shrimp). Fried chicken, potatos, green beans, lots of salads too. Then listen or dance or both to *Up Country*. Members \$5.95, guests \$6.45, tickets by the 13th.

UP — a lazy river is the place to be when fishing season opens. At the Club is the place to be on the 8th at 7:30. "Hooked on Fishing," the first event in the Club's new Outdoors Indoors series, will teach you new places, new techniques, new excuses for the ones that get away. Even better news — contrary to earlier reports, *it's free* to all Sandia/ERDA types, Club members or not. Doorprize too: a rod and reel. Even if you're not an angler, come out and get "Hooked on Fishing."

IS — some fantastic nature cinematography your bag, thing, or cup of tea? How about a show by two talented puppeteers and their menagerie of puppets? If either or both stimulate your delight gland, make it to Variety Night tomorrow. The movie, Walt Disney's *The Living Desert*, has won 16 awards. And it's great — one of the first of Disney's True-Life Adventures. The talented puppeteers? Ron and Mary Kay Day, of course, with a brand new show for kids, senior citizens, and that awkward age in-between.



LOTS — of extras at next week's Soul Session. We'll add *Brown Sugar* to Colt 45 — should be an intoxicating mixture. *Brown Sugar* is an old favorite dance band. Colt 45 is new — a most provocative malt liquor at a most provocative price. Colt 45 T-shirts and posters too.

MORE — Lobo buses this month. The next one departs the Club at 6:45 tomorrow night. Unless you're staying for Variety Night, hop on the bus, Gus.

FUN — in Athens, fun on the islands in the Aegean, fun getting there. The itinerary and the optional tours take you to everyone's list of urban oldies but goodies: Athens, the Acropolis, Delphi, the Temple of Poseidon (not a missile base), Ephesus (famous as site of

FRIDAY	SATURDAY
5 — HAPPY HOUR ROAST BEEF BUFFET Adults \$3.25 Under 12 1.92 "Spring 76 Styles" JEANE RICH & FRIENDS Thomás & Marcia In Lounge	6 — VARIETY NIGHT Ron & Mary Kay's Puppet Show The Living Desert Food @ 6 Show @ 7 Free To Members (LOBO BUS - 6:45)
12 — HAPPY HOUR SPAGHETTI BUFFET Adults \$2.25 Under 12 1.25 THE VIKINGS Denny In Lounge	13 — SOUL SESSION 8:30 - 12:30 Colt Night BROWN SUGAR Members Free Guests \$1

the Temple of Diana and of St. Paul's preaching), Rhodes (scholars' shrine), Crete (Knossos and a maze amaze); and Istanbul. Get your \$100 deposit in soon; the remaining \$778 later. And/or take in the Pre-Trip Meeting at 7:30 on the 17th.

THAN — Denny is what the Club's spaghetti buffet is saucier (than). Tossed salads, garlic toasts, other good things. Like *The Vikings* doing Music for Rapine and Pillage (and Dancing). Denny attacks the Lounge double-handedly at 9:30. That guy has a fantastic plectrum — ask to see it.

LIVING — History. That's the Bicentennial Tour Package. You'll tour

Cut It Out

C-CLUB TRAVEL CALENDAR

Rio	April 10 - 18
Tahiti	April 26 - May 3
Hawaii	May 15 - 22
Las Vegas	May 19 - 21
Las Vegas	May 21 - 23
Bicentennial	June 6 - 12
Greece	Aug. 29 - Sept. 13
Mazatlan	Oct. 23 - 30
Caribbean	Nov. 27 - Dec. 4

Detailed Itineraries? 265-6791

Washington (the Smithsonian, Ford's Theatre, Kennedy Center), Mt. Vernon, Williamsburg, Jamestown, Gettysburg, and Philadelphia (Independence Hall, Liberty Bell). \$534 (kids \$464) including bus and plane transportation. The Pre-Trip Meeting is at 7:30 on the 10th.

IT — is indubitably the year's cultural highlight: the Sanado Art Show on the 8th and 9th in the El Dorado Room (go down for an uplift). Catch the preview on the 8th after work or in the evening or on the 9th at lunchtime. Sanadoes: reserve with Sandra Ruth (294-2090) or Lois Smith (821-3556) *today* for the salad bar luncheon at 1 followed by the Ballet Folklorico de Albuquerque doing "Pictures at an Exhibition" or something else appropriate.

DOWN — to Rio becomes now even more attractive: the price is down to \$649; the plane departs from here, not Denver. Best news of all — a few seats remain, but hurry. Final pre-trip meeting (for those signed up) is at 7:30 on the 22nd.

AFTERWARD — as you're whirling gracefully across the floor to the delight of your partner, to the envy of untaught onlookers, and to genuine music, you'll be glad you signed up for the new Bifurcated Dance Lesson Series. One part is for the novices (7-8:30), one for the intermediates (8:30-10). Six Thursday nights beginning on the 11th. Sign up by that time — \$35 couples, \$20 singles.

MORE INFO — 265-6791.

VIKINGS●PUPPETS●DENNY●BROWN SUGAR●CRETE



THE METRIC WORLD and Sandia's slowly enlarging role in it was the subject of a seminar with some hundred Labs suppliers, many of whom will be working within the metric system in the next few years. Jim Patterson (3646) took groups of the visitors on tours in Sandia's machine shops. President Ford has recently signed bill to implement country's metrication.