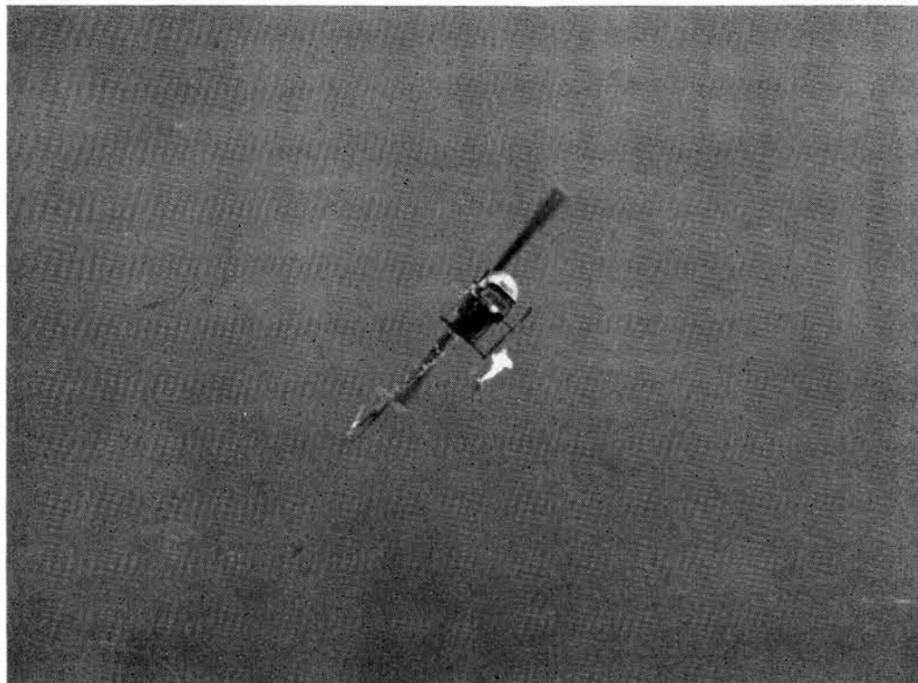


LAB NEWS

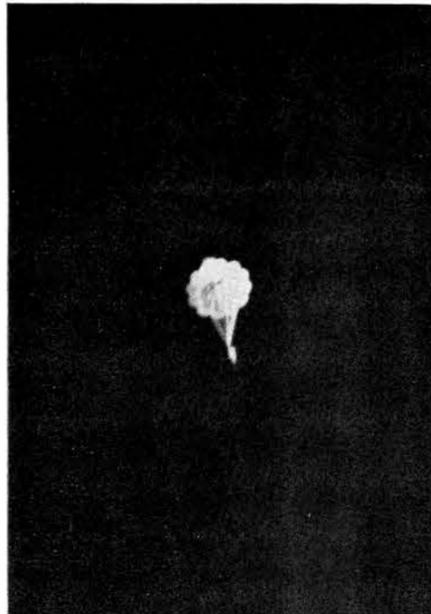
VOL. 22, NO. 19

SEPTEMBER 11, 1970

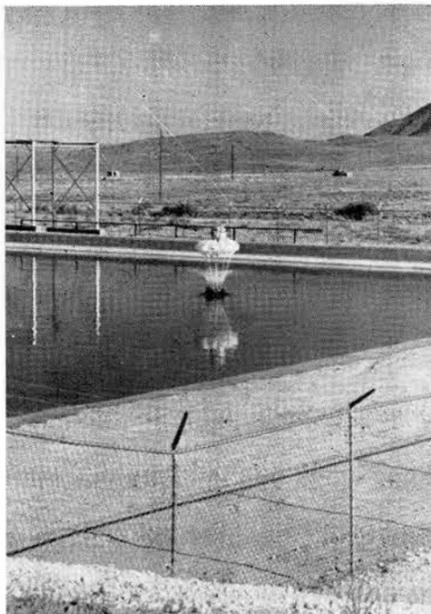
SANDIA LABORATORIES • ALBUQUERQUE NEW MEXICO & LIVERMORE CALIFORNIA



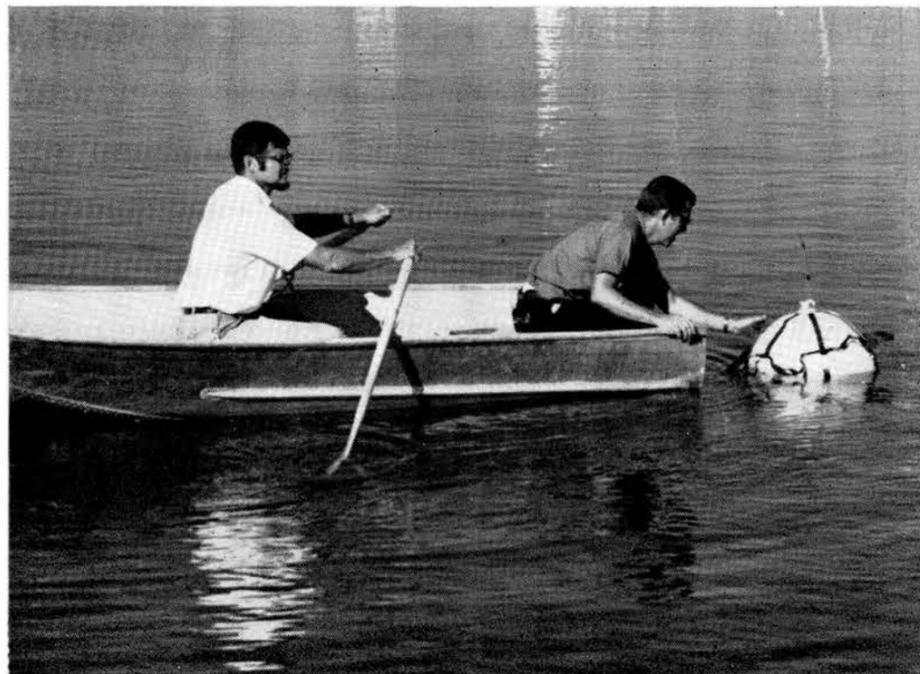
HOVERING over Coyote pond, Don Johnson drops a flotation bag recovery system from a helicopter. The chopper was "zeroed" into position with the aid of transits.



SIX-FOOT PARACHUTE, designed to support a 55-lb. rocket payload, plummets earthward.



SPLASH, right on target. Photo shows balloon-like ram air flotation bag inflated on top of parachute.



RECOVERING the unit, Jack Hollon, left, and Don Johnson pull the flotation bag and the submerged payload from Coyote pond. Two successful drop tests into the pond were conducted in less than an hour.

Recovery System Drop Test

Bull's-eye on Coyote Pond Saves Sandia Time and Money

The Lovelace pond in Coyote Canyon test field is about the size of the Coronado Club twin pools, combined. From 350 feet altitude in a helicopter, it looks mighty small.

Still, Don Johnson of Rocket and Recovery Systems Division 9324 dropped two parachute-flotation bag recovery systems for rocket nose cones smack into the designated target area of the pond recently. The drops were part of the development testing of a small recovery system for rocket payloads. The parachute opened, the ram air bag on top of the chute filled and the unit floated properly after impact.

Dave Bickel and the Coyote Test Field Division 7343 "zeroed-in" the helicopter for the test. They used two transits (precision surveying instruments at right angles to each other pre-positioned to intersect in their lines of vision at the proper altitude and position for the helicopter to be directly above the 90-square-foot target area of the pond. The two transit operators could talk to each other over one frequency, but only one operator—Jack Hollon, summer hire who has returned to science teaching with the Albuquerque Boys Academy—gave instructions to the pilot using a different frequency. Jack was test director for the operation.

"We had tried it before with everybody including the helicopter pilot talking on the same frequency," Dave says, "and

usually at the same time. This didn't work too well. One man in control is better. And we were lucky—there was no wind on the morning of the drop."

Don Johnson figures using the Coyote pond for drop tests not only was convenient and saved time, but also saved more than \$2000. The last drop tests, conducted at Salton Sea, were that much more expensive.

The new flotation bag recovery system is a smaller edition of the universal recovery system developed earlier by Division 9324 (LAB NEWS, Feb. 9, 1969). This recovery system is designed primarily for use in a rocket test program to be conducted at Wailops Island, Va., in the spring of 1971.

The new chute is six feet in diameter and is designed to support a 55-pound payload. The balloon-like flotation bag sewn to the top of the chute inflates with ram air pressure as the parachute deploys. Floating on the surface of the water, the bag supports the submerged wet chute and payload. The weight of the payload keeps the opening in the bag under water at all times making an effective airtight seal. The round shape of the bag insures that the radio beacon antenna returns upright even in heavy seas. The bag contains two compartments so that if one develops a leak, the other will still support the payload.

ECP Campaign Starts Oct. 7; 'Fair Share' Gift is Goal

Annual drive for the Employees Contribution Plan will start Oct. 7 with a kickoff meeting of the directorate representatives and solicitors. President John Hornbeck, who heads the Albuquerque United Community Fund, will speak at the meeting along with Al Valdez, campaign chairman for the Albuquerque drive.

The ECP campaign will be conducted Oct. 8-16.

Payroll deduction cards will be distributed to all employees, and group meetings of employees will be held. All employees will be asked to indicate their contribution on the card and turn the card in following the meetings.

One hundred percent participation by

Sandians at the "Fair Share" level is the goal of the ECP campaign. Fair Share is one hour's pay per month.

The ECP funds are distributed to the 32 agencies of the Albuquerque United Community Fund plus eight other national health and welfare agencies. These are the American Cancer Society, Bernalillo County Heart Association, Cerebral Palsy Association, Muscular Dystrophy Association, Arthritis Foundation, Multiple Sclerosis Society, Easter Seal Society, and Cystic Fibrosis Association.

Payroll deduction allows a small gift each month to add up to a significant contribution by the end of the year. During the years since 1957 when the ECP was organized at Sandia, the goal has remained the same—100 percent participation and a Fair Share gift. Currently 31 percent of Sandia employees are participating at the fair share level. Seventy-three percent of the 6686 Sandians in Albuquerque make a contribution to ECP—a total of \$293,511 this past year.

Voter Registration Deadline Is Sept. 22

With general elections coming up on Nov. 3, voters not yet registered will want to do so before the deadline of Tuesday, Sept. 22 at 5 p.m.

Sandia employees and members of their families may register at Employee Services, Bldg. 832, room 30 (Bernalillo County residents only). In addition, each major political party has a voter registration officer for each precinct. For the name of your precinct registrar, call Republican County Headquarters at 265-3461 or Democratic County Headquarters on 242-2688.

Requirements for a qualified elector are:

1. Citizen of U.S.
2. Not denied right to vote by a court of law by reason of legal insanity or felony conviction
3. At least 21 years of age
4. By the time of election (not when actually registering):
 - Resident of state 1 year,
 - Resident of county 90 days,
 - Resident of precinct 30 days.

The 18-year-old voting law will not be effective until January 1, 1971.

Employee Services Division also has a supply of absentee ballots.

"The dollar figure is impressive," says Jack Merillat (3120), chairman of the ECP committee, "but Fair Share contributors are still a minor fraction of our population. Sandians traditionally have been leaders in their response to community needs. Our job this year is to tell the story of how desperate our community needs are and the tremendous workload of the agencies. Once understood, I'm sure Sandians will respond generously."

Other members of the committee include Jack Sivinski (1740), Ken Sutton (3250), Harold Sherwood (4121), Joe Laval (3433), Lou Berry (5500), Joe Angel (3522), Tony Chaves (7512), James Jorgenson (2623), Mary Pasko (7415), Stan Reynolds (9213), Al Toepfer (5241), Henry Welch (4517), and Marian Jacot (3251).

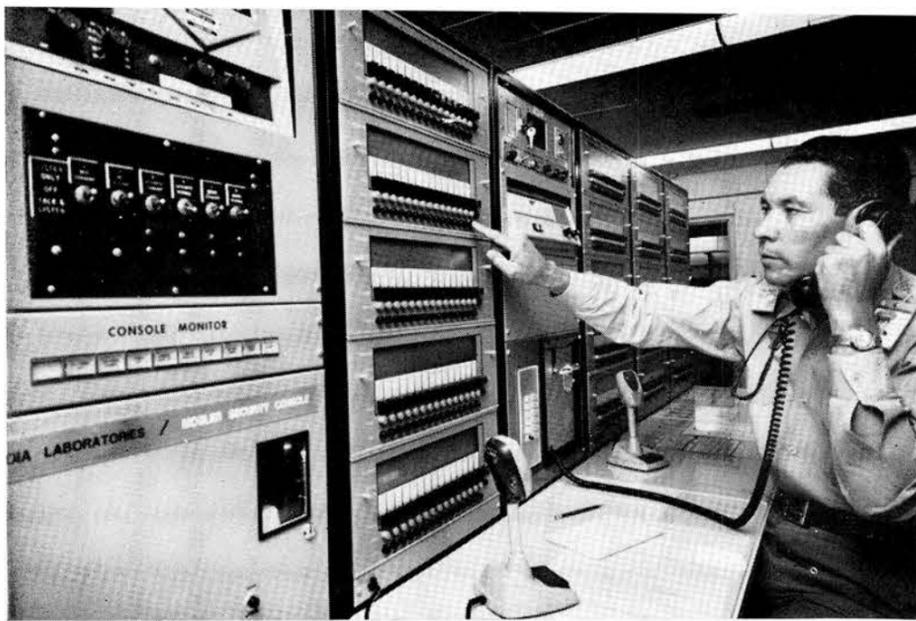
Sandia Laboratories Hosts WE Quality Managers

Sandia Laboratories will host a meeting of the Western Electric Interworks Quality Control Planning Committee in Albuquerque Oct. 8-9. The group, made up of Western Electric's quality control engineering department chiefs, meets semiannually to exchange ideas and information about applications and improvement of manufacturing processes through statistical quality control.

Walt Westman (7514) is handling local arrangements for the meeting which include visits to Sandia's Exhibit Center and the Sandia Base Weapons Museum.

Sign Up Now For LTD

Employees are reminded that enrollment cards for the new Long Term Disability Income Plan must be returned by Sept. 18 to Employee Benefits Division 3122 or Training and Benefits Division 8236. The plan becomes effective Oct. 1 provided 75 percent of all regular full-time employees actively at work have signed acceptance cards. If you do not plan to sign up, you still must return the waiver card.



NEW SECURITY MONITORING BOARD in Bldg. 801 replaces older system used by Sandia's security force. The new board is easier to operate and enables security headquarters to keep track of 183 alarm systems (some 600 doors) located throughout Areas I, II, III and V plus other remote sites. In addition, the system provides radio contact with all security personnel on duty. Here Fred Lopez talks with another inspector at remote checkpoint.

From Child Management to Karate To Yoga – U of A Has a Course

The University of Albuquerque is offering a newly expanded series of non-credit evening courses this year, including one taught by a Sandian and one by a Sandian's wife.

Teaching a special workshop in puppetry at the University this fall will be Ron Day (3131). A course in yoga will be taught by Devi Frauenglass, wife of Harvey Frauenglass (3417).

A folder describing the course offerings is available in many of the city's banks or from the Division of Continuing Education at the University by calling 243-9461, ext. 266. Courses begin the week of Sept. 14.

Course offerings listed in the folder include these:

Charm and beauty, child management, cinematography, conversational Spanish, creative design, creative writing, institu-

tions and crime, karate, photography, puppetry workshop, speed reading, yoga, and you and your home.

Also accounting for non-accountants, advertising principles, basics of real estate, business law, legislation and the legislative process, money and credit management, practical politics, securities buying, and teaching for non-teachers.

"We tried to select subjects of special interest to Albuquerqueans," the director of the Division of Continuing Education said, "with teachers who are especially competent."

Registration for the courses closes on Monday, Sept. 14, at 5 p.m. If more convenient, prospective students may sign up for a course by telephoning 243-9461, ext. 266.

No Joke

Plane Makes Stop at Havana

Jim Leonard of Space Power Systems Division 9521 has the singular distinction, unsought, of being the first and only man in the AEC complex to be aboard an airliner hijacked to Cuba.

On Aug. 24 Jim was en route to the GE Space Division facilities at Valley Forge, Pa. He had changed planes at Chicago and had dozed off as the plane headed for Philadelphia. The passenger in the next seat awakened him and told him that the plane was on its way to Cuba.

Jim thought it was a poor joke and remembered that the airlines take a dim view of this kind of humor. But it was true. Jim learned that a man in the front compartment had told the pilot to fly to Cuba or else an accomplice in the rear of the plane would set off a bomb.

The airline crew complied. The pilot came into the passenger area and talked with individual passengers, answering questions and discussing the situation.

The plane stopped for fuel at Pittsburgh (only the fuel truck crew approached the aircraft) and the hijacker refused to let anyone off the plane. From there it was about two and a half hours until the plane landed at Havana.

A military party boarded the plane upon landing and an armed guard escorted the hijacker off the plane. Throughout the trip the man had remained in his seat in the front compartment talking only with the pilot on several occasions.

All the passengers were asked to leave the aircraft and leave all hand luggage on board.

Jim was carrying a briefcase but no classified information. He had already removed the metal clasps from his Sandia badge and the GE badge which he carried. These he then put in his billfold. He wedged the briefcase under his seat.

In the terminal, the passengers were taken two at a time to "register." This consisted of showing identification and answering questions on age, place of birth, and occupation. Jim said he was an engineer and showed his New Mexico driver's license. When he answered "Albuquerque" as his place of residence, the Cuban asked him if he spoke Spanish. All questions were routine and no one was searched or harassed.

When they did get back on the plane (after about three hours), it was obvious that the plane had been searched and some luggage opened. Jim does not think that his briefcase was opened.

It appears that the hijacker had no accomplice and that there was no bomb.

Jim gave this advice to anyone who might be caught in the same situation: Important papers should be kept on your person. Be calm. Don't do anything dramatic. One word specific answers are best when answering questions.

And remember that no one on a hijacked airliner has yet been detained in Cuba against their will.

Supervisory Appointments



MIKE FORRESTAL to supervisor of Simulation Division II, 7346, effective Sept. 1.

Mike joined Sandia in February 1966. His work at the Laboratories has been mainly in the area of wave propagation in structural elements. Before coming to Sandia, he had worked in the Chicago area for Cook Research Labs, American Machine & Foundry Co., and General American Transportation Corp.

He earned BS and MS degrees in civil engineering from the Illinois Institute of Technology (Chicago). His PhD in theoretical and applied mechanics was awarded by Northwestern University in August 1964. He is a member of the American Institute of Aeronautics and Astronautics and the American Society of Mechanical Engineers.

Mike, his wife Maureen and their two sons live at 7717 Palo Duro NE.



AL SWITENDICK to supervisor of Solid-State Theory Division 5151, effective Sept. 1.

Al has been with the Laboratories since September 1964, working in the field of electronic properties of solids. He received BS, MS and PhD degrees in physics from Massachusetts Institute of Technology. Immediately before joining Sandia, Al was at M.I.T. for one year of post-doctoral study.

He served in the Army from 1954-'56 as a first lieutenant, and is a member of the American Physical Society.

Al, his wife Judith and their two daughters live at 2806 Cardenas Dr. NE.

Take Note

William Jackson, machinist in Machine Shop Division 4253, has been promoted to Warrant Officer in the Army Reserve. A veteran of 18 years service, with active duty in WWII and the Korean War, he is now Maintenance Officer with the 387th Engineering Company. Bill's family continues the military tradition — one son was recently commissioned in the Navy and the other is a midshipman in the NROTC program at UNM.

Members of the University of Arkansas Alumni and Friends of the University will get together for a TV Watch Party to see the Arkansas vs. Stanford football game. The party, hosted by Maj. Q. C. Shores, will be held in the Mesa Lounge at Sandia Base Officers Club on Sept. 12. For reservations or more information call Mrs. Pat Dumas, 268-3403. Regon Kinney (9522) is president of the local chapter of the club.

Vicki Vivian (3256) is a pretty girl who's done a couple of favors for the LAB NEWS on our back page. Her brother, Pete Hans, is serving in Hoi An, Vietnam, and he writes, "There is an orphanage here with about 150 kids, ages from 3 to 15. The majority are Buddhists so their Christmas would be Tet, on their new year. But a kid with no toys doesn't need a special day. I

was wondering if some of your friends and office personnel could send some old toys, preferably ones not in need of repair as there is no place here to fix them. Also the kids could use some first and second grade reading books." If you can help, contact Helen Hans, 247-9055, 318 Cedar SE.

Alfred Switendick (5151) will present "Electronic Properties of Metallic Hydrides — A New Theoretical Model" at a meeting of the 5100 Staff Seminar Sept. 15.

Keith Brower (5111) will discuss "Electron Paramagnetic Resonance of Multiple-Vacancy Centers in Ion Implanted and Neutron Irradiated Silicon" at a meeting Sept. 22.

The seminar meets on Tuesday mornings at 8:30 in rm. 201 of bldg. 806.

In a recent state tournament, the Sandia Laboratories all-star slow pitch softball team emerged with third place. Members of the team include manager Mike O'Bryant (7651), Jesse Betlack (7224), Jim Clark (7323), Pat Freeman (7434), Bob Gardner (4221), Dennis Gutierrez (4221), Larry Jennings (7611), George Kolesar (7614), Ernie Montoya (4512), Ed Rankin (4231), Floyd Salas (9411), Joe Santana (7651), Joe Saya (7423) and Walt Vandevender (4223).

Minitourina With CB

Apache Tears Found at Tent Rocks

With the coming of cooler weather, a pleasant day trip is to "tent rocks" on the east side of the Jemez Mountains.

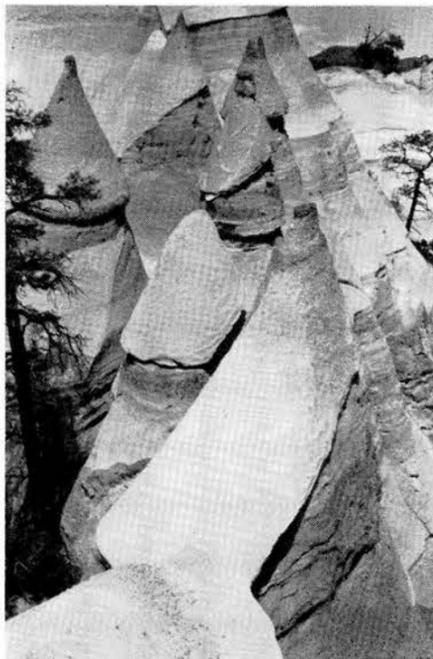
What a place to play cowboys and Indians. The movie crews are missing a bet by not having an Indian crawl out of one of those stone tepees!

Actually, the geological sequence is basalt overlain by pumice, which in turn is overlain by tan, cliff-forming ash flows. These soft materials are easily eroded into their strange shapes by wind-blown sand and flash floods. An added attraction are those black shiny raisin-like stones often found in the tan base material. They're Apache tears, and they're droplets of obsidian.

To get to tent rocks, take Interstate 25 north out of Albuquerque, turn west onto State Highway 22 and after passing Santo Domingo and Cochiti Pueblo, take the second road to your left. This road eventually joins State Highway 4 at Valle Grande. If you take the wrong road, you'll end up in Canada (New Mexico, that is) and can easily backtrack.

At the base of the tent formations, there is a rather large cave and a little further to your right is the entrance to Peralta Canyon, which in several places narrows to a crevice several stories high and barely wide enough to walk in. Keep out of these during a rainstorm!

—Cherry Burns



LAB NEWS

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ZIP 87115

In Livermore Area 415-447-2111

John Shunny is Editor, Don Graham Ass't. Editor

Cherry Lou Burns, Staff Writer
Matt Connors & Lorena Schneider
are Staff Writers in Livermore
Bill Laskar is Photographer
Norma Taylor/All The Rest



YOU WON'T BELIEVE THIS, BOSS. BUT I'VE DISCOVERED A METHOD TO TELL TIME!



GREAT! IS IT ACCURATE?

I'D STAKE MY JOB ON IT!



SEE TO IT THAT YOU SHOW UP FOR WORK BY 7 A.M. FROM NOW ON.

DICK WILSON © 1974



LEAP

LIVERMORE EMPLOYEES' ASSISTANCE PLAN (LEAP) is a "once-for-all" way for Sandians to contribute to local and national agencies which help meet the needs of people. The employee LEAP Committee goal for the 1970 LEAP campaign is 100 percent employee participation. The Committee is also introducing the LEAP SHARE contribution (one hour's pay per month) as suggested by an employee.

LEAP Committee Announces Plans for 1970 Fund Campaign

The employee committee for the Livermore Employees' Assistance Plan (LEAP) has announced their 1970 campaign plans. The 1970 LEAP program includes four local service agencies, four national health organizations and the United Bay Area Crusade (UBAC) with its 180 agencies. Employee meetings describing this year's LEAP program are scheduled for Sept. 28 and 29.

In addition to emphasizing 100 percent employee participation as this year's LEAP goal, the committee is introducing a "LEAP SHARE" contribution. The LEAP SHARE, recommended by an employee, is a contribution of one hour's pay per month for 12 months.

"The LEAP Committee," says chairman Alec Willis (8351), "reviewed and changed the percentage of employee funds allocated to agencies in last year's program. They also studied employee recommendations for adding or deleting local agencies which received LEAP contributions last year. In each case, the immediate and basic needs of the agencies and their helpfulness to the community were carefully considered."

The 1970 percentage allocations are:

	Allocation	%
Local Agencies		9
Nursery School Scholarship Fund	3	
Livermore-Amador Valley Emergency Fund Center	3	
Cerebral Palsy Center for the Bay Area	2	
Calif. Assn. for Neurologically Handicapped Children — Livermore-Amador Chapter	1	
National Agencies		10
American Cancer Society	5	
Alameda County Heart Association	3	
Muscular Dystrophy Association	1	
Kidney Foundation of Northern California	1	
United Bay Area Crusade		80
Reserve (to be distributed at year-end according to specific participating agency needs)	1	
		100

Local agencies participating in LEAP this year include:

Nursery School Scholarship Fund
The Nursery School Scholarship Fund (NSSF) is a program for placing disadvantaged children in established nursery schools. Sandia contributions are used only to help pay tuition for those children to attend school (average yearly tuition per child is now \$167). Organizational expenses are covered by contributions from NSSF board members and local organizations and businesses. Unpaid volunteers administer the program. In 1969, NSSF placed 40 children in five local nursery schools. In a recent letter to Sandia, the treasurer of NSSF said, "We are very grateful for the tuitions that your employees provide, and I am sure that the children and their parents appreciate your efforts too."

Livermore-Amador Chapter of the California Association For Neurologically Handicapped Children (CANHC)
As a result of an employee's interest, the Livermore-Amador Chapter of CANHC will participate in LEAP for the first time this year. CANHC is a California-wide organization established to inform parents and teachers about neurologically handicapped children and how these children can learn by special teaching methods. Called perceptually handicapped children, they are not mentally retarded; they have minimal

brain damage which excludes them from making sense out of sights and sounds readily understood by the normal-learning child in the regular classroom. There are several classes which include neurologically handicapped children in the local schools. These classes are designed to overcome the children's physical-mental barrier to learning.

Cerebral Palsy Center For The Bay Area
The Cerebral Palsy Center in Oakland helps victims of cerebral palsy to help themselves by providing physical and occupational therapy, speech therapy, and medical and vocational evaluations. In a letter of thanks to Sandia, the Center's executive director expressed "sincere appreciation for the assistance you have given us in the past through your LEAP program."

Livermore-Amador Valley Emergency Fund Center
Located at 364 Wood St. in Livermore, the Emergency Fund Center assists individuals and families in emergencies. They also provide clothing, household articles, furniture and appliances to low income families at minimal cost through the operation of the thrift store. Assistance with job information and educational opportunities is also available.

"Last year was a highly successful first year for LEAP," says Alec. "Employees increased their contributions over 16 percent from 1968. We're looking forward to the results of this year's campaign because we think employees believe in a program that benefits local agencies as well as others throughout the Bay Area."

Film and Lecture Series Offered by Chabot College

Chabot College is again offering its Film and Lecture Series for the 1970-71 season to the public as a community service.

- The Film Series, featuring primarily award winning foreign productions, is admission free. Showings start at 7:30 p.m., in the Chabot College Community Auditorium, and are followed by an audience discussion period led by one of the Humanities instructors. The schedule includes:
- Sept. 23 "Closely Watched Trains"
 - Oct. 7 "African Queen"
 - Oct. 28 "8 1/2"
 - Jan. 20 "Nazarin"
 - Feb. 3 "Shadows of Forgotten Ancestors"
 - Feb. 24 "Electra"
 - March 10 "The Hunt"
 - April 14 "The Gospel According to St. Matthew"
 - April 28 "The Bridge"
 - May 12 "Weekend"

Speakers of national and international fame are featured in the Lecture Series to be held in the Community Auditorium at Chabot at 8 p.m. Admission will be \$1 per person at each program. Included are: Oct. 2, basketball star Bill Russell who will speak on "Go Up for Glory"; Nov. 30, author Jessica Mitford, "Inside Book Writing (From Undertakers to Prosecutors)"; Feb. 5, actor-art connoisseur Vincent Price, "The Enjoyment of Great Art"; and April 22, ecologist Paul Ehrlich, "The Age of Eco-Catastrophe."

LIVERMORE NEWS

VOL. 22, NO. 19 SANDIA LABORATORIES SEPTEMBER 11, 1970

Over 700 Miles on a Bicycle Sandian and Young Son Pedal Through California and Oregon

"I can't think of a better way to really get to know your son," comments Curt Franklin (8157) who recently returned from a 711-mile bicycle trip with his 10-year-old son Kent. "We were together 11 days for 24 hours a day, sleeping in the same tent and sharing our food and gear."

The two left Livermore on identical 10-speed bikes early one Sunday morning and arrived in Jasper, Ore. (near Eugene), the next Wednesday. "We met my wife Lois who had driven up to visit relatives, and then the entire family vacationed on the Oregon coast," explains Curt.

"We carried all of our gear on our bikes, including sleeping bags, tent, clothing, first aid kit, spare parts, tool kit, and food for two meals each day — our third meal of the day we ate in restaurants along the way. Packed, my bike weighed 96 pounds and Kent's weighed 80 pounds. We soon found you don't ride in high gear at any time carrying that much weight."

Leaving Livermore, Curt and Kent traveled north across the Delta area, staying near the Sacramento River all the way to Redding. They camped along the river bank the first two nights. "It was very hot going up the San Joaquin Valley," recalls Curt. "The irrigation of the tomato, rice, and barley fields made it humid and that much hotter, especially in the afternoons. But it was quite a pretty sight to look over the large flooded fields as we rode along."

"Both of us had looked forward to taking a ferry boat across the Sacramento River at Princeton (just north of Colusa), but on arrival we discovered the boat was not running — the only day of the year, it seems, the ferry didn't operate. After being so unlucky, we rode on farther up the river and crossed over a bridge only about 10 miles out of the way."

"Because of the heat in the valley, at Redding we decided to turn west for about 170 miles and hit the coast near Eureka," continues Curt. "En route we met a cyclist from Berkeley who was heading inland because of the cold weather along the coast. After discussing with him which route was better, Kent and I continued toward the ocean, and he went on to Redding to go north through Klamath Falls."

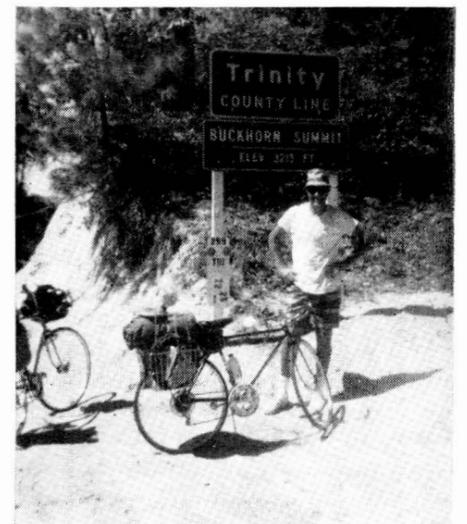
"Here we were generally following the Trinity River, using the river for swimming, bathing, and washing clothes. Our map showed there were four 3000-foot summits, and after cycling over two we agreed on hitchhiking over the last two. An Indian from the Hoopa Reservation picked us up in his truck, and held Kent's attention with tales of his deer hunting during the drive over two mountain passes on a 29-mile stretch of road."

"Along the California and Oregon coast we stayed at state parks where we were able to use showers instead of rivers for bathing. For about 55 miles in this area, we rode through California redwoods. At 10 miles an hour, you are really able to see and enjoy them."

"Farther north, on the Oregon coast, we passed acres of bushes just loaded with blackberries and raspberries. I'll always remember the hat full of these berries we had one morning for our breakfast."

"All along the coast we met other cyclists who were heading south to take advantage of the prevailing wind from the north, while we had to pedal into the wind. However, we had bad weather only once — in Oregon where we hit about two hours of pouring rain one morning."

"The last day we rode inland from Reedsport to Jasper, covering about 95 miles across the coast range mountains. On arriving at our destination, I collapsed with a large cool drink, but Kent was still going strong and went out with his cousins for a 10-mile bike ride."



CURT FRANKLIN (8157) pauses at Buckhorn Summit, one of four 3000-foot summits between Redding and the coast, during a recent bicycle trip through Northern California and Oregon.



"WHICH TURN HERE, DAD?" asks Curt's 10-year-old son Kent at an intersection near Grimes, Calif., with Sutter Buttes in the distance. The two toted all gear on their 10-speed bikes during the 711-mile trip.

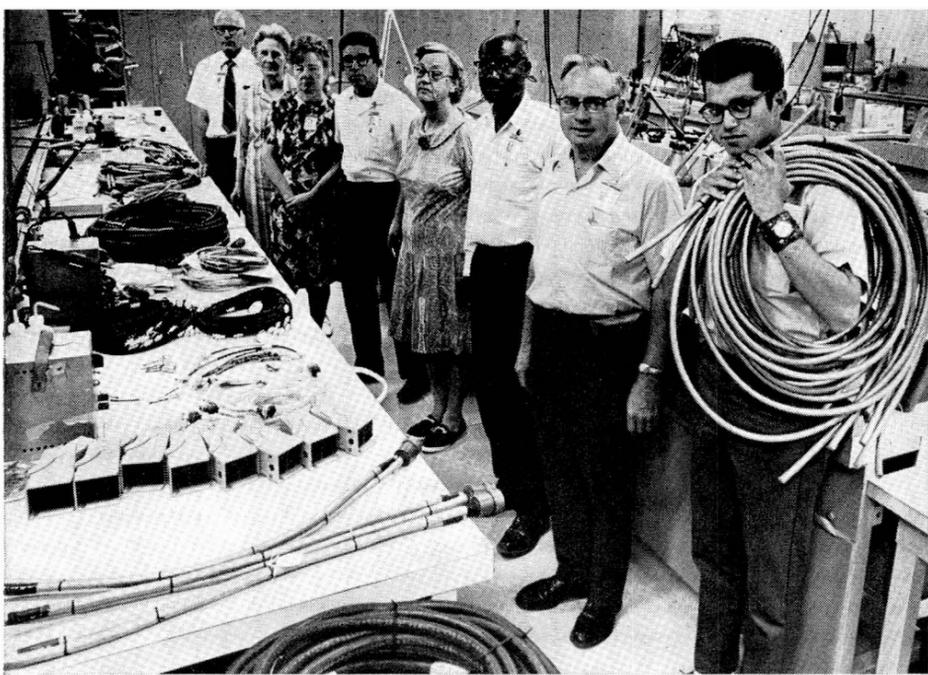
Take Note

Jack Wilson, supervisor of Standards and Calibration Section 8121-1, was the guest speaker at a meeting of the Management Club of Mack Truck Company's Western Division held in Hayward, Sept. 10. Title of his speech was "Metric System Orientation."

The 3rd Annual Doyen Memorial Chess Tournament is now being organized. Last year 40 players participated in this lunch-time activity. If you wish to play, contact either Mel La Tosca on ext. 2842 or Steve Mick on ext. 2368 by Sept. 25. Tournament play begins Oct. 1.

Congratulations

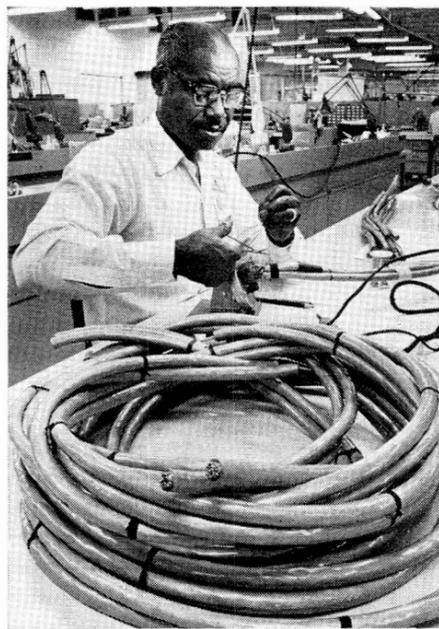
Mr. and Mrs. Gabe Gutierrez (8275), a son, Darrel Angel, Aug. 8.
Mr. and Mrs. Gerry Henderson (8176), a daughter, Sharon Lynn, Aug. 9.
Mr. and Mrs. William Ormond III (8217), a son, William Vance IV, Aug. 28.
Mr. and Mrs. Monte Nichols (8311), a daughter, Jennifer Kay, June 30.



CABLES, ALL KINDS, from single wire through 60-wire multi-conductors to standard and semi-rigid coaxial cables are produced by Electrospecialties Section 4233-2. Up to 1500 prototype or special order cables are produced each month for customers throughout the Laboratories. From left are Bruce Langford, supervisor; Mary Kelley; Jennie Spann; Adolfo Sanchez; Patsy Garrett; Burnest Benjamin; Lawrence Williams, inspector; and Joseph Maez, apprentice. Not shown are lead man Ernest Lovato, Elmer Goepfert, shop clerk, and wireman Mary Smith.



WIRING HARNESS is assembled by Mary Kelley. In addition to making cables, the Section assembles printed circuit boards and fabricates wire harnesses for junction boxes. The work is usually one-of-a-kind prototype assembly and requires painstaking care.



UNWAXED NYLON CORD is wrapped around a cable end prior to encapsulation of the cable to the electrical connector by Burnest Benjamin. Eddie Trujillo (4233-2) handles the plastic potting chores for the cable assembler. Much of the production of the group goes into Sandia-designed production testers.

Authors

J. P. Brannen (1741), "On the Role of DNA in Wet Heat Sterilization of Microorganisms," June issue, *JOURNAL OF THEORETICAL BIOLOGY*.

R. C. Hughes (5514) and Z. G. Soos (former summer employee), "EPR of CO₂ Defects in Calcite: Motional and Nonsecular Contributions," Vol. 52, No. 12, *JOURNAL OF CHEMICAL PHYSICS*.

G. A. Samara (5132), "Pressure and Temperature Dependence of the Dielectric Properties and Phase Transitions of the Antiferroelectric Perovskites: PbZrO₃ and PbHfO₃," Vol. 1, No. 9, *PHYSICAL REVIEW B*.

G. H. Whiting (1514) and J. W. McKiernan (9521), "Thermoelectric Devices for Space and Remote Terrestrial Sites," August issue, *MECHANICAL ENGINEERING*.

F. C. Perry (5225), "Absolute Determination of the Gruneisen Parameter of Polycrystalline Aluminum," Vol. 41, No. 4, *JOURNAL OF APPLIED PHYSICS*.

J. P. Vandyke (5151), "Theory of Magnetic Breakdown, g Factor, and Energy-Band Structure of Zinc," Vol. 1, No. 6, *PHYSICAL REVIEW B*.

J. E. Boers (5245), "Obtaining Improved Accuracy in Numerical Analysis of Potentials Near a Space-Charge-Limited Cathode," June issue, *IEEE TRANSACTIONS ON ELECTRON DEVICES*.

M. J. Forrestal (1223) and W. E. Alzheimer (1517), "Response of a Circular Elastic Shell to Moving and Simultaneous Loads," May issue, *AIAA JOURNAL*.

G. W. Barr (9114), "Influence of a Supersonic Flowfield on the Elastic Stability of Cylindrical Shells," Vol. 8, No. 6, *AIAA JOURNAL*.

T. P. Wright (5231) and O. H. Theimer (New Mexico State University), "Effect of Kinetic Energy Corrections on Degree of Ionization," June issue, *PHYSICS OF FLUIDS*.

E. P. EerNisse (5112), "Temperature Coefficients of Avalanching P⁺NN⁺ Junctions with Carrier Trapping," Vol. 16, No. 12, *APPLIED PHYSICS LETTERS*.

R. L. Fox (9341), "Effect of Inelastic Collisions on Electron Transport Coefficients," Vol. 13, No. 6, *PHYSICS OF FLUIDS*.

R. G. Easterling (1643), "Variables Versus Attributes," May issue, *IEEE TRANSACTIONS ON RELIABILITY*.

A. R. Champion (5131) and R. W. Rohde (5531), "Hugoniot Equation of State and the Effect of Shock Stress Amplitude and Duration on the Hardness of Hadfield Steel," Vol. 41, No. 5, *JOURNAL OF APPLIED PHYSICS*.

G. H. Haertling (2317), "Hot-Pressed Ferroelectric Lead Zirconate Titanate Ceramics for Electro-Optical Applications," Vol. 49, No. 6, *AMERICAN CERAMIC SOCIETY BULLETIN*.

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T. P. Wright (5231), "Effect of Kinetic Energy Corrections on Degree of Ionization," Vol. 13, No. 6, *PHYSICS OF FLUIDS*.

J. A. Brammer (5165) and C. M. Percival (5315), "Elevated-Temperature Elastic Moduli of 2024 Aluminum Obtained by a Laser-pulse Technique," Vol. 10, No. 6, *EXPERIMENTAL MECHANICS*.

Frequency Coordinator

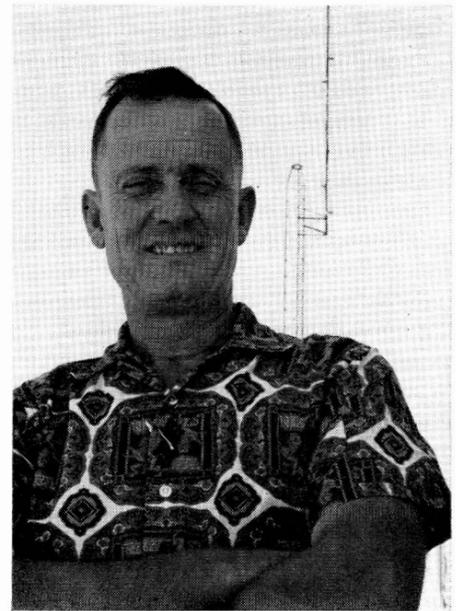
Give Bob Gentzler Your Static

Bob Gentzler (7251) is Sandia's Radio Frequency Coordinator. His job is to see that the thousands of individual transmitters, telemetering packages, radar sets, closed circuit televisions, and other microwave equipment at Sandia operate on properly assigned frequencies and not interfere with each other or the transmissions and receptions of other agencies.

"We have some crowded airwaves," Bob says. "Sandia currently has about 1500 permanently assigned frequencies to use and we use them at locations everywhere — here in Albuquerque, Livermore, Tonopah, Nevada Test Site, Kauai and the Pacific, and Florida. In addition, temporary frequencies are assigned for short term test activities such as a terradynamic drop test in Idaho or someplace."

Anyone at Sandia thinking about adding new radio equipment checks with Bob for an assignment of frequency. Bob prepares the necessary paperwork and applies through the AEC to the Interdepartment Radio Advisory Committee, an agency of the Federal Communications Commission responsible for assigning frequencies for government use. It takes about 60 days to obtain a new frequency assignment.

Much of Bob's work involves checking with other agencies to determine compatible frequencies. An example would be a Sandia experiment to be flown on an Air Force rocket. Bob coordinates with the Air Force to make sure that the Sandia telemetering equipment uses a frequency that does not conflict with the Air Force telemetering or radar equipment.



BOB GENTZLER
—Sandia's Frequency Coordinator—

"And we get some static from Kirtland or White Sands occasionally," Bob says. "Either our equipment or theirs is causing interference. Usually this means that our assigned frequencies are very close to each other and some fine tuning is required. Everyone cooperates to clear the air."

Speakers

K. W. Schuler (5161), "The Speed of Propagation of Release Waves in Polymethyl Methacrylate"; T. J. Tucker, J. E. Kennedy and D. L. Allensworth (all 5133), "The Initiation of PETN by Sparks and Exploding Wires as a Shock Process"; Kennedy and Allensworth, "Quartz Gauge Techniques for the Study of Upstream Reactions in a Shocked Explosive"; and G. E. Ingram (5133) and R. A. Graham (5132), "Quartz Gauge Technique for Impact Experiments," Fifth International Symposium on Detonation, Aug. 18-21, Pasadena.

M. L. Merritt (9150), "Ground Shock and Water Pressures from Milrow," Symposium on Amchitka Bioenvironmental Studies, Aug. 27, Bloomington, Ind.

J. N. Johnson (5133) and R. W. Rohde (5531), "Deformation Twinning and Strain Rate Effects in Iron Under Conditions of Shock Wave Compression," Second International Conference on Strength of Metals and Alloys, Aug. 30-Sept. 4, Pacific Grove, Calif.

C. E. Land (5153), "Ferroelectric Ceramics for Information Storage and Display," 1970 meeting of the Metallurgical Society of the AIME on Preparation and Properties of Electronic and Magnetic Materials for Computers, Aug. 30-Sept. 2, New York City.

Albert Narath (5100), "Electronic Structure of Transition Metal Hydrides: Experiment and Theory," Gordon Research Conference, Aug. 10-14, Meriden, N.H.

C. W. Harrison (2627), "Scattering by Imperfectly Conducting Spheres," Fall U.S. National Committee/International Union of Radio Science Meeting, Sept. 15, Columbus, Ohio.

B. M. Butcher (5161), "The Description of Strain Rate Effects in Shocked Porous Materials"; C. D. Lundergan (5163), "Dispersion of Shock Waves in Composite Materials"; Walter Herrmann (5160), "Attenuation of Elastic-Plastic Stress Waves"; D. E. Munson and K. W. Schuler (both 5163), "Hugoniot Predictions for Mechanical Mixtures Using Effective Moduli"; R. R. Boade (1224), "Experimental Shock Loading Properties of Porous Materials and Analytical Methods to Describe These Properties"; B. M. Butcher (5161), "The Description of Strain Rate Effects in Shocked Porous Materials"; P. C. Lynne (5133) and R. C. Bass (9111), "The High Pressure Equation of State of a Partially Saturated Tuff," 17th Sagamore Army Materials Research Conference, Sept. 1-4, Raquette Lake, N.Y.

The Good Old Days

From "The Everyday Cook Book" by a Miss E. Neil, published in 1892 and uncovered by George Zimmermann (1554), come these morsels showing a side of life in those days:

"To Restore From Stroke of Lightning

"To restore from stroke of lightning shower with cold water for two hours; if the patient does not show signs of life, put salt in the water, and continue to shower an hour longer."

(No further treatment — for what must be by now a pretty cold victim — is prescribed.)

"To Cure Toothache

"The worst toothache, or neuralgia coming from the teeth, may be speedily and delightfully ended by the application of a bit of clean cotton, saturated in a solution of ammonia, to the defective tooth. Sometimes the late sufferer is prompted to momentary laughter by the ap-

plication, but the pain will disappear."

(Wonder what she means by "late sufferer"?) And finally this passage from the section "How To Be Handsome," which we would certainly endorse even today:

"Ladies who have ample leisure and who lead methodical lives take a plunge or sponge bath three times a week, and a vapor or sun bath every day. To facilitate this very beneficial practice a south or east apartment is desirable. The lady denudes herself, takes a seat near the window, and takes in the warm rays of the sun. The effect is both beneficial and delightful. If, however, she be of a restless disposition, she may dance, instead of basking, in the sunlight."

Please call LAB NEWS when the performance is about to begin for appropriate photographic follow-up of this item.

Abrasive Finishing Section

Grinding with 30 Millionths Precision

Like most organizations in Sandia's Development Shops, Abrasive Finishing Section 4253-1 produces prototype hardware for Sandia projects. And, usually, the work requires techniques and methods never tried before.

"The trend is toward more and more extreme tolerances," supervisor Russ Asbury says. "We're working routinely as close as 30 millionths of an inch in holding roundness or flatness. Standard requirements are for number two or four AA-finishes on materials and sometimes we grind optical mirror finishes on metals, ceramics and glass."

The 12 men of the section are specialists in abrasive grinding which sounds simple enough. However, their work is particularly difficult when the tolerances are stringent.

A "normal" tolerance for dimensions of a machined part is expressed in thousandths of an inch: .0001 to .0002 is considered very close tolerance. The Abrasive Finishing Section holds tolerances to .000030 and can work as close as .000015 of an inch.

"Materials are changing too," Russ says. "We work mostly in exotic metals — niobium, tungsten-carbide, germanium — plus glass and glass laminates, carbon/carbon and composite materials."

Some of these materials are "unmachinable" with standard abrasive grinding machines. For these, the section uses ultrasonic machining processes which incorporate ultrasonic waves to agitate abrasive tool and the material being shaped. Each grains flowing in liquid form between the job on the ultrasonic machines requires a custom tool head and the design of these tools is in itself highly exacting.

"We have formulas for ultrasonic tool design which are used to compute the proper geometry for reflecting and projecting sound waves to do the required job," Russ says, "but the formulas don't cover everything. We've made experimental tools that the machine factory people said wouldn't work — but they did."

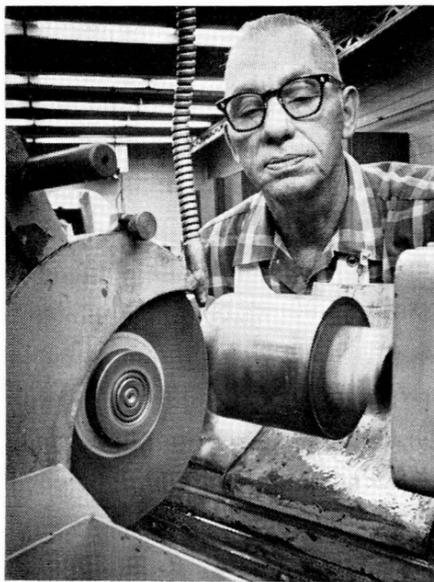
Before a job leaves the shop, it is carefully inspected and all dimensions are checked. It is then referred to Mechanical Measurements Section 5213-1 for verification. It's no easy job to measure 30 millionths of an inch — but that's another story.

In addition to tool design and completion of the job assigned, each specialist in the section also writes a summary of the procedures and techniques he used to produce the finished work. These reports become a useful reference if quantity production is assigned to an outside supplier for manufacture.

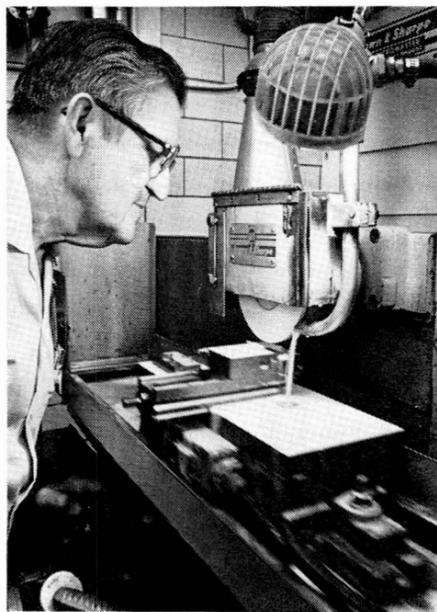
"This saves time and money," Russ says. "We've already done the pioneering."



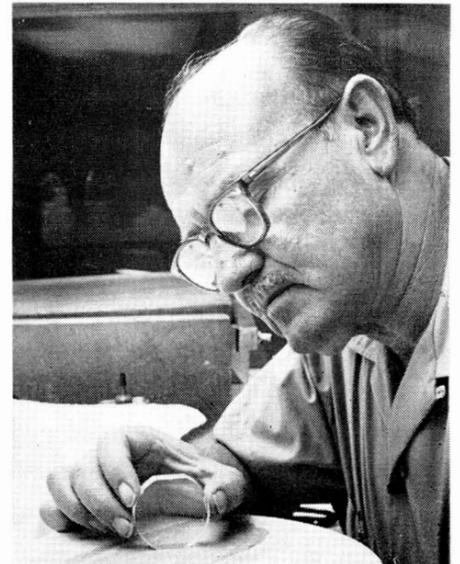
BUCK BABER grinds a concave curve in a small tool. He checks accuracy of the curve by the enlarged image on the optical comparator, right.



DAN DAVIS shapes a mold die which will be used to form a ceramics material. The die is made from a special hardness tool steel and a high polish finish is required.



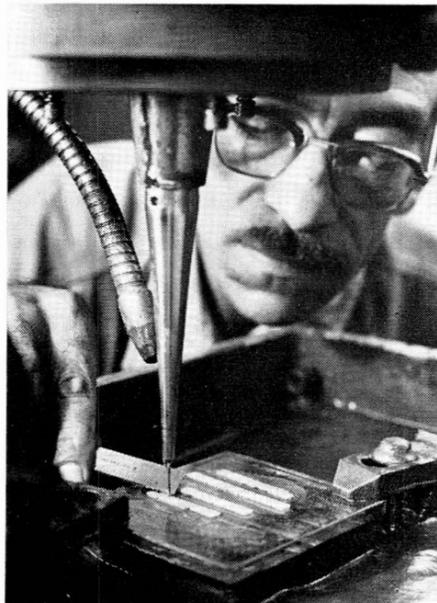
CLYDE HUGHES grinds a small rolamite mandrel. Extreme accuracy and high polish finish are required.



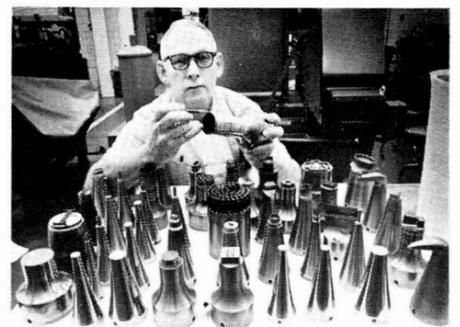
QUARTZ CRYSTAL receives a hand rubbed touch-up as the final operation in applying an optical mirror finish to the piece. Buck Baber has already shaped the crystal on a lapping machine.



INSIDE DIMENSION of a glass cylinder is ground by Ray Negus. The liquid is a water soluble oil which cools the piece during the grinding operation.



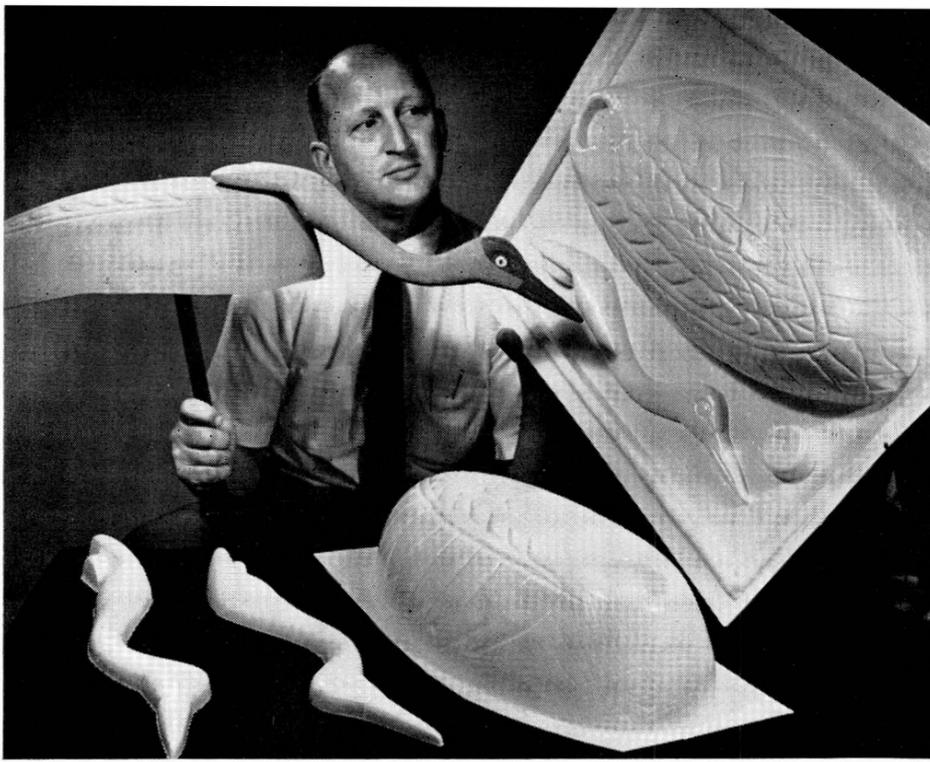
CAVITRON ULTRASONIC GRINDING machine is used by Quirino Carrillo to drill holes in a ceramic wafer. Here he checks position of the tool. The holes must be drilled to .060 diameter, positioned to extreme accuracy.



RAY NEGUS displays some of the unique Cavitron tools designed in the section. Sometimes it's a trial-and-error process but the tools have worked. Using ultrasonic sound, the tool heads agitate a stream of abrasive grains to shape the material.



RUSS ASBURY, supervisor, displays various grinding wheels used by Section 4251-3.



VACUUM PRESSED PLASTIC forms and the assembled, painted decoy are displayed by Dave Weingarten (2631). He uses the decoys in hunting the lesser sandhill crane along the Pecos River valley.

Wary Sandhill Cranes Misled by Plastic Decoys

The sandhill crane is a rather strange bird. The two sub-species winter over in New Mexico but generally do not co-mingle.

The "greater" sandhill crane, which may weigh 11 to 13 pounds, has a total world population of 10-20,000 and is stringently protected by law. It prefers the Rio Grande Valley (mainly the Bosque del Apache Wildlife Refuge), but smaller flocks are found in the vicinity of Columbus, N.M., and in northern Mexico.

The "lesser" sandhill crane (also called the "little brown"), weighs 7-9 pounds, numbers about 100,000, and prefers the Pecos Valley of New Mexico and the Texas Panhandle.

The sub-species are identical in coloration and the size varies with age and sex of the bird. Experts at the Bureau of Sport Fisheries and Wildlife admit that the only way they can differentiate between the two sub-species in the field is by measuring the lengths of the middle toe.

The fact that the two varieties prefer different river valleys made it possible for the state in 1960 to set a hunting season on the lesser sandhill crane.

Dave Weingarten (2631) is an avid hunter. In his first attempts at hunting the lesser sandhill crane, he used a friend's silhouette-type decoy. "We heard the birds'

high trilling cries far overhead, but they were very wary and the two-dimensional decoy didn't pass their inspection," he says.

Dave talked to friends who also hunted and to a professional taxidermist. He ended up whittling from wood a crane body shape which served as a mold for a vacuum-formed plastic decoy. The head and neck are attached separately as are the wooden legs. The whole decoy is painted grey except for a characteristic red daub on the head.

"The decoys looked good to me," Dave recalls. "The fake birds appeared alert with their heads upright. The real cranes didn't agree with my opinion. So, I studied a flock from the distance and realized my mistake: the only time the cranes resembled my decoys was when they were alarmed, the rest of the time their heads were down in the feeding position." The decoys worked like a charm after the alteration.

Aside from being probably the only three-dimensional decoys available for hunting cranes, the main advantages of Dave's plastic decoys are that each weighs less than 1½ pounds and three dozen can be stacked in a vehicle and still leave room for the driver and, hopefully, the bag limit of lesser sandhill cranes.

Double Ouch

Daughter Stranded Overseas Leads to High Finance

So your daughter is stranded in Europe when a student tour promoter goes bankrupt. What do you do? Well, in the case of John Wheeler (3251), he ran up a \$70 overseas telephone bill.

World Academy had been in operation for five years. John's older daughter had taken one of their study tours last year and was well-pleased with the trip. This year his daughter Ann signed up for the 40-day "French language" tour to Rome, St. Cergue and Geneva, Switzerland, Paris, and London. He sent in the \$895 tour cost, but three weeks before the departure date the company requested an additional \$53 "due to increased costs in Europe."

Five days after leaving Albuquerque Ann called from Rome. Her counselor had just been informed that World Academy had gone broke. The supplemental airline which supplied chartered jets for the tours offered to fly the nearly 3000 stranded students back to the U.S., but those flights were to begin immediately. In most cases there had been no advance payments on room reservations. A nationwide strike had just started in Italy, adding further confusion.

Ann's counselor, a teacher from Roswell, decided that for an additional \$600 per student (eight of them) they could spend their month in Europe and fly home. (Since the students were merely names on a manifest, they had no airline tickets to cash in for refund.)

"That part of the trip worked out well," John says, "but I guess my wife and I won't be taking a trip to the Bahamas."

What was the problem and what steps could be taken to avoid such a situation? In Senate hearings last month the World Academy president and the director of financial affairs attributed the collapse to inability to acquire sufficient additional last-minute equity capital, failure to reach a volume goal of 10,000-15,000 student bookings (there were 4500 before 1000 canceled out when the price was boosted), high cost of an ineffective sales force, and increased service costs in Europe. Major hearings this month in the Senate will cover a broad range of issues including federal licensing and mandatory performance bonding of all travel agents and charter operations.

Senate Commerce Committee Chairman Warren Magnuson stated, "This is not the first such bankruptcy. I have records showing that during the past four years 298 travel agents have defaulted."

Meanwhile, a traveler's best protection is to make his travel arrangements through a reputable, well-established agent.

(Note: Coronado Club trips are arranged through such an agent.)

Ken Mills Invests in Small Business -- Gets Stung

One day about three years ago Ken Mills (2612) decided to take up a new hobby—raising bees, more properly called "bee-keeping" or "apiculture."

"It's something I've wanted to do since I was a boy," Ken explains, somewhat in the manner of a person defending a penchant for scaling cliffs or eating oysters. "And living in Bosque Farms provided the right place—lots of flowering plants and not too many people."

Now Ken works some 70 hives extending down the valley from Isleta Pueblo on the north to an area some 25 miles south. In a year he collects many pounds of raw honey and sells it to friends. The revenue only covers expenses, but Ken gets a real kick (and a few stings) out of his hobby, and he's entered and become a member of an inconspicuous subculture that is surprisingly complex and extensive.

Consider these titles from "Gleanings in Bee Culture," one of several periodicals on beekeeping: "Honey as a Healer"; "How About the Queen Bee?"; "Afflictive Aspects of African Apiculture"; "The Day the Bees Swarmed"; "It So Happens That My Dad Is a Beekeeper"; "Happiness Can Be Swinging into the New Honey Promotion"; "Swarms Desert Their Queens"; and, the ultimate confrontation, "The Honeybee vs. Mankind."

Beekeepers obviously are pretty high on honey. "You can use it just about anyplace you'd use sugar—on cereal, in cake mixes, and so on," Ken says. "But one application that's both new and really old is the use of honey as a healing agent." It seems that Hippocrates recommended the stuff for boils, abscesses and burns; more recently a number of surgeons have begun using honey dressings in preference to modern germ killers. The explanation of its effectiveness is that it absorbs moisture in areas where it is applied, thus dehydrating germs so that they die in a matter of hours.

Athletes too know that a few spoonfuls of honey are more quickly converted to usable energy than most any other substance.

Ken gave us a short primer on the facts of life among the bees (and heroically avoided reference to "the birds and the bees"). Honey bees, being social insects, live together in a colony, i.e., hive, and depend upon each other for survival. Most of the bees in a colony are workers which turn out to be sterile females. Some are drones (males), whose only function is to mate with the single queen bee in the colony. The queen stays pretty busy: she lays all the eggs that maintain or increase the colony's population—at least several thousand bees.

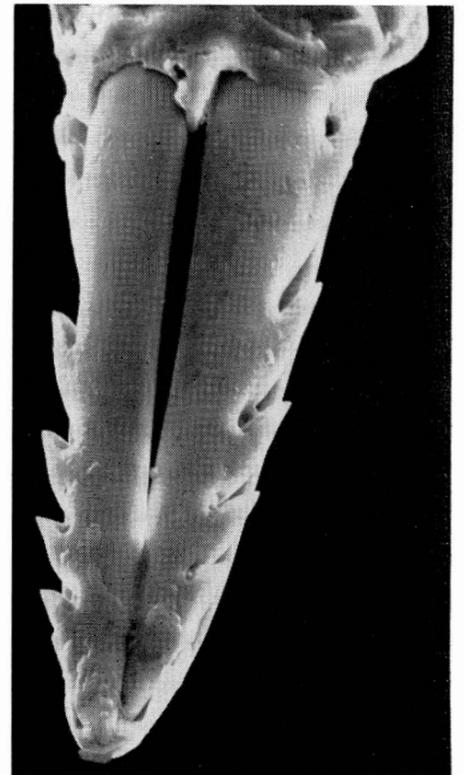
The workers live only six weeks and their life is hectic. They collect food and water for the entire colony, do the housework, and guard the hive against intruders (they alone sting). The workers also air condition the hive and maintain a constant hive temperature and humidity—whatever the conditions outside. Life is sort of a drag for the drones too. They hang around the hive during the summer, may (or may not) mate with the queen, but then come fall, in a kind of insectile poetic justice, the workers drive them out of the hive into the cold where they expire, probably wondering what they have done to deserve such a fate.

Bees do communicate with each other. One authority states: "When a worker honeybee finds a rich source of nectar or pollen she will often communicate her discovery to some of her fellow workers. She does this . . . by putting on a round dance, or a tail wagging dance." If the source of food is close, say within 75 yards, the worker employs the round dance routine; otherwise she tail wags and the rhythm of this dance indicates distance to the food source—the farther away the source the fewer the tail wags over a given time. Go-go dancers take note.

Right now Ken is excited about a new bee research project. He explains: "I'm planning to cross honey bees with lightning bugs. That way we'll double production because the bees can work all night."

Sympathy

To Jack Mortley (7524), on the death of his brother in Singapore, Aug. 15.



NEXT TIME you get stung, you'll be able to appreciate scientific basis of your ouch. This is barbed tip of sting magnified 1500 times. Divided shaft permits sting to work its way deeper into your skin; this is followed by shot of bee venom, chief cause of pain. If it's any consolation, bee dies after her foray into your hide. (Eastman Kodak Industrial Laboratory)



APICULTURE PARAPHERNALIA, otherwise known as beekeeper's outfit is shown here on Ken Mills (2612) at his place in Bosque Farms. Smoke pacifies bees—most of them.



HONEY, gobs of it, is stored in this comb, extracted by placing frame on centrifuge. Hive of this type may house over 10,000 bees.

Service Awards

20 Years



John Atencio
4232



Homer Ator
1522



Gordon Barnett
7523



Robert Byrd
3520



Gabriel Chavez
4623



Walter Cihak
4622



Charles Clark
1643



Scsario Cordova
4514



Edward Darnell
4211



James Davidson
3351



George Dingman
3520



Rex Eaves
3520



Bernard Ellis
3520



Waylon Ferguson
4383



Hugo Flores
3523



Max Gasta
9131



Albert Goodman
1224



Haskell Jacobs
7371



Thomas Laney
7291



Fernando Lopez
3520



Joseph Maestas
4613



Frank Martin
3520



Harold Meidal
4213



Alfred Montoya
4514



William Parker
4213



Marion Pelps
7284



Theodore Reed
2323



Camille Rudeau
4231



Benjamin Salazar
4623



Joseph Seiler
4614



Ed Stout
7252



Joseph Szymanski
9239



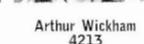
Ted Varoz
3520



Donald Wanner
5525



Don Weldon
3341



Arthur Wickham
4213

Attention Retirees

Sandia Laboratories is hosting a retiree buffet at the Coronado Club Tuesday, Sept. 15, starting at 4:30 p.m. Invitations have been mailed to all retirees and their spouses. If you have not received one, call George Wayland (3123), tel. 264-2757.

President John Hornbeck and Vice President Glenn Fowler will present the program.

Variable Annuity Unit Value

September, 1970	1.331
August, 1970	1.264
Average 1969	1.697

15 Years



C. Christensen
2334



Martin Dieter
9414



Edith Duffy
7412



Oreste Ganzleria
3417



Mearle Hicks
8324



Irwin Janney
7514



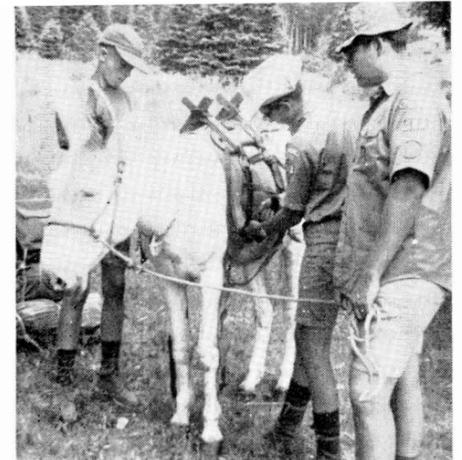
Charles Johnson
7521



Pat MacPherson
4622

10 Years

Virginia Ramsey 4118, Doris Ward 8275, Jo Davis 8274, Len Bedinger 8254, Anita Martinez 7632, and Wilbur Walters 9411.



HEREWEGOAGAIN seems to be the expression of this long-suffering burro at Philmont Ranch. Scouts learn tricky art of loading pack animal, most of whom move reluctantly and sometimes not at all.

Two Sandians Take Boy Scout Troop To Philmont Ranch

Two Sandians and 10 Scouts recently returned from a 13-day trek in the high country of the Philmont Scout Ranch. They are Charles Arning, Scoutmaster of Troop 188, and Wayne Shirley (both 7614), assistant Scoutmaster of the troop.

Philmont Ranch encompasses 214 square miles in the Sangre de Cristo Mountains in northeastern New Mexico. Ranch headquarters are located five miles south of Cimarron. The mountain terrain (6400-12,400-foot elevations) provides excellent camping, hiking and exploring.

Upon arrival at the ranch, Charles' troop was assigned to a Ranger who guided them through the first three days. Before taking the trail, he inspected all the packs and eliminated unnecessary items so that pack weight stayed under 50 pounds. "While the Ranger was still with us," Charles says, "he helped us set up our camps and told us things that were helpful once we were on our own."

Each day after the boys had set up camp, they placed their extra food in bags which were then suspended in trees above bear height. "The tree we used in one of the camps had claw marks up the trunk for about seven feet," Charles says, "but we didn't ever see a bear." Dehydrated food was used, and water for drinking and cooking was treated with iodine tablets. Breakfast and the evening meal were cooked but the noon meal required no cooking.

The troop covered over 80 miles with packs and 50 miles without packs. Their longest hike between camp sites was 12 miles. They explored the abandoned gold mining settlement of Baldy Town and panned for gold; learned to tie flies and do fly fishing; worked with a conservationist to clear and build a portion of a new trail; took a 15-mile side trip to climb Baldy Mountain; and had fun.

"By the end of the summer camping season 16,000 scouts will have visited Philmont," Charles says. "It's a great place for a boy to spend a few weeks—the experience is one he'll always remember."

SHOPPING CENTER

CLASSIFIED ADVERTISING

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

RULES

1. Limit: 20 words
2. One ad per issue per person
3. Must be submitted in writing
4. Use home telephone numbers
5. For Sandia Laboratories and AEC employees only
6. No commercial ads, please
7. Include name and organization
8. Housing listed here for rent or sale is available for occupancy without regard to race, creed, color, or national origin.

FOR SALE

MISCELLANEOUS

MARLIN 336 lever action 30-30 cal., side ejection for easy scope mount, \$70 or best offer. Quinn, 296-1810.
15-GAL. aquarium, \$1/gal., has covers for fixtures & lights; bowling ball-bag, \$8. Finley, 299-0739.
EVENRUDE outboard motor, \$35 or trade for band saw. Frasier, 299-6933.
GERBILS: 2; loden 8N-16" high white alabaster vinyl boots; model 20 Polaroid swinger camera. Porter, 298-3623.
HAMMOND electric organ, Model 100 spinet, dual keyboard, foot pedals, full stops, new \$1600, sell \$900; Heath 295 Color TV console, color bar gen., built-in service center, \$600 plus labor, sell \$400. Moffat, 299-9024.
BLUE BIRD new style jumper & blouse, size 7; Camp Fire Girl skirt, size 7, half price; girl's wool coat, lined, red, size 6, \$10. Allen, 296-9437.
USED wall heater, Customaire, 35,000 BTU, complete w/24V thermostat, gas cocks, 100% safety control regulator. DeBaca, 247-2953 after 4.

RABBITS, 8 wks. old, \$1/ea.; curtain stretcher, new in box, \$6. Basset, 898-1840.
SAILBOAT, 14' Alcott Sunfish and new Sears trailer, spare wheel for trailer, \$600. Schuler, 296-2271.
16" GLASSPAR, 75 HP Johnson, trailer, life jackets, ski equip., conv. top, side curtains, speedometer, tach, ammeter & more. \$1295. Lassiter, 255-9067.
JUICER, Miracle M.J. 300, stainless steel, used 1 wk.; humidifier, Walton, port. elec. w/control, used 1 mo. Power, 255-7466 after 12 noon.
MALE silver poodle, female black poodle; El Toro sailboat, new, unpainted, w/sail, \$225. Roth, 877-4997.
STORKLINE baby crib, \$20; deluxe feeding table, \$12; baby's rocking horse w/bench seat, \$6; padded car seat, \$5. Reichenbach, 344-9356.
40-WATT stereo amplifier, Eico & Garrard AT-6 turntable. Bowen, 255-8195.
FIELD SNARE DRUM w/stand; 2 outside doors; twin-size maple bed. Dickson, 299-8125.
'66 LARSON 187 Volero 150 boat, \$3300; '70 Nashua 3-bdr. mobile home at Conchas North Dock, \$7000. Woodall, 296-5228.
COLLIE PUPS, 6 wks. old, no papers, \$5 ea. Miller, 282-3189.
FLUTE, Ambassador by Olds, \$95. Wardlow, 299-5485.
ONE PAIR steel T-shaped clothesline poles, about 8' high x 4" across, \$4. Caffey, 296-3320.
SOFA, brown nylon, curved 3-piece sectional, \$85; Lazy Boy recliner chair, needs recovering, \$35. Miller, 268-5992.
HEAVY DUTY camper jacks. Newton, 255-2074.
DOUBLE BED, complete, firm mattress. Bemis, 296-1305.
ANTIQUE oval mahogany dining table w/leaf, 4 straight & 2 arm Hepplewhite chairs, recently upholstered, spacious buffet, \$585. Hook, 296-6285.
BED, box springs, mattress, Colonial style, Cherrywood, single, \$40; small dog house, \$10; wig, \$25. Young, 296-1963.

LILAC-POINT Siamese, female, 16 wks. old, permanent shots, front declawed, \$35. Roberts, 265-4264.
DOUBLE BASS DRUM SET, cymbals, cases & all accessories, \$400; unicycle, \$20. Peterson, 256-7514.
MITER BOX & miter saw, \$25; vibration sander, Sears, \$13 or trade for other tools. Nelson, 264-1674.
COLLETS, Hardinge #4 NS 1/8" to 5/8", make offer; Halcrafters S-36A AM-FM receiver, \$40. Laskar, 299-1024.
KANE MK-6B flight computer, \$8; private pilot manuals, 1/2 price; 3 12x16 photo trays, \$2; one 20x24, \$8. Loescher, 296-3154.
CONN TRUMPET, \$95. Hubbard, 299-7818.
TOY POODLE, female, black; misc. electronic parts, junked tv's, old radios, make offer. Johnson, 298-7356.
CLARINET, used 1 yr., \$100 Frasier, 299-6933.
BABY FURNITURE, crib, playpen, highchair, bassinette. Johnson, 298-5286.
14 CU. FT. Frigidaire w/freezer compartment, white & runs, \$50. Shipman, 255-2523.
DINING ROOM SET: hutch & table w/6 chairs. Stiegler, 299-6763.
SKYLINE PACK w/medium cruiser frame, \$25; Gerry Olympic semi-mummy 3-lb. sleeping bag w/stuff sack, \$60. Nielsen, 255-2045.
5-GAL. aquarium w/pump, filter, gravel, light & guppies, \$5. King, 299-8976.
YAMAHA 250 street bike, to swap for lightweight trail bike; Volkswagen snow tires. Hansche, 296-1387.
8mm MAUSER, model 98 sporterized w/new sights, bluing, ammo, \$40 or trade for 22 rifle, shotgun. Zanner, 265-0210.
ELECTRIC lawn edger, \$10; rowing machine, exerciser, \$10; lg. crib w/mattress, \$20. Miller, 265-0029.
SELMER trumpet w/radial valves, \$325. Schmierer, 299-2352.

TWO 10:00x16 6-ply pickup tires & 1 tube, under 1500 miles. Dollahan, 299-8107.
NEW WESTERN SADDLE, Riley, 256-0719.
RIFLES: 30/40 Krag carbine, sling, ammo, \$60; 22 Hornet, Winchester, Redfield mount, Weaver K-6 scope, ammo. Fugazzi, 299-1279.
B-FLAT BUNNY TRUMPET, \$65. Weber, 299-1389.
'69 YAMAHA street-scrumbler, 250cc, \$450 or best offer. Trujillo, 256-3840.
MAPLE dinette, oval, extra leaf, 4 chairs, \$60. McDonald, 299-9269.
CARS & TRUCKS
'68 PLYMOUTH 2-seat station wagon, AT, PS, factory air, radio, \$250 below book. Copeland, 344-1133.
'53 CHEV. Schuette, 265-0463.
'65 FORD Galaxie 500, 4-dr. sedan, white over blue, Mag rims front, R&H, PS, AT, V8 engine. Hughes, 299-6674.
'61 TR3, new paint-tires, make offer or trade for cycle. Roeschke, 282-3234.
'58 WILLYS JEEP pickup, hubs, radio, towbar, 4 new snow tires, 6-cyl. engine, \$750. Aubuchon, 877-2257.
'58 VW, '62 mdl. trans. & rear end, new tires, \$300. Sanchez, 344-5031.
'63 VW sedan, 2-dr., below book, \$630; '66 Ply. Valiant sedan, 4-dr., 200-V8, air, manual trans., \$1160; '66 Yamaha 305cc, new engine, \$360. Lowrey, 298-4288.
'69 GT + 6 Triumph, need cash for school, \$2500. Navalesi, 344-0598.
REAL ESTATE
4-BDR., San Gabriel Village, paneled den, 1 1/2 baths, carpeting, drapes, AC, 6% FHA loan. Hole, 296-1268.
NEAR CORONADO CENTER, 2,000 sq. ft., 4-bdr., formal dining & den, carpeting, drapes, appraised \$23,500, sell \$22,500. McMaster, 296-7881 after 5:15.

TAOS SKI AREA, condominium 2-bdr. apt., 3 miles from Taos Ski Valley, furnished, sleeps 8, \$17,950, terms. Carnicom, 282-3421.
5-BDR., 3 bath, den, DR, music rm., fp, carpet, drapes, 2 patios, 40' blue spruce, \$28000, will carry. Davis, 268-0724.
WANTED
'68 or '69 TRAVELALL or Suburban. Rogers, 256-0066.
RECREATIONAL VEHICLE capable of sleeping 2 adults, 6 children, preferably self-contained, cooking facilities, required 1st wk. Oct. Schubeck, 298-6697.
\$800 PAID for clean 1962-66 compact or Ford, Chev., Plymouth, Dodge, etc. Tiefs, 299-2763.
GIRL'S used barrel saddle. Hornbeck, 298-0233.
DOG CLIPPERS, Wahl or Oster. Roth, 877-4997.
USED, inexpensive go-cart or parts for same. Mason, 296-7267.
RIDER to join car pool from vicinity Copper & Juan Tabo or Foothills Estates to gates 6-7 parking lot. Bartlett, 299-4861.
20" WHEEL, 5-speed bicycle in good condition. Hart, 256-2811.
STORAGE SPACE for Ski Patrol equipment, long term, heights area, about size 1-car garage, will pay but not much. Shunmy, 265-1620.
BABYSITTER who also has child enrolled in Afternoon Kindergarten, Sandia Base—preferably from vicinity Bellehaven Elem. School. Ulibarri, 296-5816.
TO RENT garage in East Heights for storage of car, year around. Pierce, 298-4013.
FOR RENT
1-BDR. HOME, Sandia Park, furnished, fp, utilities paid, next to Nat. Forest, fine view, 4-wheel drive advised; \$110/mo. Carnicom, 282-3421.
FURNISHED duplex apt., 2-bdr. w/attached garage, no pets, available Sept. 15; 605 San Pablo SE. Berger, 255-0265.

Italian Buffet - Social Hour TONIGHT

"Mama mia, that's a
spicy meatball"

Archie Pearlman (4333)

"I eat here myself"

Jim Noonan,
Coronado Club Manager



'This is a good deal'

Space Left on Club El Paso Trip

Chet Fornero (4337), Coronado Club travel director, was sitting at the north end of the Club the other night discussing the forthcoming El Paso trip. He was enthusiastically telling the group:

"Look, this is a good deal. For \$42.50 you get a bus trip to El Paso and it's a party going and coming. Free refreshments. We stay two nights at the downtown Holiday Inn in El Paso. Normally, a room there for two nights would cost you 30 clams. Then we go to the Lobo-Miner football game on Saturday night. These are good seats. We're paying \$5.25 each for these tickets. We will be going to the game and to Juarez on our bus. No traffic problems. You won't have to pay admission to either the dog track or Sunland Park — normally you'd pay a couple of bucks. Besides that, they know we're coming. We'll

get the red carpet treatment at the Jockey club. You won't have to worry about anything. Besides that, it's a good group that's going — 90 swinging Coronado Club members."

Everyone signed up on the spot.

The buses will leave the Coronado Club at 12:45 p.m. on Friday, Oct. 30, and arrive back in Albuquerque around 5 p.m. Sunday, Nov. 1. There's space left. Pay your \$10 deposit at the Club office right away and make the final payment by Oct. 2. The package costs \$42.50 (based on double room occupancy) or \$54.50 for a single room.

20 Seats Remain on Coronado Club Dec. 9-15 Bahamas Travel Package

Twenty seats remain on the Coronado Club's six-day package tour to Grand Bahamas Island Dec. 9-15. The package includes first class jet flight via Frontier Airlines, welcoming cocktail party on arrival, six nights at the Kings Inn Hotel, unlimited swimming and golf, and breakfast and dinner each day. The Kings Inn has excellent facilities including two 18-hole championship golf courses, multiple swimming pools and beach, lounges featuring top name entertainment, and a casino.

A deposit of \$25 should be made to the Club office right away and the remainder of the \$299 total fee is due Oct. 15.

More Brown Bagger Contest Entries

Here are a few more inspired lunches sent to LAB NEWS. Contest winner hasn't been selected yet (for his free lunch at the Coronado Club). In the interest of fairness, we may have to insist on actual samples before rendering judgment.

* * *

"Caviar on Waverly Wafers
Vegetables marinated in oil and vinegar with Italian seasoning
Quiche Lorraine aux Champignons (cream and bacon tart with mushrooms)
Wild Himalayan Blackberry jelly roll (the last two items are homemade)"

Alan Campbell (7281)

* * *

"Diet Lunch
Unsweetened juice
Mixed salad with assorted cheese bits and beef or chicken leftovers
Touch of garlic salt
Low calorie salad dressing
'Sociables' (low calorie crackers)
Jello or fruit
Oh so good and good for anyone"

Ida Nelson (4136)

* * *

"Bacon, tomato and avocado sandwich on cracked wheat bread
Potato chips
Cantaloupe slices
Rice Krispie squares"

Nell Norton (3417)

Death



Virginia Blair, secretary to Weapon Material and Evaluation Division 1611, died Aug. 26 after a long illness. She was 55.

She had worked at Sandia Laboratories since June 1962.

Survivors include her husband William (7452) and two sons.

Coronado Club Activities

Three Swinging Social Hours; Comedy Night Pack Calendar

Three swinging social hours, a comedy classic night and a soul session fill out the Coronado Club's September calendar.

Tonight Phil Graham will be on the bandstand making the happy music while Club Manager Jim Noonan's special Italian food buffet is spread. The buffet costs \$1.25 for adults, \$1 for kids. Special prices are in effect from 5 until 9 p.m. and the band plays for dancing from 6 to 9 p.m. Then the troops move to the main lounge where Yolanda Adent and piano plus various drummers and guitar pickers hold a sing-along until midnight.

On Friday, Sept. 18, the Club's famous chuckwagon roast beef will be the buffet feature while Max Madrid plays for dancing

Seafood will be spread for the Sept. 25 social hour. Bob Banks and the trio will entertain.

In the meantime, midweek social hours continue on Tuesdays from 5 to 8 p.m.

* * *

Comedy Classic Night

"Glorifying the American Girl" directed by Flo Ziegfeld is the movie scheduled Thursday, Sept. 17. It features Eddie Cantor, Rudy Vallee and Mary Eaton and a classic chorus line in fabulous costumes. In addition, two chapters of the old Flash Gordon movie serial will be shown. Buster Crabbe plays Flash like he knew we'd put a man on the moon. Happy hour prices start at 7 p.m., the movie at 7:30. It's free to members.

Soul Session

It's been a year now since the first soul session was held at the Club and if anything, they're better than ever. Rod King smiles, plays his guitar and sings while the group makes a big modern rock sound. Whatever it is, he's doing it right. Out on the dance floor the troops bugaloo, frug, and occasionally sagebrush shuffle while the mini skirts are something else. Happy hour prices are in effect all evening. This month the soul session is scheduled Saturday, Sept. 26, from 8:30 to 12:30. It's free to members, 50 cents for guests.

* * *

Teen Go Go

Teenagers will observe the usual back-to-school rites at a bash Saturday, Sept. 12, from 7:30 to 10:30. Member parents should pick up tickets for their youngsters.

* * *

Noon Fashion Show

Rosario Ayres will present a collection of fall fashions during noon hour at the Club Tuesday, Sept. 15. Models will be from Flair agency. A 99-cent special luncheon featuring top sirloin steak with all the trimmings will be the menu feature for the occasion.

* * *

Dance Lessons

Instruction for both beginning and advanced ballroom dancing will start at the Club Monday, Sept. 14. Fee is \$20 per couple. The beginners meet at 7 p.m., the advanced students at 8:30.

Events Calendar

- Sept. 11-13—"Picnic," Albuquerque Little Theater.
- Sept. 11-13, 17-20—"East Lynn" presented by Albuquerque Melodrama Theatre at Old Town Studio.
- Sept. 11-13—Zuni Tribal Fair.
- Sept. 12—Sailboat racing, Elephant Butte Lake.
- Sept. 13—Hike to ghost town of Albemarle, north of Cochiti Dam. N.M. Mountain Club, leader Bob Babb, tel. 256-9016.
- Sept. 17-27—New Mexico State Fair.
- Sept. 17-20—Gilbert and Sullivan's "The Pirates of Penzance," The Music Theatre, Manual High Auditorium, 255-8560.
- Sept. 18-20—Cottonwood Cave. N.M. Mountain Club, leader Jack Hickman, tel. 298-3804.
- Sept. 18—Harvest dance, Laguna Pueblo.
- Sept. 19—Golden aspen hike (Crest to Agua Canyon). N.M. Mountain Club, leader Will Snyder, tel. 299-4172.
- Sept. 24-26—Classics Theater Company presents "Merchant of Venice." UNM Popejoy Hall.

'Yankee Doodle Dandy' Back in TV Color Special

A popular Broadway musical of the 1968-69 season has been selected to premiere the Bell System Family Theatre series. The 90-minute color special "George M!" has been scheduled in Albuquerque on Channel 4 on Saturday, Sept. 12, starting at 5:30 p.m.

The musical is based on the career of George M. Cohan from his youth to his fame as a playwright, producer, performer, lyricist, and composer ("Mary," "Yankee Doodle Dandy," "Give My Regards to Broadway," etc.). The TV adaptation will feature the original Broadway cast.

In conjunction with the TV show, arrangements have been made to offer the original cast album of this Broadway musical to Bell System employees at a special price of \$3, including postage and handling. Sandia employees may use the coupon printed here.

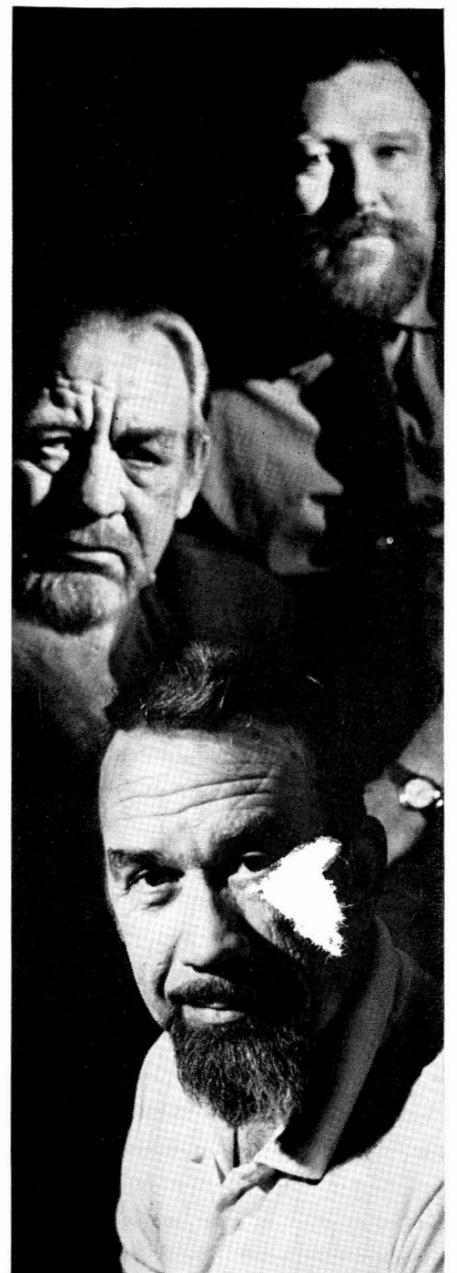
Bell System Family Theatre
Record Offer
P.O. Box 5257
Terre Haute, Ind. 47801

I have enclosed _____ for _____ original cast albums of
George M! at \$3.00 per album. Price includes handling,
postage and guaranteed delivery.

Name _____

Address _____

City _____ State _____ Zip _____



HIGH DRAMA comes to Popejoy Hall with Shakespeare's Merchant of Venice on Sept. 24, 25, and 26. Phil Mead (3411), lower, has principal role as Shylock while Bill Carstens (3410), middle, is the merchant. Elliot Harris (3454) upper, as well as Gene Ives (1226), not shown, have other roles. John Gardner (3422) is co-director with Phil of this comedy with tragic overtones.