



# LAB NEWS

VOL. 22, NO. 12

JUNE 5, 1970

SANDIA LABORATORIES • ALBUQUERQUE NEW MEXICO & LIVERMORE CALIFORNIA



FLYING LOW—Stability tests for the chute were conducted aboard this truck on a stretch of unused freeway near Los Lunas. The oper-

ator, seated on the trailer bed, opened and closed the flaps to achieve glide and roll movement of the chute.

## New Chute Delivers Goods "On Target"

"The system is so accurate it could be used to deliver the mail," says Bill Pepper (9324). The "system" is a gliding parachute-retarded drop vehicle which can be deployed at high speeds and guided from a remote location.

Developed by Rocket & Recovery Systems Division 9324 and Test Vehicle Design & Systems Division 9227, the system utilizes a parachute with a unique roll and glide flap arrangement, a manual guidance device not unlike radio control for model airplanes, and television optics. A disclosure relating to the chute has been submitted by Bill to the Patent Department.

"With this chute and guidance system, we can deliver a vehicle to within 50 feet of the target from a drop altitude of 15,000 feet," Bill says. Jim Davis (9227), whose division is responsible for the test vehicle and guidance system, feels that even better control can be achieved with automated guidance.

Considerable work with guided para-

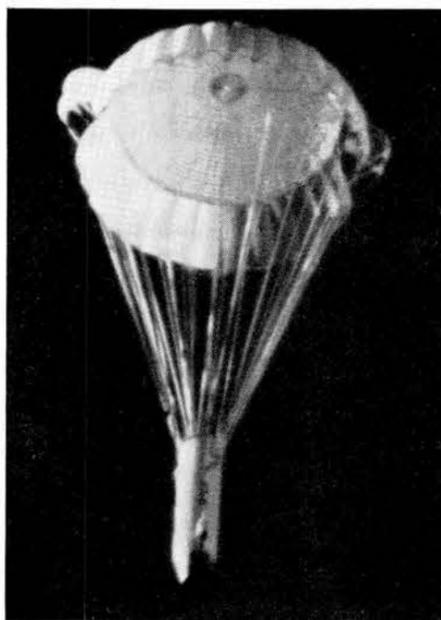
chutes previously has been done at Sandia using parafoil and other chute configurations. However, these were suitable only for low speed deployment. The system now being tested can be deployed at transonic speeds (through Mach 1).

During tests to date, it has been established that glide angles of 20° off the vertical can be obtained with the system and that about 3000 feet of wind drift can be cancelled by using the controlled glide capability.

A standard, heavy duty, 32-gore (panel) ribbon parachute 24 feet in diameter is used. The chute has been modified with a five-foot skirt liner around the lower edge, and four flaps — two for glide control and two for roll — are installed diametrically opposite each other.

Bill Pepper is project leader for the 9324 parachute group and Ira Holt is the assistant project engineer. Dennis Cronin was

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GUIDE FLAPS, visible on either side of the chute, are both open for neutral glide. The roll and glide flap system allows the cancellation of nearly 3000 feet of wind drift from a 15,000-foot drop.



VISIT by representative of Treasury Dept. would make most taxpayers nervous, but this one — David Vandivier, Regional Director for US Savings Bonds — had a pleasant task: to confer upon Glenn Fowler (9000), left, his appointment as Chairman of the New Mexico Savings Bonds Committee. Committee coordinates all Savings Bonds activities within the state.

### Supervisory Appointment

HUGH BIVENS to supervisor of Product Engineering Division 2615, effective May 16.

Joining Sandia in October 1957, Hugh worked in manufacturing development and reliability departments until March 1963 when he became supervisor of a project engineering section. Since that time he has worked on design and development engineering of neutron generators.

Hugh came to Sandia directly from Georgia Institute of Technology where he received BS and MS degrees in electrical engineering. He is a member of the Institute of Electrical and Electronics Engineers and Eta Kappa Nu, honorary society.



### Bradbury to Retire; Agnew Named LASL Director

Harold Agnew has been named director of Los Alamos Scientific Laboratory, succeeding Norris Bradbury who is retiring after 25 years as director. The appointment is effective September 1.

Mr. Agnew currently is weapons physics division leader at LASL. He has been involved in atomic energy programs since 1942 when he worked with Enrico Fermi on the first nuclear fission chain reaction at the University of Chicago. He joined LASL the following year. In addition to applied research, his responsibilities have included direction of fundamental work in physics and chemical research.

Mr. Agnew served as scientific advisor to NATO from 1962-64. He received the AEC's E. O. Lawrence Award in 1966 and is a Fellow of the American Physical Society.

### Must See to Appreciate

## Junk Autos Don't Just Fade Away . . .

Walk through the poorer sections of Albuquerque. Chances are you'll find junked cars blocked up in many backyards. Or perhaps the abandoned auto rests on four flat tires with sand and tumbleweeds drifted around the body. Colorful? Well not exactly. And in this dry climate they last forever.

City, town, or country, the problem is the same: what to do with the old heaps? If you can drive the car to a salvage yard, and if the wrecking yard operator will buy it, you're lucky. Consider the plight of those who can't afford the \$25 or more it would cost to have their inoperable vehicle towed to a junk yard.

The Institute of Scrap Iron and Steel estimates that by 1967 the total accumulation of junk cars had reached 17.5 million. By 1975, the retirement rate will reach eight million cars a year. To add to the problem, the price paid for ferrous scrap has fallen to \$28 a ton, compared to \$60 a ton in 1956.

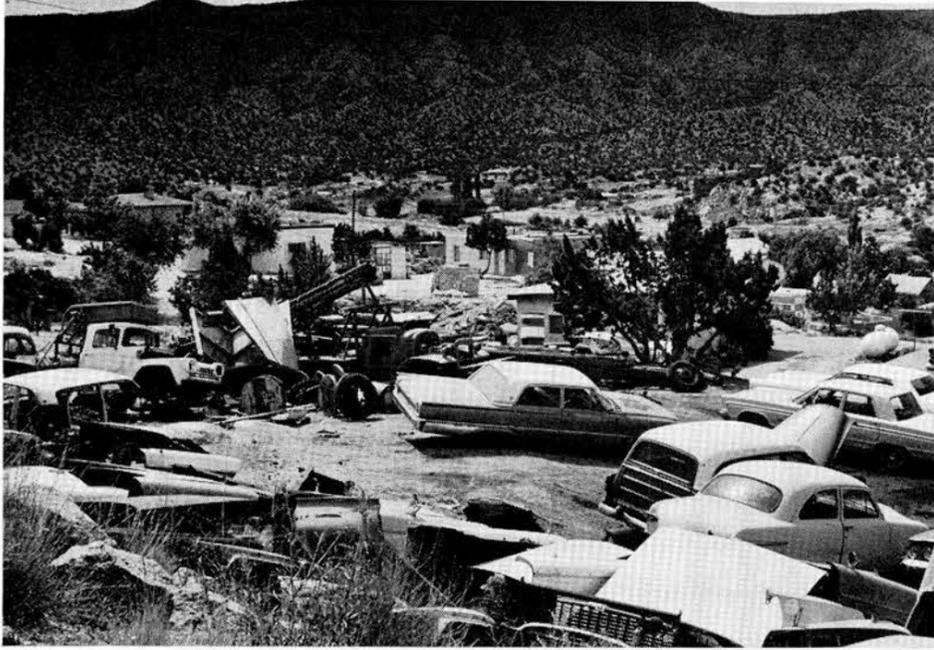
In most cases, an old car will go first to an auto wrecker who is interested primarily in resale of body and mechanical parts and in non-ferrous metals (mostly copper, lead,

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FADED CREAM PUFF — A vacant lot or backyard is often the final resting place for a junk car after it has been cannibalized. Inability

to get the worn-out, damaged, or inoperable car to a salvage yard starts the process which results in eyesores in residential areas.



NOT SO GRAND CANYON — Mountain property suitable for home development or just viewing, is the site of this wrecking yard in Tijeras Canyon. Demand and prices paid for low-grade scrap steel, combined with cost of moving scrap autos to a buyer are factors which plague operators of junk car lots. "No trespassing" sign and watch dogs protect the property — from what?

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## Junk Autos

and zinc alloys); he, in turn, sells the stripped hulks to a scrap processor. And there may be a long wait before the price is right.

Several factors account for the decline in prices and demand. The technology of steel production has changed, nationally and worldwide, and the currently popular basic oxygen process eliminated the demand for low grade scrap steel; instead, mill operators demand clean scrap, free of non-ferrous metals, ready for the furnace. Automobiles, because of their complexity, make a less uniform scrap product than old railroad cars, demolition material, or industrial leftovers.

Nevertheless, the technology exists for converting junked autos into scrap metal. Copper, chromium and nickel contaminants can be separated through use of small ripper or shredding units combined with magnetic separators.

Looking at the problem another way, consider the circumstances that many products have no "final" consumer. That empty coffee can may end up in a smelter, or may be used in a land fill operation. Thus, we are all users and transformers of energy into matter, and perhaps the answer to the junk car problem lies in involvement by both car producer and user in some solution.

Recycling waste products back into the economy not only gets rid of the trash but also conserves raw materials. Every ton of ferrous scrap used in steelmaking conserves up to one and a half tons of iron ore, a ton of coke, and a half ton of limestone.

President Nixon, in his environmental message to Congress, proposed that a federal bounty on old cars be established as an incentive for melting down the scrap. He proposed that the cost be met by an additional excise tax on new cars.

The state of Maryland is already using this approach. The legislature has passed a bill which would pay a \$10 bounty to processors for every car scrapped, but which would impose a \$5 fine per car hulk



on junk dealers who keep the hulks longer than six months. The program is being financed by an additional \$1 "burial tax" on car title registrations. How it will work remains to be seen.

The Cincinnati city council recently approved an ordinance carrying a maximum fine of \$300 or three days in jail for any person abandoning a car on the street or other public property for more than 48 hours or on private property for more than 72 hours.

These programs are a start. But other imaginative solutions to the junk car problem are sorely needed. Got any ideas?

### Racket Busters

#### Sandia Labs Tennis Ladder Now Open

Sandians who like to pursue the fuzzy ball should get on the tennis ladder, says Tex Windham (7521), chairman of the Labs Tennis Club. With more than 60 players on the ladders (singles and doubles) you're bound to find someone you can beat — or who can beat you. So you don't have to be an old pro to sign up. Girls are especially welcome.

If you haven't been on a ladder before, it's simple. Your name goes on the bottom when you sign up. You may then challenge any player one to five rungs above you — if you beat him you take his place on the ladder, if you don't you remain where you were.

Contact one of the Tennis Committee people listed below to sign up. A copy of the ladder will be sent to you so that you may begin play. If you wish to play doubles and need a partner, the Committee may be able to put you in touch with potential partners. Tennis Committee: Tex Windham (7521), ext. 9165; Herman Smith (AEC), ext. 8058; Bill Poole (9253), ext. 9164; and Andy Kyzar (7363), ext. 8650.

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## Newport, R.I., Is a Myth You Can't Get There from Here

It sounded like an uncomplicated travel schedule to Alan Pope (9300). Leave Albuquerque at 8:45 a.m., change planes in Denver and at Kennedy Airport, arrive at Newport, R.I., at 7:30 p.m., take taxi to hotel.

Everything went fine until he got to Kennedy, then the action started: 30 minute delay (no gate available); wrong end of terminal for next plane; discovered no flights to Newport on Sunday; ditto Providence; only available flight to Boston already filled.

At this point Alan now realizes he should have rented a car and driven the 150 miles to Newport. Instead, he decided to take a shuttle flight to Boston—but the plane left from Laguardia. Sure enough, no bus, had to take a taxi. Got last seat on the 7 p.m. shuttle and the girl sitting next to Alan got airsick.

Arrived at Boston at 7:45 p.m. Bags delayed at turntable, baggage area on fire.

At 10 p.m. respirators arrived to clear smoke from the baggage area and Alan finally got his bag, covered with soot.

He rented a car in Boston and the next two and a half hours sound like a motorist's nightmare. In Alan's words: "Lost in Boston, got help from police. Lost in Braintree, Mass., got help from filling station operator. Lost in Newport, found telephone to call hotel. Got directions I couldn't understand because I didn't know where I was. Police surround car, think I'm a burglar. Seemed disappointed but gave me directions anyway. Lost in Newport again, got help from motorist. Lost in Newport once more, but found filling station open."

Finally at 12:30 a.m. Alan reached his hotel. No bellhops were on duty and it took him 10 minutes to discover that room 732 was on the second floor.

Alan, perhaps next time the (Newport) mountain should come to Mohammed.

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## New Chute Delivers

responsible for the rigging and packing operations.

The glide flaps, each two gores wide and five feet long, are interconnected so that as one opens the other closes, and for neutral glide both are half open. Roll control flaps also are interconnected and are located at 90° from the glide flaps. When the clockwise portions are opened the counterclockwise portions are closed and the chute rolls in a counterclockwise direction. For neutral roll, all four portions are half open.

Control lines for the flaps are connected to windlasses mounted in the vehicle. The windlasses, driven by reversible electric motors, are responsive to radio control from a remote location. John Smelser and John Biesterveld (both 9227) were responsible for the line control system and the RF command and control links.

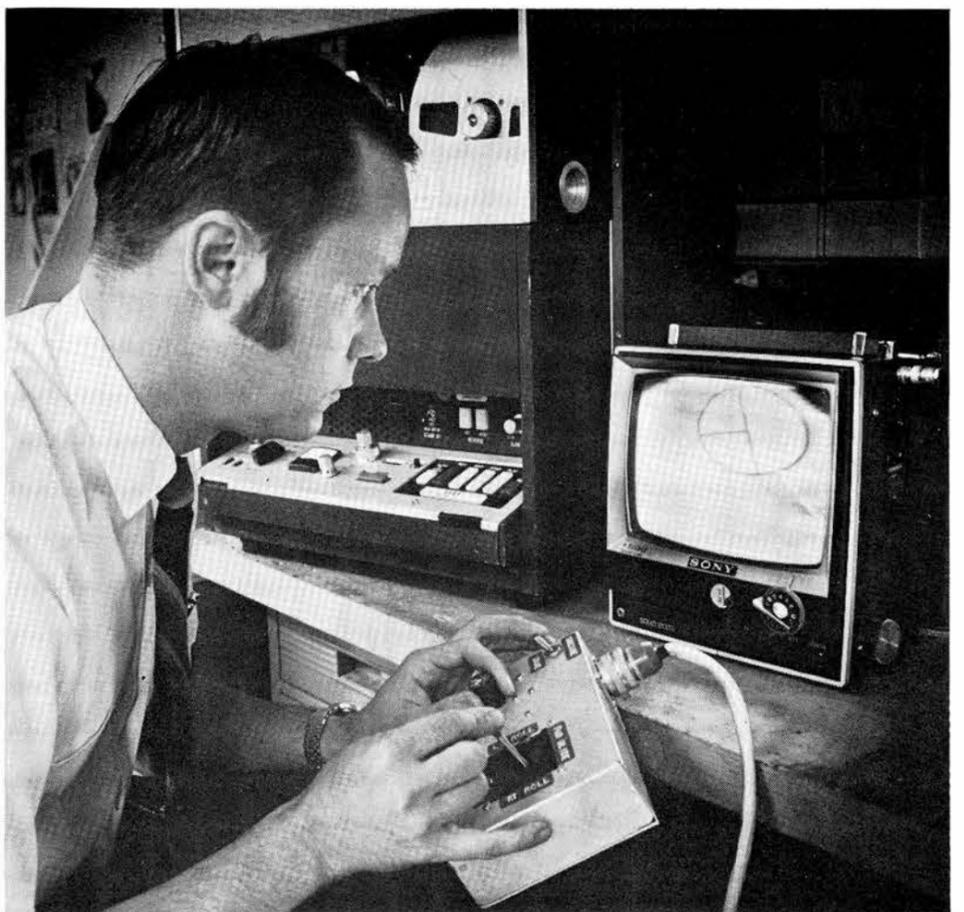
Television cameras are mounted in the nose of the drop vehicle. Since the signal is transmitted to a TV monitor at the control point — possible aboard the drop aircraft — the operator can visually guide the vehicle to the target area. He controls the chute with a "joy stick" arrangement. On earlier tests using fixed cameras the movement of the vehicle produced an unstable picture of the target and control was difficult. Gyro-stabilized cameras have since been substituted, enabling the operator to

keep the vehicle in proper orientation with respect to location of the target.

An important part of the pre-flight testing procedure was conducted by using an analog computer program devised by Hal Vaughn, supervisor of the Aero Ballistics Division 9325. The program, used to study the effects of proportional control of rigging and flaps on stability and the ability of an operator to steer to a selected impact point, provided an oscilloscope presentation of a target and simulated a forward looking camera in the nose of a vehicle.

Initial drop tests began last summer and further tests will be made in coming weeks at Tonopah Test Range. A unique and inexpensive test series was conducted earlier using a diesel truck and a stretch of unused freeway. A platform was built on the trailer and, with the chute trailing behind, the truck was driven at speeds of 50 to 60 mph. The operator was seated on the platform and opened and closed the flaps to achieve glide and roll movement of the chute. As a result of these tests, design refinements were made possible without the necessity of a full-scale drop.

Others involved in development of the system include: Bob Taylor, TV optical system, and Larry Gillette (both 9222), controller; Ben Petterson (1213) contributed technical advice and assisted with the camera systems.



ON TARGET—Larry Gillette (9222), controller for the guided parachute system, directs the chute toward the target with the aid of a "joy stick" and view from a TV camera in the nose of a vehicle. Target seen here is a videotape recording made during a recent drop.

## LAB NEWS

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### SANDIA LABORATORIES

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# Sandian Visits Japan and Asia's First World's Fair, Expo '70

"Japan is a really fantastic country! The people have worked hard since World War II, rebuilding their country into an economic power, now fourth in the world in gross national product," says June Ferreri (8261) who just returned from visiting Expo '70, as well as her grandmother and other relatives in Wakayama.

She traveled with her mother, Mrs. Sally Takahashi (wife of Tom Takahashi, 9132-1, Livermore) who speaks the language and was able to interpret for June during the trip.

Both found Expo, whose theme is "Progress and Harmony for All Mankind," extremely interesting and entertaining. "Especially the architecture—very modern using welded art forms and many way-out designs," comments June.

"One of the more striking attractions is the Fuji pavilion which from a distance looks like a caterpillar. It's made of vinyl and rubber much like a balloon filled with air. The Swiss pavilion is also unusual with a criss-cross steel design in front—lit up at night, the entire structure is gold while during the day it appears silver. Burma's pavilion is an ornate houseboat, rather like a catamaran, of oriental design with beautiful gold work and large animal heads that make it resemble a Viking ship.

"The largest and most popular pavilion seemed to be the Japanese, a cluster of five cylindrical buildings shaped to resemble the stylized cherry blossom that is the fair's symbol. Included is much of Japan's research and technology in new products and equipment. For instance, one Japanese company has designed a new type of movie screen. A conveyor belt moves you slowly around as animated cartoon characters appear on the 50-foot high cylindrical screen. The characters speak behind you. But when you stand back, say 10 feet from the conveyor belt, the images on the screen disappear — just a white column is standing there.

"The U. S. pavilion, also very popular, is rectangular in shape with a fiberglass roof held by up compressed air. The biggest attractions here are the moon rocks and the space landing module with suits and other equipment used by the astronauts. The seats used by Armstrong, Aldrin and Carpenter on their space missions are lined up for people to try out."

After Expo '70, June toured the country and visited relatives. "The contrast between new and old is very noticeable, even in Tokyo. For example, at the Imperial Palace the grounds are hundreds of years old; yet right next door brand new buildings are under construction.

"There is also sharp contrast between the bustling cities and the farming areas. Japanese farms are really small, maybe 100 feet by 200 feet. Many of them are on hilly land and most of the plowing, raking, and fertilizing is still done by hand or perhaps with a rototiller, but using very little power equipment.

"In the large cities dress is pretty westernized. The men wear suits and the girls wear dresses. In the country areas, even in Wakayama which has a population of 300,000, western clothes are worn to work, but for shopping my grandmother and aunt wear kimonos, and at home slacks with blouses and sweaters. Winters in Japan are cold and few homes have central heating, and with thin walls, screens and sliding doors, warm clothing is a must.

"Men in Japan are the head of the house. Usually when a couple is courting they go visiting together but after they get married the man goes visiting alone. The woman's place is in the home and she stays there. This is changing however; the younger generation is breaking away from the old customs.

"You cannot help notice the extreme politeness of the Japanese — no matter where you go, to a restaurant, a store, tea house, even a nightclub, everyone thanks you when you leave. They bow and thank you, bow and thank you until you are out the door. In the department stores they have girls at the bottom of the escalators cautioning you to be careful. It's a refreshing change.

"The traffic is congested — narrow roads and too many cars. Drivers just honk and go. In Tokyo, there are police stations, perhaps 12 feet square in size, which are spaced about every 10 blocks. Each day the number of fatalities and injuries are posted



MAIN GATE AT EXPO '70 — "Tower of the Sun," designed by a Japanese artist, is shown directly behind June Ferreri (8261) at the entrance to Expo '70 during her recent visit to Japan.

outside the stations and people place daily bets on what the figures will be. A high percentage of the fatalities are pedestrians since they don't have the right-of-way in Japan.

"But most travel is via the fantastic railroad system. Trains are fast, always on time, and you need only wait a couple of minutes to catch a train. People seldom stay overnight in other cities so they travel light, carrying just a purse or bag."

Although June and her mother enjoyed the trip immensely, neither wants to live in Japan. "Even though we're of Japanese extraction, we were brought up here, and the oriental mind and way of thinking is not the same as ours — we just wouldn't see eye-to-eye," June concludes.



EVERYONE IS PUTTING THE BITE on dad's paycheck these days, but when man's best friend tries it and succeeds, that's the last straw, and news. Lloyd Rothacker's (8222-2) dog, Duchess, stays in the garage where the mail drop is also located. Last week when Lloyd's paycheck arrived, Duchess was curious (but not yellow) and took a few bites. The mutilated check could not be cashed, so Sandia Laboratories issued a replacement.

# LIVERMORE NEWS

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SANDIA LABORATORIES

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## Sandians Donate 85 Pints In Lab Blood Bank Drive

The annual Blood Bank drive at Sandia Laboratories Livermore has yielded 85 pints. The figure includes contributions made by spouses of two employees.

This amount, supplemented by donations made for specific individuals, should provide an ample supply for this year's needs, according to drive coordinator Jim Henderson of Training and Benefits Division 8214.

Administered by the non-profit Alameda-Contra Costa County Medical Association, the Sandia Blood Bank account makes blood available without charge to all employees and their families. The account is operated on a pint-for-pint replacement basis, with the patient paying for handling, storage, and administrative costs.

## Shark Problem Overstated

## LRL Pool Season Starts

The LRL Olympic-size pool is now open for noontime and weekend swimming, with regular seven-days-a-week swimming to start on June 15.

As in past years, Sandians may swim by joining the Lawrence Radiation Laboratory Recreation Association (LRLRA) at a cost of \$1, and then either purchase a season ticket or pay a single admission fee each time they swim. They may also enroll their families.

Located in LRL's uncleared areas near the Personnel building, the pool facilities include barbecue and picnic areas, basketball and volleyball courts, and a wading pool for youngsters.

The following prices have been announced for the 1970 season :

Memberships	
Family Membership	\$25
Individual Membership	15
Single Admissions	
Adult	\$.50
Children	.30
10-Ticket Guest Card	
Adult	\$4
Children	2.50

Pool hours will be Monday, Wednesday, Friday, and Saturday, 1-7 p.m.; Tuesday and Thursday, 1-9 p.m.; and Sunday 1-6 p.m.; with noontime swimming (for employees only) Monday through Friday.

Swimming lessons will be given in two-week sessions starting on June 22 and continuing through the summer — registration starts June 15, at 1 p.m.

## Take Note

Two Sandians participated in the 29th annual conference of the Society of Aeronautical Weight Engineers held May 3-7 in Washington, D.C.

During the space and missile system session, Charles Mauck (8162) served as chairman of the computer aids to mass properties division. He also presented a paper entitled, "Computerized Control and Accounting of Mass Properties for a Production Vehicle." During the same session Glen Elliott (2454) and Sam Stearns of Dikewood Corp. in Albuquerque made a joint presentation of a paper they co-authored, "Time Sharing System for Real Time Mass Properties Measurement." The Dikewood Corp. work was done under contract with Sandia.

Marlin Pound, supervisor of Training and Benefits Division 8214, spoke recently at the National Conference of the American Society for Training and Development held in Anaheim, Calif. Title of his presentation —augmented by the film, "Environmental Testing at Sandia" and tape/slides—was "The Training and Utilization of the Engineering Technician."

Sandians serving on the board of trustees of the Livermore-Pleasanton Elks Lodge No. 2117 for 1970-71 include chairman Al Alford (8223), Bud Pearson (8222), Ernie Alford (8256), and Marv Glaze (8260). Bud Pearson also serves as president of the Past Exalted Rulers Association and Ken Bennett (8264) as vice president. George Mincks (8222) is president of the board of directors of L. P. Murdell, Inc., the holding company for the land and buildings of the lodge.

New officers for the 1970-71 season of the Mt. Diablo Subsection of the San Francisco American Society of Mechanical Engineers (ASME) include Stan Greenberg (8131) who will serve as secretary. Three other Sandians were appointed to committee chairman posts for the year: Jerry Alcone (8133), membership chairman; Del Elliott (8175), professional division chairman; and Ray Ng (8174), student affairs chairman.

Ted Dellin (8341) presented a technical paper, "Low Temperature Radiation Damage in LiH:LiT," at the American Physical Society meeting in Dallas recently. The paper was co-authored with J. A. Dienes of Brookhaven National Laboratory and R. D. Hatcher and C. R. Fischer of Queens College and Brookhaven National Laboratory.

Lutz Dahlke of Physical Properties Acceptance & Evaluation Division 8156 talked on two subjects recently at the 12th Annual AEC-sponsored Nondestructive Symposium in Richland, Wash. Titles of his talks were "Nondestructive Testing at Sandia Laboratories Livermore," and "Krypton-85 in Nondestructive Testing."

## Bowling Teams Win Top Spots For Second Straight Year

Winners of the Sandia Mixed Handicap Bowling League's winter competition were awarded trophies during recent ceremonies.

First and second places in the 10-team league were captured by last year's two champion teams respectively — "The Tigers," captained by Roger Barody (8160), and the "Horn O'Plenty" team, John Cordial (8161), captain.

For the men, individual awards were presented to Don Knaple (8161) for his high-scratch game score of 278; Bob Krenzer (8312) for high-handicap game, 276; Tom Imler (husband of Chris Imler, 8321) for high-scratch series, 685; and John Cordial for high-handicap series, 717.

Taking honors for the women were Mary Hodgson (LRL) for high-scratch game of 214; Cindy Mattson (wife of Terry Mattson, 8133) for high-handicap game, 252; Mary O'Shea (8216 for high-scratch series, 575; and Betty Dominguez (8253) for high-handicap series, 630.



BILL STANTON (9222) displays some of his paintings. He has an exhibit now at the First National Bank, East Central Branch.

#### Work Now on Display

### No In-Between for Artist Bill Stanton

"You poor girl," the well-dressed woman said to the receptionist in the lobby of the First National Bank, East Central Branch. The receptionist looked puzzled. "Why?" she asked.

"You have to sit here all day and look at those terrible pictures."

"Oh, I think they're beautiful," the receptionist said. "They really dress the place up."

\* \* \*

Bill Stanton, creator of the paintings, shrugs. "That's the way it goes," he says. "People either have strong positive feelings about my work or else they hate it. I like for people to like it but that's not why I paint."

Bill is a staff assistant in Diagnostic Aircraft Operations Division 9222 and a member of the crew on Sandia's NC-135 flying laboratory. He started painting seriously (and prolifically) a couple of years ago after completing a long mission on the aircraft.

"I saw Hawaii, American Samoa, Australia, New Zealand and a vast amount of ocean over the South Pacific. We were involved with an eclipse of the sun and air glow in the atmosphere. And we looked at a lot of stars. This kind of experience can

change your whole outlook on life, change your reference systems, and give you a new emotional set. Anyway, it left me restless and charged with energy. I wanted to make a personal statement about some of the things I felt. Years ago painting was a hobby so I decided to try it again."

Bill's pictures are basically abstract designs of geometric forms and contrasting colors. Many contain symbols such as an "omega," a ladder, a window, a wall or some sky. In these Bill had a specific idea which the painting communicates — sometimes obviously, sometimes subtly.

All of the work features strong composition — preplanned and meticulously drafted. When he starts a painting, Bill works until he's so tired he can't keep his eyes open.

Last year he exhibited at the Arts and Crafts Fair and plans a repeat this summer. He is not particularly interested in selling his work but he is pleased that three of his paintings are in the permanent Jonson Collection — University of New Mexico.

The display at the bank will be on exhibit for an indefinite period. Stop by and look at them sometime.

#### 'The Telephone'

### Living Room Converts to Recital Hall For Benefit Opera Performance

An opera performed in your living room! It sounds improbable, but then not everyone's home was designed for live musical performances, nor does everyone have talented friends willing to sing for a worthy cause.

Phil Bircher (7414) and his wife Ruth hosted a performance of "Opera Buffa, Plus . . ." at their home May 17 as a benefit for the Santa Fe Opera. A highlight was Gian-Carlo Menotti's one-act opera "The Telephone," starring soprano Marcia Peter, baritone Gene Ives (1551), and a pink Princess telephone (courtesy of Mountain Bell). With a minimum of trouble, the Bircher living room seats 50 persons.

As Phil explains, "We enjoy music and we're happy to have others enjoy music with us." So, the Bircher home was designed with music in mind. The L-shaped

combination living/dining room has a 16-foot cathedral ceiling. "Soundwise," Phil says, "the beamed spruce ceiling gives a nice live effect, yet the open-weave drapes do not soak up the sound."

Once the coffee table is moved and the dining room table is dismantled, you realize that the area has become a recital hall, complete with two grand pianos. And the room serves this purpose at least four times a year when Ruth's piano students present concerts for 30-40 people.

"From the 'recital hall' the audience can easily pick up refreshments in the breakfast nook and move on into the den," Ruth adds. (There's also an organ in the den.)

In addition to the Menotti opera, the recent benefit program included vocal solos by Stuart Randolph Scott and Katherine Counsell, and piano duets by Ruth Bircher and Mary Fredenburgh.

J. W. Reed (9150), "Air Blast Effects," and D.M. Ellett (9150), "Building Response to Underground Detonation," Spring Meeting of the New Mexico Section, American Society of Civil Engineers, May 8-9, Los Alamos.

K. T. Kavanagh (5165), "The Finite Element Method As a Basis for Determining the Mechanical Behavior of Solids," SESA Symposium on Finite Element Methods in Solid Mechanics, May 8, Colorado Springs.

Bruce McLaughlin (5531), "Computer Simulation of Stress Corrosion Cracking," Electrochemical Society meeting, May 10-15, Los Angeles.

R. B. Hedburg (7264), "Recovery of Test Item from Ocean Floor Utilizing Deepstar 4000 Submersible," New Mexico Section, American Society of Mechanical Engineers, April 22, Albuquerque.

N. S. Gillis (5151), "Self Consistent Treatment of the Coupled Electron-Phonon System in Crystals," Brown-Boveri Research Center, April 9, Baden, and IBM Zurich Research Lab, April 10, Zurich, Switzerland.

H. M. Willis (3130), "Personnel Management and Job Enrichment," Delta Sigma Pi Business Seminar, May 15-16, Albuquerque.

J. D. Rex (3251), "Employment Opportunity" (panel), Governor's Committee on Employment of the Handicapped in New Mexico spring meeting, May 14-15, Las Cruces.

J. E. Boers (5245), "Digital Computer Simulation of Intense Relativistic Electron Beams," and with F. C. Perry (5225), "Propagation of a Pulsed 3MV, 40 kA Electron Beam in a Self-Generated Plasma," Fourth International Conference on Electron and Ion Beam Science and Technology, May 10-15, Los Angeles.

G. D. Horne (9413) and A. J. Arenholz (9426), "Benchmarking of Computing Systems from the Viewpoint of the Customer," Spring Meeting, Rio Grande and Phoenix Chapters, Association for Computing Machinery, May 11, Scottsdale, Ariz.

D. M. Darsey (7524), "Calibration of Systems by Dynamic Response Analysis"; W. W. Shurtleff (7524), "An Automated Data Acquisition System for an EmmerScope Ultrasonic Tester"; Shurtleff and F. M. Roddy (2633), "Minicomputer Controlled Testing Systems," 16th National ISA Aerospace Instrumentation Symposium, May 11-13, Seattle.

R. T. Walsh (5162), "Optimum Difference Method," Symposium on the Numerical Solution of Partial Differential Equations, May 11-15, University of Maryland.

E. L. Clark (9322) and A. E. Hodapp (9325), "An Improved Technique for Determining Missile Roll Rate with the Epicyclic Theory," AIAA Atmospheric Flight Mechanics Conference, May 13-16, Tullahoma, Tenn.

R. T. Johnson (5132), "Radiation Effects in Compound Semiconductors," UNM Analytical/Inorganic Seminar, May 14.

G. W. Gobeli (5110), "A Pragmatic Approach to the Development and Applications of High Energy Pulsed Lasers," LASL Colloquium, April 14, National Bureau of Standards, April 21, Boulder, Colo.

E. C. Domme (9414), "Computerized Systems for Engineering Data Management," University of New Mexico, April 16.

E. L. Emerson (7625), "Use of Computers for Process Control in the AEC," University of New Mexico, April 21.

C. E. Barnes (5112), "Absorption Measurements in Neutron Irradiated Silicon," Radiation Effects in Semiconductors Conference, April 24-26, Albany, N.Y.

G. H. Haertling (2317) and C. E. Land (5153), "Hot Pressed (PbLa) (Zr,Ti)O<sub>3</sub> Ferroelectric Ceramics for Electrooptic Applications" and "Electrooptic Ceramics: A Review of Materials and Applications," 1970 Meeting of the Electronics Division of the American Ceramic Society, May 2-7, Philadelphia.

C. W. Harrison (2627), "Scattering from Inhomogeneous Media," University of Houston graduate seminar, April 28, and Mississippi State University, April 29; "Some Special Topics in Electrodynamics," Mississippi State University, April 30, and Stanford Research Center, May 25-26, Palo Alto.

R. L. Park (5331), "Chemical Analysis of Solid Surfaces by Soft X-Ray Appearance Potential Spectroscopy," National Research Council, May 4, Ottawa, Canada.

J. M. Hueter (3134), "Creativity—Choice or Chance?" Accounting Careers Council annual dinner, April 16, University of Albuquerque; "Value Engineering in Brief," LASL workshops, April 22; "Creative Attitude and Personal Evaluation," YWCA Employment Orientation Workshop, May 27.

A. J. Mulac, J. A. Guzman, and J. L. Mark (all 9342), "Sandia 500 - Kilojoule Arc-Driven Shock Tube Facility," 33rd Semiannual Meeting of the Supersonic Tunnel Association, May 7-8.

L. W. Davison and J. N. Johnson (both 5133), "Dynamic Yielding in Beryllium Single Crystals" and "Dynamic Properties of Wrought Ingot Beryllium," Beryllium Meeting of JOWOG, April 20-23, Lawrence Radiation Laboratory.



"THE TELEPHONE," Menotti's opera in one-act, was recently performed in the Bircher home as a benefit for the Santa Fe Opera. Ruth Bircher (wife of Phil, 7414) accompanied Marcia Peter and Gene Ives (1551).

## Service Awards

20 Years

## You & Your Employee Health Service

By S. P. Bliss, M.D.  
Medical Director — 3300



Robert Cox  
4152



Duane Hillard  
4121



Dean Irvin  
3121



Bill Schmedding  
8223

15 Years



Jack Barber  
7323



Joe Danclovic  
3131



Daril Gutscher  
1213



Barbara Hammond  
3256



Nemesio Martinez  
4212



Gordon McClure  
2612



David Sample  
7361



Leslie Shope  
2615



Frank Tuffs  
4552



Bill Ulrich  
1523

10 Years

Bobby Kindsvater 9415, Duwayne Branscombe 2451, Ruth Barth 3417, Arthur Brown 2333, Kenneth Ream 7261, David Bickel 7343, John Brane 7653, James Hopwood 8342, Robert Rutter 9126, Leroy Brace 2452, Norbert Siska 2453, Leo Scully 7372, Dave Bray 8181, Jim Dremalas 8252, Glenn Smith 8252, and James McDowell 2651.

### Clarence Sandy Gains Army Award

Clarence Sandy (7453), a Lieutenant Colonel in the New Mexico Army National Guard, has received the General John J. Pershing award as the outstanding graduate of the five-year nonresident course at the Command and General Staff College, Ft. Leavenworth, Kans. Clarence is battalion commander of a Guard unit headquartered in Tucumcari.

### Congratulations

Mr. and Mrs. Solomon Moya (4518), a son, Adam.

Mr. and Mrs. Bruce Hansche (7345), a daughter, May 19.

Mr. and Mrs. Robert Lederer (7522), a daughter, Wendy Sue, May 18.

Mr. and Mrs. Adan Trujillo (7513), a daughter, Shirley, May 15.

### Sympathy

To G. T. Holman (5131) for the death of his mother-in-law, May 15.

To Preme Ulibarri (7523) for the death of his brother in Belen, May 16.

### Authors

G. H. Haertling (2317), "Hot Pressed Ferroelectric Lead Zirconate Titanate Ceramics for Electrooptical Applications," June issue, BULLETIN OF THE AMERICAN CERAMIC SOCIETY.

C. J. MacCallum (5231), "Exact Solution of Rate Equations for Afterglow with Ambipolar Diffusion and Electron Attachment," Vol. 12, No. 3, PLASMA PHYSICS.

M. J. Landry (7261), "The Effect of Two Hologram Copying Parameters on the Quality of Copies," selective papers on Holography II, published by the Physical Society of Japan.

C. W. Harrison (2627) and R. E. Jones (9422), "Radar and DC Pulse Signatures"; Harrison and D. C. Chang (University of Colorado), "An Integral for Obtaining Exactly the Electromagnetic Field Transmitted Through a Plasma Slab Having Specified Electron Density-Collision Frequency Profiles"; Harrison, C. D. Taylor (Mississippi State University) and E. A. Aronson (2625), "Theory of Coupled Monopoles," all three papers May 1970 issue, IEEE TRANSACTIONS ON ANTENNAS AND PROPAGATION.

M. J. Forrestal and M. J. Sagartz (both 1223), "Transient Stresses at a Clamped Support of an Orthotropic, Circular, Cylindrical Shell," March issue, AIAA JOURNAL.

Irvin Auerbach (9328), "Decomposition Kinetics of a Phenolic-Carbon Composite, I. Resin Available for Volatilization," Vol. 14, pages 747-57, JOURNAL OF APPLIED POLYMER SCIENCE.

—Periodic disease detection programs for diabetes, high blood pressure, and other conditions

—Counseling regarding medical and emotional health problems

—Referral to private physicians and dentists as needed

—Allergin administration, physiotherapy and certain other services on written request by your private physician.

The services you receive at the Medical Department are provided with proper safeguarding of their confidential nature. I encourage you to become familiar with these services and to use your Medical Department to help you stay well.

"Employee Health Service" has the ring of modern industrial practice about it, but the health of employees has long been of concern to industry. More than a century ago, the Southern Pacific Railroad ran a hospital for ill and injured employees. And along Southern Pacific lines stretching through the southwest — where the deer and the antelope may have played, but the Indian raided — SP contracted with physicians to guard the health of the pioneer railroaders. Meanwhile, back east, Maryland soft-coal miners were also being offered basic health programs by employers.

Employers who made this possible then may or may not have been moved by good will. More likely, they were simply protecting an investment. Good men were hard to find, and employers had to conserve manpower. A century later, most businesses have rediscovered the wisdom of the railroaders and mine operators of the mid-1880's. Occupational health programs are an important fixture on the work scene.

Today, whether dispensed from a health room or fully equipped clinic, occupational health programs represent a protection of management's investment in you — in your experience, your ability, your value to the organization. Your employer knows that you cannot deliver a full day's work if you are fighting off a flu bug, suffering with a toothache, beginning to feel the symptoms of some more serious ailment, or are being adversely affected by your environment. He has a direct interest in keeping you well.

This means that your employer's self-interest and your own coincide. You both have a stake in your continued good health. That is why there exists for your use a modern, well-equipped occupational health unit at which many services are available. This health unit is not a substitute for your family physician but it will work for you, if need be, in cooperation with that physician.

The Industrial Medical Association recommends certain basics in an occupational health program. Such a program should:

1. Encourage personal health maintenance
  2. Protect employees from health hazards in the work environment
  3. Assure adequate medical care and rehabilitation of the occupationally ill and injured
  4. Assist management in evaluating the suitability of individuals in terms of physical and emotional health in relation to efficient work performance
  5. Provide for employee health education and counseling.
- At Sandia, your employee health service provides the following:
- Emergency treatment of illness or injury
  - Environmental health programs to assure safe working conditions for all employees
  - Periodic and other medical examinations



HORACE PICKARD  
Project Management 1513

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KATHLEEN WILSON  
Inspection Calibration 4213

LEO CHAVEZ  
Development Labs 4222



RALPH CARMICHAEL  
Maintenance Control 4517

### 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

- 2-WHEEL utility trailer, \$50; filing cabinet, \$15. Loemker, 344-0278.
- KITTENS, free to good home. Rand, 299-1048.
- COLLIE SHEPHERD cross, 1-yr.-old, female, spayed, shots, house-broken, free to good home. Cooper, 296-1838.
- MERCEDES-BENZ 190-SL workshop manual; 2 oriental rugs; trade for old hunting knives or fancy daggers. Smitha, 299-1096.
- MAGNAVOX stereo console, solid state, 6 spkrs., 5-yr. warr., \$175 or best offer. Hardeman, 265-4373.
- 1 1/4 INCH PVC 80 psi sprinkler system hose, 5c per foot. Pope, 816 Val Verde SE, 255-6702
- 12-YR. OLD BUCKSKIN quarter-type mare of Wagner breeding, gentle but spirited. Asking \$300 but will take into consideration a good home. Buddrius, 299-4228.

- '69 SUZUKI 100cc motorcycle, \$225. Rufsvold, 268-5970.
- SELL OR TRADE for land: Deluxe Travel Queen camper, loaded w/extras, w or w/o custom GMC truck. Baldwin, 255-6057.
- RABBITS, senior buck, junior does, fryers, hutch; trout worms. Browning, 2616 Virginia NE, 299-0169.
- 19' SHASTA trailer, self-contained, refrin., stove, \$1150. Chavez, 299-8194, 11101 Woodland NE.
- ELECTRIC CART, useful for shopping, golf, etc., \$350 firm. Chandler, 296-8149.
- SHIRLEY TEMPLE movie marquee photos, 8x10", originals, set of 3, \$5; Laurel & Hardy movie photos, \$1 ea. Schuback, 298-6697.
- DINING SET, walnut, Danish modern, \$160; 4-pc. sectional sofa, brown, \$120; 5-pc. sofa-bed set, western, white naugahyde, \$100. Boling, 282-3256.
- OUTBOARD MOTORS: 12hp MW gear shift, \$50; 6 hp Wizard, \$40, both need work. Luikens, 256-0437.
- SINGLE BED, foam rubber mattress & box springs, \$25. Ferraro, 296-7958.
- BAR BELL & plastic covered weights, totaling 100 lbs., \$15. DeLollis, 299-5384.
- ALTO SAXOPHONE, case, \$140; Child Craft encyclopedia set, \$15. Dyer, 299-5324.
- LIMED OAK bedroom set, dbl. bed, springs & mattress, dbl. dresser w/mirror, night stand, \$75. Verardo, 255-6385.
- HONDA 350 Scrambler motorcycle, '69, 3000 miles, has rack, extra tire & sprocket, \$595. 7705 Marble, Apt. 9, Galbraith, 255-9841.
- PERRIS half camper slide in, 7'8" long by 6'3" wide, will fit Datsun and any pickup truck. Griego, 299-0627.
- FORMICA KITCHEN TABLE w/leaf & 6 chairs, \$75. Allen, 256-0290.

- EXPENSIVE, matching, printed drapes for sliding door & picture window, just cleaned, both for \$50. Grimes, 265-6234.
- LACY VINE, free, come & get. Muzzey, 268-0914.
- SCHWINN bicycle, 26" ladies, 3-spd., \$35. Parks, 296-2261.
- WINCHESTER model 43, 22 Hornet, w/scope, \$65. Martinez, 243-5221.
- 400 MM f5.6 8-element Vivitar telephoto lens, \$80. Fox, 256-2606.
- '69 HONDA scrambler, knobby tires, extra sprockets, 3100 miles, \$485; dune bunny, VW chassis, big engine, \$300. Trujillo, 256-3840.
- POODLES, Toy, AKC, black, white; lathes, Craftsman, w/stand & tools; junk tv's. Johnson, 298-7356.
- ROYAL MODEL 890 typewriter, \$60; stenograph machine w/cass. paper, stand, \$50; 2 Harley 165cc dirt bikes, \$95. Peterson, 344-2782, 5:30-6:45 p.m.
- SPRINGS & MATTRESSES, twin size, 2 sets, \$10/set. Worden, 268-7069.
- LARGE UMBRELLA TENT w/floor, side room, covered entry, mosquito netting door, carrying bag, \$25 or trade for smaller tent. Randall, 299-3935.
- TIRES: four 6.95 x 14 Dunlop, 6-ply rated, \$25; oriental cocktail table, 20x40x14", black & jade, \$35. Browning, 299-6384.
- HOUSE BOAT — Conchas Dam, will consider camper on trade. Westman, 255-6048.
- SUPER-TAQUAR lens for Pentax camera, 135mm telephoto, \$70. Laval, 898-0518.
- HIGH CHAIR, \$7; baby crib, \$28. Sikora, 268-8907.

### REAL ESTATE

- 4 ACRES Rancho de Placitas, water & electricity available, choice hilltop site, \$7000. Stump, 898-2546.

- 14 ACRES, irrigated, 300 fruit trees, sprayer, house, consider trade, 4 mi. S. of Los Lunas Hwy. 85, \$35,000. Skender, 865-7326.
- 3-BDR. MANKIN, cfa, AC, range, dishwasher, convenient to Sandia, \$13,250. Neiswander, 344-4745.
- 4-BDR., 1 1/2 baths, SW landscaping, near schools, new roof, reduced to \$17,500, 4 1/2% loan, 9221 Shoshone NE. Shummy, 265-1620.
- 2-BDR., Parkland Hills, nice lawn, terms cash or new loan, FHA appraised at \$12,750. Jones, 255-7924.

### CARS AND TRUCKS

- '62 CORVAIR, 4-dr. sedan, AT, \$200 or best offer. Perea, 255-6902.
- '69 SUNROOF VW, 13,000 miles, factory warranty; auto tow-bar. Hanna, 298-8127.
- '66 T-BIRD convert., 390 engine, all power, radial tires; '59 Ford, 1/2-ton, 292 engine, lwb. Vigil, 296-3590.
- '67 MUSTANG, 8-cyl., 289 engine, 2-dr. HT, original owner, R&H, AT, AC, retail \$1695, sell for \$1550. Harper, 298-0146 after 5:30.
- '69 PONTIAC Bonneville 2-dr. HT, vinyl roof, PB, PS, AC, AM-FM, power antenna, rear seat speakers, Sear's steel-belt radial tires. Book \$3300, sell for \$3000. Wilson, 299-8864.
- '69 PLYMOUTH Valiant 4-dr. sedan, AC, \$1650. MacCallum, 242-4602.
- '69 CORVETTE coupe, white, 390 hp, 427 cid, AC, AM-FM, 4-spd., Positraction, tilt steering wheel. Bennett, 298-1142.

- '60 CHEV. convert. V8, PS, PB, AT, radio, rough but runs, \$100 or trade for clean alfalfa hay. Bassett, 898-1840.
- '64 FORD Galaxie 500 sedan, white over blue, 352 V8, 4-bbl carb., R&H, AT, mag rims front, \$475. Hughes, 299-6674.
- '63 AVANTI R-1 engine, 4-spd. trans., \$2300, consider trade. Copeland, 344-1133.
- '59 FORD sedan, 4-dr., 292-V8, AT, radio, new tires, battery, fuel pump, brake linings, \$250, original owner. Leeman, 299-9149.

### WANTED

- CHINA CABINET or large bookcase w/glass doors. Porter, 299-7985.
- GARDEN TRACTOR without motor. Eaves, 299-7728.
- WILL TRADE 9x4 all metal heavy-duty trailer w/new tires for 2-horse trailer. Lujan, 243-7484.
- BOAT, late model fiberglass, flat/modified V bottom, in-board preferred; have lot in Corrales or second mortgage to trade. Fay, 268-5307.
- DOG HOUSE for German Shepherd. Opland, 256-7926.

### FOR RENT

- 2-BDR HOUSE, 514 Graceland SE, 1 1/2 blks. from Highland HS, partly furnished, couple preferred, available now, \$125. Clory, 345-1012.

### LOST AND FOUND

- LOST—Long drop silver earring w/turquoise stone, emerald cut diamond ring w/white gold band — lost in Bldg. 804. LOST AND FOUND, tel. 264-2757, Bldg. 832.
- FOUND—Key on round plastic ring. LOST AND FOUND, tel. 264-2757, Bldg. 832.



Betty Jo Espinosa (9427)

# LUAU coronado club • june 20th "song of the islands review" • get your tickets early

## Coronado Club Activities

### Baby, It Swings Outside and Inside

One of the year's big events — the annual Coronado Club Luau — is scheduled this month along with a very special Soul Session and another great old W. C. Fields movie for Comedy Classic Night. And, of course, there will be swinging social hours on four Friday nights, midweek social hours on Tuesdays, and other assorted fun and games on the patio around the twin pools. As Bob Banks (5100), president of the Club's board of directors, says, "At \$2.50 per month, this Club offers more of everything than any similar organization. The Coronado Club is where it happens." Bob says the board welcomes suggestions and comments anytime.

#### Luau

Get your tickets now for one of the year's great parties. The Coronado Club Luau Saturday, June 20, will feature a tremendous Polynesian buffet — including a huge porker barbecued on the patio — plus two floor shows by a group called "Song of the Islands Review" featuring five beautiful hula dancers. Tickets (\$3.50 for members, \$4 for guests) should be picked up early.

It's an informal affair held both on the patio or in the ballroom. The Club imports a stack of coconuts for some special refreshments and the sweet and sour pork is something else. So is the lani-lani salmon. The party starts at 6:30 p.m., ends at 1 a.m.

#### Soul Session

Something new has been added to Soul Sessions. Jeffery Eden and his two beautiful assistants will present a 50-minute floor show straight from Las Vegas. Eden is a comic, magician and hypnotist. The show is billed as "Moments of Madness." Soul Sessions feature the big modern sound of Rod King and the Soul Knights plus happy hour prices all evening. Pizza is available from the kitchen. Admission is free to members, 50 cents for guests.

#### Comedy Classic Night

W. C. Fields will be featured in "You Can't Cheat an Honest Man" next Thursday, June 11, along with Edgar Bergen and Charlie McCarthy. In addition, the old movie serial "Flash Gordon" will begin with the first episode. Buster Crabbe stars as the intrepid spaceman. Happy hour starts at 7 p.m., the movie at 8. It's free to members and family.

#### Social Hours

Tonight the Club's seafood buffet will be the buffet feature while Sol Chavez and the mighty Duke City Brass hold the bandstand. Special prices are in effect from 5 to 9 p.m. and the buffet costs \$1.25 for adults, \$1 for kids. Yolanda Adent conducts a sing-along in the main lounge from 9 p.m. until midnight.

On Friday, June 12, what's left of the old Tommy Kelly trio — a reorganized group under the baton of Bob Banks — will play for dancing. Southern fried chicken will be spread for the buffet.

Phil Graham will play for dancing on Friday, June 19, and the Mexican food buffet will be served.

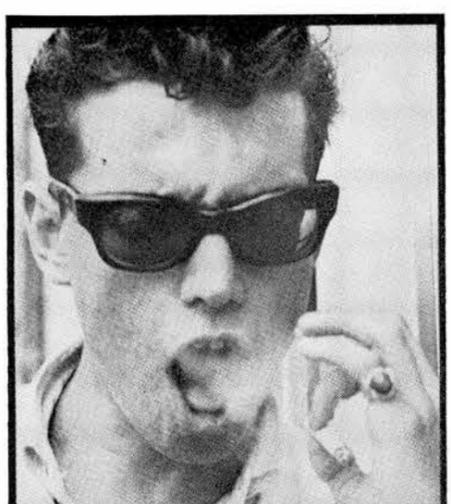
#### Bridge

Coronado ladies bridge meets Thursday, June 18, at 1 p.m. Duplicate bridge meets Tuesdays at 7 p.m.

#### Adult Swim Class

Enrollment is still open in a class for beginning adult swimmers. (Time of instruction will be set when enrollment is complete.) The class will meet for 12 40-minute sessions. Cost is \$5. Call the Club pool office, 264-5287, for additional information.

## The Smoking Breed



**MAN OF DESTINY**  
Smokes because he thinks it's good for his "image."  
Coughs a lot, too.

**Cigarettes kill — why go up in smoke?**

LAB NEWS needs copies of the Feb. 27, 1970 issue. If you have an extra copy, we would appreciate receiving it. Send to Division 3432.

## Take Note

"The Jokers" emerged as top team recently in the Sandia Lab Women's bowling league after a season of tough competition. Team members include captain Dean Miller (4120), Barbara Ruminski (3400), Julia Polito (3412), Aurora Baca (3255) and Jeni Sweley (4118).

### Travel Package to Disneyland Offered

The Coronado Club has arranged for a four-day travel package to Disneyland Aug. 6-9 at a special price. The tour includes jet flight to Los Angeles, transfer to Galaxy Motor Lodge adjacent to Disneyland, three nights at this first class motel, admission to Disneyland and tickets to 10 attractions each day plus tours to Busch gardens and the Port of Call whaler's village.

Cost of the package is based on room occupancy — maximum rates are \$119 for adults and \$103 for children under 12. For a party of two adults and two children the cost would be \$106 each for the adults and \$90 per child.

Other tour options are available — an extra day, tours of Marineland, etc.

A \$25 deposit per family is required as soon as possible with full payment by July 1. Call the Club office, 264-4561, for additional information. Twenty-five persons must register to make the package feasible.

### Interior Designer to Speak At June 9 Sanado Luncheon

"The Eclectic Look in Interior Design" will be discussed by Gene Limacher, chief designer for Mossman-Gladden, at a luncheon of the Sanado Woman's Club Tuesday, June 9.

Luncheon is at 1:30 preceded by sherry at 1:15. Reservations should be mailed to Mrs. T. W. Royman, 10017 Los Arboles NE, today.



JEFFERY EDEN — comic, hypnotist and magician — discusses life, liberty and the pursuit with a comely assistant. He will appear at Soul Session at the Coronado Club on Saturday, June 13.

"Waltz of the Toreadors," opening tonight at Corrales Adobe Theater, sounds like an all-Sandia production. John Gardner (3422) will direct the play, with leading roles acted by Bill Carstens (3410) and Sandy Borgrink (4363-1). Joe Laval (3433) was responsible for the striking silk-screened posters.

The Jean Anouilh play will be presented June 5-7, 12-14, and 19-21 plus a benefit performance June 15 for the Amigos de las Americas.

It's not every day a baseball field is named after you.

Pino Field and Earnest Field at Zia Park were recently dedicated in recognition of contributions to Little League baseball made by Art Pino (4337) and Doyle Earnest (4513).

Art and Doyle helped organize the Zia Little League District and have served several years as officers: Art as president and Doyle as treasurer. They made arrangements with the City of Albuquerque to lease five acres of land at Elizabeth and Southern SE, scrounged materials and volunteer helpers, and generally spearheaded the activity needed to make the two fields a reality. This spring, 15 teams (250 youngsters) are using the fields. Volunteers are still working on a concession stand and a public address system.

Sandians active in the Zia District are Frank Duggin (4314), coach; Paul Spencer (7612), manager; Eloy Barela (4231), manager; Gilbert Lovato (4231), vice president; and Frank Comiskey (4611), coach. Leroy Miner (husband of Alice Miner, 4314) is Zia president this year which gives Art Pino a chance to manage a team—something he really had in mind four years and two ball parks ago!

Speaker for the 5100 Staff Seminar on June 9 will be Dave Brice (5111) who will discuss "Interaction of Energetic Ion Beams with Solid Targets: Spatial Distribution of Energy Dependent Reactions." Richard Bartkowski (5151) will discuss "The Nickel Ferrite Problem" on June 16.

The 5100 Staff Seminar meets on Tuesday mornings at 8:30 a.m. in rm. 201 of bldg. 806.

## Events Calendar

- June 5-7, 12-14, 19-21 — Jean Anouilh's "Waltz of the Toreadors," Corrales Adobe Theater.
- June 5, 7, 10, 14, 19 — June Music Festival, Albuquerque Little Theater, 224 San Pasquale SW.
- June 5-7, 11-14 — Noel Coward's "Blithe Spirit," Old Town Studio, 1208 Rio Grande NW.
- June 6-7 — Annual Gem and Mineral Show, Industrial Bldg., State Fair Grounds. Open 10 a.m.-10 p.m. Saturday and 10 a.m.-6 p.m. Sunday. Admission 50 cents.
- June 7 — Environmental Awareness films, 2 p.m., Museum of Albuquerque, south Yale Blvd., free.
- June 12-14, 19-21 — Albuquerque Civic Light Opera presents "The Desert Song," UNM Popejoy Hall.
- June 13-14 — Backpack to Wheeler Peak, New Mexico's highest point, from the Taos ski area. N.M. Mountain Club, leader Harry Wyeth, tel. 299-1327.
- June 14 — San Pedro Peaks area in the Jemez Mountains via Gregorio Lake. N.M. Mountain Club, leader Bill Stamm, tel. 255-2640.
- June 18 — YWCA charter bus trip to scenic spots: Las Vegas, Fort Union, Springer, Taos, Penasco, Truchas, Chimayo, Santa Fe. For reservations tel. 247-9372.

### Puerto Vallarta Travelers To Show Pictures June 9

Puerto Vallarta travelers on the recent Coronado Club tours are invited to bring their movies, slides and prints to a get-together Tuesday, June 9, at 7:30 p.m. Projectors will be available and happy hour prices will be in effect. The meeting will be held in the dining room.

Variable Annuity Unit Value	
June 1, 1970	1.378
May	1.523
Average 1969 Value	1.697