

Facility in Area III Using Spray-On Explosives

A recently developed technique for spraying explosives onto complex surface shapes is being used by Division 9321 in experiments to simulate the response of structures caused by pulses of high energy x-rays. The sprayed-on explosive is detonated by an intense flash of light.

The x-ray simulation technique is used to provide structural response information which is used in the design of weapons structures.

Sandia designed and modified an existing facility (Bldg. 6715) specifically to remotely mix, spray and explode the sensitive explosive. This facility is the only place in the country where spray painting and light initiation of explosive is accomplished remotely.

Test engineer Bob Benham (9321) explains, "When a weapon structure is exposed to x-rays, the energy deposited in the surface material may cause its vaporization and subsequent blowoff. This blowoff imparts an impulse to the structure within a few microseconds. When detonated by an intense flash of light, the spray-on explosive delivers a pressure load that simulates this x-ray impulse. The technique is particularly useful for structures with irregular surfaces."

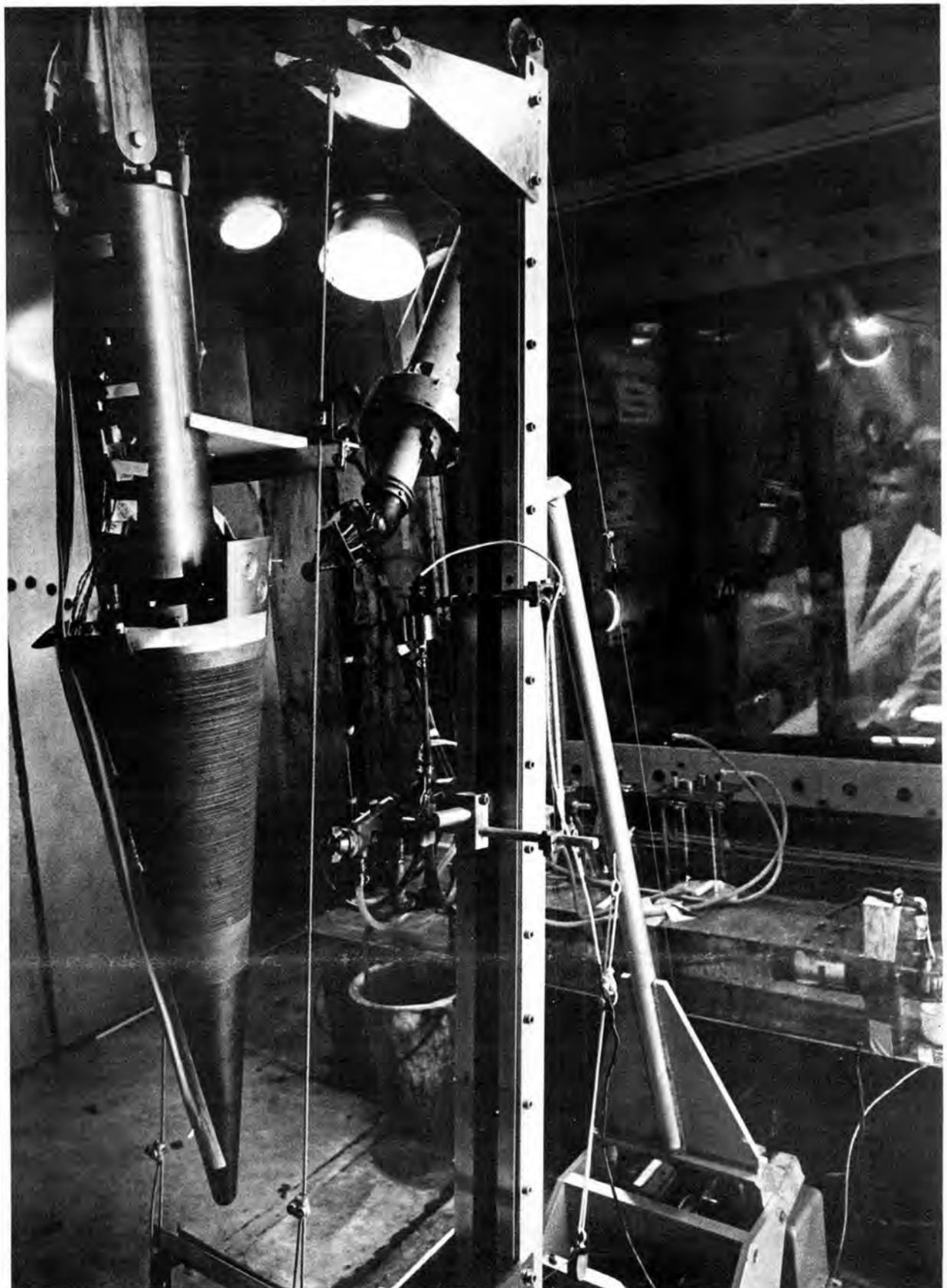
The explosive (silver acetylide-silver nitrate) is remotely mixed by Dave Shirey (9321) using master-slave manipulators. Dave performs the operation from behind an explosion-proof window made up of several layers of Plexiglas and Lexan. During the mixing operation, excess explosive is removed from the chamber and trapped in a filter.

After mixing is complete, the explosive is remotely sprayed onto the test surfaces. Masks shield portions of the structure which are to remain free of the explosive. Empirical data about the explosive are used to design the spray sequence which will give the desired impulse load to the structure.

An ingenious system of remotely controlled actions can tilt, turn or swivel the test object and the spray nozzle to assure precise spraying upon recessed or convoluted surfaces. Blank "coupons" attached to the test surface are removed and weighed to determine the weight of the spray coatings and therefore, the impulse applied to the structure when the explosive is detonated.

After spraying is complete, a monorail system removes the test unit from the spray chamber, carries it outside and positions it at the light array for explosive initiation. Detonation occurs when an air arc forms around thin tungsten wires, creating an intense flash of light. A capacitor bank provides up to 100 kilojoules of electrical energy to form the light producing arcs. The capacitor bank and electrical system of the test facility were designed by Phil Higgins and Jerry Kroth (both 9321). Test unit instrumentation and data acquisition including strain, acceleration, displacement and pressure are the responsibility of Ben Duggins (9321). The mechanical setup and facility is the responsibility of Dave Shirey.

"So far," Bob says, "experimental response data correlates well with predicted behavior. Tests have been conducted on many different structures including reentry vehicle conical nose tips and complex aft ends as well as rings, beams, and plates. Our work load is heavy. Tests at a rate of up to three per week are currently scheduled through the end of this calendar year."



SUSPENDED from a monorail, nose cone is positioned by Dave Shirey (9321) for explosive spraying operation. He operates master-slave manipulators from behind several thicknesses of explosion-proof glass.

LAB NEWS

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

Bond Drive Winds Up

Luke Heilman (9500), chairman of this year's Savings Bond campaign, reports that the campaign has very nearly reached its goal of 90% participation, thanks in part to an extension of the campaign and extra effort by solicitors. Sandia Livermore made the greatest increase in participation, from 80% to nearly 94%, while Sandia Albuquerque went from 84% to 89%.

A significant number of divisions — about 200 — achieved 100% participation.

At the start of the drive, Sandians were buying Bonds at the rate of \$92,000 per month. That figure has now increased to \$105,000.

"This is good work," says Chairman Luke, "and I'd like to thank the solicitors — the people who made this drive a success."

feed_{back}

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

Q. The new vending areas that have been provided in some of the buildings are a welcome improvement in employee service.

Would it be possible to go a step further and install in each of the existing refreshment areas a Sandia-owned microwave oven and refrigerator? (The vending company has posted a sign saying the ovens are intended only for food vended in that area.) It would be most convenient for us to be able to bring our own food and drinks from home and be able to heat them or keep them cold. Since we are unable to eat off base due to the half-hour lunch, access to a stove and refrigerator would allow us "brown baggers" to improve the variety, appeal and nutritional quality of our lunches.

A. Because of the nature of our contract with the vendor, it would be inappropriate for Sandia to furnish ovens and refrigerators as you suggest. A contractor was selected on a competitive basis to perform all cafeteria and vending operations at Sandia. Quoters would not bid if Sandia were to establish a separate hot food service capability, since this would be in direct competition with the contractor. The only feasible contract for providing services was to allow the contractor a complete opportunity to provide hot foods for all Sandians so as to earn a return on investment of equipment and personnel.

As you noted, the vending company posted a sign stating that the ovens are intended only for foods vended by the vendor. The statement protects the contractor from incurring damages that might result from people using the ovens for other than their intended purpose.

The hot lines at the Tech Area and Coronado Club cafeterias and the vending areas can provide the new "brown baggers" with the variety, appeal, and nutritional quality that they were getting off-base prior to the 1/2-hour lunch. Prices are comparable.

— R. J. Edelman - 4200

* * * *

Q. (from SLL) SLI 4600 specified that any denied boarding compensation should be

payable to Sandia. This seems entirely unfair and inconsistent. After all, it is the employee who has been inconvenienced for the delay, not Sandia. Assuming the delay does not cause any additional voucherable expenses, it would seem only fair to at least split the denied boarding compensation with the employee. Otherwise, why should he have any incentive to request it since by this time he is already late arriving at his destination? No doubt this has cut into his personal time; possibly making him late in rejoining his family, etc. The widespread feeling is, don't bother to request it.

A. We recognize that lengthy periods of delay may be an inconvenience to the traveler, but, for that matter, any Company travel could be viewed as an inconvenience in that an employee may have to forego personal plans, etc. However, most travel is performed during the daily work schedule and the employee receives regular compensation and expense reimbursement coverage for the entire period of travel. Occasional travel performed outside the regular work schedules is simply doing what is necessary to accomplish a given task. Also, the delays resulting from denied boarding often cause additional voucherable expense.

The Laboratories is basically an actual expense reimbursement company. Legitimate increases in fares, for whatever the reasons, are voucherable. Likewise, payments to the traveler while on travel status are Laboratories funds. Contrary to your statement that denying payment is "unfair and inconsistent" treatment to the employee, the only way to be consistent is to pay the denied boarding compensation to the Laboratories. The carrier must, under CAB Tariff provisions, compensate the passenger consistent with the original form of payment. Only in those cases in which the passenger's ticket was purchased with cash can a cash refund be made. The carrier, therefore, refunds in proper form to the original purchaser, and in all cases involving Laboratories travel, the Laboratories is the purchaser, not the employee. (Should the carrier by-pass these rules, the employee must turn in cash, or any form of remuneration, just as a check must be turned in.)

Your statement, "The widespread feeling is, don't bother to request it," (referring to denied boarding compensation) deserves positive comment. An employee is expected to represent the Laboratories in an honest and forthright manner in all matters concerning the employer. Not requesting a refund due the Laboratories does not fulfill these expectations and is not the type of conduct expected from mature professional employees.

— C. R. Barncord - 4100

Hartley Heads Summer Study Program



Dan Hartley, supervisor of Combustion Research Division 8115, heads a study by the American Physical Society entitled "Technology of Efficient Combustion" this summer at Princeton University.

The participants, a mix of physicists, engineers and other specialists will try to relate fundamental and applied physics to problems of current national need, particularly those related to energy conservation. The study has four parts: an overview of energy priorities; a power network system analysis; a review of thin film window coatings; and the review by Dan's group of efficient combustion.

"Although combustion has traditionally been a chemistry and engineering problem," Dan says, "there are a number of areas, particularly those derived from energy conservation concepts, where physics research can have meaningful input." Dan's group of 14 will look into heterogeneous combustion, optical diagnostic techniques, and combustion modeling. Don Hardesty (5131) is a major participant.

Funded jointly by the National Science Foundation, the Electrical Power Research Institute, and the Federal Energy Administration, results of the Princeton summer study will be published in SCIENCE and PHYSICS TODAY, and elsewhere.

Take Note

Bill Kays, Dean of Stanford University's College of Engineering, and associates Farrell McGhie, John Linvill and Ken Down were at Sandia/Livermore recently to discuss an agreement under which, after a two-year trial, SLL educational television facilities have been joined with the Stanford ETV network. The University provides televised seminars as well as graduate level courses to network subscribers.

Granada Students Visit Sandia

Students and teachers from Granada High School in Livermore recently saw how computer-aided work is done at Sandia. They followed development of a complex part from the original concept through the computer-aided processes and witnessed fabrication of the final product at the numerically controlled machine center. Jerry Maloney (8432) and Bill Jamieson (8218) were tour organizers.

Sympathy

To Dave Abrahams (8413) on the death of his father-in-law in Calistoga, Calif., June 7.

To Dick Houser (8412) on the death of his father in Klamath Falls, Ore., June 5. Many Sandians will remember Mr. Houser as a former faculty member in the Electronics Department at Oregon Technical Institute.

To Blanche Matter (8264) on the death of her mother in Whittier, Calif., June 7.

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JULY 5, 1974



Supervisory Appointment



GERTRUDE WILLIAMS to supervisor of Information and Distribution Section 8266-1, effective June 1.

Gertrude joined Sandia in 1969 as a programmer in the Computing Division and worked in that capacity 'till July 1972 when she took a year's maternity leave, rejoining Sandia in August the following year.

A graduate of South Carolina State College in 1963, Gertrude majored in business administration. After graduation she stayed on at S.C. State to teach. Moving to the west coast in 1967 she attended M.T.I. Business Schools in Hayward for advanced computer program training.

Gertrude worked for the Job Corps before coming to Sandia. A member of the American Business Women's Association, she and her husband Thomas and two children reside at 695 Colusa Way in Livermore.

Congratulations

Fred Johnson (8421) and Latanya Yarber, married in Oakland, Calif., June 9.

Mr. and Mrs. Jim Pergrossi (8365), a daughter, Kari Suzanne, June 1.

Retiring



Carl Beckham (8166)

Speakers

Bill Wilson (8341), "Frenkel Pair Recombination in the Presence of Rare Gases"; and Pete Mattern (8334) and P.W. Levy and R. Fairchild (both BNL), "Three-Dimensional Thermoluminescence of LiF Dosimeter (LTD-100) Crystals," American Physical Society Meeting, Philadelphia, Pa., March 25-28.

Ed Barsis, Cliff Skoog and Larry Watkins (all 8342), Pete Mattern (8334), and Jerry Brandon (5811), "Radiation Effects in Fiber Optical Waveguides," Nuclear Survivability Working Group Symposium, Seattle, Wash., April 23-25.

Larry Weirick (8312), "Protective Coatings for Uranium Alloys"; Harry Saxton (8314), "Fracture of Uranium Alloys"; and Stan Zehr (8365), "The Mechanical Properties of Two-Phase Uranium Alloys," AMMRC/AEC Jointly Sponsored Physical Metallurgy of Uranium Alloys Conference, Vail, Colo., Feb. 12-14.

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ROBERTA (8265) AND BILL COLE (8433) with Robwils Tootsie at Golden Gate Fields where she is stabled.

Robwils Tootsie Runs At Pleasanton Track

A two-year-old filly, Robwils Tootsie, running in this year's northern California fair circuit, is currently in the lineup at the Pleasanton race track during the Alameda County Fair.

Named after her owners Roberta (8265) and Bill Cole (8433) and their daughter Tootsie, the filly may have a bright future. In her second race last month at the Vallejo race track, she came in third.

Bill has had horses for many years, but this is the first one he's raised himself and sent to the track. "Actually, we were lucky to have saved Robwils," recalls Bill. "Her mother was an old horse, 22 years old, but in beautiful condition when I bought her in foal. After having her filly she became paralyzed, so I'd have to get her up and down to eat and she nursed the baby while lying down. We lost her and Robwils was weaned when only about three months old.

This past November Robwils' training began — first at a ranch near Turlock, then in Stockton, and in February to Golden Gate Fields for final training. "Here," says Bill, "she developed 'bucked shins,' something that happens to most young horses. Because their bones aren't set well, tiny cracks appear in the shinbones from the constant pounding of the tracks. She was laid up for six weeks.

"Of course, I'm pleased Robwils did so well so early," comments Bill. "She still has one bad habit. After breaking at the starting gate she'll run close up, but going into the turn she drops back to last. You think that's it, then on the outside she makes her run down the stretch."

Bill and Roberta have owned many winning horses, including one called Blue

Barrister that was in the money 10 times out of the 11 he ran. Bill doesn't subscribe to heavy betting because owning a winning horse pays much more with less risk. "You must operate on a business basis though," he warns, "because horses, and especially trainers, are expensive. Unless you can run them in a class where they belong, so that they have a chance to do well, you'd better sell them or take them home for saddle horses."

What Bill enjoys most is the animal itself since each has a different disposition and must be ridden accordingly. His interest in racing stems from an earlier hobby — homing pigeon racing. He entered the championship race from Redding, Calif., to Los Angeles for four years, and was in the money every year, coming in first once.

Roberta is excited about Robwils. "It's like seeing your child develop," she explains, "seeing how she accepts the jockey, comes out of the gate, runs with the other horses. Win or lose, horse racing is exciting."

Death



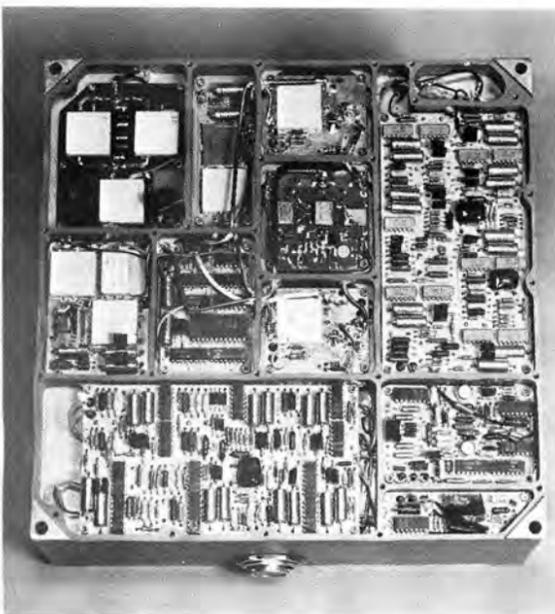
Loren Converse of Environmental Test Division 8413 died June 10 after a brief illness. He was 57.

A native of San Francisco, Loren had worked at Sandia Laboratories since July 1951.

He is survived by his wife Louise (8411) and four children.



MURINE DETECTOR SYSTEM, developed by Division 2125 to protect Army helicopters from heat-seeking ground launched missiles, is on board this model helicopter. System is undergoing tests in the "bubble" antenna test range in Area III. Pointed shapes are microwave energy absorbing forms.



MURINE SYSTEM meets previously impossible performance requirements. About a foot square and four inches thick, it weighs 18 pounds. Antenna (not shown) is a few inches long.



Anti-Redeye

Murine Radar Successful

One of the missile detector systems evaluated for the Army on Sandia's Aerial Cable Facility in Coyote Test Field recently (LAB NEWS, June 1, 1974) was designed by the Exploratory Radar Development Division 2125 under Roger Chaffin.

The system, designed to detect ground-to-air heat seeking or terminal homing missiles and to initiate decoy countermeasures, was funded by the DOD's Advanced Research Projects Agency and ECOM, the U.S. Electronics Command, Ft. Monmouth, N.J. Charlie Blaine, supervisor of Exploratory Projects Division II 5713, was the Sandia system manager.

Relatively low performance aircraft such as helicopters are particularly vulnerable to heat seeking missiles such as the Army's Redeye. Launched by an individual combat soldier, the Redeye quickly overtakes a slow moving helicopter and destroys it.

Sandia's "Murine" (because it is anti-Redeye) is designed to warn the pilot and automatically fire decoy flares when the helicopter is under imminent threat from a missile.

In the recent evaluation tests, the Sandia system was tested along with four systems

designed by other organizations.

"Our system performed very well," Roger says. "Although we were not perfect (we had three failures in some 30 tests), we know what the problems are and will have them corrected for a new test series scheduled in September."

Bob Hughen (5713), responsible for Murine system design and analysis, explains the problem:

"Technically, the system faced some tough performance requirements. Not only does the system have to detect oncoming missiles, it must be able to discriminate between a threat and everpresent background noises, other helicopters, and the constant motion of the rotors. It must do this positively within a short time frame and initiate countermeasures."

These system requirements impose some tough radar design problems, particularly when coupled with the desire to make it small, light, and low power.

Jack Webb and Bill Nielsen (both 2125), radar design engineers, found a way to overcome these problems using phase correlation in combination with unique filtering schemes. •dg

Device Invented By Don Sharp Awarded Patent

A patent was awarded Western Electric Company recently for a device and method of manufacture invented by Don Sharp, supervisor of Hybrid Engineering Division 2432. Don came to Sandia in August 1971 from WE's Research Center at Princeton, N.J.



The patent was for anodizable cermet film components and their manufacture.

Briefly, a film-forming metal such as tantalum and a ceramic are co-sputtered on a substrate to form a molecularly dispersed cermet film. The film can be subsequently anodized electrolytically to increase or "trim" its resistance to a desired value. Interaction between the ceramic and the anodically-grown oxide of the film-forming metal during the anodizing step stabilizes the device's resistance so that the final trimmed value is maintained within close tolerances.

Don holds 13 other patents and disclosures in the fields of thin film and microelectronics technology.

Patent Awarded For Self-Destruct Parachute

Aerodynamicist Bill Pepper (5626) and chemist Bob Buxton (2516) teamed up to invent a parachute that literally self destructs. Released at Mach 1, the chute transports its payload to earth and, after a time delay, an igniter sets it afire. The parachute is completely consumed and the debris scattered.

The incendiary action results from a coating of magnesium, viton and particles of TNT on a nylon chute. The AEC was awarded a patent for the device recently.

The parachute was developed to allow a sensor package to remain undiscovered behind enemy lines.

Bill has worked at Sandia 21 years, has patent applications filed on two other inventions. Bob worked as a chemist at Sandia for 15 years.



NEW PARACHUTE invented by Bill Pepper (5626), left, and Bob Buxton (2516), self destructs after impact.

How We Get To Work & Why (Maybe) We Get There That Way

To those for whom numbers (including \$) are attractive, results of our recent survey, "How we get to work," should be intriguing. They show that many Sandians are no longer car-dependent for getting to work. They've learned that driving to work alone is expensive.

Admittedly, the results are purely statistical. But of 5500 Sandians on-roll (in Albuquerque) at the time of the survey, over 3300, or about 60 percent, responded. (The weakness then is not that the population is too small but that it may well be non-random: Sandians concerned with alternatives to the privately driven auto are those most likely to be concerned enough to reply to the survey.)

One finding is that commuting Sandians travel, by one means or another, almost 88,000 miles daily.

Here's how they (a) get to work and (b) would like to get to work. Percentages are an extrapolation derived from the survey return of 60%.

Method	Get to Work	Would Like To Get To Work
Drive Alone	40%	13%
Car pool	39%	41%
Bus	12%	31%
Bike	5%	10%
Cycle	2%	3%
Run/Walk	1%	1%
Other (e.g. spouse delivers)	2%	1%

(Note: Figures relating to bikers, bus riders, and car poolers are substantiated by gate counts and car pool registration.)

"Compared with other companies," says Phil Thacher (9532) of the Employee Transportation Committee, "Sandians are doing rather well in adopting non-traditional forms of commuting." We've come a long way since the spring of 1972 when about 1 1/2% of all Sandians rode two buses, a handful rode bikes, and 15% of the rest were in car pools. Obviously, the Employee Transportation Committee has a task ahead, primarily to make bus service more widely available.

One reason fewer people are driving alone is that it's expensive. Expense may not be primary — Sandians as a group are traditionally quick to respond to national and local needs, such as conserving gasoline and reducing air pollution. Nevertheless, economics plays a role. For starters, consider the car poolers. Currently, 564 car pools are registered; there is an average of 2.3 people per pool and they average 17.1 miles per day. Using a widely accepted figure for car operating expense — 10.8 cents/mile — if each person drove alone, cost is \$1.85 per day (\$40.70 per month). By pooling, costs become 80 cents per day (\$17.60 per month), a 57% savings.

The 1297 known poolers now pay a collective total of nearly \$24,000 per month to get to and from work, but if each drove alone, that figure would be \$53,000.

Next, the bus picture. Bus-riding responders totaled 358 and rack up 7392 passenger-miles each day.

Bus	No. Riders	Daily Miles	Costs By Bus/If Car
Belen	16	60	\$1.50/\$6.48
Mountain	35 1/2	43	1.20/ 4.67
Other S. Valley	55 1/2	31	1.00/ 3.32
Sandia Specials	251	13	.60/ 1.38

Collectively, the bus group spends \$273 per day (\$6008 per month). If each drove alone, the collective total would be \$1802 per day (\$39,644 per month). In general then, a bus rider enjoys an 85% saving over his car-driving counterpart.

All of the above calculations must be



"So it's cheaper, but next time I'm driving to work..."

based on what it costs to drive a car. Actually, the figure used here — 10.8 cents per mile — is for a compact car and it was published by the Federal Highway Administration in 1972. What are costs today?

One Sandian who keeps records, Dick Rogers (4151), estimates that his '71 Dodge costs 10.4 cents and his '65 Buick costs 11.9 cents on a cents per mile basis. But these figures *don't* include depreciation; they're a precise out-of-pocket expense for two years.

Still another Sandian, Al Stevens (5167), finds he's paying 17.6 cents per mile to run his '68 sedan. He argues convincingly that to make major cost savings one has not only to car pool (or bus, or bike) but also to sell that

second car. As he puts it, "If I left it in my garage ready to drive all the time, my fixed costs would still be at \$764 per year."

Obviously, the case for each driver is different, costs vary, every situation is unique in some way. But it's safe to say that most people do not know what it costs them to run a car and would be unpleasantly surprised if they did know.

If you would like to explore alternatives to driving alone, dial 4-RIDE. They have information on how to join a car pool, whether there is a bus near you, what the safer bike routes are, and why it's advantageous to walk (or jog) to work. •bh



AFFIRMATIVE ACTION was the subject of this discussion with two visitors from the EEO office of AEC Headquarters in Germantown. They are, from left, Gil Cordova and Marion Bowden. Bob Garcia, Special Assistant to the President on Equal Opportunity (200) looks on as Pres. Sparks discusses vu-graph.

Building Meets Man-Made Earthquake

A four-story building was destroyed at the Nevada Test Site the other day. It didn't actually crash to the ground but its structural integrity was severely impaired.

And it was all deliberate.

Back in 1966, J.A. Blume & Associates constructed two reinforced concrete buildings at NTS. Blume was responsible for predicting damage, if any, to buildings surrounding the Site. The two buildings were built so as to more than meet, by a factor of two, the specifications for an earthquake-resistant structure. Mounted with a variety of instrumentation, the two served as a convenient monitor of the effects of shock on buildings.

As of last fall, the buildings had outlived their usefulness. Blume proposed to subject one or both to a high degree of damage — to answer the question "how much force would it take to destroy their structural integrity?"

That's where Sandia came in. Test Effects Department 1150 provides scientific management in the test site's Effects Evaluation Program, and "D." Ellett of that department proposed that controlled vibration be used as the damage mechanism. The proposal was accepted and D. was named Sandia Test Director.

The next step was to build a vibration generator. D. took the task to Max McWhirter's Shock and Vibration Division 9332. Dave Smallwood designed the mechanical equipment, Norm Hunter the electronic and electrical apparatus necessary; Chuck Collier assisted in assembling and operating the equipment.

The vibration generator, or shaker, is essentially a hydraulic piston acting against a large reaction mass. It generates 14,000 pounds of force with an amplitude up to 7-3/4 inches and a frequency of 1/2 to 100 hertz, which is to say it could reduce most buildings, even earthquake resistant ones, to rubble.

After construction and testing in Area III, the shaker was shipped to NTS and bolted to the building roof. Following preliminary tests, the shaker was repositioned on the third floor to magnify the amount of displacement on the floor above and destructive tests began. Critical joints were monitored visually by closed circuit television provided by Don Shadel (1131). From 80 feet away observers watched with fieldglasses. In addition, accelerometers and a force gage on the shaker provided a force and displacement record for the vibrating mass in relation to the building itself. Strain gages were already in place on each joint and on the columns just above the ground. In addition, seismometers were buried in the ground near the building. These measured the soil/structure interaction and



BUILDING INSPECTORS Hank Passmore (1131), left, and D. Ellett (1150) check damage to third-floor joint after NTS building shake test. Hank assisted in providing test site logistical support; D. was test director. Note spalled concrete and bare re-bar. (Photo by Pan-Am)

thus provided the type of data useful for predictions of earthquake damage. Strain gage instrumentation was fielded by the Seismic Engineering Branch of the U.S. Geological Survey.

With power on, the shaker eventually rocked the building until the top was swaying back and forth almost 10 inches. The building was still standing once the shaker was shut down, but spalled concrete and bare re-bar showed clearly the strain.

"It was a successful test," says D. "We gained data on how to subject large structures to high levels of vibration. And we did have some unexpected results — for example, we subjected a well-designed building to 20 times the motion it was intended to withstand, and it didn't crash to the ground. This response means that damage is a good deal less than would have been expected from a simple scaling-up of low-level results: 10 times as much force doesn't mean 10 times as much damage.

"Just as important, our predictions made before the tests proved quite accurate. This is the kind of capability we need to be able to predict damage to high rise buildings, dams, or reactor structures.

"So it was a good test," D. concludes, "just like a textbook test. If you're going to destroy a building anyway, might as well do it like this — with finesse." •bh

NMSPE Honors Phil Owens

Phil Owens, an engineer in Project Design Definition Division IV, 9615, has been named Engineer of the Year by the New Mexico Society of Professional Engineers. Phil was honored for his "outstanding leadership and service to the profession."



He was recently elected chairman-elect for the Professional Engineers in Industry Division of the National Society of Professional Engineers and will be installed next week during the annual NSPE meeting in Atlantic City.

Phil has served as NMSPE state treasurer, board member, Albuquerque Chapter president and chairman of numerous committees. For the past two years he has headed the Pension Improvement Committee of the national society. He has been at the Labs for 28 years.

Authors

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G.C. Nelson (5825), "The Nondestructive Determination of the Areal Density of ²³⁵U Films," Vol. 17, No. 2, RADIOCHEMICAL AND RADIOANALYTICAL LETTERS.

H.C. Hardee and D.O. Lee (both 1543), "Thermal Hazard from Propane Fireballs," Vol. 2 (1973) TRANSPORTATION PLANNING AND TECHNOLOGY.

A. Owyong (5214), "Efficient Ruby Laser Pumped Diffraction Limited Dye Laser," Vol. 11, 14, OPTICS COMMUNICATIONS.

F.K. Truby (5215) and J.K. Rice (5216), "Axially-Aligned, Photon-Blind, Electron-Multiplier Arrangement for Single-Ion Counting with a Quadrupole Mass Filter," Vol. 45, 854, REVIEW OF SCIENTIFIC INSTRUMENTS.

Retiring

RETIRED SANDIAN Lew Longmire now spends his time building airplanes. This sleek sportster is either number 18 or 19 that he's built — Lew started building gliders in high school and he's lost count. This one, powered by an 85 hp engine, is now FAA certified and undergoing flight testing. Weighing only 460 lbs., the plane should hit 200 mph, Lew figures.



Dave Smith (4812)



Earl Coffee (2514)

Speakers

T.H. Martin (5245), "Transmission Lines Seminar," May 1, LLL.

F.G. Blottner (5643), "Nonuniform Grid Method for Turbulent Boundary Layers," 4th International Conference on Numerical Methods in Fluid Dynamics, June 23-28, Boulder, Colo.

J.R. Banister and W.L. Holley (both 1150), "Wind Pressure Response Spectra for Three Types of Structures," Symposium on Full Scale Measurements of Wind Effects on Tall Buildings and Other Structures, June 23-29, London, Ontario.

E.D. Jones (5214), "Design Considerations of the Sandia Four-Beam Neodymium Laser System," June 24, Colloquium at Battelle Memorial Institute, Columbus, Ohio.

M.R. Scott (2642), A.L. Fymat (Cal. Tech.), and R.E. Kalaba (USC), "The Spectrum of the Anisotropic Transfer Equation," SIAM National Meeting, June 24-26, Pasadena, Calif.

R.L. Park (5115), "Recent Developments in Appearance Potential Spectroscopy"; P.H. Holloway (5825), "Model Calculations of the Effect of Surface Roughness on Auger Electron Excitation and Detection"; G.C. Nelson (5825), "The Effect of the Atomic Environment on the Neutralization of Singly Charged Noble Gas Ions Scattered from Cu and Au Atoms," Conference on Surface Properties of Materials, June 24-27, Rolla, Mo.

R.E. Jones (2642), "A Self Organizing Mesh Generation Program"; W.A. Von Rieseemann (1541), et al, "Large Deflection Elastic-Plastic Dynamic Response of Stiffened Shells of Revolution"; S.W. Key (1541), "The Large Deformation, Inelastic Dynamic Response of Axisymmetric Solids by the Finite Element Method"; F.P. Gerstle, Jr. (5844), "High Performance Advanced Composite Spherical Pressure Vessels," 1974 ASME Pressure Vessels and Piping-Materials-Nuclear Conference, June 24-28, Miami, Fla.

B.L. Gregory (2113) and C.W. Gwyn (2114), "Design Requirements for Radiation Hardened Semiconductor Devices"; R. J. Lodi (Sperry Research) and W.H. Dodson (2116), "Operation and Radiation Hardness of Fully Decoded 16 x 16 MNOS-REPRO Integrated Circuit"; D.G. Skogmo (2112), "A New Technique for Achieving High Noise Immunity in Integrated Circuits"; C.M. Tapp (2430), "Development of a High Reliability Thin Film Gold Beam Lead Device Compatible Hybrid Technology"; G.R. Case (2114), "The SALOGS Logic Simulation Program," 1974 Government Microcircuit Applications Conference, June 25-27, Boulder, Colo.

E.P. EerNisse (5112) and C.B. Norris (5113), "Defects in Ion Implanted SiO₂ Layers on Si," 1974 Device Research Conference, June 25-27, Santa Barbara, Calif.

T.A. Sellers, C.S. Sonnier (both 1739), and M.M. deMontmollin (1730A), "Field Testing of a System for Communication with Commercial SNM Shipments," American Nuclear Society Annual Meeting, June 26, Philadelphia, Pa.

D.W. Braudaway (9532), "A Review of 12 Years of Performance of an Automatic Standard Cell Test Facility," and "A High Resolution Prototype System for Automatic Measurement of Standard Cell Voltage," CPEM 74, July 1-5, London, England.

A.W. Johnson (5212) and J.B. Gerardo (5210), "Vacuum-Ultraviolet Excimer Lasers"; R.K. Quinn, N.R. Armstrong (both 5154), and N.E. Vanderborgh (UNM), "Digital Simulation of the Dimerization of Electrogenenerated Free Radicals Monitored by Transmission Spectroscopy"; C. Arnold, Jr. (5811), "Aging Behavior of Polyoxymethylene (Delrin) and Polyaryloxysulfone Copolymers (Astrel 360) in the Presence of Nitrogen Dioxide," The Second Rocky Mountain Regional Meeting of American Chemical Society, July 8-9, UNM.



BRAD LOONEY, son of Chad Looney (9483), grins because safety shoes saved his foot when a 100-lb. head from a truck engine fell while he was working at his mechanic's job. Brad bought the boots from Sandia's mobile safety shoe store — dependents are welcome to use the service. The safety store van is at Gate 1 every second and fourth Monday from 8:30 a.m. to 4 p.m. Every Thursday, the van is at Gate 1 from 8:30 to noon, at Gate 6 from 12:30 to 4 p.m.

FROM TIME TO TIME, Sandia Laboratories employees are presented with plaques of appreciation for their substantial support of the activities of member agencies of the Employees Contribution Plan. Bob Garcia (0200), new chairman of the ECP committee, displays some recent ones. Sandians are giving \$385,368 to ECP agencies this year, an average gift of \$83.60 from contributors.



MEET RECON, the Tech Library's new bibliographic reference tool. Hitched to a data center at Oak Ridge, the unit makes it possible to search, by author or subject, for references appearing in: Nuclear Science Abstracts, Energy Data Base, Toxic Materials Data Base, Water Resources Abstracts, Energy R & D Projects, Mercury Data Base, Heated Effluent Bibliography, Power Reactor Dockets and Coal Gassification Research. The keyboard input device permits the searcher to expand or narrow the search, see abstracts (where available), or get a hard copy printout of the display on the CRT. Here, Gladys Rowe (3144) demonstrates search capabilities to Jim Peek (5211).



It Pays to Check Your Insurance

When was the last time you checked beneficiaries of your insurance policies? Ralph Bonner of Benefits Planning Staff 4210 comments that not infrequently an employee's personal situation will be altered through marriage, divorce, additional children, or a death in the family, but he or she forgets to change beneficiaries to reflect the new situation. If the employee should die, there's nothing that can be done to straighten out the oversight.

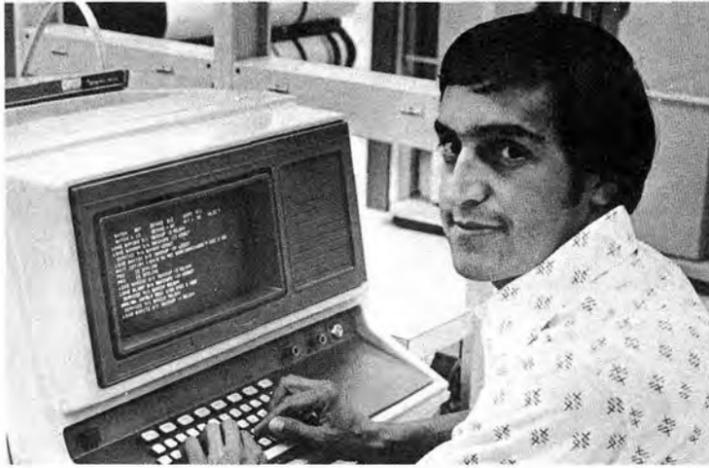
Check your insurance certificates to determine whom you named as beneficiary. If you than wish to change the beneficiary, or if you can't locate the certificates, you should then see Betty Lou Gatto in Benefits (org. 4213). Betty Lou has all the necessary forms and other information.

Another aspect of Sandia's group life insurance plans commented on by Ralph concerns the 2nd Supplemental. Something like 25 percent of employees do not carry this insurance. Undoubtedly many elect not to have this coverage for good reason but, considering the low premium (which derives from its being a group policy), a number of Sandians may be overlooking or simply forgetting a good insurance deal. However, proof of insurability is required from applicants who did not enroll during the first seven months of employment. It's worth checking into — see Betty Lou if you're interested.

MILEPOSTS

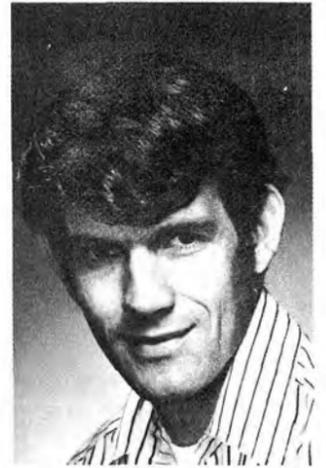
LAB NEWS

July, 1974



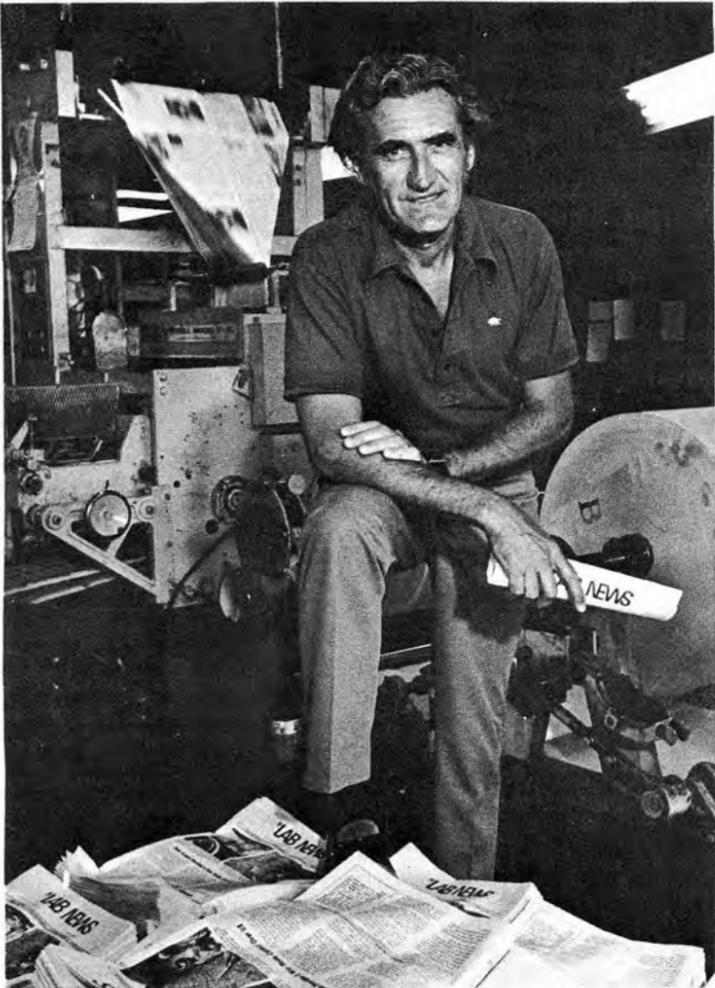
Filimon Tenorio - 2631

10



Tommy Guess - 5847

10



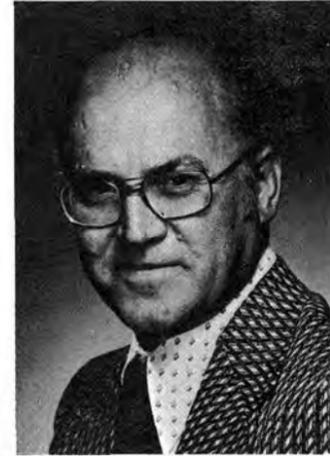
John Shunny - 3162

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Dan Folk - 8334

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Raymond Alls - 2121

20



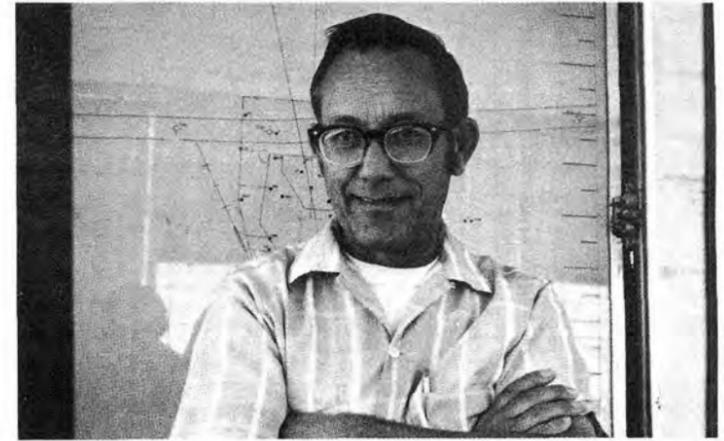
Wallace Newman - 2411

15



Dan Pegan - 8168

15



Richard Shaum - 9471

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Leslie Jones - 8183

15



Charles Shanabarger - 8344

15



Philip Stanton - 5713

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Hank Stratmann - 8257

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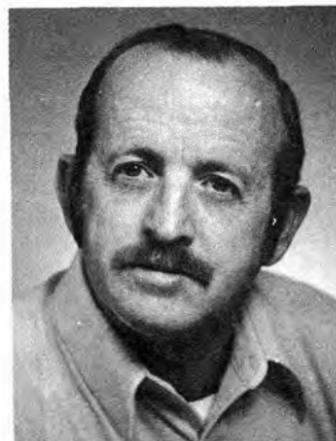
Esther Rickert - 8256

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Lois Hayes - 1554

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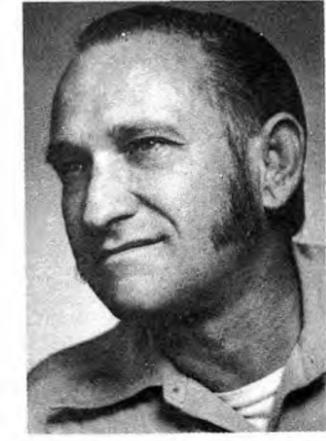
J.D. Porter - 8364

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Ken Shinn - 3733

25

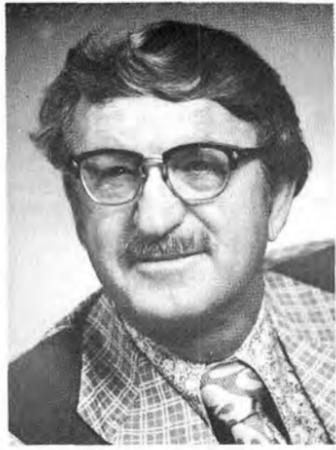


Leopold Daniel - 8421

15



James Hole - 2326 10



Cliff Selvage - 8180 20



Bob Tockey - 8181 20



Clarence Muchow - 9515 25



Joe Hernandez - 3148 25



Duane Stenberg - 1525 15



Marvin Becktell - 5200 15



Charles Tapp - 2430 10



Florenio Mora - 4821 15



William Fleming - 9424 10



Leroy Torkelson - 5172 10



Wayne Cook - 1116 15



Robert Arnot - 9651 10



James Armijo - 2521 10



Pete Dean - 8265 10



Ralph Jaeger - 8265 10



Joe Garcia - 3148 20



Richard Guilford - 2314 20

Except When It's a Picture

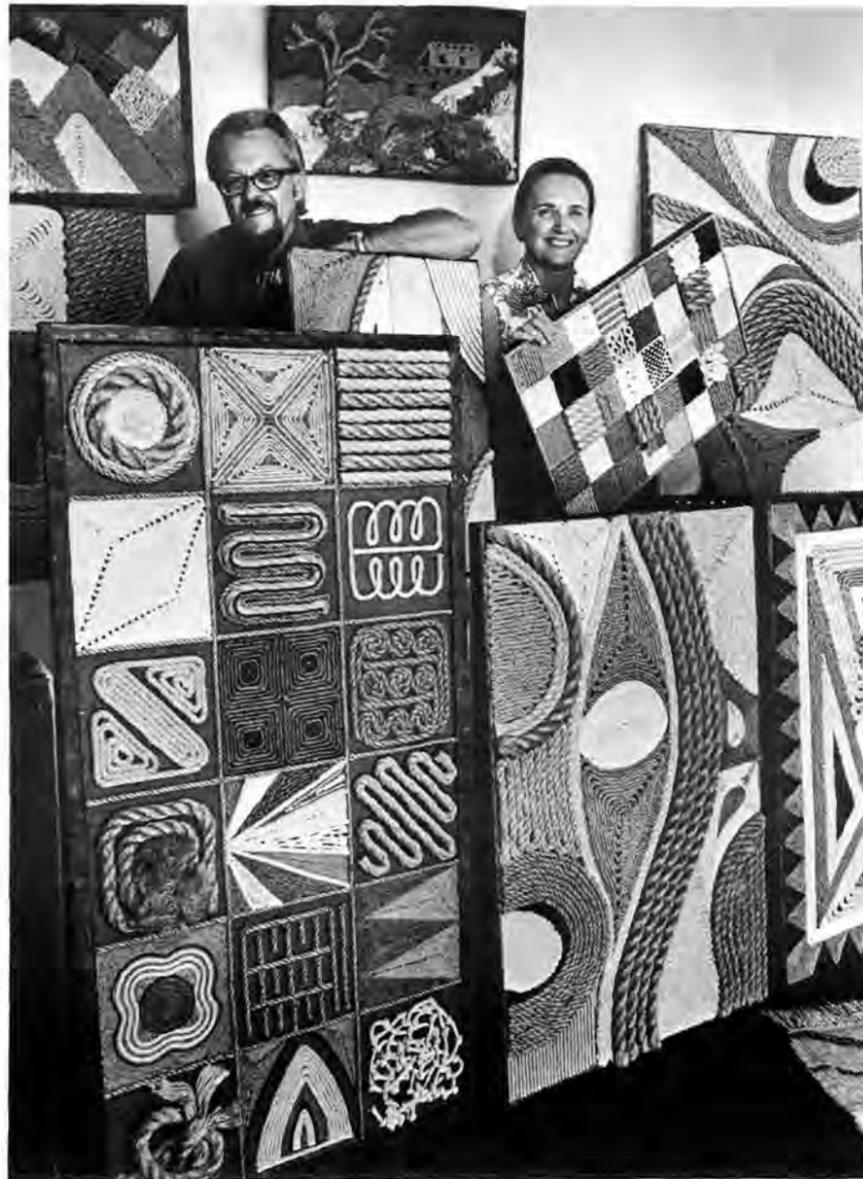
While visiting Mexico City about 10 years ago, Lee Garner of the 4010 Management Staff toured the National Museum of Anthropology and came away much impressed by a display of rope; one wall was completely covered with a geometric design made from various sizes and types of rope.

Recently, Lee and his wife Helen were discussing ideas for arts and crafts projects. They wanted to do something "new and different." They did, and the results are called rope collages. Lee remembered the wall of rope in Mexico City. He selected a variety of materials, sketched some designs, and before long the Garners were tied up in their new project.

Using half-inch plywood faced with masonite, the rope, depending on size, is nailed or glued to this background. Cut ends and spaces between pieces are glued to prevent fraying. The collages include scenics, geometric designs, and abstracts.

Lee and Helen have used kite string, parcel post twine, venetian blind cord, clothesline rope and sisal and manila hemp in sizes up to one inch in diameter. "We don't use any synthetics and we use new rope — it's clean and we get a good range of neutral tones," Lee says. "Rope can be used in a straight line, curved, knotted, and frayed. We draw the design on paper and then start experimenting. We're often surprised at the effects we get by combining different textures or by repeating a particular pattern — suddenly there may be two distinct patterns instead of one, simply because as the rope was reversed to repeat a line a new design appeared."

In geometric collages, Lee uses the old Greek formula for rectangles — the smaller shape is to the greater as the greater is to the whole. Thus, the various segments are proportional.



GIVE 'EM ENOUGH ROPE and what do they do with it? Lee and Helen Garner make rope collages and let someone else hang them. Dimensions of large collage in the foreground make it candidate for use as a door panel. New, natural fibers produce a pleasing blend of earth tones.

Helen says the average time to complete a picture is about 30 hours. Lee makes and finishes the frames. Last month the Garners had a booth at the three-day Church Street

Fair in Old Town. "The collages created a lot of interest," Helen says. "They are different and we're encouraged by the reactions of the viewers." • nt

Recreation Notes

FUN & GAMES

Sandia Bicycle Ass'n. — Newly elected executive committee of SBA is as follows: Dave Barnes (9421), Doug Drumheller (5163), Tom Mayer (1247), Don Bliss (9633), John Milloy (1111), Lyle Wentz (1513), Bob Bradley (1245), Ron Husa (2132), and Jack Kidd (2646). President is Dave Barnes. The committee will be having its first meeting soon, so contact one of the members if you have some matter that SBA should look into.

Don Bliss (9633) reports that starting Sunday, July 14, the New Mexico Wheelmen will meet every Sunday at 8 a.m. at Popejoy Hall, UNM, for easy rides. And Tom Mayer (1247) invites SBA'ers to meet at Western Skies, Sunday, July 14 at 6:30 a.m. for a San Antonio to Golden ride, about 24 miles round trip. On the Sunday following, July 21, Tom's group will bike from Tres Piedras to Tierra Amarilla. Call him on 294-3368 if you're interested.

Sandia Runners Ass'n. — The La Luz Trail race, 7½ exhilarating miles to Sandia Crest, will take place Aug. 25. A dozen or so SRA'ers made it last year, and many more have the requisite physical credentials — all they need is a little psychological boost. If you can routinely cover five miles without collapsing, you can probably do La Luz.

Entry blanks are available in the Lab News office (ext. 1053).

Bowling — Special awards were presented at the annual spring meeting of the Sandia Labs Bowling Association. F.B. Gabaldon (1511) was named the association champion in the men's scratch division and Gary Miller (5823) was runnerup. In the women's scratch division Dolores Lucero (AEC/ALO) was named association champion with Julie Sensel (also AEC/ALO) in the runnerup slot. Handicap President's awards went to Sherry Schluter (AEC/ALO) and Bob Parks (9614), with Dora Montoya (1542) and Lew Hansen (5112) named as runnersup.

Shoot-Out At LASL — Pistol shooters from nine agencies under AEC/ALO competed in the recent 1974 ALO Pistol Tournament at Los Alamos. Scores fired during the AEC Short Course and the National Police Combat Course were combined and the aggregate used as a basis for rating each of the 28 competitors. Sandia's three-man team — Milt Lesicka (9551), Luciano Archuleta and Celso Montano (both 9550) — all received marksmanship awards with Archuleta and Lesick achieving "Expert" and Montano "Sharpshooter."

Take Note

A general meeting of Chicanos Unidos will be held on July 11 at 8 p.m. in Public Service Co.'s hospitality room. PSC is located at 414 Silver SW.

Three Sandians, now working at Tonopah Test Range, were recently elected as president, secretary and treasurer of the Las Vegas Section of the Instrument Society of America. They are, respectively, Bob Schowers (9473), Don Anderson and Ken Johnson (both 9471).

Sympathy

To John Lowery (9715) on the death of his mother in Flagstaff, Ariz., June 10.

To F.J. Villa (2514) on the death of his father in El Paso, June 24.

Congratulations

To Mr. and Mrs. Lou Feltz (5623), a daughter, Trina Michele, June 3.

To Mr. and Mrs. Charles Joerg (2334), a son, Jeffrey Charles, June 19.

To Mr. and Mrs. Errol EerNisee (5112), a son, Peter Andrew, June 22.

To Mr. and Mrs. Don Marchi (5155), a son, Damion Lewis, June 28.



WATER SKIING is fun, but not without hazard. Learn these signals and use them to communicate with the boat operator.

Signal	Meaning
* Thumbs-up	Boat faster
* Thumbs-down	Boat slower
* Thumb and forefinger in form of an "O"	Speed OK
* Circle finger overhead and point in direction of turn desired.	Turns
* Raise hand with fingers spread	Stop
* Slap thigh with hand	Return to dock or shore
* Draw hand or finger across throat	Cut motor
* Point in direction you wish to go, then point to yourself	Go that way
* Clasp hands over head while treading water	I'm OK (after fall)

Events Calendar

- July 5-6** — Alb. Civic Light Opera: *110 in the Shade*, 8:15 p.m. Popejoy Hall.
- July 5-6, 12, 19** — Frontier Town Outdoor Theater: *New Mexico — This Is Our Song*, 8:30 p.m., Cedar Crest.
- July 6-7, 11-12, 19** — Adobe Theater: *Candida* by G.B. Shaw, 8:30 p.m., Corrales, (898-3323)
- July 6, 12, 17** — Santa Fe Opera, *The Magic Flute*, (English) 9 p.m.
- July 8** — Lecture Under The Stars: "The Sociology of Natural Resources," Frank Diluzia, 8 p.m., UNM Mall.
- July 10** — Alb. Children's Theatre, *Lydia Sagebrush's Dilemma*, Ernie Pyle Library, 2 p.m. (also July 12 at Model Cities).
- July 10, 13, 20** — Santa Fe Opera, *La Boheme*, 9 p.m.
- July 12** — Film and Poetry Reading: Pablo Neruda's Works, 70th Birthday Memorial, 8 p.m., Kiva UNM.
- July 13** — Las Aranas Spinners & Weavers: "Handspinning," 9 a.m. at the Zoo.
- July 13** — NM Mt. Club, "Leisurely Scramble," Knife Edge of Shield, 8:30 a.m. Western Skies.
- July 14** — NM Mt. Club, Flower Walk, 4-6 miles up Lake Peak, Gulf Mart, 7:30 a.m.
- July 15** — Alb. Children's Theatre, *An Afternoon of Fairy Tale Parodies*, 12:30 p.m. Downtown YMCA. (also July 17 at 2 p.m. at San Pedro Library, July 18 at 1 p.m. at Erna Ferguson Library, and July 19 at 2 p.m. at Prospect Park Library.)
- July 18-19-20** — Old Town Studio: *And Miss Reardon Drinks A Little*, contemporary comedy drama, by Paul Zindel, 8 p.m. (242-4602).

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

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

MISCELLANEOUS

- USED LAVATORY, 22"x18", gray color w/mounting bracket & legs, \$15. Folkins, 344-5917.
- KENMORE electric range, 30", \$30; kitchen sink & faucet, \$20; 50 new electron tubes, \$15. Snelling, 268-5895.
- ELECTRIC Underwood typewriter, elite w/over-sized carriage, \$65. Anderson, 296-0892.
- NIKOR lens, 135mm, 3.5, never used, \$100. Campbell, 299-8071.
- BABY beds, high chair, car seat, Cosco playpen, changing table, twin stroller. Thomas, 299-0178.
- BARCA-LOUNGER, nylon frieze upholstered lounge chair, \$85; old oil paintings. Smitha, 293-1177.
- USED 4x5 Omega enlarger with 6" Schneider Componon lens, \$90; slightly used Magnalux 2-1/4 x 3-1/4 enlarger, double

- condensers, 3-1/2-inch Ektar lens, \$65. Liston, 281-3283.
- TURQUOISE watchband, will sell for \$40. Griffin, 266-0602.
- GERMAN shepherd puppies, AKC, hips guaranteed against hip displacia. Shay, 299-2634.
- KENMORE sewing machine w/attachments, \$45. Huston, 898-7948.
- FREE puppies, Shepherd Dane cross; 44 magnum Marlin, new, \$120; miniature Schnauzer, AKC, all shots, \$85. Cyrus, 898-4038.
- SEARS gear-drive chain saw, one of the heavy blue saws of about 10 yrs. ago. Souder, 281-3121.
- '59 TRUCK engine, GMC 270 cu. in., runs good, needs some work, \$50. Davis, 294-3324.
- 3500 LB. TRAILER hitch for '67-'72 Chevy or GMC carryall, \$35; Universal bumper hitch, \$20. Nogales, 247-1178.
- KROEHLER hide-a-bed, \$175. White, 293-2219 after 5 p.m.
- THREE used 8.00 x 16.5 tires, 10 & 6 plys, some tread, \$15. Gustin, 256-3807.
- DORMEYER Deluxe electric food mixer, 10-spd. w/mixing bowl, juicer & grinding attachments, plastic cover, \$14. Joseph, 299-6989.
- REFRIGERATOR; washer-dryer; bedroom set; diningroom set; patio set; couch; recliner. Palmer, 296-1028.
- SCREEN DOOR, wooden, 36"x80"; bulletin board; 25"x1" pipe, make offer. Peabody, 296-6239.

- GIRLS 26" BIKE; 2 maple twin bed frames; leather-lined hiking boots, size 7; picnic basket. Linnerooth, 299-6154.
- COFFEE table, Danish, solid teak, 51"x19"x17" (high). Kreffit, 268-8677.
- ROCK TUMBLER 2-4 lb. capacity. Olson, 268-8415.

TRANSPORTATION

- '71 YAMAHA 350 Enduro, low mileage, adult ridden, \$550. Roth, 877-4997.
- BOYS BIKE, racing style, 5-spd., 21" frame, 26" wheels, \$40. Bennett, 299-1144.
- '72 PINTO 2000cc, 4-spd., one owner, few miles, deluxe interior, luggage rack, \$2200. Crego, 294-4373.
- '71 SCOUT 4-WD, 6-cyl., 4-spd., low mileage. Edenburn, 265-5184, after July 6, 1974.
- BIKE, lady's, 3-spd. lightweight, \$25. Snelling, 268-5895.
- '66 FAIRLANE GT, 2-dr., AC, PS, PB; '69 LTD Country Squire station wagon, 4-dr., AC, PS, PB. Furney, 298-5803.
- '73 CHEVY pickup, 1/2 ton, short-wide box, V8, radio, full gages & HD springs, \$2650. Shirey, 298-6362.
- '70 VW BUG, \$1250. Burns, 255-3737.
- '72 OPEN-ROAD 9 ft. fully self-contained camper, jacks, shocks & safety-slide front window, \$1350. Foster, 265-0069.

- '71 OLDS 455 engine, complete, 4-bbl., \$175. Lutheran, 293-3412.
- '62 T-BIRD, Landau, beige, complete history provided. Vigil, 293-4965.
- '67 FORD 1/2-ton pickup, 4-spd., limited slip differential, heavy duty springs and bumper, low mileage. Causey, 299-0089.
- 10-SPEED bike, Peugeot, Suntour rear derailleur, Simplex front derailleur, center pull caliper brakes, Alpine gearing. Jefferson, 299-1125.
- '72 FIAT, 128, 4-dr. sedan, front wheel drive, 30 to 35 mpg., new belted radial tires, \$1700. Lucas, 281-5804.

REAL ESTATE

- 10 ACRES, heavily wooded, 30 min. from city, \$700 per acre, \$3000 plus REC. Gallo, 242-2171.

WANTED

- PARALLEL drafting edge, preferably Maylin. Claassen, 255-4347.
- STERLING teaspoons and demitasse spoons, pay cash. Smitha, 293-1177.
- TRADE 2-mantle Coleman for single Coleman camping gasoline lantern. Westman, 255-6048.
- '71 T-BIRD FM/AM radio & shop manual. Will trade '71 T-Bird

AM-stereo cartridge & '67 shop manual; homemade Dune Buggy, trade for dirt bike. Wright, 298-1789.

ROTARY style gasoline powered lawn mower; 5hp roto-tiller. Picraux, 345-2032.

OWNER wishes to share 2-bdr. home in Sandia Park; room for one horse; bus service to Sandia. Hawkinson, 281-3415.

WINDOW air cond. unit, 2-spd. Smith, 299-7506.

FOR RENT

DELUXE Hoffman all/brick 3-bdr. home, convenient location, landscaped. Brannon, 296-6674.

1-BDR., large apt., available Aug. 3, electric kitchen, AC, carpet, close to base, no pets, \$121, water pd. EerNisse, 298-3968.

LOST AND FOUND

LOST — Man's black leather 3-fold lost in 800, 4 car keys, round metal key ring w/12 keys, ladies blue-rim trifocals, man's white gold wedding band, Volkswagon key, case w/ping pong equip., AM truck radio.

FOUND — Man's black framed Rx sunglasses, bicycle security chain & case. LOST AND FOUND, Bldg. 832, tel. 264-3441.

FRIDAY	SATURDAY
5 — HAPPY HOUR ROAST BEEF Adults \$2.75 Under 12 1.75 COUNTRY SATISFACTION Lounge Denny	Only 171 More Shopping Days Till Christmas!
12 — HAPPY HOUR MEXICAN BUFFET Adults \$2.65 Under 12 1.65 Bob Banks Trio Lounge Barbara	13 — FAMILY VAUDEVILLE 7 - Wynette Smith Presents The Computer Wore Tennis Shoes FREE TO MEMBERS

BIGGY—this month is the Shrimp Peel on July 20. You can decrust all the hot and cold running (all the way from the Galveston shrimp fleet) crustaceans you can eat. Or you can enjoy substitutes—bratwurst, gumbo, etc. Dancing and other entertainment too. \$4.90. Pick up tickets by the 13th.

WYNETTE — is not the feminine of Winner but the first word in Wynette Smith Presents: a highly talented troupe of 9 to 16 year olds who do ballet, acrobatics, tap dancing, singing, and guitar playing. Feminine or masculine, they're Winners all. And, did you know *The Computer Wore Tennis Shoes*? If not, it's a movie to be checked out. And the whole Family Vaudeville package costs nothing.

PACKERS—Not Green Bay but Wolf. First real live Coronado Wolfpack business meeting and associated hoop-la (election of officers, charter approval) plus plans for sport-oriented travel and other activities. Absolutely every C-Clubber is invited. It's July 9 at 7 p.m. in the Ball (what else?) Room.

SNOW—In July? Yes, and Blue to boot. Blue Snow will drift, anything but silently, about teeners at the Go-Go on the 11th from 7:30 to 10:30. Members two bits, guests four. But adults do the ticket-buying beforehand, please.



GO AROUND IN THE SAME CIRCLES as Rocky Medina and Terry Caress. See them (and two more Flair models) show off the latest summer fashions and swim suits from Pat Dalton's in Republic Square. Rosario Ayers is the coordinator. They'll be at Happy Hour at 7 on the 19th. (Photo at Uncle Cliff's Familyland)

SEE NO EVEL—That's what happens if you miss the celluloid version of *Evel Knievel*, starring Geo. Hamilton as the most daring, most devilish daredevil of our time. Three Stooges and Betty Boop too. At 7:30 on the 17th and free to members.

TRAVEL — To (loud fanfare) Mazatlan! Nov. 5-12, \$239 double, all the goodies that make this trip so popular. Space for only 99 so it's limited to members — who better be at the Club office with their \$50 as soon as it opens on July 8. (No phone reservations; each family must sign up in person; and it's strictly first-come, first reserved.)

TRAVEL—On a Cruise to the Caribbean at Christmas (when the Labs is shut down). \$653 and up includes transportation and four meals a day and more. Deposit \$100 now for members and guests.

AND MORE TRAVEL—Maybe Christmas in Mexico instead? The new Albuquerque to Mexico City flight permits a \$309 (double) price with tours out of the Hotel El Ejecutivo to Xochimilco, the Pyramids, Taxco, and Cuernavaca plus the City itself. \$100 deposit for members and guests.

MORE INFO — 265-6791.