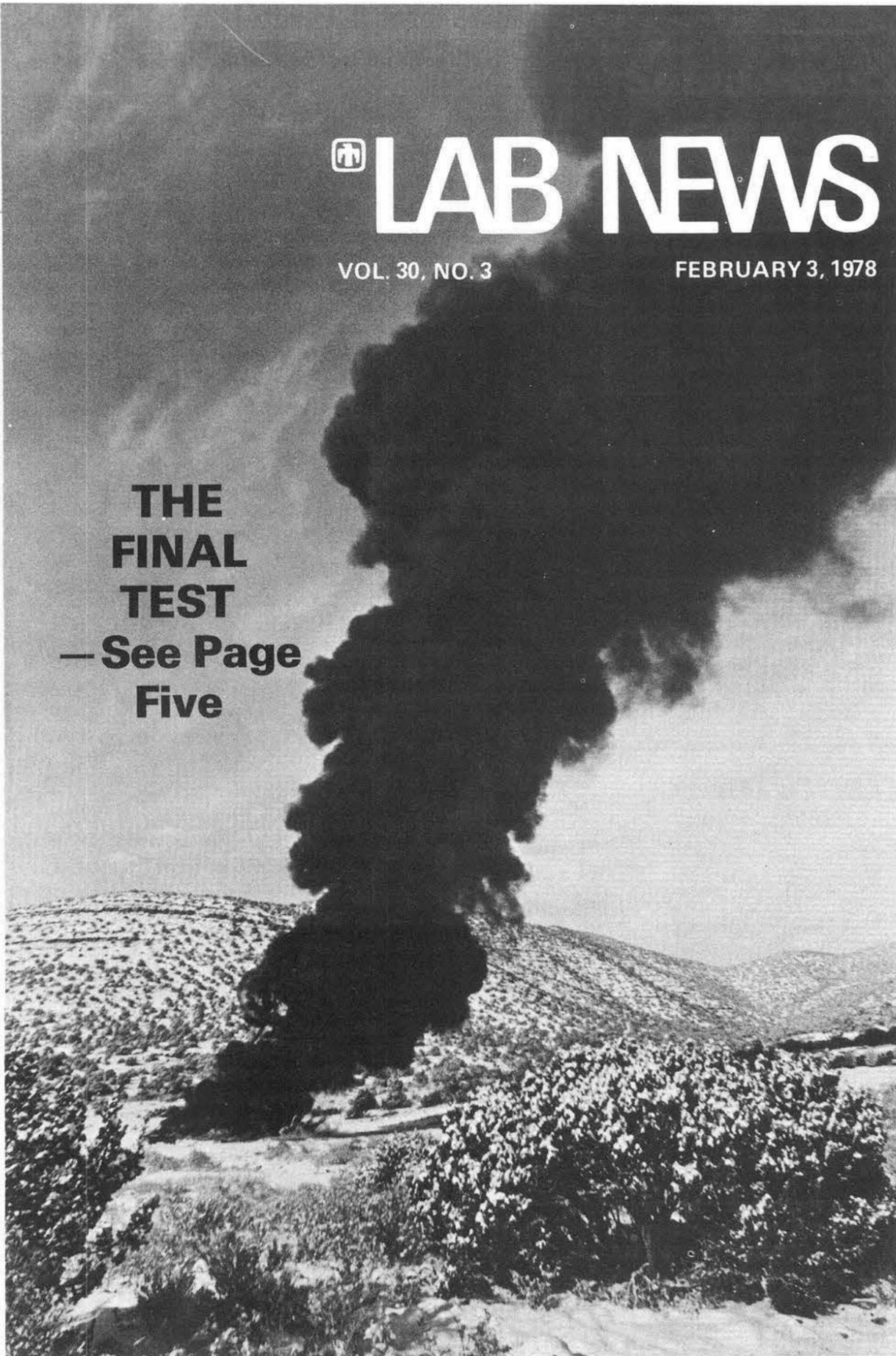


LAB NEWS

VOL. 30, NO. 3

FEBRUARY 3, 1978

**THE
FINAL
TEST**
— See Page
Five



Rubblization Experiment Successful

An experiment to test a special technique of preparing an oil shale bed for in situ retorting—underground combustion that transforms solid hydrocarbon into liquid oil—has been conducted near Rock Springs, Wyo., by Oil Shale Programs Division 5734 under Al Stevens.

A follow-up test will be conducted this summer jointly with DOE's Laramie Energy Research Center to recover oil by retorting the prepared shale bed. The total project is sponsored by DOE's Division of Oil, Gas, Shale and In Situ Technology.

For true in situ retorting, now in an early development stage, shale is processed completely in place, rather than all or partially mined. The technique, which has environmental advantages over other retorting methods, consists of fracturing a volume of oil shale in place, pumping air into the fractured zone, igniting the oil shale, and freeing the oil with the heat produced by burning the carbon residue in the shale after the oil has been released. The burn front progresses slowly through the fractured bed, and the product oil is driven toward the wellbores in the rubblized bed where it is recovered.

Rubblizing is a key step since shale must be porous enough to allow air flow for combustions but not so porous as to cause land subsidence following oil recovery. The fracture network must also be well articulated to insure that a high percentage of shale is converted to oil.

Sandia's field work in a 12-metre-thick oil shale bed 60 metres below the surface, is

[Continued on Page Four]

ESOP: Your Piece of the Action

[Ed. Note: The following is reprinted from AT&T, house organ of AT&T.]

Many thousands of Bell System employees became AT&T share owners a few months ago for the first time in their lives. Why? Because of a special federal tax incentive for businesses that is making capitalists out of millions of employees who've never before owned a share of stock, that's why.

What's more, these employees have become share owners at no cost to themselves under new federal tax laws designed to expand employee ownership of the nation's businesses and improve America's economic health.

The reason for the sudden increase in telephone employee stockholders: the Bell System's establishment of an Employee Stock Ownership Plan (ESOP) in Septem-

ber when AT&T filed its 1976 federal income tax return.

The tax incentive stems from new tax laws that allow businesses to claim an extra investment tax credit of an amount equal to one per cent of their eligible capital spending. That credit is available, however, only if this money is used to give company stock to employees.

In effect, the tax change allows hundreds of millions of dollars to be diverted from federal revenues into employee-owned shares of stock. It's aimed at stepping up investment in American corporations and giving employees a share of the rewards—and risks—of owning a part of a business without investing a penny of their own.

[Continued on Page Four]



THE BIG STORM OF '78 is measured by LAB NEWS photog Russell Smith. Storm had interesting chronology: it blew and snowed like mad until just about the time that word came down for employees to take off at 2:30. Shortly thereafter, sun shone, by 2:30 streets were slightly sloppy, by 4:30 they were dry. Oh well, you win a few, you lose a few...

Afterthoughts

Creative law enforcement--Police in Midlothian, Illinois have taken an imaginative approach to apprehension of wrong-doers: they've put themselves on bicycles. The bike patrol was started when they decided they weren't surprising enough wrong-doers by conventional methods. "You can't sneak up on anyone in a squad car," says one patrol member. "The big thing we're after is vandalism. But we'll go after just about anything." To help insure surprise, bike patrollers don't wear police uniforms. They carry two-way radios and can thus call for high-speed help if an offender speeds away in a car. "Bikes are especially good for pursuing persons on foot," says the Midlothian Chief. "You can go all sorts of places a squad car never could. But there aren't many chases. You just stand back and watch somebody rip off a CB radio, say, and move right in and grab him. He doesn't know what hit him."

The Chief could add that 10-speeds are cheaper than motorcycles, and that his bike patrollers are probably in better condition than his squad car policemen.

* * *

The hierarchy--"In the social order in which one person is officially subordinated to another, the superior, if he is a gentleman, never thinks of it, and the subordinate, if he is a gentleman, never forgets it." General of the Army John J. Pershing *js

Credit Union Reporter

by Bill Bristol, manager

At our 30th annual meeting, Jan. 26, 396 members were in attendance.

Assets as of Dec. 31, 1977, of just over \$35 million were reported. This represented the largest yearly increase in the Credit Union's history. The 11,226 loans for \$31 million are also a new record.

Significant changes reported for 1977 include increasing the share deposit limit to \$40,000, a refund on interest paid during 1977, a bonus dividend for the last quarter and installation of a new in-house computer system.

Four vacancies on the Board of Directors and one on the Credit Committee were filled. New Board members are: Charles Barncord (3200), Ronald Bodo (3242) and Elsie Wilkins (1001), Joe Ruggles (2625), who was appointed to the Board in Feb. 1977, to fill an unexpired term, was

also elected. Other members of the Board of Directors: Clarence Sandy (2553), Marvin Daniel (5742), Bill Bristol (Credit Union General Manager), Willie Garcia (3163), Bill Olheiser (retired), Joe Maldonado (9714) and Don Wagner (8212). Richard Marmon (9563) was elected to fill the vacancy on the Credit Committee. Other members of the Credit Committee are John Anaya (3725) and Molly Raisen (Credit Union Office Manager).

Following the business session, drawings were held for three cash prizes. The winners: Howard Turner (retired)- \$500, Laura Almaraz (young adult's account) - \$300 and Robert Garcia (9714) - \$200.

On Jan. 27 a special meeting of the Board was held to elect officers and appoint committees for 1978. Elected officers are: Clarence Sandy, President; Marvin Daniel, Vice President; Joe Maldonado, Secretary; Bill Bristol, Treasurer. The Board also elected these officials to comprise the Executive Committee, with Bill Bristol as Chairman.

Ed Haskin (4123) was appointed to the Supervisory Committee, joining Robert Luna (5443), Pete Komen (2123) and Dan Held (8213). Other committees include the Operations Committee - Marvin Daniel, Chairman; Education Committee - Willie Garcia, Chairman; and Data Processing Committee, C. L. Turner (Credit Union Associate Manager), Chairman.

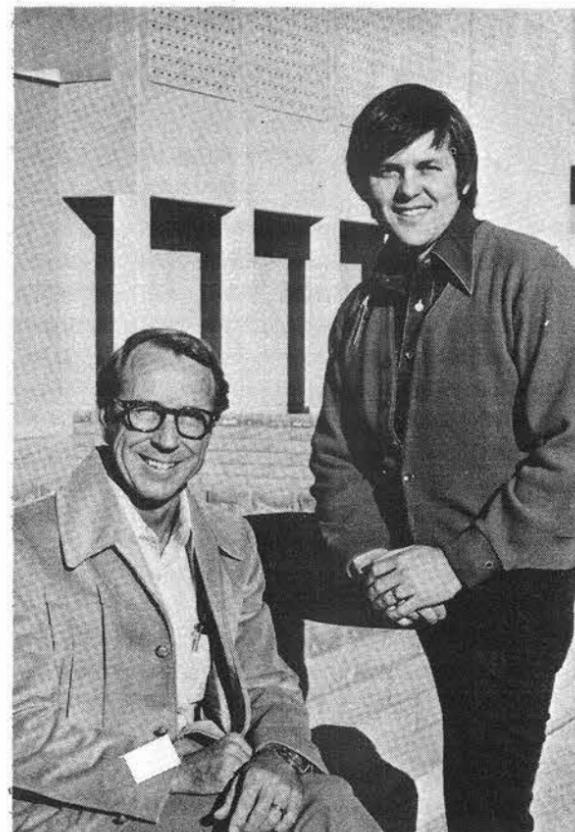
Congratulations

Mr. and Mrs. Russ Varnado (3252), a daughter, Elizabeth Claire, Jan. 19.

Mr. and Mrs. Craig Melville (5214), a son, Sean Michael, Jan. 14.

Mr. and Mrs. Tommy Simpson (9582), a daughter, Tatum, Dec. 31.

Mr. and Mrs. Daniel Baca (9713), a son, Eric Daniel, Jan. 26.



DON DOAK (4363) and DON MCCOY (4311)

Supervisory Appointments

DON DOAK to supervisor of Advanced Development Division I, 4363, effective Jan. 16. Joining the Labs in June 1958 as a staff member in applied mechanics, Don stayed with that group for 16 years doing stress analyses and water entry hydrodynamics studies. For the past three years he has worked in his current division on advanced development of weapon systems.

Don earned a BS in aeronautical engineering from Purdue University. Under Sandia's Computer Science Development Program, he earned an MS in ME. He is a member of ASME. A past president of the Model A Club, Don now owns a Model A which he restored. His current project is construction of a cabin in the Jemez Mountains. Don and his wife Nancy have 5 children and one grandson. They live in the NE heights.

* * *

DON MCCOY to supervisor of 61-3,4 Development Division 4311, effective Jan. 16. Don came to Sandia in February 1969 as a member of Sandia's One-Year-On-Campus Program, and became a full-time employee the following year. His work has been in the area of analytical support in various weapon programs and mechanical engineering in advanced development programs. Responsibility of his current division is the development of the B-61, Mods 3 and 4.

Don earned his BS in ME at the University of Missouri at Rolla and, as an OYOC, his MS in ME from Purdue University. His off-the-job interests include skiing, fishing and camping. He and his wife Debbie have a one-year-old son, Jason, and live in the NE heights.



Men and women react differently to wealth. *The American Journal of Clinical Nutrition* reports that women get thinner as they amass wealth. Men put on pounds.

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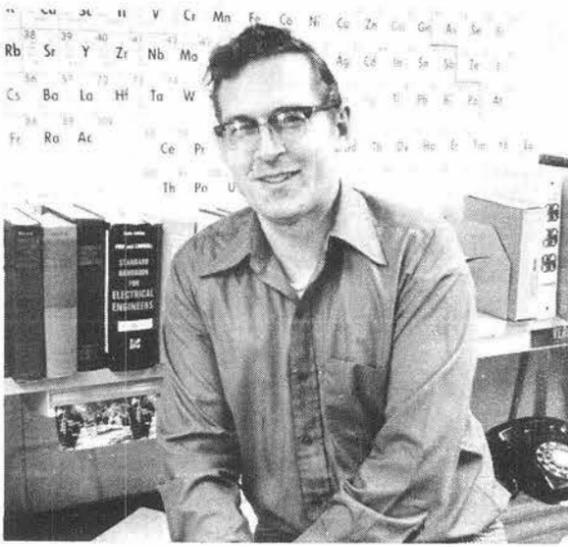
bruce hawkinson & lorena schneider report livermore

LIVERMORE NEWS

VOL. 30, NO. 3

LIVERMORE LABORATORIES

FEBRUARY 3, 1978



Supervisory Appointment

VERN BARR to supervisor of Electronics Packaging Laboratory Section 8424-1, effective Feb. 1.

Since joining Sandia in March 1967, Vern has worked in prototype development and electromechanical design for instrumentation systems and, most recently, on the design of secure shipping containers for nuclear material. Previously he was an electronics technician at Battelle Northwest, an assistant shop foreman at International Harvester, and served in the Air Force.

Vern has an associate degree in electronics from Oregon Institute of Technology and currently attends Chabot College. Off the job, he enjoys crafts, scouting, photography and music. For a number of years he has had his own band and still plays the saxophone and piano.

He and his wife Bonnie have three children, a boy and a girl who live at home on Emerald Street in Livermore and a grown son.



ASSEMBLING THE CRANKCASE of the Pouliot Variable Displacement Engine prototype are Dennis Sparger and Bill Kent (both 8352). SLL's work with the VDE is now complete.

Van Pools Arriving at SLL

SLL employees who live outside Livermore will soon be offered a chance to form van pools for commuting. The vehicles, new Dodge Maxivans with all the extras, will be leased through a non-profit local corporation, RIDES for Bay Area Commuters, Inc. Employees who live outside Livermore will receive further information on the program within the next two weeks.



Roberta (8265) and Bill Cole (8213)

VDE Work Completed

Final exams on Sandia Livermore's Variable Displacement Engine (VDE) indicate that its design and concept are indeed feasible; it's ready to go out into the real automotive world.

The engine, invented three years ago by Harvey Pouliot (LAB NEWS, October 15, 1976), reduced fuel consumption at low power levels by reducing throttling and friction losses. Its unique feature is a mechanical linkage that enables the driver to change at will the length of the piston stroke (hence displacement) and thus adjust the horsepower of the engine to meet the varying demands of the driving situation. Varying the displacement of the engine eliminates the need for the throttle, a major source of inefficiency in conventional engines.

Dynamometer tests of a fully workable research prototype of the VDE have now provided data on fuel consumption and emissions levels at various speeds and loads. These data, collected over more than 375 hours of operation, allow extrapolations to EPA levels for fuel economy and emissions in city driving. As expected, the greatest improvement in fuel economy occurred at low loads—level road cruising at a constant speed, for example. A conventional engine can't change its displacement so, at less than full-power, the air-fuel mixture has to be throttled down, and this decreases its efficiency.

Enhanced efficiency in the VDE also comes from reduced mechanical friction because of the shorter stroke.

"Assigning precise numerical values to our extrapolations from bench model to real world is tricky," says Bill Robinson, supervisor of Combustion Applications Division 8352. "We don't have cold start data for the VDE, for example. And, for comparisons, we used 1976 data on conventional vehicles because that's what was available when we began testing. None of the vehicles in the appropriate weight class—3500 pounds—exceeded 18 miles per gallon that year. With emissions uncontrolled, the VDE achieved 23.4 mpg throughout the EPA's city test cycle. Controlling emissions costs a five to eight percent reduction in economy. Conservatively then, the VDE offers a 20 percent improvement in fuel economy."

"And we've now finished our task," says Dan Hartley, manager of the Combustion Sciences Department 8350. "We've demonstrated that concept and design are feasible. We've published articles in the appropriate journals, and we've briefed all the domestic and most foreign auto manufacturers. Future development now rests with the automotive industry."

Sympathy

To Dick Fell (8181) on the death of his father in Petaluma, Calif., Jan. 20.

Continued from Page One

ESOP

And if many Bell System employees begin to take more than casual interest in the company's construction plans, it's because under the new tax laws the more switching equipment, transmission systems, cables and telephones the Bell System needs to install, the more employees instead of the Federal Treasury will benefit.

For you, the hypothetical typical telephone employee, however, ESOP won't mean a stock windfall because the Bell system's plan for 1976 issued only about one share of AT&T stock for each \$10,000 in pay, including all wages or salary, overtime and taxable benefits reported in your W-2 statement. (Shares, by the way, are not available on pay in excess of \$100,000 a year, just in case you were reaching for your calculator.)

Nor is that stock available right away, because it must be held in trust for seven years unless you retire or end service with a participating company. However, you will not pay taxes on shares and dividends allocated to your account until the stock is finally turned over to you. Only then do you officially become an owner of record.

For the 1976 tax year, the Bell System divided among its eligible employees about 1,275,000 shares of AT&T stock issued at \$61.77 a share. (This was the average market price for the 20 trading days preceding AT&T's tax return filing in September.) For example, an employee who was paid \$17,000 in 1976 was credited for that year with almost 1.7 shares of stock, worth about \$100 at current market prices.

Dividends reinvested over the trust period (minus some administrative and start-up costs) will add to the value of that investment before it is handed over the employee.

In simplest terms, ESOPs work this way. A company builds a \$50 million factory. It uses the regular investment tax credit to subtract 10 per cent of that amount, or \$5 million, from its tax bill. Then with an ESOP, it takes off an additional one per cent—\$500,000 more.

When AT&T paid its 1976 tax bill in September, it claimed the additional one per cent credit, using a credit of \$78.7 million to provide stock for ESOP accounts and reduce its taxes by an equal amount. That figure was in addition to \$887 million in regular tax credits AT&T claimed for the 1976 tax year.

The Bell System expects to continue its ESOP until 1980, when the additional tax credit is scheduled to expire.

Whether Congress' experiment in "people's capitalism" continues beyond 1980 remains to be seen. But for the Bell System, the broadening of employee ownership—and the availability of greater financial information that goes with it—may go far in increasing employee understanding of how the business really works. That by itself could make an enormous difference in the prospects for the long-run preservation of the telephone industry under increased competition.



JOHN TALBOT (1132), right, helps a drilling crew install explosive well head loaders at the site of an oil shale rubblizing experiment. Both hydrofracture techniques and explosive slurry were used to rubblize an underground oil shale formation.

Continued from Page One

Rubblization Experiment Successful

the first highly instrumented demonstration of the hydraulic fracture/explosive fracture rubblization technique. The technique is complex because the two cracking methods must work in conjunction to achieve a well-defined, productive rubblized bed.

First, engineers drilled access well bores about 60 metres into the oil shale bed. The shale around the holes was "hydraulically" cracked by injecting a fluid into the holes under pressure. Then, 7000 kg of slurry explosive—a liquid with the consistency of a thick milk shake—were injected into the cracks. Detonation of the slurry created more cracks in the shale.

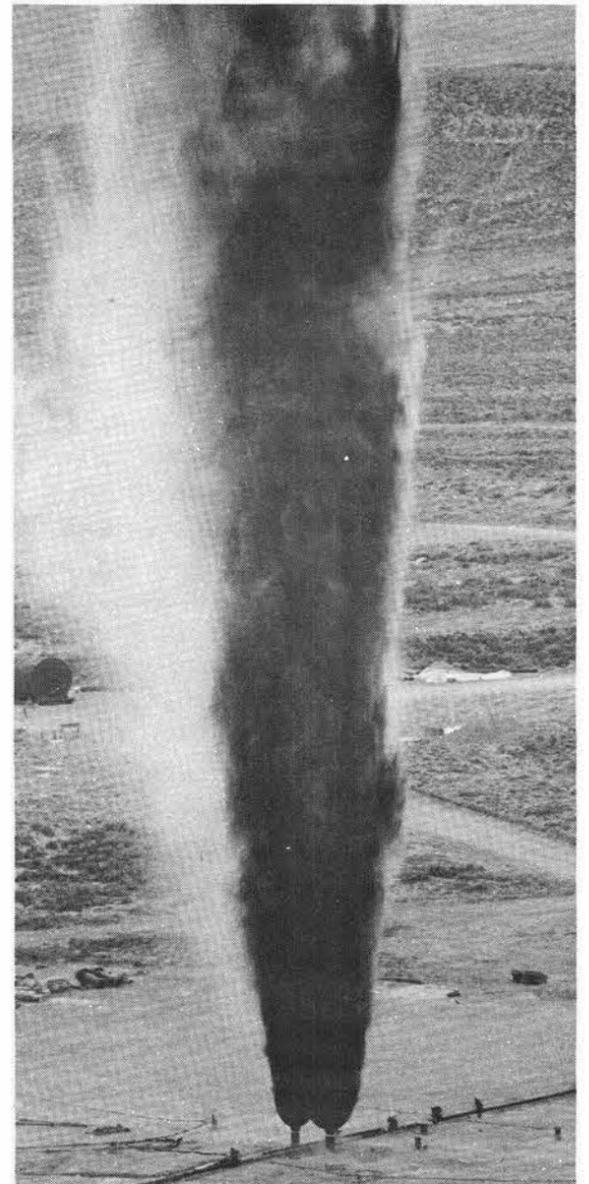
During the blast, the surface rose about 25cm and then settled back to within a few centimetres of its pre-test position. Just how this affected the underground fracture zone is still being analyzed, along with data collected from stress gages, to determine how energy from the blast was distributed in the shale.

"This test was a significant step forward for in situ oil shale technology," says Al Stevens. "We produced and monitored the desired hydraulic fracture pattern—three narrow, horizontal cracks which extended throughout the test area at the bottom of each bore hole.

"Then we controlled explosive emplacement and detonation in two fracture horizons precisely enough to produce a thoroughly rubblized oil shale bed, approximately three metres wide," he says.

Many questions remain. For instance, more must be learned about optimum fracture patterns and detonation size. (Although data from the test are still being analyzed, it appears that satisfactory rubblization is possible with greater distances between horizontal hydraulic fractures.)

Future studies are also needed to optimize the reservoir design for insuring



GASSES VENT through two well bores as nearly 7000 kg of slurry explosive rubblize an oil shale formation 60 m beneath the surface during an experiment near Rock Springs, Wyo. Sandia's Division 5734 conducted the experiment.

that freed oil flows to the recovery well instead of becoming trapped or lost underground.

Speakers

H. C. Monteith (5111), "Research in Paranormal Psychology," Philosophers' Club, Dec. 1, Albuquerque.

D. P. Peterson (9624), "Artificial Intelligence and Computing," Career Enrichment Center electronics classes, Dec. 1 and 8, Albuquerque.

K. L. Biringer (5719), "Solar Energy Research," Career Enrichment Center electronics class, Dec. 1.

R. M. Jefferson (5430), "Our Powerless Society," Northwest Kiwanis Club, Dec. 7.

O. L. Wright (retired), "History of Sandia Base," Northwest Kiwanis Club, Dec. 28.

G. E. Brandvold (5710), "Solar Thermal Power Systems R&D in the United States," and "Vertical Axis Wind Turbine Research and Engineering Development at Sandia Laboratories," Israeli Seminar (U.S. Solar Energy Team Visit to Israel), Jan. 6-12, Tel Aviv, Israel.

D. Emin (5151), "Theory of the Hall Effect: Application to Amorphous Semiconductors," Stanford University, Jan. 12.

A. Owyong (5214), "The Applications of Stimulated Raman Spectroscopy to Reactive Gaseous Environments," Project SQUID (ONR) Colloquium on Raman Techniques for Measurements in Reactive Gaseous Environments, Jan. 12-13, Livermore.

P. R. Dawson and J. R. Tillerson (both 5162), "Bedded Salt Formation Motion Following High Level Radioactive Waste Disposal," International Conference on "Evaluation & Prediction of Subsidence," Jan. 15-20, Pensacola Beach, Fla.

I. Auerbach (1333), "Influence of Model Shape on Transition in Arc-Heated Jets," 16th Aerospace Sciences Meeting, Jan. 16-18, Huntsville, Ala.

P. L. Stanton and T. J. Tucker (both 5131), "A Gas Dynamic Gurney Analysis for Modeling the Acceleration History of an Exploding System," and "Experimental Studies of Exploding Foil/Flyer Systems Using a Modified Schlieren Method," Joint X-Unit/LFSC Firing Systems Conference, Nov. 8-9, LASL.

D. K. Brice (5111), "Effect of Surface Impurities on Low Energy Implanted Ion Depth Distributions," Seminar at Bell Labs, Jan. 3-5, Murray Hill, N.J.

P. B. Bailey (5121), "Thermal Explosions," American Mathematical Society annual meeting, Jan. 6, Atlanta, Ga.

E. J. Graeber (5822), "Studying an Active Volcano—The 1977 Eruption of Kilauea," Annual Meeting of Gem & Mineral Club, Jan. 15, Albuquerque.

W. B. Gauster (5111), "The Study of Defects in Metals by Positron Annihilation," SLA-SLL Materials Technology Exchange Seminar, Livermore, Calif.

G. R. Elliott (1734), "Detection of Signals in Noise via Adaptive Digital Filtering," LASL "M" Division Technical Symposium, Jan. 19, LASL.

G. T. Merren (1222), "Application of System Reliability Analysis Techniques," ASQC meeting, Jan. 19, Kansas City, Mo.

M. A. Butler (5154), "Photoelectrochemistry for Solar Energy Conversion," UNM Chemistry Colloquium, Jan. 20.

M. Moss (5842), "Heat Capacity of $\text{ScD}_{0.5-1.83}$ "; L. P. Mix, F. C. Perry, A. J. Toepfer and M. M. Widner (all 5242), "Material Response Measurements on Relativistic Electron Beam Targets"; L. Baker and J. R. Freeman (both 5241), "Rayleigh-Taylor Instability of a Shock-Accelerated Interface"; D. B. Hayes and D. E. Mitchell (both 2513), "Calculations of Shock Sensitivity of Porous HNS Explosive"; J. W. Nunziato (5131) and D. S. Drumheller (5167), "On the Thermodynamics of

Paper Recycling Effort Needs Help



RUSS LEAHY (3413), coordinator of Sandia's paper recycling program, needs volunteers to handle pickup stations for waste paper such as this one that he takes care of in Bldg. 892. If you can help, call Russ on 4-2746.

Recycled paper at the Labs amounts to about two pounds per employee of waste paper each month, so says Russ Leahy of Reclamation and Storage Division 3413. During an average month, seven tons of mixed paper, computer tab cards and cardboard are collected and sold through the Labs' paper recycling program.

"We just about break even on the effort," Russ says. "However, the goal is not to make money but to conserve resources."

The program started in March 1972. Since then, Sandia's waste paper has been sold for a total of \$50,395.

"Key to our operation," Russ says, "are the volunteers in the major buildings who take care of our pickup stations. They see that boxes are provided, labeled and picked up. They work with custodians and transportation people."

"It's a thankless job," Russ continues, "and it gets messy. Frankly, we could use more help and cooperation from all employees. We are merely tapping the surface of the waste paper potential at Sandia. When you think about it, two pounds of paper per employee per month is not very much. Too much waste paper actually winds up wasted, not recycled."

If you would like to help, see that your salvageable paper is placed in the proper box at your building's pickup station. If there is no station in your building, volunteer to help. Call Russ on 4-2746 and he will put you in the paper recycling program.

Maxwellian Materials"; P. L. Stanton and R. A. Graham (both 5131), "Shock-Induced Polymorphic Phase Transition in Lithium Niobate"; H. J. Sutherland and J. R. Asay (both 5167), "VISAR Technique for Measuring Transverse and Normal Velocities"; P. C. Lysne (5131), "Dielectric Relaxation in Insulators Damaged by Shock Waves"; L. C. Chhabildis (5167), "Shock and Unloading Wave Profiles in Metals at High Pressures"; J. R. Asay (5167), "Ejection of Mass from Shocked Surfaces of Lead"; D. B. Hayes (2513), "Yielding of Shock-Loaded X-Cut Quartz"; R. J. Lawrence (5162), "The Theoretical Phenomenology of Spark Drilling"; W. T. Brown (5162) and R. A. Graham (5131), "A Proposed Mechanism for Conductivity and Dielectric Breakdown in Shock-Loaded Piezoelectrics"; L. D. Bertholf (5162), "Shock-Induced Mass Ejection from Grooved Surfaces"; F. C. Perry, L. P. Mix and A. J. Toepfer (all 5242), "Stability and Performance of Electron Beam Fusion Model Targets"; A. J. Toepfer (5242) and W. J. Tiffany, "Stability of a Thin Foil Accelerated by a High Velocity Piston Working On A Low Density Gas"; M. E. Kipp (5162) and D. E.

Grady (5163), "A Continuum Model of Strain-Rate Dependent Rock Fracture"; A. J. Toepfer (5242), "Advances in Electron and Ion Beam Fusion"; R. A. Graham (5131), "Dielectric Breakdown in Shock-Loaded Kapton"; R. A. Graham, "Yielding of Shock-Loaded X-Cut Quartz"; D. E. Grady (5163) and M. E. Kipp (5162), "Dynamic Tensile Fracture Studies in Rock," American Physical Society Meeting, Jan. 23-26, San Francisco.

J. V. Ott (5713), "The ERDA 5MW_t Solar Thermal Test Facility," The 2nd National Conference on Technology for Energy Conservation, Jan. 23-27, Albuquerque.

W. D. Brown (1353), "Effects of the Ionosphere on the Performance of the SEASAR Synthetic-Aperture Radar," Symposium on the Terrestrial Systems, Jan. 24-26, Arlington, Va.

E. H. Beckner (5200), "Applications of Pulsed Power," 1978 IEEE Power Engineering Society Winter Meeting, Jan. 29-Feb. 3, New York City.



THE LAST OF THE FULL-SCALE transportation accident tests conducted for DOE took place last Tuesday in Lurance Canyon. Prior to the test, Sandia project engineer, Richard Yoshimura (5433) discussed the test with observers from the news media, industry, U.S. and foreign governments (note Japanese representative at left wearing Daniel Boone hat). As predicted by structural analyses and scale model tests, the 74-ton spent nuclear-fuel cask, mounted as shown here in a special railcar, survived an 81 mph crash test last



September. The cask and car were then moved and reassembled at the same tilt angle in a concrete-lined pool where burning JP-4 jet fuel floating on water engulfed the cask in flames that produced heats of 1800 to 2100°F. The railcar eventually warped in the intense heat and turned over into the pool, but the cask survived a 90-minute fire period during which it was exposed to six times the heat input required by current qualification test standards.

Sandia Health Physicist Serves On Enewetak

Ted Simmons of Health Physics Division 3312 recently returned to Sandia after five weeks on Enewetak Atoll (Marshall Islands) helping the DOE with a project to "clean-up" the former Pacific Proving Grounds site so that the native population might finally come back to its home islands.

Enewetak (the spelling has been changed to correspond with native language) was captured from the Japanese during WWII. In 1947 the natives were relocated, and the remote atoll (some 2740 miles southwest of Honolulu) was the scene during the next decade of 43 nuclear tests, including the first thermonuclear devices. With the cessation of atmospheric testing, Enewetak continued as a site for flight testing missiles and conventional explosives. In 1976 the U.S. returned control of the atoll to the Enewetak people with the assurance that both radiological hazards and physical debris would be cleaned up.

This task is the responsibility of the DoD's Defense Nuclear Agency. DoD, DOE, military agencies and civilian contractors are participating in the project.

Ted served as technical advisor to the Enewetak Radiological Support Project manager (DOE/NVOO) on health physics and other technical matters.

"Logistics and coordination of the technical effort were the main part of my job," he says. "The Atoll is an elliptical string of 40 small islands connected, more or less, by a coral reef. Land area is only 2.7 square miles but it's spread over an area of 450 square miles.

"Inside the reef is the lagoon, and outside the reef is the deep Pacific."

The southern half of the islands is free of significant contamination, and an advance group of Marshallese has returned. The northern islands have minimal radiological hazards.

"Contaminated top soil is being scraped off by bulldozers, mixed about half and half with concrete and dumped into one of the deep craters—the old 'Cactus' shot, for the Field Testers who remember. The plan is to make a few of the islands residence islands, make some of them into plantations for growing coconuts and make the remainder 'picnic' islands. One island will remain a restricted area. This is the one where the contaminated material is being buried."

Ted reports that the fish from the lagoon are fine for eating, so are the langosta in the reef and the big coconut crabs from the southern islands. Some of the coconut crabs from the northern islands have concentrations of strontium-90. Obviously these are not for eating. The clean-up work is scheduled to be completed in about three years.

"There's a tremendous amount of junk on the islands," Ted says. "Lots of ships and bunkers from WWII plus towers, buildings and bunkers left from testing. The recoverable steel is being salvaged by a private contractor. The bulk of the debris



TED SIMMONS (3312) recently spent five weeks on Enewetak Atoll in the Pacific as a health physicist assisting in the radiological decontamination of the former nuclear test site.



PLUTONIUM in the top soil is scraped up by bulldozers, mixed with concrete and dumped into a restricted area. Few areas remain where anti-C suits are needed.



ALL TERRAIN VEHICLE, containing an analyzer, computer, and a detector at the end of a boom, counts radiation on Enewetak. Anti-C suits in the hot, humid climate tended to be uncomfortable.

is being dumped into the lagoon. Final projects on the atoll will be planting coconut groves and building community center and homes. There are about 400 natives of Enewetak.

"They will enjoy a good life," Ted continues. "Fishing is great; so is the swimming and sailing in the lagoon. Copra from the coconuts will be a cash crop. I enjoyed my time there—the work was interesting—but I'm glad to be back."

LASL, LLL, Sandia, EPA Las Vegas and DOE/NVOO provide a health physicist advisor to the Enewetak project on a rotating basis. Jim Metcalf (3312) is scheduled for a stint there starting next month. Ted will probably go back next year.

Fun & Games

Racketball—C-Club's Bob Giersberg reports that some modifications have been made in the original arrangement for use of the Base gym's courts. Cost is now two bucks an hour (instead of one) and the thing doesn't start till Feb. 6. Hours are 6 a.m. to 8 a.m., and make reservations by calling Bob on 4-8486. Incidentally, since the gym will be open anyway, other facilities will be available during these hours as well.

* * *

Fitness for women—Response to the first class was so large that a second set of classes has been set up to start March 14. Registrations are now being taken on 4-8486. Class size is limited to 40. Fee is \$10 for the 8-week course, scheduled to run Tuesday and Thursday evenings.

* * *

Exercise physiology—Another best seller is Ralph La Forge's 6-session course in exercise physiology. Ziggy Shelton of Education & Training Division 3521 reports that three runs of the course will likely be needed to accommodate all the sign-ups. The *Weekly Bulletin* dated Jan. 19 carries enrollment and other information. Ralph is on the staff of the Preventive Medicine Dept. at Lovelace-Bataan.

* * *

Skiing—The strange white stuff you've seen lately is snow, thank you, and the skiing is better than ever. If the downhill scene begins to pall, consider these offerings by the Ski Touring Club for the next weekends: Feb. 5, the Osha Spring Trail, several miles through the spruce and fir forest of the high Sandias; Feb. 11, Valle Grande in the Jemez Mts. Skiing across this unique caldera must be what it's like to be on the moon—a fantastic spot. The Labs' Dave Saylor is president of the 200-member Ski Touring Club.

* * *

Softball—The Labs Softball Association is making plans for the '78 season and is looking for additional players and teams in both the men's slow pitch and the women's fast pitch leagues. Coaches are also needed for the women's teams. If you're interested or want more detail, call one of these: Tom Massis, 4-1540; Sal Baldonado, 4-3254; Pam Morenus, 4-3265; or Bob Giersberg, 4-8486.

* * *

Swimming—The Olympic Pool should be open by March 29, so says the military. An earlier date was hoped for, but then the contractor doing all the repairs discovered that most of the metal roof supports were rusted through beneath their paint and these are now being replaced. About \$175,000 is being spent on the project.



We always thought those stories about turkeys were apocryphal. Nothing, we felt, could be that dumb and survive. Now it seems they really can't. Turkey breeders report that when it rains, turkeys look skyward to see where the water's coming from. Some accidentally open their beaks, get a throat full of water and drown where they stand.

Take Note

Retiree Victor Gabaldon called with an interesting proposition for other retirees and for spouses/children of Sandians. He's the Disabled American Veterans' liaison man with the Veterans Hospital (on Ridgecrest SE), and he reports that the hospital is in sore need of volunteers to help out in a number of areas: operating room hostess, pharmacy aide, medical media assistant, escort for blind patients, library assistant, community visitor, outside shopper, escort and, finally, ladies and girls for the hospital's Monday night (7 to 9) dances. If some of the titles mystify, you can get more information from Victor, 255-8274, or from the VA's Volunteer Service office, 266-1211, ext. 2269.

* * *

Self nominees for job opportunities in the Lab will no longer have to talk to a record-o-fone. The one on duty in Personnel recently blew a resistor and diode and was sent to the shops in despair. Dorothy Garcia, the Post and Bid Clerk took over at that point, and self nominees expressed such delight at reaching a live human being instead of a machine that Personnel decided to do away with the record-o-fone altogether. Information required of callers to 4-2465 remains the same: the name of the supervisor with the vacancy, the title of the job open, your name as it appears on the personnel record, your E-number, organization and phone number.

* * *

As a member of the Sandia Search & Rescue Team, Don Stone (4113) has been called out many times in recent years to participate in searches, rescues, and evacuations in terrain that is usually difficult. Now Don has completed course work at the Law Enforcement Academy in Santa Fe leading to his designation as a Field Coordinator on search and rescue missions. On such missions the State Police are in nominal command, but it is the local Field Coordinator who runs the operation from whatever base camp is established. He calls out the rescue group best suited to the operation, e.g., the Mountain Rescue Council, an Air Force chopper, search dogs, etc., and then coordinates the activity in the field. Last year, local search and rescue teams were busy, participating in more than two dozen missions.

* * *

Ken Eckelmeyer of Physical Metallurgy Division I 5832 will present a series of 12 lectures on basic metallurgical concepts starting Monday, Feb. 6. The lectures are scheduled Monday, Wednesday and Friday mornings at 10:30 in Bldg. 806, Rm 201. Ken, who teaches metallurgy courses in Sandia educational programs, reports the series is a response to interest within the Labs in hydrogen embrittlement problems. Dave Emin (5151), 4-3431, has more information on the lecture series.

The Albuquerque Coin Club is holding its annual show at the Convention Center on Feb. 11 (9 to 7) and Feb. 12 (9 to 5). The public is invited, and there is no admission charge. Coin identification and evaluation service is provided at no charge for small quantities. Fifty coin dealers from out-of-state will operate Bourse sales tables, displaying nearly \$10 million in numismatic material from around the world. Educational forums are scheduled each day at 1:30 p.m.

* * *

Albuquerque Flotillas 2-4 of the USCG Auxiliary is offering boating safety courses in sailing and general power boating. Pre-registration, required for both courses, can be arranged by contacting Ben Gardiner (9751), 298-0116, or E. H. Bultmann, 821-0672 by Feb. 8. A \$6 fee includes cost of the textbook.

The Boating Skills and Seamanship course will run for 13 weeks. Classes begin Feb. 9 at 7:30 p.m. in the Rust Tractor Sales building at 4000 Osuna Rd. NE. The Principles of Sailing course will run for seven weeks, beginning Feb. 14 at 7:30 p.m. in the U.S. Coast Guard Reserve facilities on KAFB East.

Events Calendar

Feb. 3,4—The Joffrey II Ballet Company, UNM Cultural Entertainment Series, Popejoy Hall, 277-3121.

Feb. 3—UNM Track Meet, Tingley Coliseum, 277-4031.

Feb. 4—15th Annual Jaycee Invitational Track Meet, Tingley Coliseum, 266-4711.

Feb. 6—"Spock and I," with Leonard Nimoy, sponsored by the UNM Speakers Committee, Popejoy Hall, 8 p.m.

Feb. 7—"Wildlife By Day and By Night," Audubon Wildlife Film Series, Popejoy Hall, 7:30 p.m.

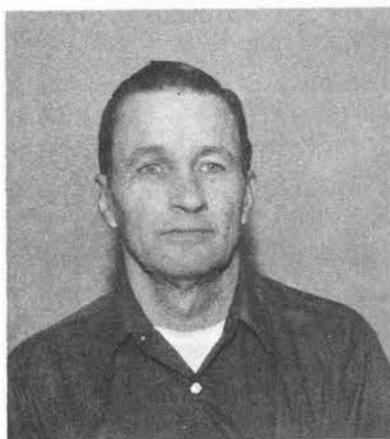
Feb. 8—"Bubbling Brown Sugar," musical revue of Harlem, UNM Cultural Entertainment Series, Popejoy Hall, 277-3121.

Feb. 10, 11—New Mexico Symphony Orchestra and Chorus with baritone Robert Merrill, Popejoy Hall, 8:15 p.m., 265-3689.

Feb. 12—N.M. Buckskin Horse Ass'n. All Breed Training Show, N.M. State Fair Arena.

Feb. 13—The Royal Ballet of Flanders, UNM Cultural Program Committee Celebrity Series, Popejoy Hall, 277-3121.

Retiring



Don Matejka (9473)



Rosemary Teasdale (3151)



Bill Carstens (3511)



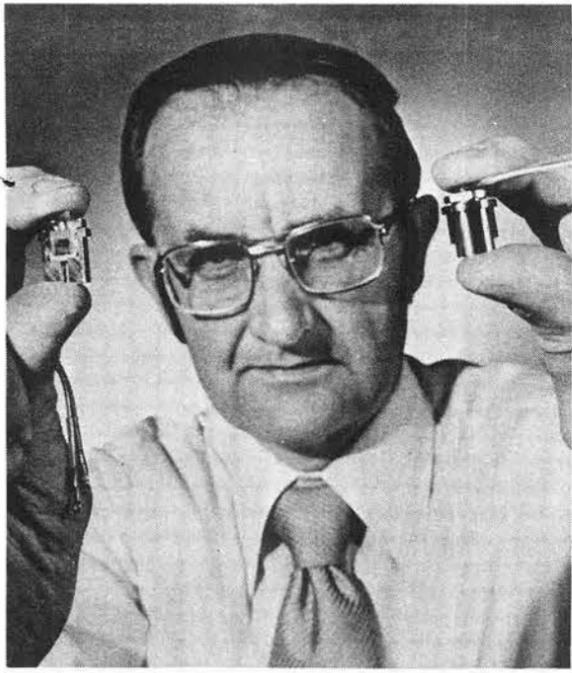
Jesus Romero (3430)



Ernest Hall (1324)



Luther Martinez (3413)



AL JACOBSON (2513) displays a cutaway (left) and a prototype of a new detonator device which does not use a primary explosive. It's called a low-voltage, flying-plate detonator.

Sandia Develops New Flying Plate Detonator Device

A new kind of low voltage detonator—one that does not use a primary explosive—was developed recently as part of a weapon program. The device, developed by Detonating Components Division 2513, is described as a low-voltage flying-plate detonator.

In conventional low voltage detonators, a current through a bridgewire ignites the primary explosive to burning which spontaneously turns into a detonation.

The new detonator also is initiated by a current through a bridgewire, but this ignites a pyrotechnic material which is contained in a closed cavity. The pyrotechnic burns but does not detonate. High pressure gas is produced, causing a plate-like disk to accelerate down a barrel and impact upon the acceptor explosive in the next assembly. The impact creates a shock wave sufficient to detonate the acceptor explosive.

The chief advantage of the new detonator is increased safety during manufacture. Conventional primary explosives are much more sensitive to static electricity and impact than the pyrotechnic used in the new detonator. Extreme safety precautions are required in handling bulk primary explosives. (Secondary explosives are relatively insensitive.) In addition to added safety during production, the new detonator is thermally stable over a wide range of temperatures. It will function reliably after exposure to high level mechanical shock and vibration environments.

Al Jacobsen (2513) led the detonator development team effort within Department 2510. The concept of detonation transfer by flying plate impact is not new. However, the application of these concepts and development of new ideas for the detonator involved the use of advanced analytical techniques.

Tubing—Invitation To Disaster

Last Monday morning Bob Weaver (9572) came to see us in a considerable state of agitation. Bob, an Emergency Medical Technician with Bernalillo Co. Fire District 6, drives the unit's rescue vehicle, and he'd spent most of the previous day, Sunday, in the Sandias hauling injured tubers off the mountain.

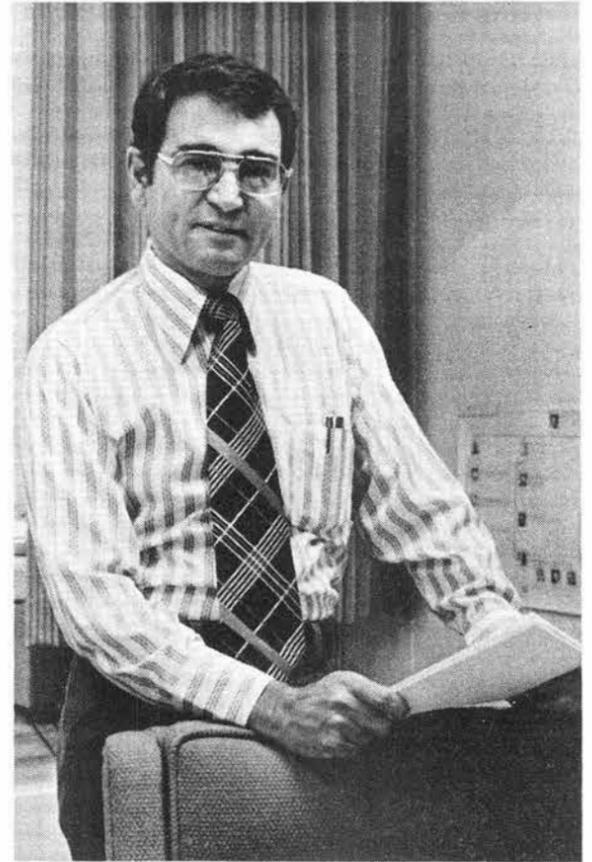
"It got so bad that at one point we were hauling an already injured person back up the mountain so that we could pick up another victim. The new victim was unconscious but came out of it while we were there—didn't know where he was or what had happened. Probably had a concussion but it could have been a skull fracture—that's bad news."

In fact, Bob had very little good news to relate on the subject of tubing. He recalls MaryEllen, a young woman they'd taken off the hill earlier in the month. MaryEllen has a cervical fracture of the spine, is now paralyzed from the chest down, and is likely to stay that way for the rest of her life.

"Tubing's awfully hard on the spine. We've seen several fractured spines already," Bob adds. Other injuries include less severe fractures of the arms and legs, and concussions.

Bob came to see this writer because of my long association with ski patrolling and ski injuries. Skiing is hazardous, but it's not in the same league as tubing. Cartoons to the contrary, there is a measure of control when you ski down a hill—you can turn, you can stop, you can avoid obstacles, you can regulate your speed. None of these can you do while tubing. And when they occur, the significant skiing injuries tend to be sprains or fractures of the lower leg, not much fun but not an affliction to be borne forever more.

Is there an answer to the tubing problem in the Sandias? Probably not, except to inform the public. The Forest Service says it doesn't have funds to establish



ON TO THE BIG APPLE—Director of Purchasing Larry Conterno returns to WE this month. He's been named Manager of Business Planning at WE headquarters in New York (222 Broadway). The job calls for Larry to coordinate WE's 5-year forecast, and he will report to the VP of Finance. His tour at Sandia has lasted four years; previously he was employed at WE's Denver Works. The headquarters' job is Larry's 8th assignment since joining Western some 20 years ago. His successor at the Labs has not yet been announced.

a "safe" tubing area; in any case the attendant clearing out of a wooded area plus installation of a parking lot would probably incur the wrath of environmentalists. Further, the Forest Service is understandably concerned about liability: if you hurt yourself in their developed tubing area you may just decide it was their fault and sue.

We think the message is clear. If you and your family enjoy winter sports, try skiing, downhill or cross-country, snow shoeing, or skimobiling. They're all fun. But stay off the tubes. They're lethal. •js



NOT TOO MANY PEOPLE have an opportunity to talk with the Prime Minister of Great Britain, but that was Ed Roth's good fortune a while back. Ed (1314), national president of the Society of Manufacturing Engineers, was attending the annual dinner of Great Britain's Institution of Production Engineers and, to his surprise, found himself sitting across from Prime Minister James Callaghan, the guest of honor and speaker. Throughout dinner he and the PM carried on an animated conversation about the role of engineering in modern society. Ed was the only American attending the prestigious affair. He's at left, with wide smile for English humor as the PM opens his talk.

The Army Avenges Governor Bent

TAOS, New Mexico Territory—Col. Price and his infantry, with a company of volunteers, arrived today [Feb. 3, 1847] to put down the rebellion begun two weeks ago.



Col. Price

Following Gen. Kearny's departure for California, Col. Sterling Price arrived in Santa Fe to command military operations in the Territory. Word of the slaying of Gov. Bent and others began to filter into the capital. A few messengers had slipped out of rebel-held Taos to spread the tale.

Col. Price immediately jailed a number of Santa Fe residents suspected of being part of the conspiracy. Intercepted messages indicated that the rebels were moving quickly to exploit their advantage and were gaining recruits along their advance towards Santa Fe. Col. Price asked Charles Bent's friend and partner, Ceran St. Vrain, to recruit a company of volunteers among the mountain men and merchants in the city. St. Vrain quickly rounded up 65 men and, on Jan. 23, 353 men marched out from Santa Fe; only the volunteers were mounted.

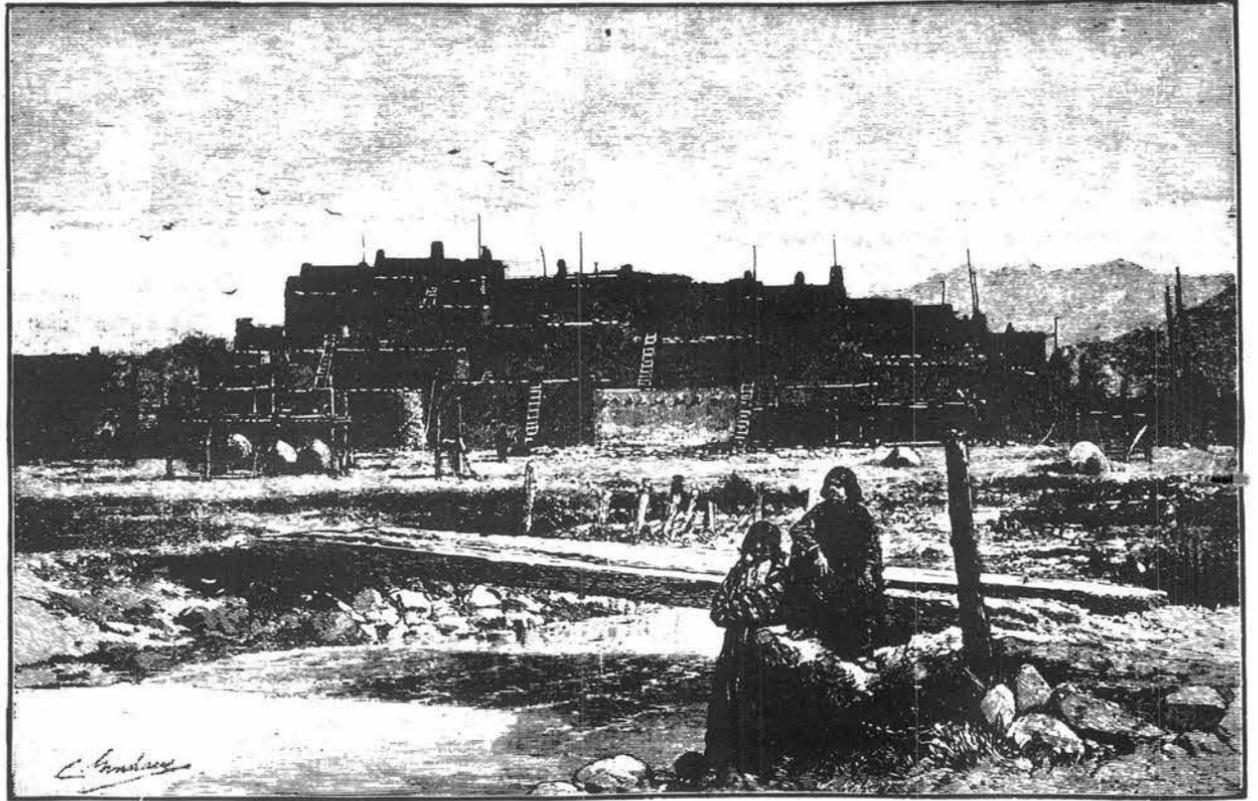
The American force encountered the rebels at La Canada (present day Santa Cruz). At least 1500 men, under Capt. Tafoya, held the surrounding hills, but they were disorganized and untrained. In the ensuing melee they retreated, leaving behind 45 men who were taken prisoner and 36 dead, including their leader. Pushing on through deep snow and bitter cold, the troops had to cut a road for the baggage train and their mountain howitzers. On Jan. 28, reinforcements from Albuquerque, under Capt. Burgwin, joined the force, now up to 480.

The next encounter with the regrouped rebels was at El Embudo. Col. Price ordered a three-pronged attack, and the rebel line collapsed.

After the two defeats, most of the insurgents vanished. The Indians, still rebellious, retreated to their pueblo at Taos and barricaded themselves in the old church.

On Feb. 3, after a hard march, the army reached Taos. When Col. Price heard that the enemy had fortified themselves in the pueblo, he ordered an immediate attack. Surrounded by a stockade of timbers and adobe, with a towering, thick-walled church in one corner, and no entries leading into the five-storied dwellings, the pueblo was formidable. And now it held six to seven hundred fighting men who, with their families, were assembled there with water and provisions.

Small howitzers and a six-pounder bombarded the mud walls for two hours with no results. As darkness fell, Col. Price



TAOS CREEK divides the Pueblo into two sections.

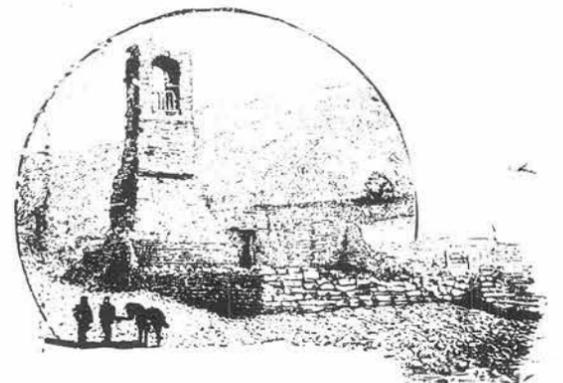
withdrew his troops amid the jeers of the Indians. The battle intensified the next day. Continuous bombardment did little damage. Finally, a hole was chopped in the church wall with an axe and then widened with the six-pounder. Captain Burgwin was killed as he and his dragoons dashed into the steady fire to emplace scaling ladders so that they could ignite the wooden roof of the church. The furious assault lasted all day with cannonade, smoke, yelling and screaming. At length, the walls were breached, the church doors battered down and fleeing defenders were picked off by the rifle fire of St. Vrain's mountain men.

At dawn next day, women with white flags and children carrying crosses indicated the end of resistance. With 150 dead and many wounded, the defenders surrendered their leaders.

At the trial which quickly followed, the principal witnesses were the family of Gov. Bent—his widow, Ignacia, sister-in-law, Josefa Carson, and his step-daughter Rumalda. Shortly, a verdict of guilty was

pronounced, and 14 men were sentenced and hanged. More than 20 other insurgents were executed for their role in the uprising in other parts of the Territory. Others were flogged.

Governor Bent's headless body was disinterred from its secret grave in Taos and taken to Santa Fe. The army returned to Santa Fe and, on Feb. 13, funeral services for Governor Bent and Captain Burgwin were held. The governor was reburied in the National cemetery at Santa Fe. •nt



RUINS of the Catholic mission at Taos. It was destroyed during the 1847 Taos Revolt.

Public Hearing Set for Shooting Facility

A public hearing to discuss a proposed shooting range and recreation facility on the West Mesa is scheduled Thursday, Feb. 9. Conducted by the Bureau of Land Management (BLM), the meeting will start at 7 p.m. in the Florentine-Granada Room of the Hilton Inn. Agencies concerned with the proposal include the Albuquerque Parks and Recreation Department, State Parks and Recreation Department, N.M. Department of Game and Fish, Bureau of Outdoor Recreation and BLM.

In addition to ranges for archery, shotgun, rifle and pistol shooting, the

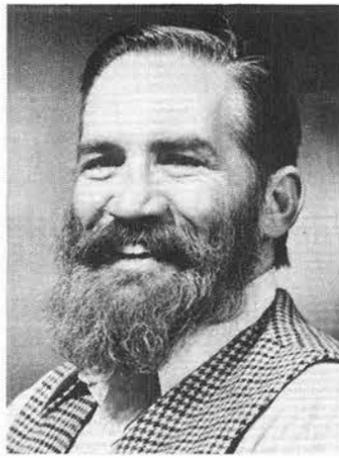
proposed facility will include picnic areas, RV parking and camping accommodations and other recreation areas.

Dave Bennett (5412), legislative officer of the N.M. Shooting Sports Association, urges all shooters to attend. He reports that BLM is particularly interested in statements of both individuals and organizations concerning potential use of the Shooting Range Park. Written comments will be accepted by BLM until Feb. 24. For additional information, contact Dave at 298-1142.

MILEPOSTS

LAB NEWS

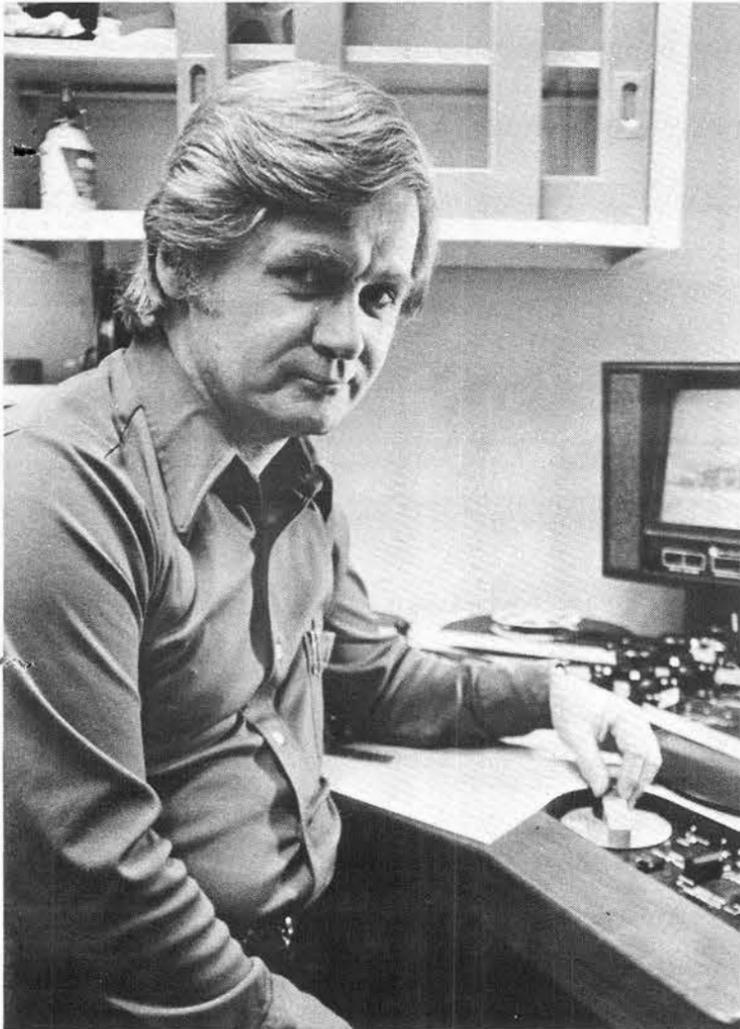
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Harold Gough - 5845 10



Frutoso Gurule - 9712 15



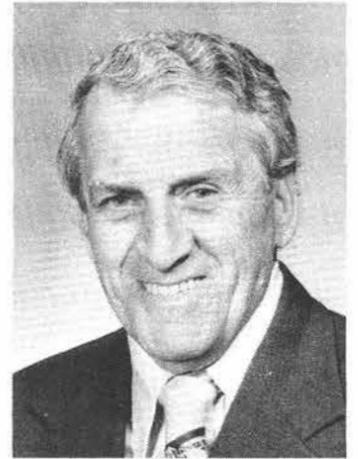
Wayne Gravning - 3153 20



John Lowery - 3422 15



Robert Chavez - 9718 15



Fred Shoemaker - 1132 25



Sherry Bowen - 8351 10



Steven Burchett - 1281 10



Walter Von Rieseemann-5431 15



Robert Simpson - 2112 15



Ort Thomas - 8327 25



Al Stephenson - 5337 15



Jackie Gray - 3251 15



Evelyn Renker - 3735 10



Charles Boston - 9563 15



Robert Silva - 5736 10



John Garcia - 9753 25

New Agency to Receive Support from ECP

A new agency, the New Mexico Lung Association, was accepted into the Employees Contribution Plan at a recent meeting of the ECP committee. This is the first new agency to join the ECP in many years.

The agency, widely known for its Christmas Seals, has a long history of service to New Mexico and will begin receiving funds from ECP next year. Of its current budget, \$153,800, 10 percent goes to the national association to help finance research on respiratory diseases. Primary source of the agency's funds is the sale of Christmas Seals.

In years past, the organization concentrated its efforts on tuberculosis, which is no longer a major health problem.

The Lung Association, while still promoting tests to detect TB, now focuses on a wide range of respiratory diseases, including asthma and emphysema. Air pollution and air quality are also concerns.

Conducting a two-pronged program to

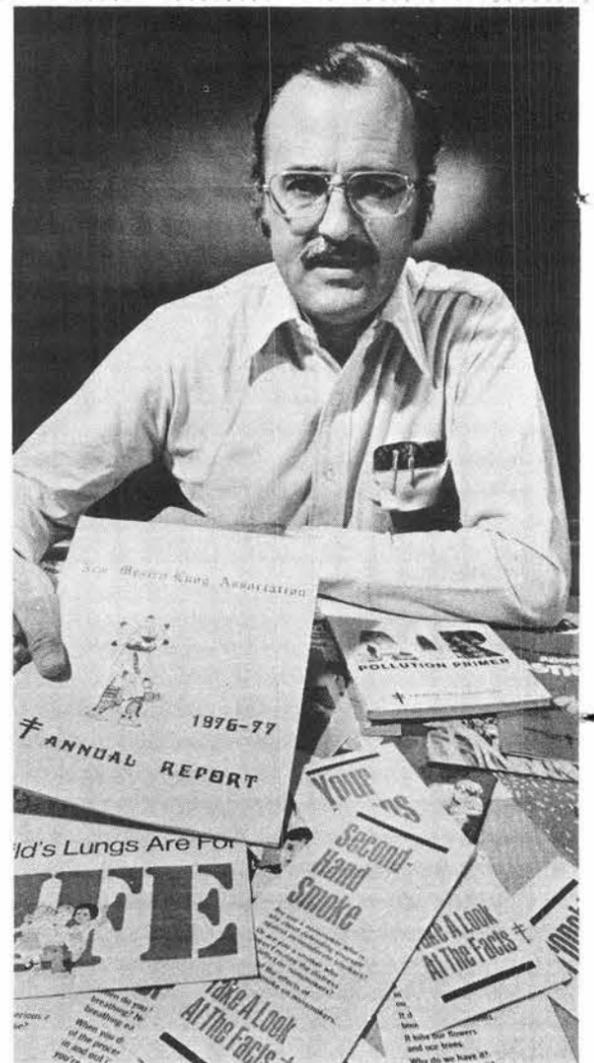
combat respiratory disease, the Lung Assn. distributes anti-smoking and other tracts in the schools, while the agency's people set up workshops and provide speakers, literature and film programs for community organizations statewide.

Second part of the program aids people who suffer from lung disease. A professional lung therapist conducts self-help classes for patients and provides counseling. About 400 patients were helped in this program last year. A second health professional will be added to the agency's staff soon.

These efforts are complemented by those of the New Mexico Thoracic Society, an associated organization of physicians specializing in pulmonary disorders. The Lung Assn. in turn supports the Thoracic Society in sponsoring symposiums and training programs for medical professionals.

Another area of concern for the Lung Assn. is the environment and, to this end, the agency works with the local and state government in legislating and defining air quality. Hugh Church (5333), vice president of the agency and a professional meteorologist, has particular interest in this area.

"The Lung Assn. performs vital services," Hugh says. "We're really pleased to gain this support from ECP."



HUGH CHURCH (5333), vice president of the New Mexico Lung Association, displays some of the literature the agency distributes in its many educational campaigns.



The recall program for defective cars is well known. Now it's been expanded to include baby strollers. The consumer Product Safety Commission has recalled 40,000 strollers because they "may have defective locking devices which could cause the stroller to collapse forward on the child." Gerico, Inc. of Boulder, Colorado, is providing repair on several "Gerry Carryfree" models as well as the prophetically named Sears "Stroll 'N Fold" model.

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

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Deadline: Friday noon prior to week of publication unless changed by holiday. Mail to: Div. 3162 (814/6).

RULES

1. Limit 20 words.
2. One ad per issue per category.
3. Submit in writing. No phone-ins.
4. Use home telephone numbers.
5. For active and retired Sandians and ERDA employees.
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

- TRASH BAGS, city-approved, South Hwy 14 Project. LAB NEWS office, Bldg. 814.
- GAS clothes dryer, Sears, variable heat, timed cycle, \$75. Schultz, 881-7588.
- FENDER Mustang elec. guitar, white & chrome, w/hard shell case; boys 20" bike, Schwinn Stingray. Amos, 298-1095.
- KITCHEN table, 4 chairs, contemporary style, walnut, 50" x 40" plastic top, \$50; black vinyl recliner, wood accents, \$40. Kinney, 298-5281.
- DRAPES, 1 set suitable for picture window. Jones, 292-0162.
- NIKON S-2, F1.4 lens, \$350. Roth, 864-4080 (Belen).
- COLOR TV, 25" Quasar table model, \$100 or best offer. Prevender, 299-5253.
- TYPEWRITER, port. Olympia SM3, w/operating manual, carrying case, \$35 or best offer. Trump, 299-5162.
- TRADE OR SELL: pigeons, geese, ducks, chickens & roosters. Lackey, 898-6638.
- GREAT DANE puppies, fawn, 1 male, 1 female, \$300 ea. Gustafson, 298-2888.
- MATTRESS, king size, foam rubber, \$50. Fasano, 298-2954.
- DINETTE SET, 7-piece, avocado green chairs, \$100 or make offer. Montoya, 881-6898.
- DISHWASHER, GE, 2-cycle pot scrubber, gold, portable, can be built-in, Madrid, 294-5780.
- AQUARIUM, 20-gal., complete set up, including fish & stand, \$75. Damrau, 881-4576.
- SPRING CREST drapery rods, 4 ea.,

- 106" long, can be shortened, \$7.50 ea.; foam carpet pad, 140 sq. yds., \$25. Stevens, 296-6326.
- BUILT-IN dbl. oven w/rotisserie, GE. Hanson, 298-2120.
- SLIDING rear window for '73 to '77 Ford pickups, \$20. Bosworth, 293-5483.
- BETAMAX-SONY video cassette recorder w/timer & 2 tapes, \$850. Dillon, 266-3058.
- CUCKOO CLOCK, ornately carved, \$50. Manhart, 268-3017.
- FLUORESCENT fixture & tube, \$5; antique Firestone radio, phono, \$10; movie screen, \$25; cast iron fireplace grate, \$6. Falacy, 293-2517.
- TRICYCLE; gym set; lampshades; builder's level; concrete stem wall forms. Reuter, 298-7320.
- LADIES shearing coat, size 8, \$60. Griswold, 255-2267.
- CELLO, ¼ size w/canvas case, \$150. Perkins, 299-8941.
- ALFALFA HAY, various grades, \$1.75, \$2, \$2.50/bale. Shock, 2409 Pajarito Rd. SW. 877-3728.
- GE portable dishwasher, top loader; Weber outdoor barbecue. Schultz, 255-0686.
- ANTIQUA oak dresser; White Magic Chef gas range; antique rosewood piano; 1977 go-cart w/Corvette fiberglass body. Ortiz, 265-7257.
- CARPET, approx. 40 sq. yds., off-white nylon, \$75 w/pad. Woods, 296-4741.
- SEARS Coldspot 12 cu. ft., 2-dr., frost-free refrig. Rodacy, 293-5743.
- FIREPLACE SCREEN, 38" w, 25" h, brass trim, \$11; girl's 26" Schwinn bicycle, \$7; boy's bicycle, \$7. Stoever, 296-3717.
- MOVIE PROJECTOR, 16mm sound, Victor mod. 40, \$90 or trade for 35mm SLR in similar condition. Madden, 296-1082.
- WHITE, cast iron, bathroom porcelain sink w/wall bracket, \$10; medicine cabinet w/mirror, \$5. Peterson, 256-7514.
- Practical Handyman's Encyclopedia*, 18 vol.-set, \$50; fold-back mirrors for pickup, \$10. Tuffs, 255-9663.
- GAS RANGE, 40" MW, \$65 or best offer. Liguori, 256-3613.
- SOFA, 7', blues, greens, and brown in woven stripes, \$95. Smith, 242-9572.
- World Book Encyclopedias*, including 7 Year Books through 1975 and Cyclo-teacher, \$100. Benson, 299-3315.

- MAYTAG elec. clothes dryer, \$65; Homelite chain saw, XL-12, \$200; ping pong table, \$25; motorcycle helmet, size 7, \$12.50. Wilkinson, 299-8327.
- 6 NEW Nortake-Dawn cups/saucers, white w/gold band, \$25; Wesco woven wood shade, 22½ x 41½ brown/gold, \$20. Brodie, 292-2810.
- TWIN SIZE MATTRESS, box springs, metal frame, \$35. Luikens, 881-1382.
- CAR ROOF CARRIER & tarp, \$7; Underwood port. typewriter & case, \$15; Kodak 35mm f3.5 rangefinder camera, \$15. Auerbach, 296-1489.
- CARBURETOR, Holley, 4-barrel, rebuilt, jetted for altitude, cost \$130, sell \$55; 2 ea. twin mattresses, \$10 ea. Cook, 294-2348.
- 86" SOFA, blue flowered print; pecan & glass coffee table; drapes, white, floor-to-ceiling, 15' wide w/traverse rod; Ben Hogan woods. Chandler, 296-3323.

TRANSPORTATION

- '69 ROAD RUNNER, recently rebuilt w/383 engine, new carpet & upholstery, mag wheels, radial tires, body color pearl white, \$1750 or trade for an old Datsun Z car. Lucero, 836-5375.
- '76 ½-TON CHEV. pickup, custom deluxe, HD springs & radiator, 4-spd., dual tanks, low mileage. Montoya, 821-1368 after 5.
- '73 4x4 TRAVELALL, PS, PB, AT, dual tanks, AC, \$3000. Sheives, 821-9285.
- '75 NOVA custom hatchback, V8, PB, PS, AC, \$2900. Nee, 266-6113.
- '73 HONDA 500cc-4, low mileage, K/Q seat, side bags, many more extras, best offer. Elisco, 298-7273.
- '71 VW pop-top campmobile, new tires, \$2795. Parsons, 298-3053.
- '73 TOYOTA stn. wgn., AC 4-spd., radial tires, 44,000 miles, \$2095. Roth, 877-4997.
- VENTURE 25 Cruiseline sailboat, fully equipped, including sails, motor & trailer, current replacement cost locally is \$8700, asking \$7000. Henry, 881-2036.
- HONDA XL-70 dirt & street motorcycle w/new chain, sprocket & rear tire, \$175. Laskar, 299-1024.
- GIRLS BICYCLE, basket included, single speed w/coaster brakes, 24" x 1.75" tire size, \$15. Nelson, 298-0720.

- '69 MERCURY 429, PB, PS, AC, AM-FM stereo, p.seats, tilt wheel, vinyl roof. Raybon, 299-2135 after 6.
- BICYCLE, boys, 20", banana style seat, hi-rise handlebars, \$25. Pierce, 268-6057.
- '68 CADILLAC Fleetwood Brougham, climate control, AM-FM stereo, Michelin radials, leather interior, silver gray w/black vinyl top. Brooks, 299-1884.
- '74 DATSUN 610 5-door stn. wgn., 31,500 miles, AT, AC, new disc brakes, new radials, \$500 below book. Horton, 255-9835.
- 10-SPD. Fuji special racer bike, 21" frame, sq. spline crank aluminum sprockets, \$160. Stamm, 255-2640.
- '76 DODGE Tradesman B100 van, 318, 3-spd., 127" wheelbase, carpeted & paneled, \$4600. Lee, 294-3002.
- '75 VW Dasher wagon, AC, AM-FM, 4-spd., \$3000. Hickox, 299-0772.
- SCHWINN 10-spd. men's Varsity Bicycle, \$50. Benson, 299-3315.
- '75 FORD Granada, 302 engine, PS, PB, AC, bucket seats, vinyl top, mag wheels, \$3100. Perez, 898-3002.
- '77 CVCC HONDA hatchback w/extra set of tires, white w/gold interior, \$3300. Brainard, P.O. Box 14397 in city.
- '76 YAMAHA Chappy, 80cc, Hi/Lo auto. trans., street-trail, 200 miles, \$300. Ewing, 268-6920.
- '69 FIAT convertible, 850 spyder, \$950. Schuster, 299-1072.
- MOTOR HOME, self-contained, fiberglass body, 27-foot, 52,000 miles, 110V generator, two roof air, sleeps six. Make offer. Gall 1-834-7307.
- '75 CHEVY Laguna El Camino, loaded, \$3600 or best offer. Abbin, 883-8665 or 296-7678.

SINGLE garage; open storage within fenced area. Liguori, 256-3613.

WANTED

- AIR CONDITIONER, window type or other, 11-12,000 BTU/hr. preferably 115V, need not be operative. Risse, 299-5002.
- WANT to rent motor home which sleeps 6, for month of June. Karner, 299-9033.
- METRONOME, electronic, in working condition. Aronson, 268-7109.
- USED band saw. Roberts, 255-9527.
- USED travel trailer, 14-16 feet length. Colp, 255-0228.
- USED Polaroid Pronto camera. Miller, 255-7716.
- WORLD BOOK ENCYCLOPEDIA. Falacy, 293-2517.
- OUTBOARD MOTOR, 5-10 HP. Dunton, 293-1026.
- ZOOM LENS for Canon FTb camera. Keener, 294-0856.
- ENCLOPEDIA set in good condition, less than 8 yrs. old. Stoever, 296-3717.
- INDUSTRIAL or upholstery sewing machine. Crass, 281-3889.
- EXERCYCLE, good condition, reasonable. Evans, 298-0206.
- 16" BICYCLE for 5-yr.-old. Watterberg, 294-6759.

LOST AND FOUND

- LOST—Ladies' tan w/beige stripe stretch glove, man's black leather glove for left hand, silver earring w/black opal setting, 10-12 keys on metal belt fastener, man's white w/brown figure cardigan sweater, dark maroon nylon head scarf, plain gold chain w/hanging key, woman's white knit glove for right hand, Bldg. key #1206.
- FOUND—Women's black cloth gloves, women's brown leather gloves, grey pastic coat belt, small gold key marked "Color Lite B-10," car & house keys on metal ring designated "E" on leather tab & a De Grazio picture, man's lined black leather glove for right hand. LOST AND FOUND. Bldg. 832, 264-1657.

REAL ESTATE

ADOBE, 3000 sq. ft., on stream, Ponderosa (Jemez), HW zone heat, city water, lg vigas, HW floors, \$85,000. Gall 1-834-7307.

FOR RENT

UNFURNISHED 2-bdr. apt., carpeted, drapes, kitchen appliances, laundry facilities, storage space, NE, Chelwood area. Hill, 268-0595.

Squaredancers Perform Tonight

FRIDAY	SATURDAY
3—HAPPY HOUR GERMAN BUFFET Adults \$3.50 Under 12 \$1.92 DOWNWYDE	4—VARIETY NIGHT Mark Doyle, ventriloquist "WILLIE McBEAN AND HIS FLYING MACHINE" Food—6 Show—7 Free to Members
10—HAPPY HOUR ROAST BEEF BUFFET Adults \$3.50 Under 12 \$1.42 3 of Us & Jeremiah	11—SWEETHEART DANCE 9—1 DIFFERENT STROKES Mbrs Free Guests \$1 LOBO BUS—6:55

TONIGHT, along with standard Happy Hour prices and a German food spread on the buffet, the Coronado Club Square-dance group will perform at 7 p.m. Downwyde will play for dancing. Next Friday, roast beef is the buffet topper and a group called "3 of Us & Jeremiah" will be wired into the bandstand.

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A NEW CLASS of Squaredancers starts Monday, Feb. 6. The 20-week course will be taught by caller Cal Campbell. Cost is \$40 per couple. To enroll, call the Club office. Any experienced squaredancers interested in joining a Coronado Club group are asked to call the Club office. The number is 265-6791.

* * *

BALLROOM DANCE CLASSES start Thursday, Feb. 9, for couples and for singles. Couples will meet from 7 to 8:15; singles from 8:30 to 9:45 on Thursdays for eight weeks. Mike Haley is the instructor. Cost is \$35 for couples; \$20 for singles. Call the office to enroll.

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TRAVELOGUE NIGHT Wednesday, Feb. 15, features Travel Director Ed Neidel (2166) and his movies of the Holy Land starting at 7:30 p.m. Ed will also discuss upcoming trips.

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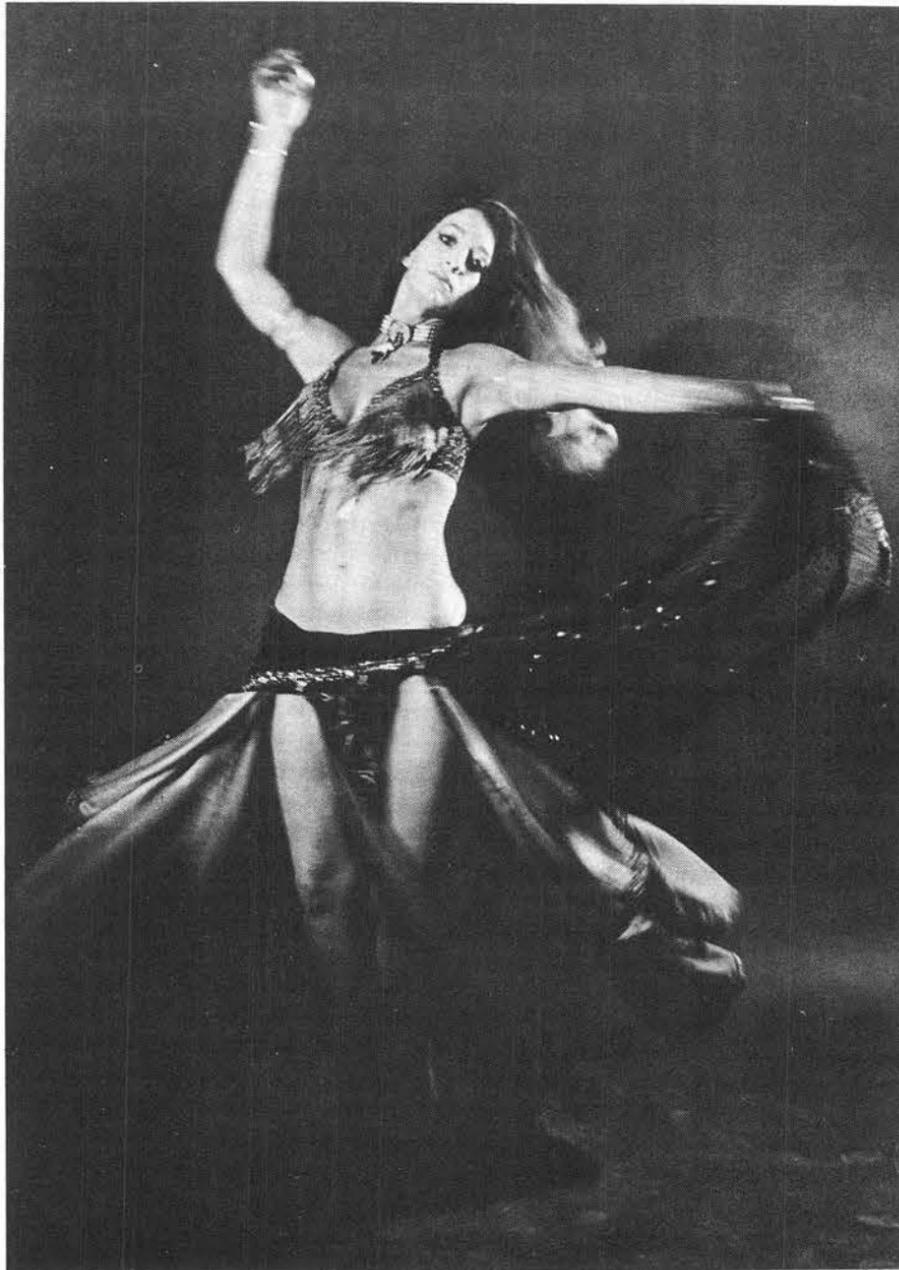
TRAVEL—Ed reports that the Disneyland trip during Easter vacation has been cancelled. He will try again for October. Pre-trip meeting for the Eastern Mediterranean Cruise is set for Tuesday, Feb. 7, at 7:30 p.m. Two travel packages to Hawaii are now available with a variety of options for traveling within the Islands. Ed will be in the lobby of the Club tonight from 6 to 7 p.m. to discuss any of these trips.

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A VALENTINE PARTY for singles is set Feb. 14 starting at 4:30. Yolanda and Levy will entertain. A Happy Hour bar, chips and dips will be available.

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SANADO CLUB meets Feb. 14 at 9:30



DIANNE LANE performs at Chinese New Year Saturday Feb. 25 at the Club. Dianne dances with double scimitar swords and a 9½-ft.-long python. The buffet features a full menu of Chinese goodies while the Red Hot Chili Jazz Band plays for dancing. Tickets (\$6 members, \$7 guests) should be picked up at the Club office by Feb. 18.

a.m. for coffee. Dr. Helen Whiteside, former UNM dean of women, will discuss "Value Clarification." For reservations call Barbara Gunderson, 298-2133, by Feb. 9.

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UPCOMING EVENTS—Kid's Karnival, Feb. 18; Teen Dance, Feb. 18; Chinese New Year, Feb. 25.

Sympathy

To Norman Schwentor (9581) on the death of his father-in-law in Dallas, Jan. 19.

To Herb Howe (4336) on the death of his mother in Washington, D.C., Jan. 19.

To Bill Denison (9521) on the death of his mother Jan. 22 in Albuquerque.

To Aden Trujillo (3422) on the death of his brother Jan. 26 in Barstow, Calif.

Ken Peters (9571), on the death of his brother at Deming, N.M., Jan. 22.



Something seems to have gone awry with the traditional concept that in a capitalistic society demand and supply are two sides of the same coin. According to a joint MIT/Harvard study, late marriage, early divorce and senior citizens who live alone have created a vast market for small, low-cost, basic homes. These aren't available, however. Massive inflation has doubled the cost of housing in the past decade, and only the rich can afford to buy a home. They want large, luxurious ones. And that's principally what's being built, says the study.