

Afterthoughts

How the school system can save plenty, while our children gain vitality--At the outset I acknowledge being a bicycle fanatic and thus lack, perhaps, the totally rational perspective. But does anyone else share the view that busing young people to school in Albuquerque is an absurdity? Why don't they bike (or even walk) to school? List all the elements you can think of that bear on the subject and compare arguments for busing vs biking--like this:

Distance To Be Travelled

Bike A young person can easily cycle five miles; most schools are closer.
Bus Not a consideration, except that a cyclist takes less time to cover a given distance than a bus making many stops.

Expense

Bike Privately owned bicycles cost the taxpayer nothing.
Bus A bundle — and the buses stand unused most of the time

Pollution

Bike None.
Bus Plenty, (though not as much as automobiles).

Health & Vigor

Bike Most young Americans, reared in our spectator culture, are incapable of running around the block. Biking to school calls for physical exertion on a regular basis — twice a day, five times a week. Who knows, a few young bikers might even conclude that physical activity can be fun.
Bus Not much H & V sitting on a bus.

Safety

Bike Stay off arterials, use residential streets (or the planned bikeways) and biking is relatively safe. With lots of students on bikes, motorists' awareness of bikers would increase and safety would be enhanced.
Bus They're safe (except for intramural warfare occasionally conducted on board).

Weather

Bike Nearly ideal in Albuquerque. Little snow, and rain occurs chiefly in summer months.
Bus No problems.

Terrain

Bike Albuquerque is no San Francisco — we're largely flat and biking is not difficult.
Bus No problems.

Scheduling

Bike Bikers make their own schedule. If Junior wants to stay after school for band practice or library work, he's not locked into the bus system for a ride home.
Bus Schedules are sacred, and buses need lots of 'em. And if you aren't out there at 7:30, well, you may have a problem.

Security

Bike The University has adopted the corral system for bike storage with good results. Security is a problem, but not an insurmountable problem.
Bus No problems.

Traffic

Bike Theoretically there could be something called bicycle congestion, but it would have to be small potatoes compared to the kind we have now.
Bus A large size addition to present vehicular congestion. A stop and start irritant to car drivers.

Futures

Bike If you bike your way through grade and high school, it may occur to you that biking is a neat way to go, and you may just take it up, for fun and for commuting, for the rest of your life.
Bus If you bus your way through school, there'll be a mental set that relegates biking to things that kids do, like skipping rope. And you'd worry about your dignity if you were inclined to give it a try.

Elsewhere in this issue of LAB NEWS, we note that some 200 bikers were counted the other day coming to work at Sandia. That's a pretty good demonstration of the validity and growing acceptance of getting to work or school on a bicycle. *js



NEW DIRECTOR of Solid State Sciences Research 5100 is John Galt, who comes to Sandia from Bell Laboratories. At Bell, he directed the Solid State Electronics Research Laboratory where the semiconductor laser was recently developed. Author of more than 40 technical papers, he is a Fellow of the American Physical Society and of IEEE. Excited about New Mexico landscape, he plans to do a lot of hiking. John resides in Four Hills with his wife Marguerite.

Dept. 4210 Reports On Status of New Health Plans

Tex Ritterbush of Compensation and Benefits Planning Staff 4210 has reported to LAB NEWS on developments relating to three of the health care plans with which the Labs is concerned.

The 3000 questionnaires on the health plan, completed last winter by Sandians, have been analyzed (by Bionetics Division of Litton Industries under HEW contract), and the formal report is expected to be published within the next few months. A copy will be made available in the Tech Library. In the meantime, statistician Lynn Rigby (200) has prepared a summary of survey results which interested persons may read; contact Lynn on ext. 4341.

For Sandians working in Nevada at Tonopah and at the Test Site, the Nevada Health Plans (NHP) has been made available as an alternative to the Equitable Plan. NHP is similar to the Mastercare, Lovelace-Bataan, and Kaiser Plans offered to employees in Albuquerque and Livermore. About a quarter of Sandians working in Nevada have signed up for the new plan.

In Albuquerque, Tex reports that Mastercare and Lovelace-Bataan are going into their second year of operation. The city has recently concluded an agreement with Mastercare to make that plan available to city employees. An agreement with Lovelace-Bataan was already in effect with the city and with the University of New Mexico as well.

Finally, Tex notes that the open enrollment period for Sandians for both Albuquerque plans — Mastercare and Lovelace-Bataan — is coming up in a few months. Throughout November employees may sign up for either plan; benefits go into effect January 1st.

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Annual Retiree Picnic Scheduled Sept. 5

Sandia's annual retiree picnic is scheduled Thursday, Sept. 5, from 4 to 7 p.m. in the Coronado Club patio. Some 1400 invitations have been mailed to retirees and their spouses.

President Morgan Sparks will address the group at 5:30 p.m. Other members of the staff also will be present.

Last year about 700 persons attended the get-together.

Congratulations

Mr. and Mrs. Dick Rohde (5832), a son, Kenneth, Aug. 4.

Mr. and Mrs. John Clickner (5132), a son, Ryan David, Aug. 2.

Mr. and Mrs. Ron Glaser (1245), a daughter, Amanda Ruth, July 27.

Supervisory Appointment



ROB RINNE to supervisor of Systems Studies Division 8321, effective July 29.

Rob returns to Sandia/Livermore from a two-year leave of absence at AEC Headquarters in Germantown, Md., where he was on the staff of the Division of International Security Affairs and the Office of Planning and Analysis. For the last month, he was on special assignment to the Deputy General Manager where he performed long range planning for AEC labs.

Joining SLL's advanced systems research organization in September 1966, Rob worked primarily on analysis of anti-ballistic missile systems. From 1969 to 1971, he attended the University of Virginia under Sandia's Doctoral Study Program, receiving a PhD in mathematics. Returning to the Systems Studies Division for a year, he performed analysis on a variety of tactical and strategic systems.

Rob received a BS degree from the University of California at Riverside in 1964 and an MS in 1966 from the University of Virginia under a Dupont Fellowship, both in mathematics. He is a member of the American Mathematical Society.

Rob enjoys tennis and bicycling and is active in several conservationist organizations. He and his wife Carole plan to live in the Livermore area.



USED COMPUTER PAPER is being substituted for aluminum honeycomb as an energy absorbing medium during high velocity impact tests in the four-inch gas gun facility. Cut and taped into shapes, the paper is water-treated under pressure, then dried — thus expanding and softening the fibers to provide desired characteristics. Originators of the idea, Wil Vandermolten, right, and Ralph Thompson (both 8114), load the paper shapes through the gun's target box into the reaction cylinder. About \$100 savings per firing is realized by using the paper.

Sympathy

To Pete Mattern (8334) on the death of his father in Boston, Mass., July 28.

To Ron Hoffman (8252) on the death of his stepfather in Lawton, Iowa, July 25.

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ONCE AGAIN, Sandia/Livermore is sponsoring a Youth Opportunity Program. Started in 1965, the program has provided summer jobs for 156 young people since its inception. Here is the 1974 class: Lower row, from left; Delanie Cassell, Roy Kennedy, Grace Caldera, Edward Shepard. Upper row, from left; Elizabeth Gagaza, Stanley Edson, Scott Tikalsky, Cartier Allison, Debra Ruiz, Louise Hara, Cindy Jensen, Melda Basurto.

Jan Vandermolten Honored by ABWA

Jan Vandermolten (8100) was recently named "Woman of the Year" by the Livermore Valley Charter Chapter of the American Business Women's Association. Selection for the annual award is based on the member's achievement in her chosen field of business, participation in community activities and other factors.



Jan is on the Vocational Education Committee in the Livermore School District. A secretary at Sandia since June 1970, she is now secretary to the Director of Systems Development. Previously, she was office manager at the Livermore Herald and News.

In October Jan will represent the local chapter in competition for the "American Business Woman of the Year" award at the ABWA's 1974 national convention in Denver.

Congratulations

Mr. and Mrs. Larry Hoffa (8434), a daughter, Kelly Sue, July 24.

Sandia and the Nuclear Fuel Cycle

moving fuel and waste both safely and securely.

Present day reactors, whether light water, gas cooled, or fast breeder, are essentially devices which use the heat of controlled fission to produce steam which, in turn, drives turbines to generate electricity. The fission takes place in the heavily shielded reactor core where the fuel material (uranium-235, uranium-233, or plutonium-239) is caused to fission by interactions with neutrons which are present as the by-product of earlier fission processes (hence the term "chain reaction"). Heat produced by the fission of the fuel nuclei is removed from the core by a liquid or gaseous coolant. If the cooling system fails, the temperature within the fuel core will rise rapidly and eventually melt the core, creating a dangerous condition.

Unless emergency measures are taken. That's the function of the emergency core cooling system (ECCS) in light water reactors. The ECCS is designed to pump water into the reactor vessel within a few seconds after any major cooling system failure. Without ECCS, the nuclear fuel would (according to some critics) melt through its steel container and its concrete shell and melt into the earth. In the

-Reactor Safety-

- Safety and security of nuclear power plants to acts of sabotage
- Code development and applications
- "Containment" systems analysis
- Seismic response of structures
- Plant siting factors
- Fuel-coolant power mismatch and fuel behavior
- High temperature graphite chemical reactions with steam and structural materials

process, substantial amounts of radioactive material would be released.

That such a scenario has never occurred is no proof it could *never* happen, especially as the number of reactors on line increases from the current 44 to 1000 or so by the year 2000. Sandia can contribute significantly in the reactor safety area, specifically in the safe containment of the nuclear fuel, whatever the nature of the system failure. Capabilities developed in meeting our weapon responsibilities enable us, for example, to:

- simulate effects of heat and radiation on container materials
- analyze and test in the reactor at Sandia such compounds as uranium dioxide pellets (nuclear fuel in reactor-usable form)
- construct or adapt computer codes which describe the heat transfer process
- use our highly refined tools for structural analysis of mechanical systems
- apply the results of two-phase flow studies (a leak from a coolant system is likely to be part water, part steam — a two-phase problem)
- improve the reliability of reactor components and certify their quality by tests and analysis.

In each of these areas, Sandia has experience, hardware, talent, and a proven system analysis approach to offer.

In addition to reactor safety *per se*, there is the problem of waste management. Water used to cool reactors reenters a nearby lake or river at a higher temperature than when it entered the system — thermal waste. But the more difficult problem is what to do with fuel reprocessing wastes that are radioactively as well as thermally hot. Some — the unburned uranium and plutonium — can be recovered and reused.

The remaining waste is very highly radioactive; its disposal is a real challenge. At present, the plan is to store the waste for five years as a liquid, then to solidify it by dehydration. Within 10 years from reprocessing, the solid waste will be shipped to a temporary repository to await ultimate disposal.

The question here is "what is the nature of that ultimate disposal?" Locations ranging from outer space to the depths of mines and of oceans have been suggested. Given the projected growth in the number of nuclear reactors, the need for a workable ultimate disposal method grows too.

An ultimate disposal method is one which ensures that high level wastes will be barred from leaking into the biosphere for a very long time — in the case of some wastes, for the million years it will take them to become harmless. Sandia is now studying the technical problems of using the geological media below the deep ocean basins and deep silicate rock beneath land as possible ultimate disposal sites.

Sandia is also examining the processing of the liquid wastes from fuel reprocessing to reduce their volume and to convert the high level wastes into the least soluble solid form. Still another Sandia effort is directed at using high level wastes to sterilize sewage. If successful, one noxious byproduct (the radioactive wastes) would be used for a few decades to render another one (the sewage) harmless and actually valuable.

Sandia's third major involvement is with security during much of the nuclear fuel cycle. The primary concern here is to prevent unauthorized people from gaining access to those nuclear fuels which could be used by terrorists, saboteurs, or blackmailers. These fuels include fully enriched (weapon-grade) uranium and plutonium, the most dangerous of all. Although most present day reactors are fueled by uranium that is only slightly enriched, some new reactors, such as the HTGR (high temperature gas-cooled reactor)

-Waste Management-

- Deep ocean basin environment and disposal impact
- Deep-rock disposal feasibility
- Liquid-waste conversion to high-level solid waste
- Sterilization applications of waste
- Waste fractionation into actinides and specific isotopes
- Liquid-metal pyrolysis to concentrate low-level solid wastes
- Contaminated-facility decontamination and decommissioning, technology development

do use weapon-grade uranium, and some reactors — the breeders — planned for the future will use plutonium.

The best defense against a bomb or nuclear material radiation threat is obviously to provide security for all nuclear fuels, with maximum security for the most lethal, as the fuels are transported, stored, used, reprocessed, and committed to a disposal site. Again, Sandia's years of experience with nuclear devices in general, and with tamperproof containers and transportation

-Nuclear Materials Security and Safety-

- Safety and security of the nuclear fuel cycle to acts of sabotage
- Modeling of the safety, security and logistics of the nuclear fuel cycle, projected 1985-2000
- Transportation accident criteria
- Accident data storage and retrieval
- Shipping cask response and integrity in accidents.

and storage security systems in particular, make the Labs a promising source of solutions to the overall security problem.

Transportation of radioactive spent fuel is a special problem — the hot cargo must be secured against misuse and safely contained to protect the public. The design of safe and secure shipping containers and vehicles will draw upon the broadest range of Sandia's advanced systems engineering talents — research, development, testing, reliability, and quality assurance.

As might be expected from the range of actual and potential Sandia involvement in nuclear fuel cycle safety and safeguards, several organizations are (or will likely be) working on various aspects of the problem. Central to the effort will be the newly created Nuclear Security Systems Directorate 1700 under Orval Jones. His several departments will take a lead position in solving AEC security problems as well as building a strong Sandia program in nuclear reactor safety-related efforts. Coordinating the activities in reactor safety and waste management is Bill Snyder's Nuclear Fuel Cycle Programs, Department 1720.

Says Bill, "It's not surprising that Sandia has the many kinds of talent which will be invaluable in developing workable solutions to significant fuel cycle problems. Our years in the weapons field assure that. I'm gratified at the level of interest and cooperation demonstrated by the various organizations. And I'm confident that the kind of flexible systems approach we've developed can lead to breakthroughs in safety and safeguards."



Our Town

Floods? In a Desert? Like Albuquerque?

Right. Albuquerque has the potential for a very real flood problem. The sources: the mesas, the river, and the mountains. All three are getting a good deal of attention — but, say some, not enough.

The problem with the river itself has been nearly solved, barring a catastrophic rain downtown. In that case, the levees now protecting the Valley from inundation by the river's spring rise could become dams preventing the flood waters from draining into the river.

Dams upstream protect the city from heavy rains and from the occasionally voluminous snow melt off the Jemez Mts.

In addition to upstream dams and the local levees, two diversion channels protect the downtown area east of the river from flood waters out of the Northeast and Southeast Heights. The channels represent the principal work of AMAFCA (Albuquerque Metropolitan Arroyo Flood Control Authority). AMAFCA, the successor to the defunct Sandia Conservancy District, originated by new legislation in 1963. Its board of directors (including Bill Hereford, 9483) sets flood control policies for the arroyos (not for the river; that's the province of the Army Corps of Engineers). A staff of three (plus hired consultants as needed) implements the policies. We talked with John Roberts, AMAFA's Executive Engineer and director.

"Our responsibility for arroyo drainage means we deal with over 400 square miles of the county west of the Cibola National Forest. We've got two means to protect people and property — our prime purpose. One is regulatory, the other structural. Both can be expensive, but thus far Albuquerque's citizens have understood the necessity for what we're doing and have approved the necessary bond issues."

The regulator function means that AMAFCA, working with the zoning arms of both City and County, can regulate where development takes place, for example by declaring an area to be flood-prone, thus raising insurance rates.

Or AMAFCA may convince the City or County to purchase flood-prone land, putting it to use as a golf course or park or other minimally developed facility — or simply leaving it in the natural state.

On the structural side, AMAFCA can condemn property in order to build diversion channels, dams, and other structures necessary to preserve life and property downstream.

"Regulatory or structural, we have to catch up with metropolitan growth," says Robert. "One problem area is the Southwest Valley where upland development is causing the same type of problems that required the two diversion channels. Runoff can't enter the Rio Grande, so the Valley floor floods.

"Another problem area right now lies east of the north diversion channel and north of Montgomery. Heavy rain runoff from there would likely overflow the arroyo banks and flood some pretty highly developed property.

"We're planning some action. A recent study indicates that a series of dams, similar to those now across Bear Arroyo and Arroyo del Pino, would alleviate much of the danger. We're definitely moving ahead.

"Albuquerque isn't moving ahead fast enough. We're gambling that we won't get a 100-year rain until we're ready for it. And most citizens don't even consider the possibility of flooding when they buy a homesite." The speaker is Ron Geitgey, UNM geology teacher and an articulate critic of the city's flood control measures. "In '63 we got four inches of rain in six hours. If the same amount fell today on, say Tramway Boulevard north of Montgomery or above Glenwood Hills, the damage to property would be in the millions. The lack of planning — by home buyers, home builders, the City itself — is alarming.

"Admittedly," Geitgey continues, "it's not easy for a home buyer to see that his prospective home sits where an arroyo could flood it — or to know that the arroyo gravel it's built on is solid when dry but apt to slide when soaked.

"And, apparently, it's not easy for the city's planning people to talk with the city's civil engineering group. AMAFCA does a good job, given its constraints. They hold occasional public hearings on flood problems, but the issue all too seldom reaches the front pages of the newspapers."

Public lack of knowledge and apathy, Geitgey feels, constitute the real problem. "We're lulled into complacency by statistics which show that Albuquerque gets only eight inches of precipitation a year. But that's an average — some years are much higher. Even more important, that's an airport figure. Precipitation on Sandia Crest averages 24 to 25 inches a year — and much of that rushes down the west face of the Sandias and out onto the mesa.

"Then, too, as a Tribune article last month suggested, rainfall amounts nearer the mountains can run a good deal higher than the airport figure; in the first three weeks of July, Four Hills Trailer Park received 3.90 inches while the airport got 1.57 inches.

"Luckily, the almost four inches didn't all come at once and it came at a location where Tijeras Arroyo, which can handle a good-sized runoff, offered an escape route. A little more rain, a shorter time span, a location a few miles north — then we'd have had real problems.

"If flood problems occur, we're ready," says George Dunham, Director-Coordinator of the local Office of Emergency Preparedness. "Flood, earthquake, whatever the catastrophe, OEP would coordinate the effort to save lives, reduce suffering, and protect property. We're set up to coordinate



the work of flood watchers, police, the Red Cross, firefighters, emergency medical units, street maintenance crews, various rescue units and volunteer radio operators, the media, county and state groups (county road crews and NM National Guard). Survivors would be evacuated to selected facilities for food and shelter.

"We're on alert status whenever weather conditions indicate heavy rains are possible. We practice, we're ready — but I hope we never have to go into full-scale action."

We all hope so too. But don't sell your hipboots: deserts *can* flood. • bh



HAL VAUGHN, supervisor of Aeroballistics Division 5625, was honored last week with this plaque and a \$500 check from the American Institute of Aeronautics and Astronautics. Hal received the 1974 Mechanics and Control of Flight Award for "fundamental contributions to the understanding of the flight mechanics of re-entry vehicles, rockets, bombs and shells, together with his innovations in their aerodynamic design for stability and minimum dispersion in transonic flight."

feed *li*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. My job often requires me to use my personal auto as well as rental transportation for company business.

In the last two years, the cost of rental transportation has increased by more than 30 percent. While the cost of operating my personal auto has increased correspondingly, the company has not increased reimbursement.

Why is this policy not reviewed more realistically and the rates upgraded as gasoline and insurance rates rise?

A. As you are aware, Sandia discourages the use of personal vehicles for Laboratories' business. However, in those instances where their use is practicable, the reimbursement is to cover cost of gasoline, oil, other supplies and services, maintenance, and fixed charges associated with operation of the vehicle. In spite of the increased costs of these items, a recent survey on reimbursement rates for use of personal vehicles on company business shows that 11¢ is widely used in industry and is near the top of rates being paid. We do not plan to make a change at this time, but we are reviewing trends and practices which might indicate the need for a change.

C. R. Barncord - 4100

Q. What is the Labs' policy concerning job assignments for spouses who work in the same general organization? For instance, may a husband and wife work as staff member and secretary, respectively, in the same vice presidency? How about other combinations, such as: staff member - staff assistant, staff member - administrative assistant, and staff member - TI candidate?

A. Labs' policy with respect to spouses is that assignment to certain jobs and/or organizations will be limited if that assignment permits access to sensitive information related to the spouse. "Sensitive information" includes, for example, salary and performance data. The nature of the respective assignments of the spouses, rather than the classification of either spouse, is the primary consideration in determining appropriate combinations.

R. J. Edelman - 4200

Q. Why are half of those beautiful trees dead at the Science Sphere? No water?

A. All trees, lawns and plants are watered on scheduled dates, so failures cannot be attributed to lack of water. The trees at the Exhibit Center are pines, and throughout this part of the country nurserymen are fighting a plague known as "needle cast" — a fungus extremely difficult to combat. Here at Sandia to stop or retard this disease we spray all pine trees at regular intervals. Sorry to say our success rate is not 100%, and replacements must be obtained.

R. E. Hopper - 9700

Q. My annual Personal Benefits statement indicates that the Labs puts money into the employee's retirement approximating that

contributed by the employee. How is such a statement possible since the Labs puts nothing into this fund during the working years of the employee?

A. Your Personal Benefits Statement should indicate the Labs' annual contribution is approximately twice as much as employees contributions to the Retirement Income Plan. Employer contributions, determined on an actuarial basis, are made annually in a sufficient amount to make up the difference between employee contributions and the accrued liabilities of the plan for that year. The principle followed is to fund the benefits earned over the work career of all employees who stay until retirement.

No allocation of employer money is made to a particular employee until that employee retires, and a guaranteed annuity is purchased in his or her name. The amount of the employer contribution shown on the Personal Benefits Statement is the average amount contributed by the Laboratories in that year for some one in your salary range. It is not an allocation of employer money to you as an individual.

If you would like to discuss this subject further or have any other questions on the Benefits Statement, the Compensation and Benefits Administration Division 4213 would be most willing to assist you.

R. J. Edelman - 4200

Q. (From SLL) Often we receive microfiche instead of "hard" copies of reports we order. Microfiche are inconvenient to use and we end up having the Photo Lab make these copies or making them ourselves. The Photo Lab has a delay time of about 3-4 months doing this and when we (the secretaries) have to make the copies, we have to go to another building and spend many hours copying the microfiche.

Why not hire someone to accomplish the copying of microfiche? At least during the summer months we could have a Summer Student performing this service, as it is relatively simple work.

A. While it is true that microfiche copies of reports are not as convenient to use as hard copy, most technical libraries encourage their use because of quicker delivery and cost savings on paper, postage, and storage space. SLL orders over half of our external reports from SLA, who normally supply them only in microfiche. We estimate that up to 50% of the microfiche received are discarded by the requester for lack of interest after initial review. Often, only a few graphs or charts may be of interest.

Current time in the Photo Lab for hard copy is one week rather than three months. The Laboratories does not plan to hire additional people in the Library of Photo Lab for copy work. However, the Library will have a half-time summer student who can help in this area.

On lengthy reports where the requester is reasonably sure the report will be of value to him and will be retained, it will be advisable to specify hard copy when making the initial request.

C.H. DeSelm - 8200



TINY THERMOPILE representing an advance in technology is displayed by inventor Paul Wilcox (2521). The device and method of manufacture were recently patented by AEC.

Paul Wilcox Invents New Thermopile

The AEC was awarded a patent recently for a thermopile device and its method of manufacture. Inventor is Paul Wilcox, supervisor of Active Ceramic Materials Division 2521.

A thermopile is a device incorporating p- and n-type semiconductors, connected in series, which produces a voltage and electrical current to a load in response to a temperature gradient. Very useful small generators can be built using a thermopile and a radioactive heat source.

Paul's invention is the result of work done on such a device intended for use in the space program. It represents an advance in technology over previous designs since it eliminates costly precision interconnections and alignment problems. In Paul's device, thin semiconductors are stacked like elongated bricks using platinum as contacts and glass as mortar. This assembly is heated and fused into a solid structure, with interconnections insulated internally as part of the fused structure. It can be manufactured relatively inexpensively.

In performance, the device operates at higher temperatures, producing more current than comparable previous designs.

Paul holds one other patent and has several disclosures on file. He joined Sandia after earning a PhD in ceramic engineering in 1962.

Sympathy

To William Smith (9718) on the death of his sister in Mangum, Okla., Aug. 1.



FUN & GAMES

Sandia Bicycle Ass'n. — Latest issue of the SBA Newsletter notes that a Tech Area gate count toted some 200 cyclists on Monday, Aug. 5. The count was conducted before 8 a.m. so that the total probably reflects commuting cyclists and not those cyclists who leave their bikes at the Labs and use them for trips around the Tech Area. By any measure, two hundred people commuting by bike is a respectable figure. Indeed, we may just hold

Speakers

B.J. Wimber (2326), "STABAN — An Interactive Graphic Computerized Stability Analysis Program," Second Annual AEC Scientific Computer Information Exchange Meeting, May 2-3, New York City.

B.K. Graham (3300), "A Psychological Overview from Outside of Computer Operations on Motivation, Career Paths and Training," AESOP Data Center Operations Management Conference, June 25-26, Denver.

J.M. Hueter (3131), "Creative Problem-Solving As Applied to Membership Developments," National Board of Directors meeting, American Society for Training and Development, June 20-21, Aspen, Colo., and "Creativity Development" Workshop, International Convention, International Toastmistress Clubs, July 14-17, Honolulu, Hawaii.

R.G. Easterling (1643), "Goodness of Fit and Parameter Estimation," Statistics Seminar, July 8, Univ. of Waterloo, Ontario, Canada.

L.F. Shampine (5121), "Stiffness and Non-Stiff Differential Equation Solvers," Conference Proceedings — Mathematische Forschungsinstitut, June 9-15, Oberwolfach, West Germany.

A.J. Toepfer (5242), "Interaction of Super-Pinched Relativistic Electron Beams with Dense Targets," Gordon Research Conference, June 10-14, Santa Barbara, Calif.

J.C. King (2500), "Hardening Quartz Resonators to Ionizing Radiation — A Review," presented by J.M. McKinzie (2115) at the Conference on Evaluation of Space Environment on Materials, June 17-21, Toulouse Cedex, France.

G.L. McVay and A.R. DuCharme (both 5154), "The Diffusion of ⁷¹Ge in Si-Ge Alloys — A Study of Self-Diffusion Mechanisms," Naval Ordnance Laboratory, July 17, Silver Spring, Md., and International Conference on Lattice Defects in Semiconductors, July 22-25, Freiburg, West Germany.

A.D. Swain (1642), "Human Failure and Methods to Deal With It," Engineering Foundation Conference, July 21-26, Henniker, N.H.

M.E. Riley (5211), "Non-Born-Oppenheimer Effects in Atomic Scattering," Invited seminar in Dept. of Chemistry, Univ. of Minnesota, July 22, Minneapolis.

J.W. Reed (5644), "Shock Thickness Observations from Supersonic Sled Tests," International Congress on Acoustics, July 22-23, London, England.

E.A. Kjeldgaard (2515), D.W. Larson (1543) and D.J. Gould (2515), "Thru-Bulkhead Ignition of Pyrotechnics: An Analytical and Experimental Investigation," Pyrotechnic Seminar, Univ. of Denver, July 22-26, Vail, Colo.

W.P. Schimmel and A.B. Donaldson (both 1543), "A Thin-Film Radiative Pulse Calorimeter Using a Differentially Transparent Barrier"; H.P. Stephesn (5823), "Measurement of the Enthalpy of Liquid Uranium Alloys by Liquid Argon Calorimetry"; G.J. Lockwood and G.H. Miller (both 5226), "Technique for Measurement of Energy Deposited by Particles and Radiation"; Lockwood, Miller and S.R. Dolce (all 5226), "Calorimetric Measurements of Bremsstrahlung Dose"; A.B. Donaldson, W.P. Schimmel and E.A. Kjeldgaard (1543), "A Method for the Measurement of Kinetics of Gasless Pyrotechnic Reaction," Annual Calorimetry Conference, July 25-27, Univ. of Tenn., Knoxville.

P.A. Miller (5242), "Heating of a Mirror-Confined Plasma by a 15 KJ Electron Beam," IV National School on Plasma Physics, July 29-Aug. 7, Novosibirsk, USSR.

D. Emin (5155), "Comments on the Theory of Localized States in Noncrystalline Semiconducting Solids," and "Electrical Transport in Semiconducting Noncrystalline Solids," NATO Advanced Study Institute on Physics of Structurally Disordered Solids, July 29-Aug. 9, Kingston, R.I.

P.H. Holloway (5825), J.L. Jellison (5833), A.W. Mullendore (5825) and J.L. Ledman (5833), "Application of Surface and Volume Sensitive Analytical Techniques for Microparticle Chemical Analysis," Annual International Metallographic Society Conference, Aug. 4-7, Gatlinburg, Tenn.

some sort of record. A university might attract more cyclists, but not many industrial outfits can match our 200 (the Schwinn Company maybe?).

And now for the bad news. Ray Mosteller (1132) had a 10-speed Gitane stolen from outside Bldg. 880 about a week ago. We made a quick check of bikes in the Tech Area after learning of the theft and would estimate that two out of three are not locked up. *Verbum sapienti sat est* (for non-Latin types: a word to the wise is enough).

Tours: a great bike ride, about 30 miles or so, follows Route 4 from atop the big hill west of Los Alamos down to the vicinity of Jemez Springs. It's largely downhill, you cruise by the magnificent Valle Grande, and the remainder of the scenery is pure New Mexico high — ponderosa forests, mountain vistas, a few streams, cool air, blue skies, and all those good things.

* * * *

Sandia Runners Ass'n. — Compared to tennis, skiing, golf or just about any other athletic activity, running is preeminent in one department: it's cheap. A runner's splurge consists of a new pair of running shoes, cost 20 or less dollars, and good for a year or two. Martins Ande, an Olympics runner from Nigeria, has opened a shop devoted solely to running and other shoes for athletic activities. He had a pretty good inventory last week during our visit there. Called Andes Olympic Shoes, the shop is at 2324 Central SE (across from UNM).

* * * *

Sandia Golf Ass'n. — Here are results of two recent women's tournaments. In the Beginner's Tourney, Earlene Brinegar (4252) had low gross, JoAnn Oswalt (2430) was runner-up, and Helen Payne (2111) was low on putts. In the Paradise Hills contest, Betty Chappell (ret'd.) and Sandy Blose (9515) gained low gross in the first and second flights, while Emma Hollingsworth (4256) and Helen Watkins (3721) were low nets. Sybil Milligan (ret'd.) was low putts.

Ivars Gals (1254) and Lawrence Dyer (9343) won the low gross and low net, respectively, in SGA's recent Fred Given Memorial tournament at Arroyo del Oso course. Flight winners also included Don Longcope (1541), Charlie Ray (6021), and Ira Honeycutt (3613).



CHARLES STONER (2344) displays his protective carrier and Tech Memo (SLA-74-0052) describing semiautomatic system which enables testing of tiny beam lead semiconductor devices.

Invention by Charles Stoner Awarded Patent

A beam lead semiconductor device (BLD) is a fragile thing barely visible to the eye. BLD bodies are as small as two mils thick and 14 mils square. The leads are a half mil thick, three to four mils wide and protrude four to five mils beyond the body. Sandia uses a lot of them in microcircuitry.

Testing them under hot and cold temperature stress was a special problem before Charles Stoner of Mechanical Design Division 2344 invented a protective carrier and loading system. The AEC was awarded a patent for the carrier recently.

Made of transparent plastic with a metalized circuit pattern and a cover clamp, the carrier provides a method for handling individual BLD's in production quantities for testing at high and low temperatures. A loading system has been developed for picking up the individual BLD, precisely positioning it on the carrier base and holding it in this position while being secured with the cover clamp. The system, as developed, is semiautomatic but has the potential for complete automation.

A mechanical design engineer, Charles has worked at Sandia 23 years.

FOOD STORAGE and preparation areas in the Bldg. 839 cafeteria are currently being improved, according to Ken Sutton (4250) and John Blaze, Szabo Food Service director. The biggest change is a walk-in freezer which means salads and desserts can be prepared on the spot rather than toted in from the Coronado Club. Soon, a new deli-counter will offer customized sandwiches made before your eyes. And the plodding cafeteria line will become a faster, more efficient "scramble" system.



MILEPOSTS

LAB NEWS

August, 1974



Johnny Ayala - 3147

15



Lionel Chandler - 9522

20



Marian Jacot - 4256

20



Robert Klett - 4734

15



Eddie Garcia - 9332

15



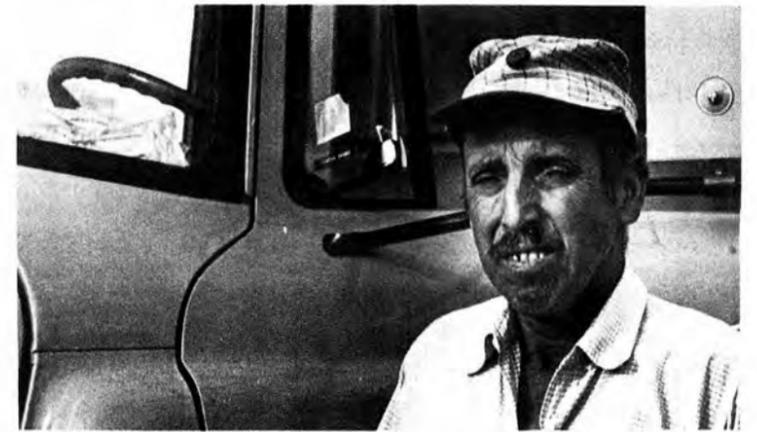
Dennis Cronin - 5626

10



Eric Reece - 5716

10



Amadeo Aragon, Jr. - 9713

20



Frances Morris - 4251

10



Ivars Gals - 1254

10



Glenn Herreld - 1126

15



Frank Arellano - 5831

10



Alva McGuckin - 5700

10



Henry Saavedra - 3725

25



Kelly Davis - 2121

20



David Werme - 9550

20



Ruth Wright - 2432

10



Rodney Boade - 5167 10



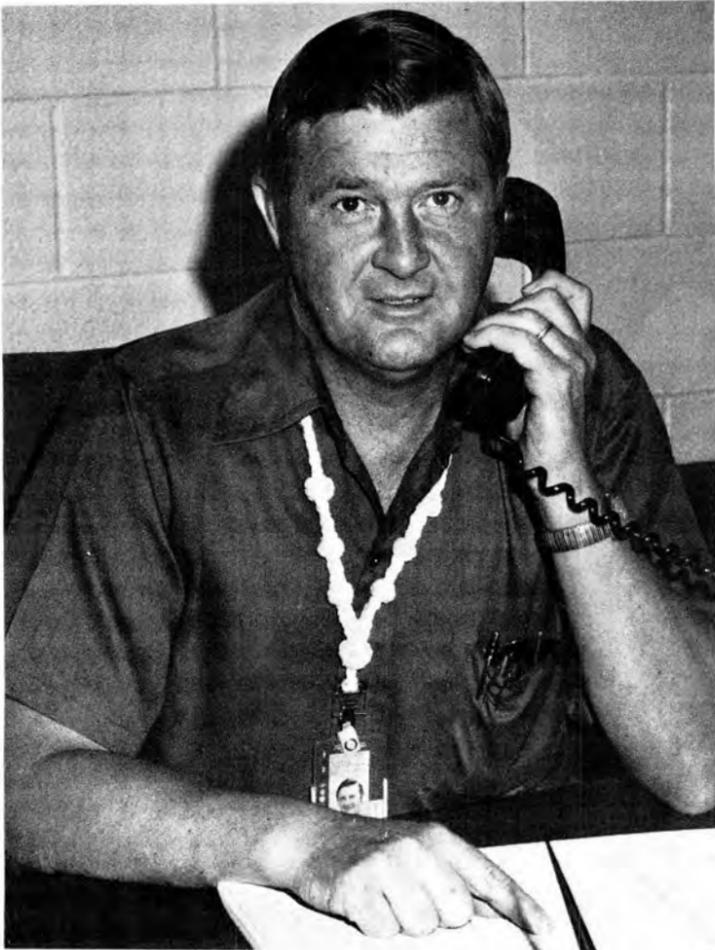
Dwayne Mozey - 1554 20



Joe Apodaca - 9717 25



Elwood Ingledue - 8168 20



A.J. Brouillard - 1131 20



Elmer Wendt - 9611 15



Merlin McGirk - 1523 25



Cornelio Sandoval - 9712 25



Frank Speakman - 3621



25



Doris Willard - 4152 20



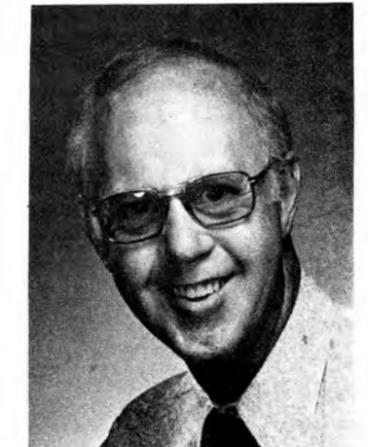
Catherine Devarenne - 4152 20



Buzz Babcock - 3155 25



Bob Hawk - 9623 25



Warren Schaefer - 3725 20



Arthur Mullendore - 5825 10



Clarence Ray - 3733 25



Paul Gabaldon - 3621

10

Credit Union Reporter

By Bill Bristol,
General Manager

Federal Insured Student Loan Program



As announced earlier, your Credit Union is an approved lender under the Federal Insured Student Loan Program. Any member, or spouse or child of a member, is eligible for loans under this program. Applications are being accepted for fall semester.

By regulation, the educational institution selected by the student is required to recommend the amount of the loan before it is submitted to the Credit Union. It turns out, however, that educational institutions are usually not recommending the loan and, in some cases, are refusing to complete their portion of the application. *Do not be discouraged, check with your Credit Union.* In almost all cases, we have been able to approve the loans which, in turn, have all been approved by the Department of Health, Education and Welfare (HEW).

For students eligible for interest benefits, the federal government pays the Credit Union the total interest accruing during the time the student is in school, that is, until the repayment period begins. Interest rate on these loans is 7% per annum.

With this type of loan, if the student defaults, the federal government assumes responsibility for recovery of the loan. If the

student dies or becomes permanently disabled, his or her obligation is discharged by the federal government. The student is required to execute a notarized affidavit that the loan will be used solely for educational expenses.

A maximum of \$2,500 per academic year may be applied for. Total outstanding loans may not exceed \$7,500 for undergraduate or vocational students, but this maximum may be extended to \$10,000 for graduate students.

An insurance premium, one quarter of one percent per annum, is charged through the period ending 12 months after the anticipated date of graduation. The Credit Union deducts this premium from the loan or collects it from the borrower at the time the loan is made.

The repayment period, established by the Board of Directors, begins nine months after the student graduates or ceases to be enrolled on at least a half-time basis. Repayment will normally be made in equal installments over a period of five years, although the required minimum payment of \$360 per year may shorten this period. Loans may be prepaid at any time without penalty.

Repayment may be deferred for up to three years while the borrower is in the service, or is serving as a full-time volunteer in the Peace Corps or VISTA; deferral may also be granted for any period during which the student returns to a full-time course of study at an eligible school. However, the borrower is encouraged to make at least partial payments during such periods of deferment in order to reduce the principal amount of the loan. Interest payments by the government are resumed at this time for those students who previously qualified for such payments.

Take Note

Alan Swain, human factors specialist in Systems Reliability Division 1642, has returned from an extended European tour during which he conducted seminars in Oslo, Amsterdam and London on "The Human Element in Systems Safety." In addition, Alan reports that he spent two weeks with the Danish AEC studying their nuclear research reactors. United Kingdom reactors were visited as well.

Two Sandians, Olden Burchette (1541) and Bob Guerrero (4154), are coach and manager, respectively, of the top Little League team in these parts. Olden and Bob, plus 14 ten-to-twelve year olds, are now in San Bernadino where they're facing the top teams in the western U.S. in the Western Regional Tourney. It's Bob's second time around — he managed the that went to Portland in 1968.

Old news to Sandians but new and attractive to lots of other people is the Hot Gas Solder Leveler (LAB NEWS, March 23, 1973). Corry McDonald, Technology Utilization coordinator in 9623, reports that since the story of the new device/process hit the national and international technical scene, there have been over 220 inquiries, 23 from outside the U.S. Over 20 firms have been licensed by the AEC to build or use the machine.

T.A. Allen's (3623) invention, it uses hot air knives to level solder on printed circuit boards, a quick, simple, and non-polluting method.

Events Calendar

- Aug. 15 — Adobe Theater, "I Do, I Do!". Call 898-3323.
- Aug. 16-18, 23-25 — Albuquerque Civic Light Opera, "Damn Yankees," Fri. & Sat., 8:15 Sun., 2 p.m., Popejoy Hall.
- Aug. 16-18, 22-25 — Old Town Studio, "Our Town," Fri. & Sat., 8 p.m., Sun., 2 p.m.
- Aug. 17 — Coronado Monument, Bernalillo, first showing of original paintings found at the Monument. Also, Twilight Dance. Tours, 7:30 p.m., Indian Dances, 8:30 p.m.
- Aug. 17-18 — N.M. Mt. Club, Carson Region Wilderness trip, 6-10 miles, call Milo on 298-2989.
- Aug. 17, 22 — Santa Fe Opera, "La Boheme," 20, 23, "The Magic Flute," 9 p.m.
- Aug. 23-25 — Rio Grande Arts Fiesta, Convention Center.
- Aug. 25 — La Luz Trail Race (open worldwide), contact Sgt. Bachis, PAL, 766-7669 for entry blanks & info.
- Aug. 25 — N.M. Mt. Club, Bandelier, 9-10 miles, Gulf Mart, 7 a.m.
- Through Aug. 25 — Barn Dinner Theater, "Prisoner of 2nd Avenue."
- Aug. 28 — Spanish Fiesta Carnival, Isleta Pueblo.

Death

Edwin Inglat of Carrier Vehicles Division 1254 died Aug. 8 after a long illness. He was 51.

He had worked at Sandia Laboratories since November 1950.

Survivors include his widow, a son and a daughter.



For Retirees and All Sandians

New Job Reference Service

Retirees, would you like to utilize your skills, earn some money, and help other Sandians — all at once?

LAB NEWS is launching a new service designed to put those Sandians (and AEC people) who need jobs done in touch with those Sandia retirees who could do them.

The service works this way: The retiree fills out the form on this page and mails it to the address shown. The forms, indexed by specialty, will be on file in the LAB NEWS office (832/20) for Sandians to refer to whenever they need some work done. All

arrangements as to wages, liability, tools, transportation, etc., are between the people involved; LAB NEWS provides only the reference service.

Every six months or so, LAB NEWS will print the form again so that the file can be kept current. A retiree can ask to have his or her name removed from the file at any time by simply calling 264-7841. (If both husband and wife are Sandia retirees and both wish to be included in the reference file, please call LAB NEWS at 264-7841 and ask for an extra copy of the form.)

Retiree Job Reference Service (August 1974)

Circle one or more:
 Appliance Repair Auto Repair Carpentry Child Care Electrical
 General Handyman Hauling Housework Painting Plastering Plumbing
 Radio/TV Repair Typing Yardwork Other _____

Name (print) _____ Phone _____

Address _____ City _____ Zip _____

Describe your skill(s). Mention relevant training, experience, licenses, references (optional), etc.

Do you have your own transportation? _____

Do you have your own tools? _____

Comments _____

Signed _____ Date _____

Mail to: LAB NEWS, Div. 3162, Sandia Labs, Albuquerque, N.M. 87115



BUDGET MATTERS occupy everyone's attention these days, and the Labs is no exception. Here for a Saturday morning work session on Sandia's budget is Congressman Lujan, shown with President Sparks and VP Ray Powell. Mr. Lujan, a member of the Joint Committee on Atomic Energy, keeps in close touch with developments at Sandia and the other weapons labs.

Authors

R.E. Palmer (5216) and M.A. Gusinow (5215), "Gain Versus Time in the CF₃I Iodine Photodissociation Laser," Vol. QE-10, 615 (1974), IEEE JOURNAL OF QUANTUM ELECTRONICS.

H.P. Stephens and C.L. Northrup (5823), "Thermodynamic Measurements," June 1973 BULLETIN ON THERMODYNAMICS AND THERMOCHEMISTRY.

P.S. Peercy (5132), "Evaluation of the Coupled Proton-Optic-Mode Model for KH₂PO₄ and RbH₂PO₄," Vol. 9, No. 11, PHYSICAL REVIEW B.

F.C. Perry (5167) and L.P. Mix (5242), "Application of Holographic Interferometry to Shock Waves in Solids," Vol. 24, No. 12, APPLIED PHYSICS LETTERS.

C.L. Olson and J.W. Poukey (both 5241), "Force-Neutral Beams and Limiting Currents," Vol. 9, No. 6, PHYSICAL REVIEW A.

J.E. Houston, G.E. Laramore (both 5114) and R.L. Park (5115), "Surface Electronic Properties of Tungsten, Tungsten Carbide, and Platinum," Vol. 185, No. 4147, SCIENCE.

H.J. Rack (5832) and D. Kalish (BTL), "The Strength Fracture Toughness, and Low Cycle Fatigue Behavior of 17-4PH Stainless Steel," Vol. 5, No. 7, METALLURGICAL TRANSACTIONS.

W.H. Smyrl (5831), "Stress Corrosion Cracking of a Titanium Alloy in Chloride-Containing Liquid Environments," Vol. 9, No. 5, JOURNAL OF MATERIALS SCIENCE.

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

FRENCH BIBLE, 1873 printing, \$12; 1890 picture album, \$18; old pictures, trade for old gun, sword or dagger. Smitha, 293-1177.

PIONEER QX800-A, 4-channel receiver, reg. & SQ matrix, 20 watts/channel, \$350. Garrison, 256-7267.

SCOTCH CASSETTES, 90 min., HE, sealed pkg., \$3; Weller mini-shop tool & accessories, \$25. Kenna, 298-6059.

'72 12x52 **MOBILE home**, includes refrigerator, range, AC, \$4300 or best offer. Werling, 293-7344.

TURF-TRAC riding lawn mower, 25" rotary blade, 4 hp, forward & reverse, \$150. Morris, 877-3782.

ELECTRIC WINCH, w/20 ft. of steel cable & pulley, 3000 lb. pull, mounted on frame. Szymanski, 256-1708.

'71 **TURNPORT** mobile home, 24x49, 3-bdr., 2 full baths, dishwasher, refrigerator, disposal, washer, dryer, range, located at Vallecito Lake, \$7295. Johnston, 247-1448.

MICHELIN used tires, 4-7.50x16 8-ply tires w/Michelin tubes. Burriss, 298-5061.

TAPE DECK, AKAI X-200-D, 3 cross field heads, 3 motors, auto reverse, \$250 negotiable. Courtin, 298-6934.

ACCORDION, 120 bass, La Melodiosa, 3 yrs. old, \$300. Chavez, 265-1146.

WEIGHT LIFTING set, \$15; Dynaco stereo-70 & PAS-3X amplifier system, \$125; bed,

\$10. Barnard, 256-7772.

FOUR MONTH European Spa membership, \$10 transfer plus \$11 per month. Formea, 281-5220.

WURLITZER PIANO, mahogany, \$495; Travel Trailer Mobile Scout, '71, 19 ft. self-contained, \$2500. Jones, 299-3971.

'70 **TENT TRAILER**, Sears, hardtop w/10x12 Add-a-Room, sleeps 4, \$600. Goodrich, 299-6684.

REFRIGERATOR, 15 cu. ft., best offer; 600 cfm Holley dbl/pumper; 2 ea. 10.45x15 Indy tires. Fuller, 294-3089.

FIREWOOD, pine or aspen, \$35/cord; temporary electrical power service set, \$45. O'Hare, 1-864-3474.

GARCIA classical guitar, \$150. Melo, 268-7017.

MAPLE double bed, \$25. Hauer, 298-3624.

RABBITS, live or dressed, fryers/pets; 1 H78x14 tire; houseplants. Holloway, 898-2110.

SUEDE SADDLE, 15 inch. Morrison, 877-7425.

CUSTOM MACRAME, created to order. Renken, 266-5253.

ORGAN, Baldwin, Interlude, transistorized, w/auto rhythm, less than 1 yr. old, sheet music, \$750. Wilson, 266-2575.

CASSETTE tape recorder, \$25; accordion, \$75; brown wig, \$10. Kerszke, 869-2726.

STUDENT trumpet, Bundy, w/case, \$100. Sample, 296-1771.

REALISTIC portable stereo, Garrard turntable, 2 8" speakers, \$60; mattress, 42x74, \$10; 3-spd. boy's Schwinn bike, \$25. Luiken, 345-6226.

OLDS Ambassador French horn & B-flat trombone, good student grade instrument. Plumlee, 281-3224.

TAPE recorders (2), Wollensak mod. T-1515 stereo, \$25; mod. T-1500 Mono, \$20; transceiver Motorola FM, 450 MHz, 60W, \$35. Benson, 299-3315.

SLEEPING bags, lightweight

foam, youth sizes, 5 ft. & 4 ft. tall, washable, nylon cover, \$10 & \$5. Stevens, 299-6086.

COIN COLLECTION, Indian & Lincoln cents, Liberty nickels, Liberty dimes. Any or all. Lassiter, 298-2461.

SIX man raft, 4 paddles, manual pump, used twice, cost \$110, price, \$80. Simonson, 298-1735.

21" COLOR TV, \$100; 2 bed frames w/head & footboard, \$20; phonograph turntable; iron & ironing board. Chandler, 296-3323.

HENRY F MILLER piano & bench, \$500. Dillon, 268-7038.

SKI BOOTS, 2 adult, 2 child, lace type, 4 sets boot carriers. Schubeck, 266-2780.

REFRIGERATOR, Coldspot w/separate freezer, \$85; bike, girl's, 26-inch, 3-spd., \$35; slide projector, Argus 300, \$20; rotary lawn mower w/catcher, \$15. Hawn, 299-7835.

FREEZER BEEF, grain fed, 13 mo. old, estimate \$225 total cost for 180 lbs. Shank, 877-4497.

BUCKSKIN Gelding, 9 yrs. old, children's horse, \$300; 750:16 8-ply tire, tube, liner, \$40; 8x16.5 tire & 8H rim. Cyrus, 898-4038.

CONTEMPORARY baby crib, walnut finish w/mattress, half price, \$40. Lynch, 296-6177.

SCHNAUZER pups, registered. Stanfill, 255-6652 after 6.

REAL ESTATE

1/2-ACRE lot, all utilities, \$4800 value, sell for \$4050, 20 miles south of Albq. Salazar, 865-6142.

3-BDR & den, all brick house in Inez addition. Lewing, 299-3193.

4-BDR, den w/fireplace, dining room, 2-1/2 baths, pitched roof, heated double garage, 5-1/4% mortgage, \$39,500. Bentz, 299-3448.

GLENWOOD HILLS, beautifully landscaped tri-level on 1/2-acre, 3500 sq. ft. living area,

priced in eighties, terms. Forsythe, 299-2785.

FOR RENT

2-BDR. mobile home at Elephant Butte Lake, \$10 daily, \$45 weekly, \$135 monthly. Call before 3 or after 5. Smith, 299-7506.

2-BDR unfurnished apt., electric kitchen, washer & dryer hook-up, carpet, \$165 includes utilities. Duvall, 255-4678.

WANTED

POTTERS wheel, manual or electric; sturdy camera tripod. Grayson, 296-8210.

KAYAK fiberglass, reasonable. McConnell, 255-2488.

6 INCH jointer. Vogel, 256-0975 after 4 p.m.

MIXER, concrete, electric, good, cheap. Hawkinson, 281-5239.

2 EA. 20 INCH high riser bikes, trade for 1 ea. 10-spd. bike. Sifre, 344-4680.

ADD-ON type air conditioner for Maverick 6-cyl. Baxter, 344-7601.

TRANSPORTATION

'70 **CUTLASS** Sport SX, vinyl roof, radio, heater, AC, 455 engine, \$1550. Montoya, 298-3830.

'65 **CHEVY IMPALA** SuperSport, \$250. 6749 Pino NE (Jade Park). Romero, 821-5116 after 6.

'73 **BUICK** LeSabre, AC, PS, PB, tilt steering wheel, vinyl top, below book at \$3200. Hay, 242-8683.

'72 **DATSUN**, 1200 sedan, 14,200 miles, 34 mpg, radio, \$2000 (below book). Dyer, 299-5329.

'71 **SUZUKI** motocross motorcycle, Cyclone TM400, stored since Oct. '73, asking \$475. Dougherty, 298-6043.

'72 **PINTO** station wagon, AT, AC, car top, camper 2000cc engine, 28,000 miles, \$2100. Schmlerer, 299-2352.

'68 **PONTIAC** Tempest, 2-dr., hardtop, AT, PS, AC, 63,000 miles, \$995. Dallin, 292-1575.

'58 **FORD** Fairlane, AT, R/H, working condition, good battery & tires, 289 cu. in., V8 engine, trade for SLR 35mm camera of comparable value. Hachigian, 298-1414.

'71 **YAMAHA**, 360 Enduro, 2,200 miles, like new, includes extra trail sprocket & service manual. Archuleta, 821-5405.

'72 **YAMAHA**, 100 MX, \$400. Fox, 299-9031.

SCHWINN, Breeze, girl's 26" lightweight bike, thornproof tires, mirror, basket & lock included, \$40. Erickson, 299-6824.

'67 **HONDA**, 65cc OHC, 4-spd., 4-stroke, 50 mph & 135 mpg, w/luggage carrier, \$150. Carlson, 299-6610.

'63 **OLDS** 88, \$200. Clemm, 298-9541.

'70 **VW** BUG, AT, new rubber, low mileage, \$1300. Tessler, 296-1025.

'64 **PONTIAC** Catalina, 4-dr., std. trans., new battery, V8, asking \$375. Marchl, 299-3653.

'55 **BUICK** Roadmaster, AT, PB, PS, runs well, needs body work, \$100 or best offer. Schalles, 298-4732.

20" **BOY'S BIKE**, Sears, Spyder Sting Ray, new tires, mirror, \$25. Tenbroeck, 256-9755.

'65 **MUSTANG**, 6-cyl., std. trans. Cafferty, 898-3102.

'68 **ENGLISH** Ford Cortina, 2-dr., 4-cyl., 4-ply radials, \$400. Tomlinson, 294-4950.

'73 **CUSTOM** dune buggy, Super Beetle motor, fiberglass body w/top, wide ovals, chrome wheels, \$1000. Seward, 256-1612.

LOST AND FOUND

LOST — Orange clown key ring, with 7 or 8 keys; Rx safety glasses, bi-focal black over clear rims, black case; blue briefcase; green and yellow oho earring, screw back; crab legs (metal sculpture) at CC pool. 264-3441.

FOUND — GM car keys, set of 3. 264-3441.

BROAD JUMP • C-CLUB • RHYTHMAIRES • YOLANDA • MAZATLAN • SKI PARTY

FRIDAY	SATURDAY
<p>16 — HAPPY HOUR ORIENTAL BUFFET Adults \$2.75 Under 12 1.75 SHILOH Lounge Denny</p>	<p>17 — KIDS OLYMPICS 9-6</p>
<p>23 — HAPPY HOUR BAVARIAN BUFFET Adults \$2.75 Under 12 1.75 RHYTHMAIRES Lounge Yolanda</p>	<p>24 — SUMMER OLYMPICS 9-3 NIGHT IN MAZATLAN 6-12</p>

TGIF — means, among other things, Those Great International Foods at the Friday night Happy Hours. Tonight it's an Oriental spread, next Friday a Bavarian one.

MAZATLAN — without surf but without tourist permit either. It's *A Night in Mazatlan*, and there'll be lots of hors d'oeuvres, lots of bands (three in fact), lots of costumes, and lots of fun. But not lots of money; \$2.50 members, \$3 guests. *Pick up tickets today or tomorrow.*

ENTER — any six of these: cribbage, darts, pingpong, horseshoes, shot put, golf chip shot, 25-yard freestyle swim, 100-yard

freestyle swim, 50-yard dash, broad jump, distance run, obstacle course. Exit with an award if you rank in your category; men's and women's Milk Fed (16-20), Prime (21-39), Choice (40-50), or Select (over 50). It's the Summer Olympics, it's more of a Hexathlon, and it's 9 to 3 on the 24th. Free to members, but sign up at the Club by the 22nd.

BORED — they won't have time to be; Board they are. Know who's doing what and give them your suggestions. '74-'75 board members: Pete Gallegos, president; Dick

Achtung, Schussers!

— along with would-be, has-been, and other skiers (and their families). The C-Club Ski Club's membership swim party is 6 to 9 on the 22nd. Free drinks, popcorn, movies, prizes, swimming, and info on all the Club's benefits (including hefty discounts, frequent trips, and junior racing program)

Baughman, VP, bar, membership; Bill Davis, treasurer; Thelma Foster, secretary, travel director; Felix Almaraz, special interest groups director; Bill Fay, AEC-appointed

representative; Bob Guerin, Sandia-appointed representative; Hugh Jones, capital improvements director; Max Newsom, publicity, food; Bud Rufsvold, swim director; Luke Stravasnik, special events director. Thanks to the old; congrats to the new.

DENTIST FLY — isn't an insect that swarms around a sweet tooth. It's the Cinema Classics twin bill: Vincent Price in *The Fly*, W.C. Fields in *The Dentist*. 7:30 on the 21st.

KEEP ON — Truckin'. That's the usual roar of the dance crowd when *Truckin'* makes music. Soul Session is 8:30 to 12:30 on the 31st.

GO — to the Go-Go, teen-types. *Blue Snow* makes decibels rise, makes bodies move. 7:30 to 10:30 on the 29th. Get tickets early.

RUNDOWN — on current trips guaranteed to cure your rundown feeling. \$100 holds your place on any of these:

- Caribbean Dec. 20-28 \$653 & up
- Mexico City Dec. 21-27 309 & up
- Greece Apr. 23-May 6 799 & up

All prices include round trip air fares, all hotel (and ship) accommodations, and more; call the Club for details on any or all.

MORE INFO — 265-6791.

Group Works to Preserve River Bosque, Add Facilities

The thing about the Rio Grande is that it is not a full-time river. Yet the Rio Grande bosque — the flood channel of the river and its associated vegetation — supports a variety of wildlife, ranging from migratory birds to small mammals. The Middle Rio Grande Conservancy District irrigation and drainage ditches do flow most of the year.

Currently, access to the bosque is limited and views of the river are only possible from five bridges. What you see is distressing. Around most of the bridges there lies an accumulation of junk and garbage. The flood channel is littered with debris.

Think for a moment what it would mean to city residents if the bosque were cleaned up,

turned into giant recreation area and game preserve, with a series of small lakes and ponds, picnic and recreation sites, plus hiking, bicycle and horse riding paths. Such a pastoral scene could become the green center of the city and a landmark in the arid Southwest.

This is the goal of the Bosque del Rio Grande Nature Preserve Society. The 200-member group is dedicated to the dual aim of maintaining large areas of the bosque in a natural state, yet opening up other areas for greater recreational use. Above all, they want the beauty of the bosque improved and maintained.

The society pursues a vigorous education campaign, watchdogs legislation and government agency decisions affecting the bosque, and lobbies for additional city,

county and state efforts to help the bosque. From the Conservancy District to the State Game and Fish Department, many agencies have jurisdiction over the bosque but none has overall responsibility. The group seeks to establish a central authority for bosque control.

The society was instrumental in gaining for Albuquerque a \$40,000 grant from the National Endowment for the Arts for a comprehensive study of the bosque. Results of this study should provide guidance for furthering the society's goals.

The society meets the second Thursday of each month at 7:30 p.m. at St. Michael's and All Angels Church, 601 Montano Rd., NW. The group invites anyone interested in helping with its efforts to join. Membership dues are \$2 annually. • dg



SAN GABRIEL State Park at the west end of Mountain Road is a popular recreation area for north valley residents. The Bosque del Rio Grande Nature Preserve Society advocates establishment of a number of parks, lakes and ponds, and trails along the Rio Grande from Sandia to Isleta Pueblos.