

New Technique Developed To Make Transparent Ceramics

A new way to produce transparent electrooptic PLZT ceramics has been developed by Gary Snow of Active Ceramic Materials Division 1335. Called "a significant step forward" by ceramic researchers, the new method involves atmosphere sintering which is less expensive and more versatile than the hot pressing technique, previously the only way that optical quality transparent ceramics could be produced.

"Sintering" is the baking of a powder



EQUAL EMPLOYMENT OPPORTUNITY Commissioner Raymond Telles, second from left, is greeted by President Hornbeck during a recent visit to the Labs. Pat Serna, a member of the Commissioner's staff, and Bob Garcia (3230) complete the group.

LAB NEWS

VOL. 24, NO. 11

MAY 26, 1972

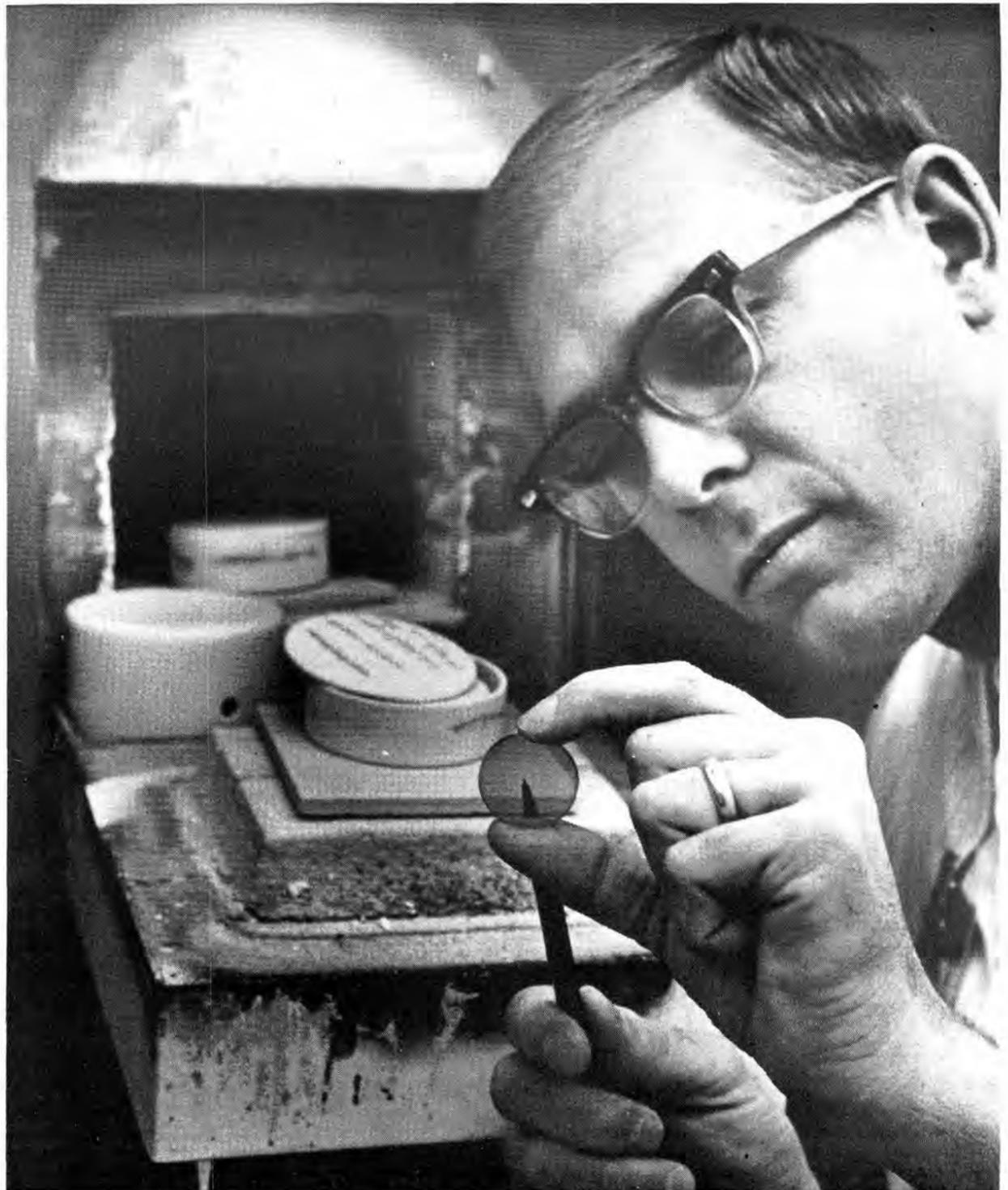
SANDIA LABORATORIES • ALBUQUERQUE NEW MEXICO • LIVERMORE CALIFORNIA • TONOPAH NEVADA

compact under controlled conditions, causing the PLZT (lanthanum-modified lead zirconate-lead titanate) powder to become a coherent nonporous ceramic. Under Gary's process, lead oxide is vaporized in the kiln during sintering and oxygen is also introduced. The partial pressure of lead oxide around the compact must be controlled in such a way that excess lead oxide (which is batched into the powder) is forced to remain at the grain boundaries of the ceramic until sintering is complete. This liquid phase enhances densification and pore removal. The resultant wafer is dark orange in color, but an additional heat treatment causes this coloration to disappear.

The new process is more adaptable than hot pressing to production of large plates of PLZT and it also permits the fabrication of more complex shapes. The finished product bears optical and electrical properties comparable to those of hot-pressed PLZT.

PLZT ceramics have been proposed as the principal element in a number of data storage, information display, and light modification devices. The Sandia-developed Cerampic, which can be made to electronically store and transmit photographic images, is an example of such a device.

Gary is continuing the development of PLZT atmosphere sintering techniques in order to achieve even better optical clarity. The PLZT ceramic — announced in 1970 — was invented by Gene Haertling, supervisor of Division 1335.



GARY SNOW (1335) displays a transparent PLZT ceramic produced by his atmosphere sintering technique. Previously, optical quality transparent ceramics could only be produced by hot pressing. The new method is less expensive and more versatile.

Afterthoughts

Toward Higher Understanding--Father: "What do you think about the Indianapolis 500?" **Son (heatedly):** "They're all innocent!"

* * *

A Genuine Certified Plug--For KHFM, the classical music station, at 96.3 on the FM dial. **Commercials--hardly any.** **Music--mostly and easy on the Wagnerian sopranos.** **Comment--articulate;** seems to assume that the listener is more than a screeching idiot. By their own admission, they survive only by reason of listener's contributions.

* * *

Update on Sandia Bicycle Association--SBA members have compiled a 12-page proposal "Bicycling in Albuquerque" which includes in map form a suggested bicycle network for the city. This has been reviewed by the city's Planning Dept., and work with the city and other interested bicycle groups continues. SBA now has about 300 members and its leaders are somewhat optimistic about gaining the Association's more modest goals. Between SBA and UNM, the number of commuting-type cyclists is impressive, probably more than one thousand.

* * *

So What Else Is New?--"When there is an income tax, the just man will pay more and the unjust less on the same amount of income." Plato (427-347 BC) *js

-30-



HIGH TEMPERATURE resistant exploding bridge wire detonator invented by Bill Leslie (1915).

Explosive Detonator Invented by Bill Leslie Patented by AEC



The AEC has been awarded a patent for an exploding bridge wire detonator able to withstand high temperatures and radiation. Inventors are Bill Leslie of Exploratory Explosive Components Division 1915 and M. Taylor

Abegg, a former employee.

The detonator has applications wherever there is a need to electrically initiate an explosive device in microsecond times after the assembly has been exposed or maintained at elevated temperatures. Examples are explosive devices in spacecraft subjected to solar heating or to the atmosphere of a planet close to the sun and explosive devices in Plowshare hardware that is exposed to high underground temperatures.

The detonator will function in environments that would char ordinary materials such as wood or plastic. Key to the device is the use of azobis(hexanitro)biphenyl (first prepared by the US Naval Ordnance Laboratory, White Oak, Md.) as the explosive. The detonator can be designed over a range of values for explosive bulk density, bridge wire size and material, and explosive column dimensions.

Bill joined Sandia in 1952 after eight years with Oak Ridge National Laboratory where he was engaged in radiochemistry. At Sandia Bill has worked in advanced component development. He holds five patents. His PhD degree was earned at the University of Texas in 1944.

Ed Roth Elected Treasurer of SME



Ed Roth (1212) was recently elected treasurer of the worldwide Society of Manufacturing Engineers. He has been a member of SME's board of directors since 1969, serving as national treasurer last year.

Ed has been at Sandia since 1951. He has written numerous papers for the SME on tolerancing, tooling, gaging and inspection and is the author of two books on manufacturing. In 1966 he received the Society's Gold Medal for outstanding service through published literature.

Events Calendar

May 27-29 — New Mexico Open Tennis Tournament, Tennis Club of Albuquerque, spectators welcome.
May 28 — Symphony Safari, 2 p.m., Albuquerque Zoo.
May 28 — N.M. Mt. Club, Ramp of Shield in Juan Tabo Canyon, Eastdale, 8:30 a.m.
June 3 — N.M. Mt. Club, Cienega Canyon, Western Skies, 9 a.m.
June 2-4 and 9-11 — "Outward Bound," Old

Town Studio. For reservations, 242-4602, 8 p.m.

June 3-4 — Ratons Del Rio Grande, Conejos River trip, call Ray, 268-4364.
June 4 — N.M. Mt. Club, Cerro Pelado in Jemez Mts., Gulf Mart, 8 a.m.
June 9-11 — 1972 N.M. State Skeet Shooting Championship, Sandia Skeet Club.
June 9-11, 15-18 — The Albuquerque Civic Light Opera Association presents "Annie Get Your Gun," Popejoy Hall.

LAB NEWS

Published every other Friday

SANDIA LABORATORIES

An Equal Opportunity Employer

ALBUQUERQUE, NEW MEXICO
LIVERMORE, CALIFORNIA
TONOPAH, NEVADA

Editorial offices in Albuquerque, N.M.
Area 505 264-1053
ZIP 87115

In Livermore Area 415 455-2111

john shumy is editor
&
don graham ass't. editor

bruce hawkinson writes
as does norma taylor while
bill lasker takes/makes pictures
&

in livermore lorena schneider does all

Air Force B-1 Program Director To Talk About New Bomber

The Albuquerque chapter of the Air Force Association is sponsoring an address by Major General Douglas Nelson, B-1 Systems Program Director for the Air Force. Gen. Nelson will discuss the new manned penetrating bomber — the B-1, successor to the B-52 — as an important part of our triad defense — land based missiles, submarine launched missiles and the manned bomber. He will discuss characteristics and status of the B-1 development and show how the plane will play its role in this triad of strategic deterrent forces.

The dinner meeting, open to the public, will be held at KAFB (West) Officers Club at 7 p.m., May 31. Additional information may be obtained from John Dishuck (1651), chapter vice president. Reservations should be made with Bill Denison (7421), secretary, ext. 1733.

Supervisory Appointment



DANNY HARTLEY to supervisor, Aerodynamics Division 8354, effective May 16.

Since joining Sandia/Livermore in November 1968, Danny has worked in the Aerothermodynamics Division, primarily in aero-heating analysis and in the application of laser Raman spectroscopy to gas flow studies.

Danny received his BS, MS and PhD degrees from Georgia Institute of Technology in aerospace engineering. Subsequently, he received a postdoctoral degree in experimental aerodynamics from the Von Karman Institute in Brussels, Belgium, under a research fellowship. He is a member of Tau Beta Pi, Sigma Xi, Sigma Gamma Tau, and Phi Eta Sigma honorary societies.

Danny, his wife Barbara, and their two daughters reside at 513 Briarwood Court in Livermore.

Speakers

Hartmut Spetzler (8314), "Holographic Interferometry for the Measurement of Small Displacement," 53rd Meeting of American Geophysical Union, April 17, Washington, D.C. Published in TRANSACTIONS OF AMERICAN GEOPHYSICAL UNION, April 1972, Vol. 53, p. 511.

Ray Mar (8314), "High Temperature Phase Studies by Automatic Optical Pyrometry," American Thermal Analysis Society Meeting, Feb. 8, Waco, Tex.

Walt Bauer (8334), "Helium Implantation Effects in Palladium at High Doses," American Physical Society Meeting, March 27-30, Atlantic City, N.J.

Bob Rinne (8324), "G-Bordism of Mapping Diagrams," American Mathematical Society Meeting, Las Vegas, Nev.

Bill Ashurst (8351) and W.G. Hoover (LLL), "Measurement of Local Fluctuations in Computer Experiments," American Physical Society Meeting, San Francisco.

Rick Wayne (8331) and Walt Bauer (8334), "Migration of Helium KBr Determined by Permeation, Equilibrium, and Implantation Measurements," American Physical Society Meeting, March 27-30, Atlantic City, N.J.

Authors

Jim Shelby (8331), "Helium Migration in TiO_2-SiO_2 Glasses," April issue, JOURNAL OF AMERICAN CERAMIC SOCIETY.

Ron Musket (8313) and Dick Fortner (LLL), "Chemical Effects in the Auger Electron Spectra of Beryllium," SURFACE SCIENCE, Vol. 28, p. 339.

Ray Mar (8314), "Anomalous Behavior of Antimony Doped SnO_2 ," JOURNAL OF PHYSICAL CHEMISTRY SOLIDS, 1972, Vol. 33, p. 220-223.

Jack Dini, John Helms and Rudy Johnson (all 8312), "Ring Shear Test for Quantitatively Measuring Adhesion of Metal Deposits," ELECTROPLATING AND METAL FINISHING, March issue.

Su Chiu (8137), "Longitudinal Elastic Waves in a Composite Bar with Conical Sections," Vol. 10, No. 3 (March 1972), AIAA JOURNAL.

Congratulations

Mr. and Mrs. Arlyn Blackwell (8350) a son, John Arlyn, April 3.

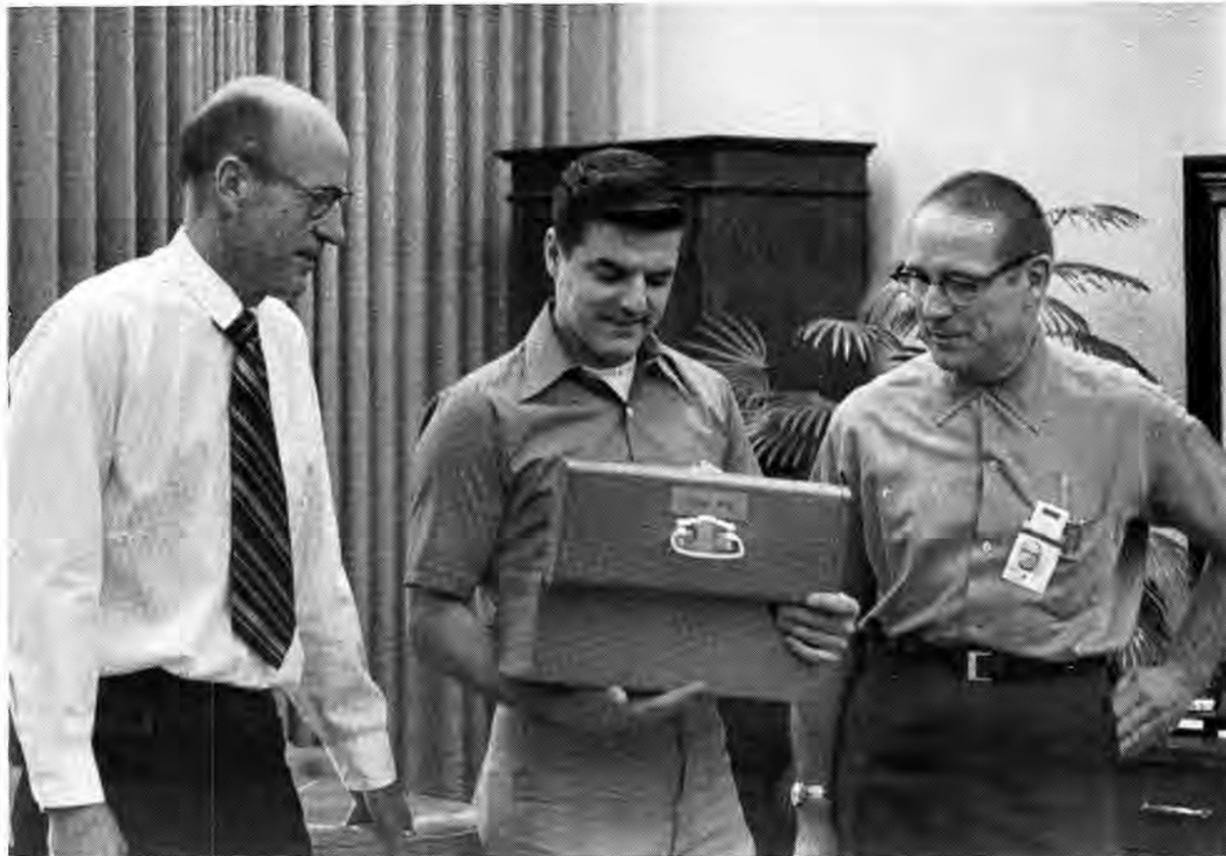
Mr. and Mrs. Jerry Alcone (8178) a son, Shawn Michael, April 29.

LIVERMORE NEWS

VOL. 24, NO. 11

LIVERMORE LABORATORIES

MAY 26, 1972



FIRST ELECTRONIC FABRICATION TECHNICIAN APPRENTICE GRADUATES — Jim Reitz (8421) receives congratulations and a well-stocked toolbox along with his diploma from W.C. Scrivner, Director of Engineering Services 8400, left, and Jack Wilson (8411), chairman of the Unilateral Apprenticeship Committee. Jim completed the Sandia/Livermore program which included a four-year period of on-the-job training under the guidance of Rus Richards, supervisor of Section 8421-3.

Take Note

Jack Wilson, supervisor of Standards and Calibration Section 8411-1, has been appointed a member of the recently formed Northern California Metric Conversion Advisory Committee to the U.S. Department of Commerce. Purpose of the advisory committee is to help define potential problem areas in converting America to the metric system and to work with interested groups in these problem areas. First meeting of the committee discussed suggestions for seminar programs and other forms of communication to develop liaison with manufacturers, educators, and engineers. The possibility of a central information collection and dissemination center was also proposed and discussed.

* * * * *

Three Sandians have been elected to serve as officers of the Livermore Valley Charter Chapter of the American Business Women's Association for the coming year: Mary Monser (8256), president; Jan Vandermolen (8100), recording secretary; and Lupe Martin (8161), treasurer.

* * * * *

Alan Skinrood (8184) shot a net low score of 66 to win Flight A and Hesa Yano (8323) a 69 to win Flight B in the recent Sandia/Livermore Employees Golf Club tournament played at the Bethel Island Golf Course. John Lindman and Chet Tarne (both 9125-1) finished second in Flights A and B

respectively. Alan Skinrood also won in the "fewest putts" feature of the tourney.

* * * * *

Commander Glen Otey, supervisor of Exploratory Development Division II, 8178, is the new Commanding Officer of Helicopter Anti-Submarine Warfare Squadron HS-85 which drills at the Naval Air Reserve Training Unit at the Naval Air Station, Alameda, Calif. Glen first entered naval service as an aviation cadet in 1955, subsequently serving as a naval flight officer and instructor until 1960. After leaving active duty, he was affiliated with the Naval Air Reserve Station in New Orleans, La., until 1966 when he came to the Bay Area. He has a BS degree in nuclear engineering from Mississippi State University and an MS in mechanical engineering from Tulane University.

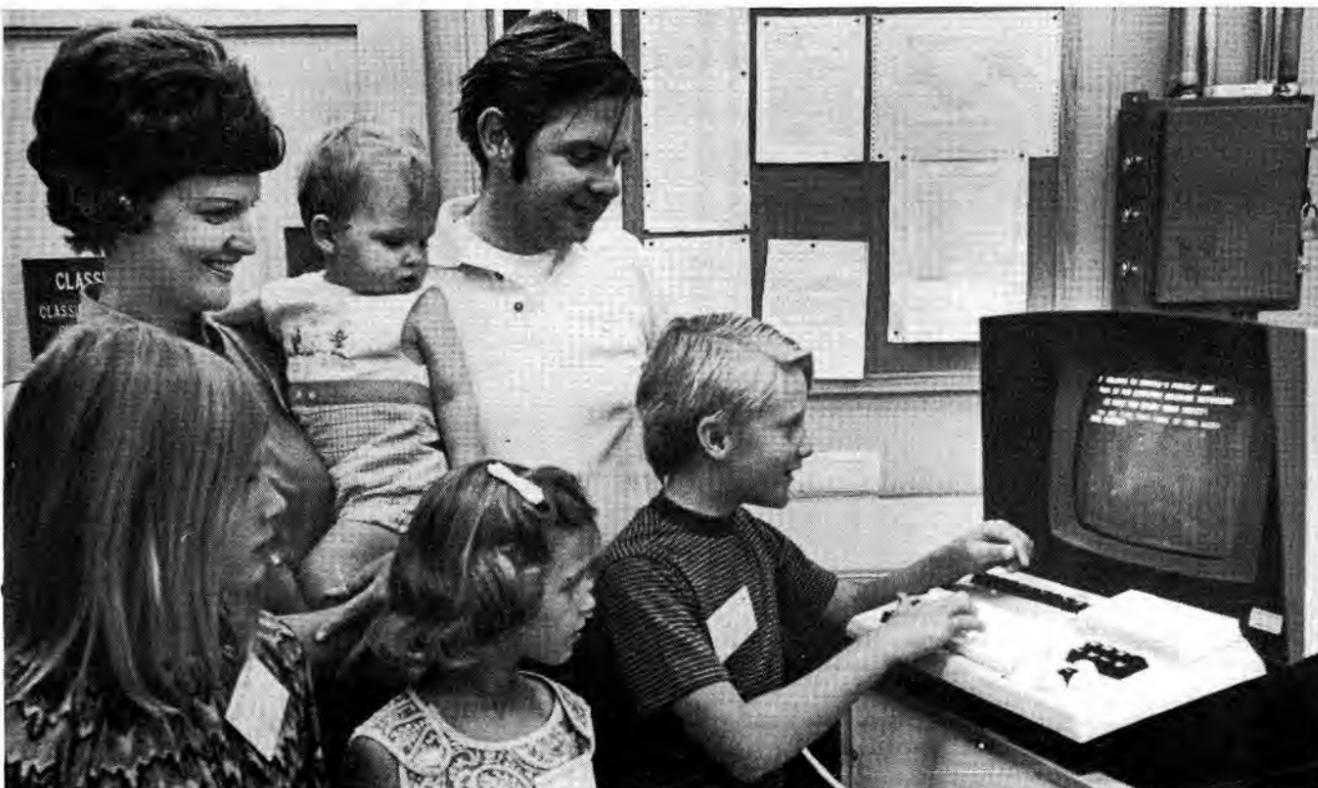
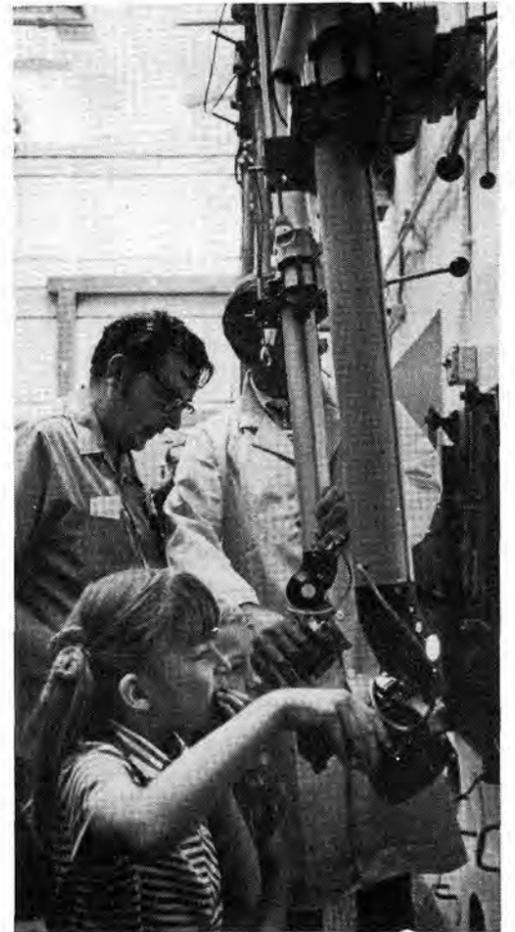
Sympathy

To Tom Grayson (8254) for the death of his father in San Diego, Calif., May 5.

To Dick McHugh (8321) for the death of his mother-in-law in Omaha, Neb., May 6.

To Joe Genoni (8256) for the death of his mother in Danville, May 20.

FAMILY DAY
It was fun . . .





Al Goodman (5323), center, with son Bob, top, and Bernardo Aizen from Montevideo.



George Horne (5413) with daughter Leslie, wife Pat and Ignacio Vilaseca from Montevideo.

Foreign Students Become Part of Sandians' Families

New people. New places. New culture. This is the excitement of living in a foreign country for a teenage student. For the family that "adopts" a foreign exchange student, the satisfactions are less obvious but certainly worthwhile and lasting.

"We have another member of the family," is the way Al Goodman (5323) says it. Bernardo Aizen, a serious young man age 17 from Montevideo, Uruguay, has lived with the Goodman family since January. He's aiming at a medical career and right now is deep in the study of biology, his favorite subject at Sandia High School.

Bernardo's stay in the US was arranged through a national organization called Youth for Understanding. It works both ways. The 17-year-old daughter of George Horne (5413) will be spending 15 months in Argentina starting in August.

In the meantime, Ignacio Vilaseca — also from Montevideo — is living with the Horne family. Ignacio is politically oriented and is currently studying sociology and U.S. History at Del Norte High. He plays a mean game of rugby with a UNM team and was a member of the national championship team in Uruguay.

"A fantastic experience," is the way Ignacio describes his stay in Albuquerque. Tremendously enthusiastic about Youth for Understanding, he has explained the program

to a number of civic organizations and youth groups. There is a need for more families to participate next year.

American Field Service is the organization which arranged for Mara Cobanovic from Belgrade, Yugoslavia, to stay with the family of Craig Hudson (9150). Mara attends Valley High with Craig's daughter Cassandra and is interested in literature, art and music. Since coming to Albuquerque last August she has taken up modern jazz dancing. Cassandra studies ballet.

Recently Cassandra spent two weeks living with an Apache family in Arizona as part of the American Field Service program. An Apache girl stayed in her home for a similar period.

A large organization nationally, AFS has arranged for more than 3000 students to visit in this country this year. The exchange with the Apache students is a regional program.

Here again, AFS could place more students in more homes.

If you are interested in either program, call Mrs. Ina Miller, 299-1404, for more information about Youth for Understanding or Mrs. E.R. Lackman, 242-5306, about American Field Service. Or any of the Sandians — Al, George or Craig — will be happy to talk about "their kids." That's the way they feel about it. • dg



Craig Hudson (9150) with daughter Cassandra (right) and Mara Corbanovic from Belgrade.

Authors

W.E. Warren (1721), "A Transient Axisymmetric Thermoelastic Problem Involving Two Temperatures," Vol. 39, No. 1, JOURNAL OF APPLIED MECHANICS.

L.W. Davison and A.L. Stevens (both 5133), "Continuum Measures of Spall Damage," Vol. 43, No. 3, JOURNAL OF APPLIED PHYSICS.

R.A. Graham (5132) and G.E. Ingram (5133), "Piezoelectric Current from X-Cut Quartz Subjected to Short Duration Shock-Wave Loading," Vol. 43, No. 3, JOURNAL OF APPLIED PHYSICS.

G.C. Nelson (5525), "The Determination of the Si and Ge Content in SiGe Alloy by Gamma Ray Absorption Spectroscopy," Vol. 10, No. 2, JOURNAL OF RADIOANALYTICAL CHEMISTRY.

L.F. Shampine (1722), "Heat Transfer by Conduction and Radiation," Vol. 21, No. 6 (1971), Indiana University MATHEMATICS JOURNAL.

D.A. Buckner and P.D. Wilcox (both 1335), "Effects of Calcining on Sintering of Lead Zirconate-Titanate

Ceramics," Vol. 51, No. 3, CERAMIC BULLETIN.

C.W. Harrison, Jr. (1426), "Note Relating to Project Sanguine Antenna for Communication With Submarines at Operational Depth," April 17, 1972, CONGRESSIONAL RECORD.

P.J. Chen (1721), "On the Behavior of Acceleration Waves in Deformed Elastic Nonconductors," Chen with M.E. Gurtin (Carnegie-Mellon Univ.), "On the Use of Experimental Results Concerning Steady Shock Waves to Predict the Acceleration Wave Response of Nonlinear Viscoelastic Materials," Vol. 39, No. 1, JOURNAL OF APPLIED MECHANICS.

A.W. Johnson and J.B. Gerardo (both 5243), "Recombination and Ionization in A Molecular-Ion-Dominated Helium Afterglow," Vol. 5, No. 3, PHYSICAL REVIEW A.

J.W. Nunziato (5131), "On Acceleration Waves in Strained Alpha-Quartz," Vol. 39, No. 1, JOURNAL OF APPLIED MECHANICS.

R.C. Reuter (1542) and H.D. Fisher (1541), "Axial Impact of A Hollow Nonhomogeneous Cone," Vol. 39, No. 1, JOURNAL OF APPLIED MECHANICS.

L.B. Smith (5233) and J.W. Wright, "Sporadic E and Wind Profile Interrelation over Hawaii," Vol. 7, No. 3, RADIO SCIENCE.

J.H. Renken and F. Biggs (both 5231), "Use of Numerically Inverted Leplace Transform in Time-Dependent Transport Calculations," Vol. 9, p 318, JOURNAL OF COMPUTATIONAL PHYSICS.

H. Guttman (1644) and R.G. Webster (former Sandian), "Determining the Detectability Range of Camouflaged Targets," June issue, HUMAN FACTORS JOURNAL.

T.S. Edrington (1424), "On the Optimal Filters for a Fixed Range Radar," Vol. 8, No. 2, IEEE Transactions on AEROSPACE AND ELECTRONIC SYSTEMS.

K.H. Eckelmeyer (5531) and R.W. Hertzberg (Lehigh Univ.), "The Structure and Mechanical Behavior of the Mg-Mg₂Ni Eutectic Composite," Vol. 3, No. 3, METALLURGICAL TRANSACTIONS.

D. Emin, C.H. Seager (both 5155) and R.K. Quinn (5154), "Small Polaron Hopping Motion in Some Chalcogenide Glasses," Vol. 28, No. 13, PHYSICAL REVIEW LETTERS.

A. Narath (50), "The Impurity Susceptibility of Dilute AuV Alloys:⁵¹V NMR Studies," Vol. 10, No. 6, SOLID STATE COMMUNICATIONS.

L.P. Bradley (5245), "Preionization Control of Streamer Propagation," Vol. 43, No. 3, JOURNAL OF APPLIED PHYSICS.

Here They Come . . .



PROTESTERS came to the Gibson entrance to the Base on May 10. So did onlookers and so did the police and so did military authorities and the resultant crowd probably numbered over five hundred. After an hour or so, police arrested

about 25 sit-downers and dispersed the crowd with tear gas. Below right, be sure to note the intent young man clutching a book. The book's title: "Criminal Law."

All Heart? Then Sweat A Little — Exercise

By Sheldon Bliss, M.D., Medical Director

As medical evidence mounts, it appears the advice that exercise is healthful rests more and more on solid ground. A non-exerciser who joins the ranks of the exercisers will often report that he feels better, sleeps better, and has a sense of increased well-being. And this is all probably quite true. But up until now, what answer could one give to a person who said he felt great and slept well but hated to exercise?

Simply this: "If you're an American whose lifelong eating habits include plenty of bacon and eggs, butter and lots of beef, with good quantities of ice cream and sweets thrown in; or if you've been smoking a pack or more of cigarettes a day for years; or if you've had high blood pressure for some time; or if you're a diabetic (even a mild one); or if you've led a sedentary life associated with some stress; or if you have, over the years, become gradually but incontrovertibly overweight, then exercise may well be essential if you are to escape dying young from a coronary."

What does the right kind of exercise do for the heart? For one thing, regular exercise slows the pulse. The normal resting pulse is

about 72 beats per minute. It is not unusual for a sedentary person to have a resting pulse of 80 or 90. And it is not unusual for a person who exercises regularly to have a resting pulse in the 60-70 range. Studies have confirmed that the incidence of coronaries is greater in persons with high resting pulses than in those with low resting pulses.

A dramatic finding emerges in studies of people experiencing first coronaries. Statistics show that, of 100 men who have coronaries, 50 to 60 will be dead within the first month. But the death rate in the first month for regular exercisers is less than half of this incidence. People who exercise have coronaries too — but they usually survive them.

There's more. Regular exercise tends to lower high blood pressure and elevated cholesterol levels, both of which are significant in cardiovascular disease. And it appears that the heart is stimulated by regular exercise to grow microscopic collateral channels to substitute for blood vessels which are clogged. While these collateral channels are nowhere near as large as the original vessels, they may suffice if a main vessel is closed off. At the least, their presence may help to limit the area of damage to the heart muscle.

What is the right kind of exercise? That which is sustained, lasting at least 20 minutes,

three times a week, under what is called a "conditioning pulse rate" (which your physician should help you determine). Even lengthy exercise does your heart little good if your pulse rate is considerably lower during the exercise than your conditioning pulse rate. And exercise at a pulse rate much above your conditioning rate may actually lead to coronary oxygen insufficiency, which can be dangerous.

The stop and go pace of most competitive sports does not call for the sustained effort necessary to benefit the heart. Recommended exercises include swimming, jogging, running in place or skipping rope, and bicycling (stationary or otherwise). Take your pulse rate within 15 seconds after you stop and compare this rate with your target conditioning pulse. Adjust your level of exercise accordingly.

This sounds simple, but you'll soon see that you're getting quite a workout. So much of a workout that you should allow a few minutes to taper off. In addition, warm up a little before beginning your fully sustained effort.

Is it worth it? That depends. It may be a matter of your deciding how you like living — compared to the alternative.

The Big Switch: To Medical School

Couple of years ago John Davenport and Bill Fulcher shared an office at Sandia where they did design work on electromechanical components. John was an EE, a graduate of Princeton and the TDP program, and had been at the Labs four years. He was 26. Bill, an engineering physicist, was an old-timer at Sandia with 12 years behind him. He was 37.

That Spring they both decided to go to med school. And they made it and that's where they are now, at UNM, winding up their second year (of four). People change jobs everyday, but engineers as a group probably have a deeper commitment to their occupation than most — you don't encounter many non-practicing engineers, at least non-practicing by choice. We visited Davenport and Fulcher in their medical lab and discussed their defection from engineering.

"I got restive after the first full year on the job," John remarks. "I began to realize that jumping into engineering — fresh out of high school and into college — hadn't really been a matter of conviction. At the time it just seemed to be the good, profitable thing to do. During this period, I even looked at other engineering jobs outside Sandia and can truthfully say that none measured up to what I already had at Sandia. Engineering just wasn't my bag."

Fulcher felt differently. "After 12 years I think I had lost some of my zest for engineering work. But don't get me wrong — I still liked the job and it was just that this other thing came along that made me — and John too — realize that maybe we'd get more satisfaction out of medicine."

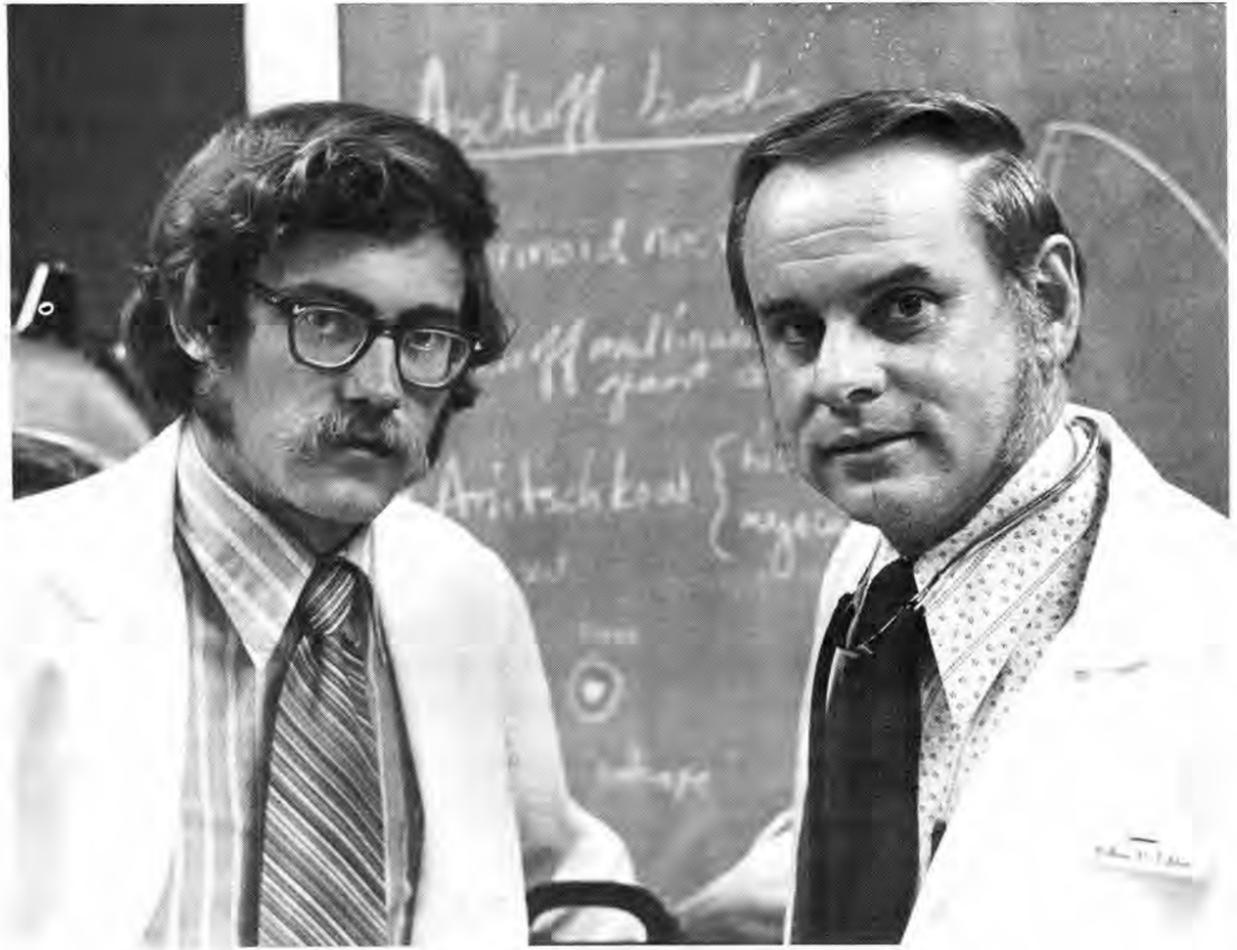
The "other thing" was one of those seemingly small developments that have a way of profoundly altering a person's life. For John and Bill it consisted of joining the Sandia Peak Ski Patrol, an action in itself merely an outgrowth of their mutual enjoyment of skiing.

"In Patrol work," notes Bill, "you get involved in what medicine is all about. You help a guy lying there with a broken leg, splint him, reassure him, make him more comfortable, get him off to the hospital, and the experience is rewarding personally — I'm not sure why, but it is. John and I are working with patients now at BCMC, and there's the same gratifying human relationship."

John adds, "To the outsider, medicine is antiseptic and sick people — not really very appealing. But once you get close to it, as Bill and I did in the Ski Patrol, I began to realize its truly wide possibilities. If sick people happen to turn you off, you can become a pathologist or radiologist and have little patient contact. I'm like Bill though — the human thing is what I seek in medicine."

The elements of this new career are a bit formidable. First, get into med school. For John at 26, difficult but not unduly so. For Bill, at 37, tough — very tough, because an admissions officer at a med school has to rather coldly estimate the useful medical life of an applicant. Bill was turned down in the first pass, but then the regents approved a class expansion — from 36 to 45 — and he made it.

In their first and second years, medical students carry a 26-hour load, half again as much as that of the average college student. "It's a whole new vocabulary," says John. "There's so much material it becomes a matter of organizing and deciding what



MEDICAL STUDENTS now, John Davenport (left) and Bill Fulcher are former Sandia staff members. In accompanying article they discuss switch from engineering to medicine.

material you *won't* cover. I think Bill and I had a little advantage here — our greater experience seemed to enable us to better organize for this type of effort. We weren't psychologically overwhelmed, as were some of the younger students." "Yes," Bill added, "and I think our age and maturity permit us to more quickly establish rapport with a patient. You put one of these youngsters in a room with, say, a 60-year old laborer who's dying from cirrhosis of the liver and the two of them might as well be from separate planets."

How about finances?

"If you can get into med school," says John, "you can get through. We have students here from the poor villages in the northern part of the state and they're making it. Between scholarships and deferred interest federal loans, there's enough money. You won't live high but you'll live."

Both were quick to emphasize how little the prospects of a high income figured in their decisions. "Hell, I'll be pushing 50 by the time I finish everything and get into an active, paying practice," says Bill. "And we're giving up quite a few of our best income-producing years."

As they wind up their second year of heavy book and classroom work, Davenport and Fulcher look forward to their next two years. Starting in July they begin clinical practice in the hospital, where they will spend up to three months in each of the various medical divisions — pediatrics, neurology, surgery, OB, internal medicine, and so on. They'll be on call, delivering babies, working the emergency room, assisting in surgery — getting immersed in the business of doctoring.

After two years of this they get their MD's, then into a residency where they learn a specialty. Depending on the specialty, residencies last from two up to nine years. So Davenport and Fulcher, two engineers from Sandia who took off, still have a long way to go. And it looks like they'll make it. •js

LAB NEWS
PAGE SEVEN
MAY 26, 1972



THIS is Glenn Haycock (4518) who has been appointed by the State Labor Commission and approved by Gov. King to be one of eight New Mexicans on the State Apprenticeship Council. The Council sets standards for apprenticeship programs in the state.

Take Note

Sandia Laboratories employees were recognized recently when a plaque was presented by the Bernalillo County Heart Association "for outstanding financial support to the Heart Fund." Ken Sutton (3250), ECP committee chairman, accepted the plaque at an awards banquet. Part of the Employee Contribution Plan, the Heart agency received \$9065 from Sandians last year.

* * * *

"Ceramic — the Physics, the Device Design, and the Potential Applications" will be presented by Willis Smith (5113) at a meeting of the 5100 Staff Seminar Tuesday, May 30. Samuel Myers (5151) will present "Characterization of a Paramagnetic via NMR" on June 6. The seminar meets Tuesday mornings at 8:30 in rm. 201 of bldg. 806.

* * * *

Fred Schneider (4374) recently celebrated a 20-year anniversary as a member of the Boy Scouts of America. Fred formed Cub Pack 280 and Boy Scout Troop 280 at the Annunciation Catholic Church and earned the Scouter's Award for these services. He has been a committeeman for Troop 285, has conducted courses in first aid training and in scholarship, and has participated in firemanship — taking the Boy Scouts to a firehouse for training. Fred has been at the Labs for 25 years.

* * * *

The New Mexico Philatelic Association and the Albuquerque Philatelic Society will hold NMPA's 7th Unreserved Mail-Floor Auction on Thursday, June 8, in the Lovelace Foundation's 3rd floor Lecture Hall. The auction will start at 7:30 p.m. The 398 lots are described in a catalog available from James McCutcheon (1342) or Peter Kaestner (5621).

* * * *

The U.S. Forest Service has announced that we have until July 1 (not June 1) to submit comments and suggestions relating to their Land Use Plan for the Sandias (LAB NEWS, April 12). If you have information about the Sandias not contained in the Plan (there's a copy in the Tech Library) or if you favor a management scheme not covered in the Plan, the Forest Service would like to hear about it. You can send it to LAB NEWS by June 29 for forwarding or you can write the Forest Service directly (Box 1826, Albq 87103). A tabulation and discussion of the comments from the coupon in the April 12 issue will appear in the next LAB NEWS.

* * * *

Car pool response coupons are being keypunched for automatic sorting and print-out. Listings should be available shortly to those who expressed interest in car pooling. Also on the transportation front, express (non-stop) buses from the Montgomery-Louisiana area and from the far northeast look good if we can find a desirable loading point. More on this later.



LAKESIDE CABIN at Elephant Butte built by Charlie Blaine (1221) provides headquarters for year 'round water recreation. Keith Mead (5322) built a similar structure about a block away. The two Sandians cooperated on the projects, drafted a lot of help from Sandia friends.



ON SUN PORCH, Pat and Keith Mead, Van and Charlie Blaine take a mid-afternoon coffee break. Keith's cabin is in background.



PART of the good life, Keith's daughter Barbie enjoys sunning on deck of Keith's new boat.

At Elephant Butte

Sandians Build Lakeside Cabins

The good life is hard work.

Keith Mead (5322) and Charlie Blaine (1221) and their families enjoy boating, water skiing, swimming and fishing. Elephant Butte, 150 miles south of Albuquerque, is the closest place for these activities so for years they went the boat hauling, tent pitching and camper route. And then they decided to build cabins at the lake on land leased from the State Parks and Recreation Commission.

The cabins were started in the summer of '69 and are now essentially complete. Both are two-story structures with large porches on the upper floor which overlook the lake. Construction is cinder block for the first level, wood frame for the second.

Keith has a boat garage and bedroom on the first floor, another bedroom, kitchen and sitting room upstairs. Charlie uses the first level for a boat garage and dune buggy garage. Each cabin contains about 1100 sq. ft., counting first and second levels.

Both men did all the construction themselves including the plumbing, wiring, and cabinetmaking. Most of the material was hauled to the site from Albuquerque.

"Other than the physical labor involved," Charlie says, "it wasn't too difficult. We have a lot of friends who helped."

Now the Sandians enjoy the good life around water recreation on vacations and weekends. Since furnaces have been installed, the cabins are used year 'round.

"But," Keith says, "there's always a little more work to do around the place. And we could expand — add more rooms. In the meantime, summer is here and everything will just have to wait for awhile."

Help!

So many Sandians signed up for the blood donor program that the Red Cross, which works with Blood Services Inc., is having staffing problems — they need more volunteers. The volunteers assist the medical technicians who draw the blood. If someone in your family can help for one half day per week or more, here are the specifications: 17 or older, male or female, daytime work only, one-day training session on June 6, call Mrs. Bell at the Red Cross on 265-8514.

A Recycling Place

Remember all you've read about our wasterful society and how we ought to recycle bottles, cans, and paper? Remember where the Thrift Shop used to be?

Put these two together and rejoice. Where the Thrift Shop used to be (on G Street between 2nd and 3rd for coordinate lovers) now stands a series of barrels and containers for recyclable refuse. Bring the stuff with you to work, deposit it in the proper receptacles and go home with a sense of virtue and rectitude.

Before you toss the trash into the Toyota however, some very important guidelines:

1. *Bottles* — Clear, green, and brown bottles are accepted. Rinse and separate them by color. Aluminum rings around the necks should be removed (try a needlenose pliers or a staple remover), but the labels can stay on. And bottles don't have to be crushed.

2. *Steel Cans* — These have a seam from top to bottom (unlike aluminum cans). Rinse, remove labels, and flatten (kids love to stomp cans).

3. *Aluminum Cans* — Rinse and flatten.

4. *Newspapers* — Bind in bundles with twine. Magazines, phone books, laundry lists, etc. should not be included.

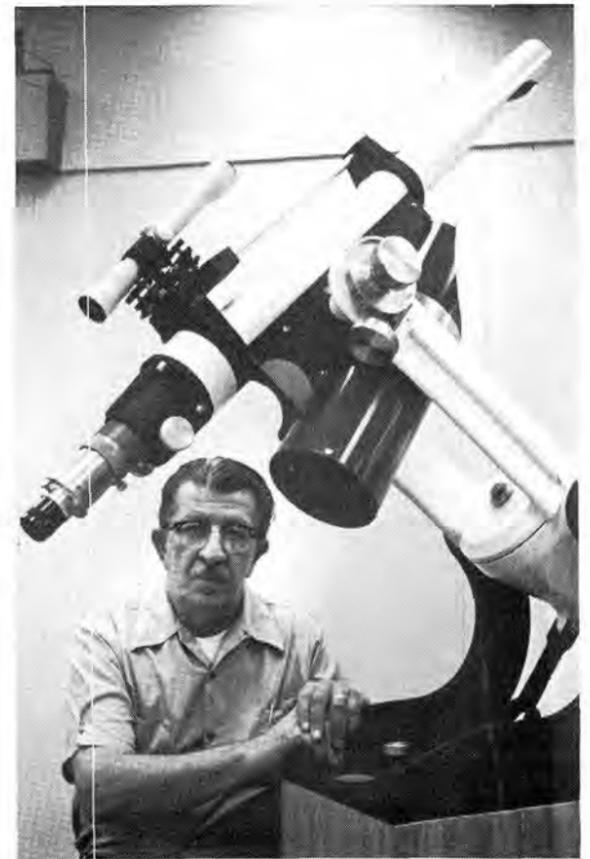
5. *Containers* — Take baskets, boxes, and sacks back home with you for further use.

That's really all you need to know. But why all the rules and regulations? First, it's the market that determines which items can be accepted: the dealers will take only what they can sell.

Second, the sorting is necessary because the recycle place is a volunteer activity. Two KAFB officers, Lt. Glen Paul and Capt. Clifford Richardson, have done all the work, from securing approvals to labeling the containers. And they continue to donate their time for the cause. It's anything but a moneymaker for them.

Third, can flattening saves space. And fourth, rinsing inhibits the creepy, crawly population.

Do your bit — be a trash freak. • bh



IT'S SUPPOSED TO LOOK LIKE THIS. Really. It's an off-axis telescope and he's John Banker (9312). Both will attend the astronomers convention, June 9-11.

Far Out!

Eyes On The Stars, Feet On The Ground

It's quite an agenda — moon rocks, radiotelescopes, planetary exploration, and star parties. The Albuquerque Astronomers, heavily infiltrated with Sandians, are hosting the Annual Astronomical League Southwest Regional Convention at the White Winrock on June 9-11.

The convention features a speech by Thomas Owen, Assistant Director of the National Science Foundation, on the world's largest radiotelescope which will be built near Socorro. But there's lots more: a presentation on the Pioneer's mission to Jupiter; another on moon rocks, and still another on solar corona, an eclipse experiment. And there's an equipment swap.

The high point, literally, of the convention will be a star party or two atop Sandia Crest. A star party motif is rigorously simple: you look up. Precedent suggests they'll make it an all-night affair.

The convention is open to the public. If you'd like to be among the 150-200 attending, get a registration form from Curt Anderholm (5214), co-chairman of the convention.



LOW ALTITUDE MISSILE DROP is right on target at the Recycling Place. Susan Davenport (1722) is momentarily the range commander.

Retiring



Rupert Shattuck (7142)



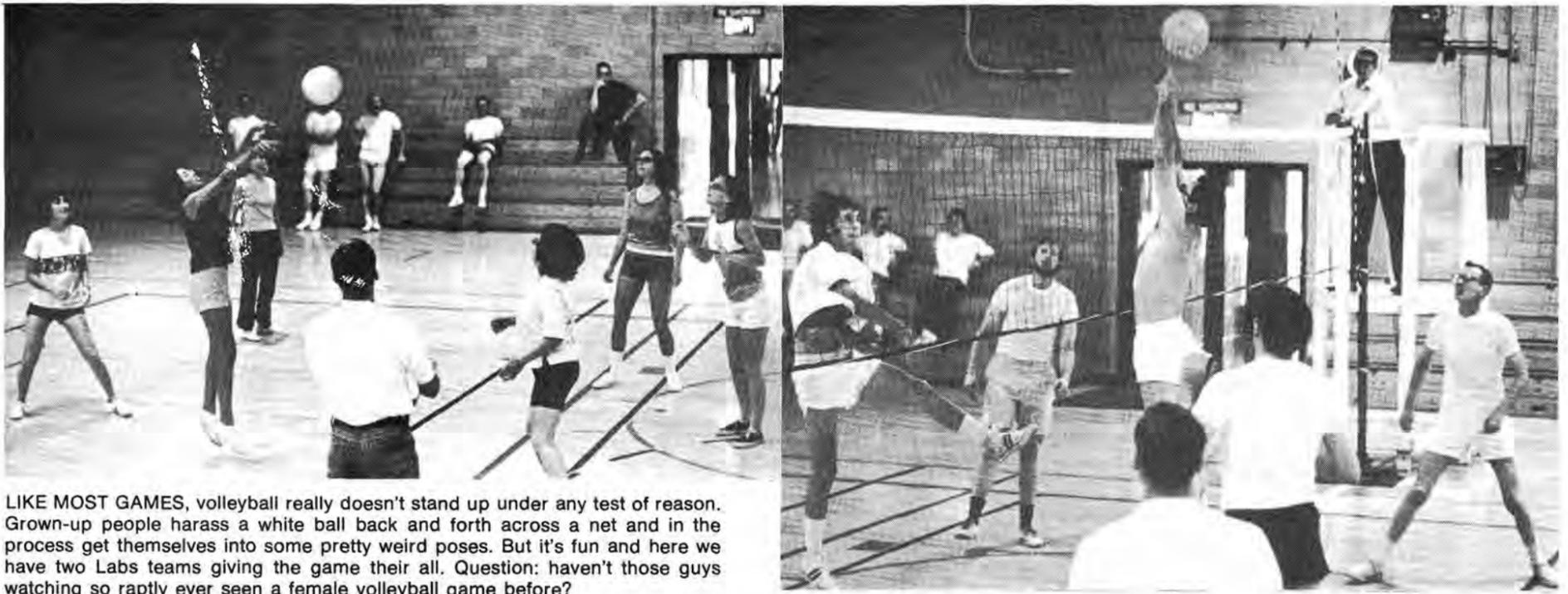
Daris Fuller (4115)



Lewis Wilson (7616)



Elizabeth Six (4360)



LIKE MOST GAMES, volleyball really doesn't stand up under any test of reason. Grown-up people harass a white ball back and forth across a net and in the process get themselves into some pretty weird poses. But it's fun and here we have two Labs teams giving the game their all. Question: haven't those guys watching so raptly ever seen a female volleyball game before?

Recreation Notes: FUN & GAMES

End of season tournaments for the Labs volleyball teams were held earlier this month. Winning teams are:

A League

Don Bauder (9333), Mgr.
 Bob Workhoven (9341)
 Dave Skogmo (1932)
 Al Spencer (4543)
 Bill Martin (3520)
 Mike O'Neal (1414)
 Harry Blechinger (9484)

B League

Jim Freeze (5324), Mgr.
 Herman Romero (5531)
 Bill Kass (5521)
 Bob Sallach (5531)
 Gene McCorkle (5522)
 Bob Lassiter (3131)
 Karlan Boultinghouse (5531)
 Sherwood Duliere (5525)

Women's League

Dianna Perry (3231), Mgr.
 Jeanne Holmes (3251)
 Edwina Kiro (3256)
 Dora Montoya (3256)
 Gloria Montano (3141)
 Kathy Pitts (3256)
 Margaret Chavez (3256)

Players interested in some volleyball activity—teams, leagues, or just practice—during the summer are invited to send their name and org. number to Herman Romero (5531).

* * * *

Preston Herrington (9226) is the newly elected president of the Sandia Lab Recreation Council. Mike Edenburn (1222) is vice president and John Nakayama (1514) is secretary. Pat Freeman (7434) is equipment manager and Bob Austin (3112) is publicity chairman.

Members of the Council are responsible for operation of Sandia out-of hours recreation programs and each handles a specific sport. Questions concerning recreation should be directed to the responsible Council member.

Bowling — Anthony Repetti (1415)
 Bridge — John Nakayama (1514)
 Basketball — Mike Edenburn (1222)
 Equipment — Pat Freeman (7434)
 Football — Leo Webb (7144-5)
 Golf (men) — Preston Herrington (9226)
 Golf (women) — Patricia Anderson (9425)

Horseshoes — Leo Bressan (7452)
 Rifle/Pistol — Dick Vivian (1611)
 Softball — Frank Lucero (5415-4)
 Table Tennis — Jarvis Bumgarner (1611)
 Tennis — H.L. Smith (AEC/ALO)
 Volleyball — Bob Austin (3112)

* * *

The Sandia Golf Association (Ladies) annual Fun Scotch Foursome Tourney was held May 10. Twenty couples participated. Winners were: Molly Ellis (5643) and Bill Saric (5643), low gross; Pat Anderson (9425) and Jerry Smith (1442), runners-up; and Maxine Stephens (3512) and George Horne, Jr. (5413), low net.

The first out-of-town tournament was held May 20 at Belen. First flight winners were: Pat Anderson and runner-up Betty Chappell (AEC/ALO), low gross; and Rose Hainlen (4152), low net. Second flight — Virginia Ramsey (4118) and runner-up Edwina Manzanares (1650), low gross; and Sandy Blose (3256), low net.

The next scheduled tournament will be in Los Alamos on June 17.

'Second Aid'?

First Aid Goes Mod

Everybody knows *about* First Aid. (Not enough people *know* First Aid, but that's another story.) You learn First Aid by taking a First Aid Course. So what's new?

What's new is a new way of learning First Aid. Gone is the drab brown booklet. Gone its McGuffey reader text. Gone the pictures which remind you of World War I unfortunates.

Instead Sandia now has a multi-media system produced by AT&T for the Red Cross. It covers the same information the old booklet did, but this time with 20 film segments, which show how to identify and treat common injuries; 17 exercises, which students practice to learn proper techniques for treatment; and 13 workbook sessions, which provide review as well as further information on some injuries.

It's a fast-paced course. You put in only eight hours to get the basic First Aid certification. Sandia is offering the face-lifted course this summer in a one-week or a more leisurely

two-week session, both out-of-hours. It's open only to pairs: each class member must have someone along to practice on, and vice versa. And you can't miss any classes — it's all or nothing.

Grant Johnson (4613), veteran First Aid Instructor, has mixed emotions about the new course — "Oh, it almost insures that a student learns First Aid — and quickly and well and (you'll excuse the expression) painlessly — but I'm never going to be able to use all those jokes I've collected over 16 years to add some life to the old booklet."

Grant, incidentally, has a couple of questions that need answers: Why aren't more women at Sandia available for Instructor training? And are there any handicapped Sandians who would like a somewhat stretched out, slow-paced First Aid course next fall? Answers should go to Gary Montague in Training 3132.

The enrollment period for the new course starts May 30. See the official announcement.

Sympathy

To Eleanor Kelly (3251) on the recent death of her father.

Death

Art Pino of Production Services Section 4338-2 died May 20 after a long illness. He was 43.

He had worked at Sandia Laboratories 21 years.

Survivors include his widow, eight children and a granddaughter.





Harry Olson — 8341 15



Randall Maydew — 5620 20

MILEPOSTS

LAB NEWS May 1972



Joe Portolese — 8322 10



Bernadine Sullivan — 4622 10



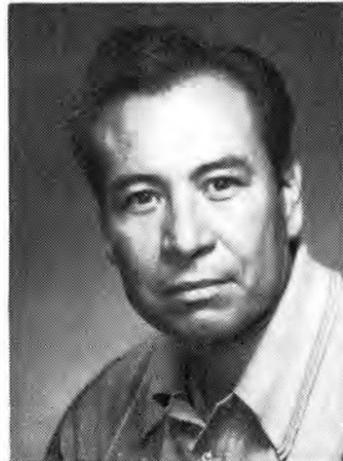
Bill Hereford — 9425 25



Tom Corpe — 1325 15



Bob Hepplewhite — 9240 25



Gilbert Leyba — 7131 20



Flora Burch — 4152 15



Gary Drummond — 8322 20



Tudor Marks — 3155 20



Robert Rieden — 1312 10



Lewis Sisneros — 4364 15



Robert Hole — 4136 15



Lewis Faw — 7624 15



James McClure — 1542 10



William Whalen — 5425 10



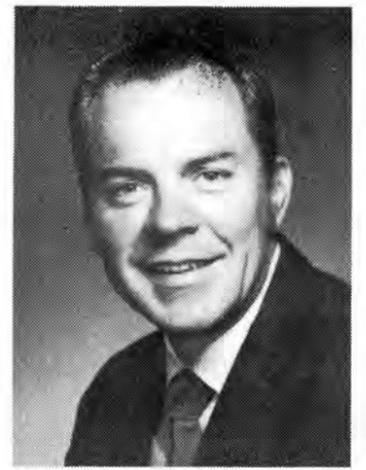
Joseph Pavelko — 1831 15



Ernest Tavasci — 4136 20



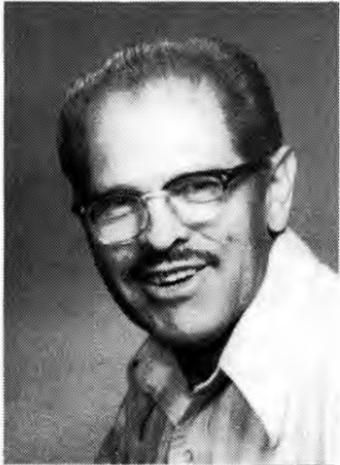
Raymond Goddard — 7131 15



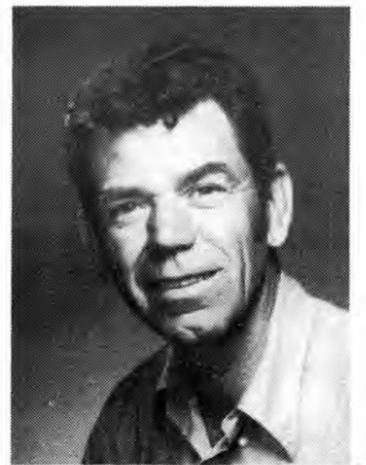
Robert Neel — 1534 15



Rex Myers — 9226 15



Luciano Chavez — 4137 10



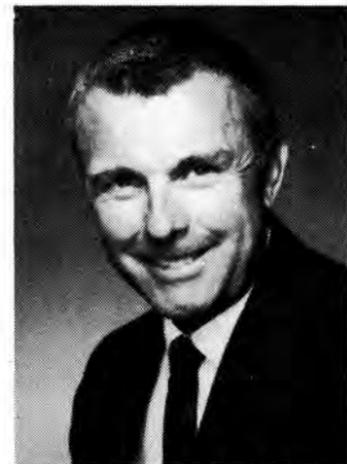
Louis Perea — 4611 15



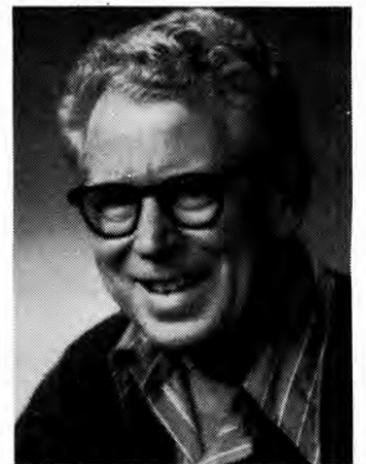
Merle Snyder — 8412 10



Wanda Gross — 4614 15



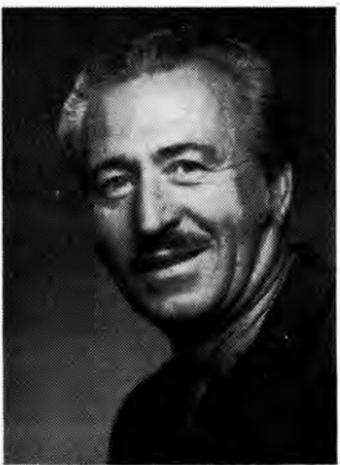
Keevin Moriarty — 4121 20



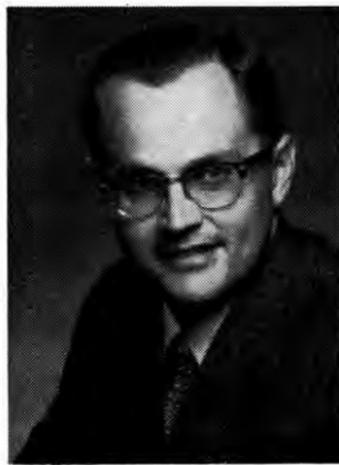
Les Romp — 8155 20



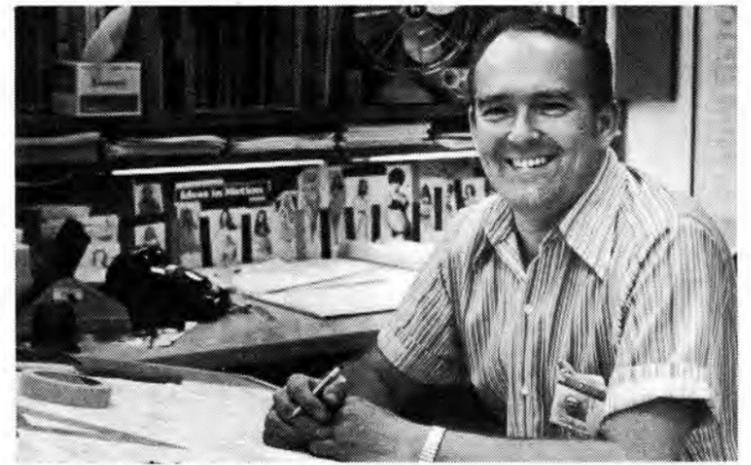
Vernon Barcafar — 9126 20



Lloyd Burreight — 4513 15



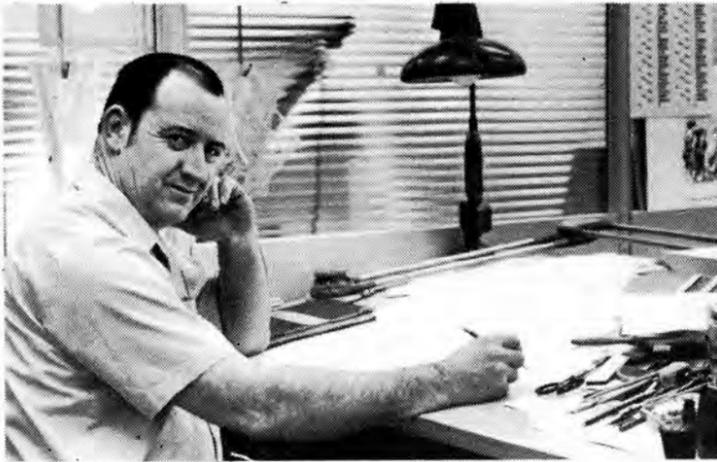
Charles Hall — 1335 10



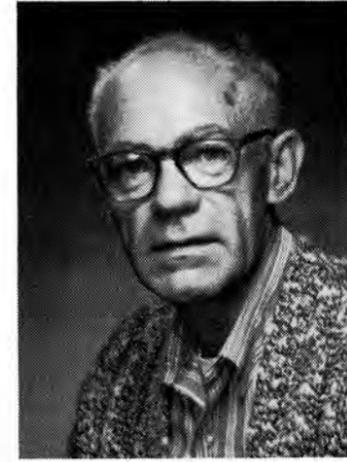
Carl Longfellow — 7654 20



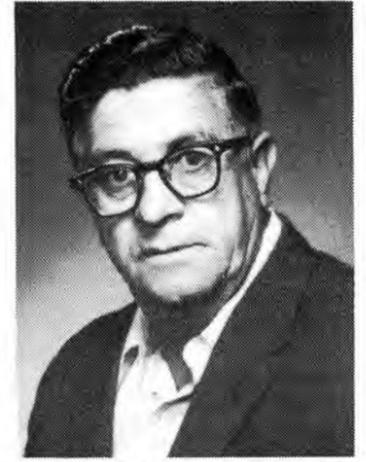
Ruth Way — 3152 15



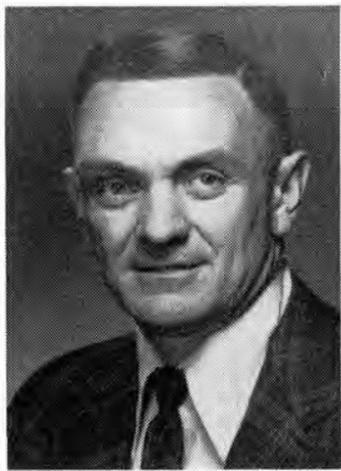
Duke Pawley — 3155 25



Charles Reed — 9235 20



Abelicio Molina — 4611 15



Walter Hyde — 9481 20



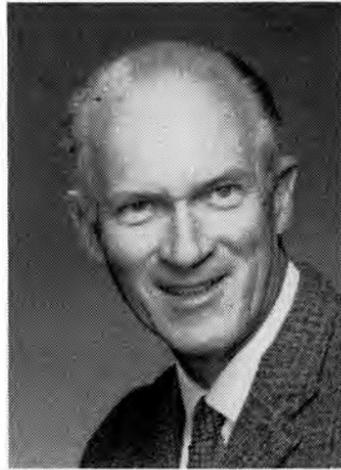
Eleanor Kelly — 3251 15



James Dickie — 7154 20



William Sefcik — 7614 15



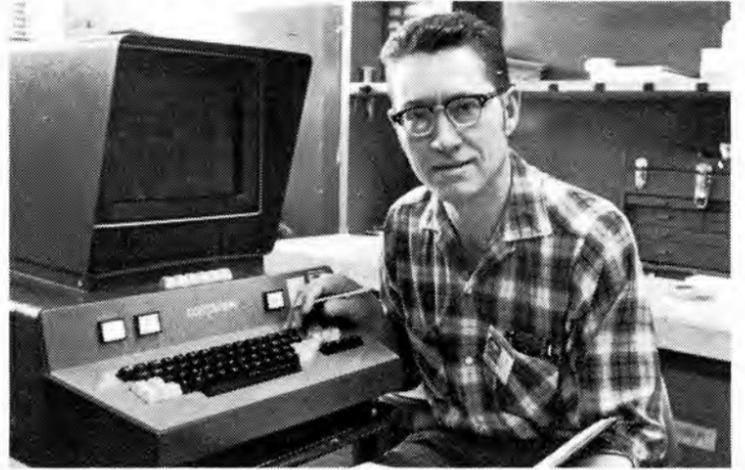
James McCutcheon — 1342 15



Livinus DeSmet — 4513 20



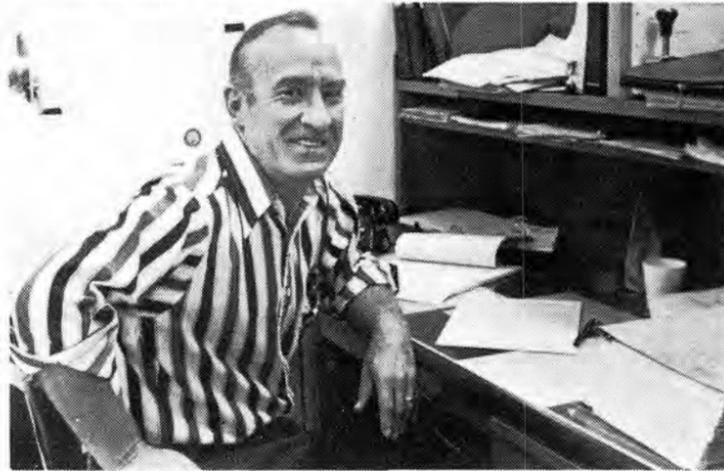
Antonio Torres — 4541 15



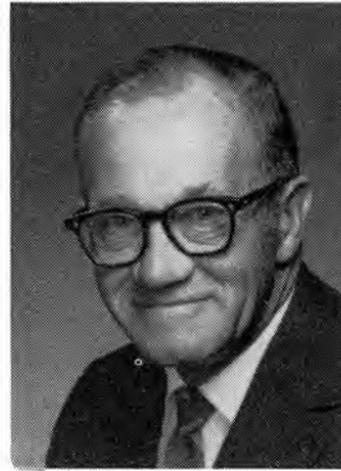
Paul Gammill — 1931 15



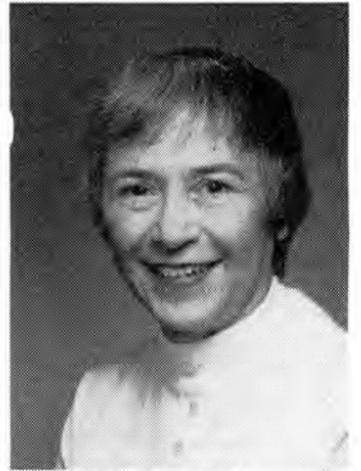
Ada Kozlowski — 5411 10



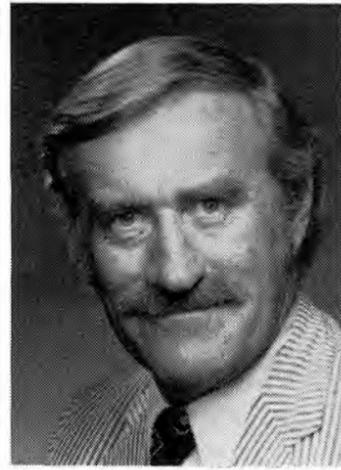
Loren Blakely — 4337 20



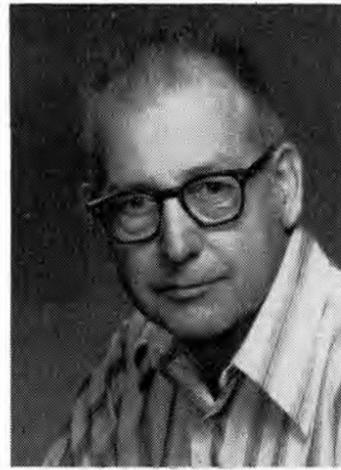
Ken Lloyd — 7632 20



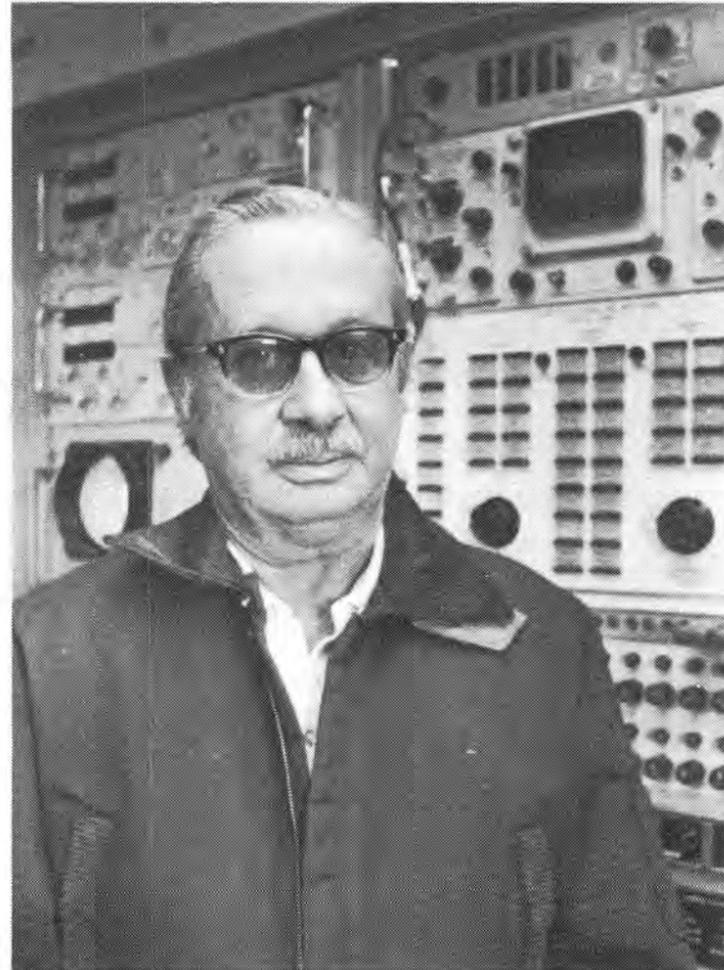
Shirley Cleary — 4363 20



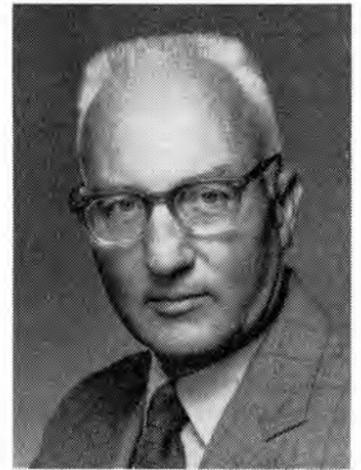
Jack Hueter — 3134 15



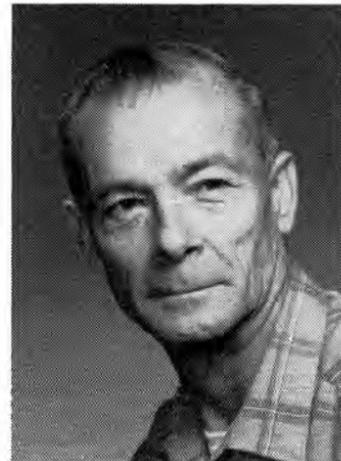
Herb Jewett — 7154 25



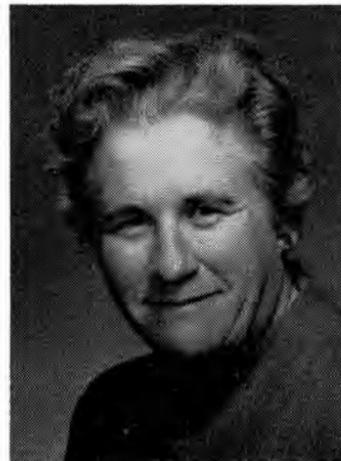
Jack Silva — 9485 15



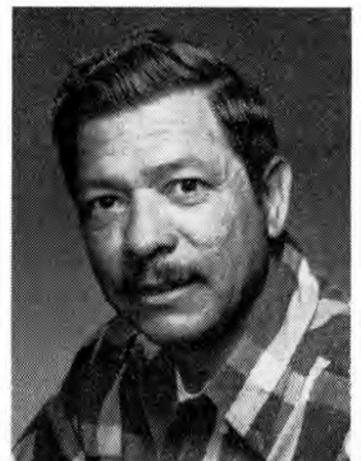
Clarence Sandy — 7453 20



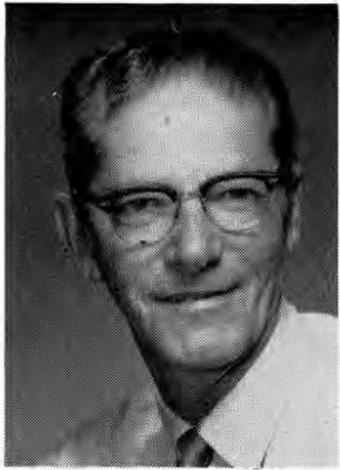
H. J. Salazar — 7142 20



Emily Young — 5166 20



Eusebio Montano — 4512 20



Cliff Fawver — 7616 20



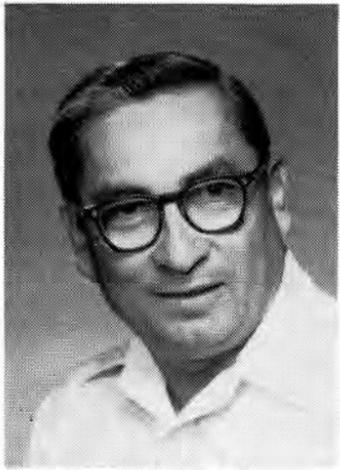
Rosanna McClellan — 3242 10



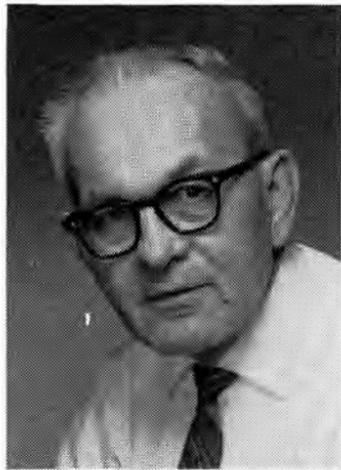
Harvey Morse — 1525 15



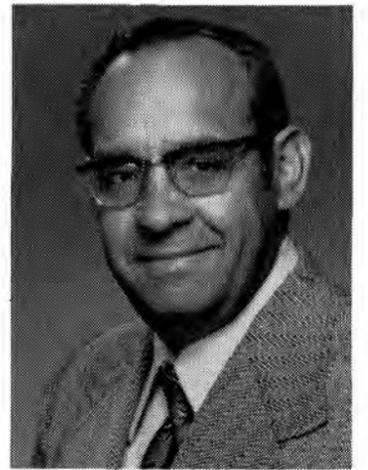
Mike Barela — 4338 20



Jose Baldonado — 7141 20



Werner Bach — 1831 20



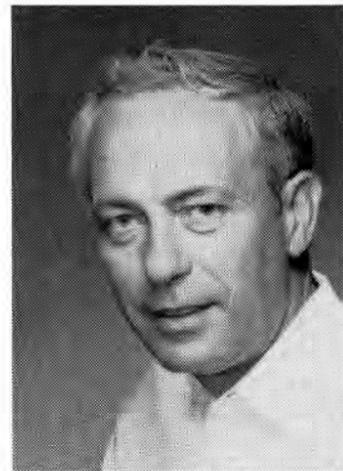
Louis Narvaiz — 5428 20



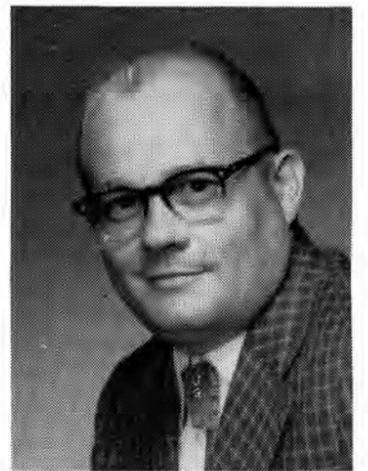
William Shepard — 7414 15



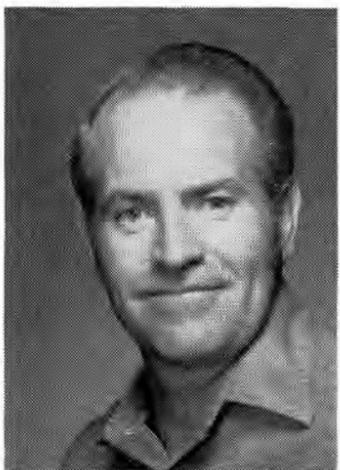
Mollie Miller — 3233 20



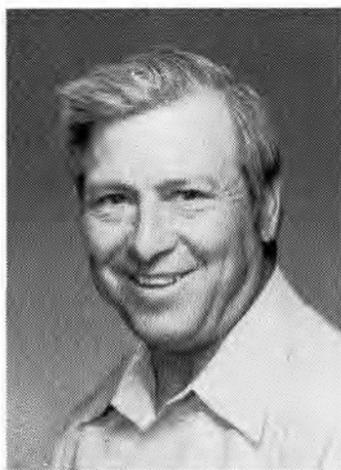
Wayne Corbett — 1932 15



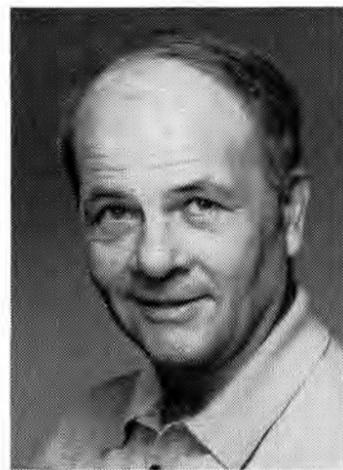
John Goff — 9341 15



Arlen Baldwin — 1912 15



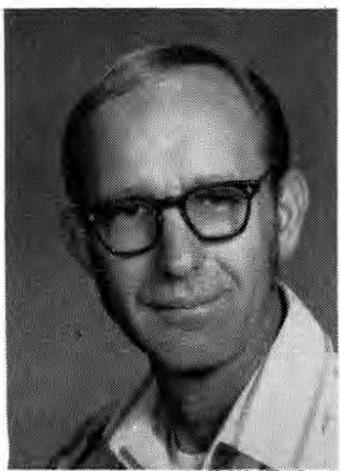
Florencio Baca — 4518 20



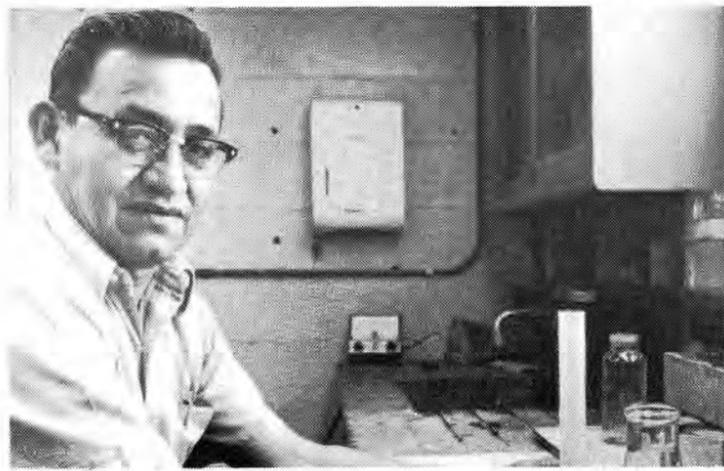
George Gleicher — 9422 20



Charley Bates — 7121 25



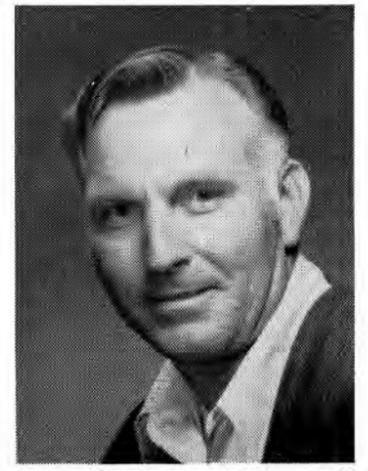
Norman Widenhoefer — 1341 15



Mike Silva — 4511 20



Mary Hall — 9311 15



Lenor Morrison — 9112 15

Speakers

H.J. Rack (5535), "Influence of Recovery on the Deformation Behavior of Highly-Strained Iron Alloys"; W.R. Hoover and R.E. Allred (both 5314), "The Toughness of Borsic-Al Composites with Weak Fiber-Matrix Bonds"; G.J. Jones (5335), "Step Interactions in Volume-Diffusion Controlled Lateral Growth"; E.L. Burgess (5335), "A Method for Determination of the Soret Coefficient for Dopant Migration in Semiconducting Materials"; L.E. Pope (5133), "The Anomalous Pressure Dependence of the Austenite Start Temperature in an Iron Nickel Alloy"; R.W. Rohde and T.V. Nordstrom (both 5531), "Stress Relaxation in A Copper Beryllium Alloy"; Nordstrom and Rohde, "Hardening of Copper Beryllium During Stress Relaxation"; K.H. Eckelmeyer (5531), "The Effect of Applied Force on the Shape Memory Phenomenon in 55-Nitinol"; J.C. Swearingen and C.H. Karnes (both 5165), "Determination of Interfacial Shear Strength and

Its Relation to Composite Behavior"; R.H. Ericksen (5314), "Low Temperature Creep of Borsic Aluminum Composites"; T.R. Guess and W.R. Hoover (both 5314), "Fracture of Carbon-Carbon Composites," 1972 Spring Meeting of AIME-TMS, May 8-11, Boston.

D.M. Garst (1742), "Tenative Standard for Work Location Monitoring," American Association of Contamination Control, May 10, Palo Alto, Calif.

J.F. Reed and C.W. Peterson (both 5645), "An Explosion of a Surge Tank in the Sandia's Hypersonic Wind Tunnel Liquid Nitrogen System," Supersonic Tunnel Association Meeting, May 4-5, Aberdeen Proving Ground, MD.

H.D. Sivinski (1740), "Aerospace Science and Technology," Industrial College of the Armed Forces, April 17-18.

H.M. Willis (3130), "Report on the Public Schools," Downtown Kiwanis, April 19, Albuquerque; "On Not Giving Advice," Graduation Dinner, University of Albuquerque, May 12.

S.T. Pieraux (5111), "Ion Backscattering and Channeling Studies of Semiconductors," Central Res. Lab, Texas Instruments, April 27, Dallas.

G.J. Thomas (5522), "Low Energy Ion Irradiation

Effects in Gold," Nuclear Engineering Seminar, May 5, UNM.

J.C. Swearingen (5165) and T.R. Guess (5314), "Mechanical Behavior of Metal-Metal Composite Cylinders," Failure Modes in Composites Symposium, May 8-11, Boston.

B. Stiefeld (9461), "Using BASIC As A Real Time Executive on a Small System," 1972 DECUS Spring Symposium, May 10-13, Boston.

G.W. Arnold (5112) and F.L. Vook (5110), "Electronic Stopping Measurements of Charged Particles in Radiophotoluminescent Glasses," Naval Research Lab, May 11, Washington, D.C.

D.H. Schroeder and F.L. English (both 1433), "A Comparison of the Strength of Alumina Substrates for Different Separation Techniques"; J.R. Adams (1433), "Analysis and Development of a Thermocompression Bond Schedule for Beam Lead Devices," 1972 Electronic Components Conference, May 15-17, Washington, D.C.

R.P. Clark and D.A. Nissen (both 1913), "Evaluation of Long Life Primary Cells," and D.M. Bush (1913), "Advancement in Pellet Type Thermal Batteries," Power Sources Symposium, May 23, Atlantic City, N.J.

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.

FOR SALE MISCELLANEOUS

DUAL-CONTROL N-gauge transformer; Coleman camp stove; cartop carrier; Chevrolet manuals-1970; deep fry; slatted coffee table. Sasser, 298-1439.

HONDA 100SL, 1970, \$295. Mecklenburg, 344-6793.

COSCO playpen, jumper, sterilizer, other baby things. Westmark, 298-1945.

SCUBA tanks, regulator. Schiess, 255-3252.

MAILBOX w/pole, \$2.50; amber translucent room dividers, 2/\$5; pole shelf, \$2; 20", 3-sp. GE fan, \$7. Laramore, 299-6941.

PIANO, upright w/walnut case. Jefferson, 299-1125.

HAND-push lawn mower, Sears Craftsman. Gauster, 299-3745.

AUTO TOP luggage rack, \$10; 21" B&W TV, table model, w/matching caster stand, \$25. Griego, 299-0426 after 5:30.

'69 HONDA 450, 6000 miles. Baca, 255-3057.

'71 KAWASAKI 500, Mach III, 6500 miles, customized paint, extra chrome, over \$1300 invested, sell for \$875. Shaffer, 242-6507.

BEE-BEE parrot w/cage. Lenz, 298-9121.

'66 SUZUKI trail bike, 120cc, 5500 miles, road & trail sprockets, lights & starter need work, \$100 firm. Hawkinson, 282-5239.

2 ANTIQUE CLOCKS, \$75 & \$65; want old 9' x 4 1/2' pool table. Flowers, 282-3458.

KIDDIE CARRIER back pack, Gerry, \$10. Long, 296-5248.

COLLIE, 3-yr.-old female, AKC reg., champion blood lines, \$50. Alarid, 344-8166.

'69 YAMAHA 125cc dirt bike, extras, \$275 firm. Roth, 877-4997.

CORNER BAR, custom built combed veneer, lt. brown color, locked bottle storage, \$95. DeHaan, 268-6120.

SMITH-CORONA port. typewriter, \$35; 6-piece matching Samsonite luggage, \$75. McKelvey, 865-9280.

SET of alum. sunshields for doors & rear window, fits 70-71 Chrysler Newport. Cruze, 256-9338 after 5:30.

CARGO DOOR for camper shell; 40" x 13" window for camper shell. Zucuskie, 268-3105.

PERSIAN KITTENS, CFA reg., both parents are CFA champions. Kirby, 299-2948.

UTILITY TRAILER, 8x12, covered, enclosed, elec. brakes, \$149. Ferguson, 266-4769 or 256-2460.

BLACK MALE Toy Poodle. Lee, 298-6292.

LAWN SWEEPER, used once, cost \$50, sell for \$35 or best offer. Moulds, 247-8433.

CAIRN TERRIER puppies, AKC, for show or pets, available June 10. Lewis, 299-3170.

YOUTH BED (age 2-10), maple, complete w/good mattress & side guards, \$20. Kennedy, 298-0704.

KONICA FM 35mm SLR w/built-in light meter, \$80 or best offer; Strolee car seat, white, headrest, \$5. Anastasio, 299-7012.

LENS for Nikon 85mm fl.8, \$95. Bedford, 842-0202.

SMITH-CORONA port. typewriter, semi-script type, \$30; 19" port. RCA B&W TV, \$25. Marrs, 299-3865.

GOLF CLUBS: 1, 2, 3, wood, 3, 5, 7, 9 irons, bag & cart, golf shoes, size 8AAA. Michele, 243-5174.

VACUUM CLEANER, Shetland canister type, w/accessories, \$15. Stark, 296-4971.

LIONEL type ZW, dual control transformer for O-gauge model railroad equipment. Jackson, 299-5107.

TENT TRAILER, Hawthorne, sleeps 4, spare tire, wheel, canvas tarp, Ford type hitch included, \$300. Moss, 298-2643.

NEW BATHROOM VANITY w/green marble-color top, lavatory hole not cut, 37" wide, \$65. May, 299-5548.

26" BOY'S bicycle, thorn-proof tires. Mazzio, 298-2438.

FREQUENCY COUNTER, Heath IB-101, 15 MHZ w/Heath IB-102, 175 MHZ scaler. Russell, 298-0285.

AUTO. WASHING MACHINE, \$25; HiFi record player; bird cage; waffle iron; hair dryer; fluorescent lamps, approx. 18" length. Chandler, 296-3323.

'69 HONDA CB450, 4000 miles, adult driven, \$625; ping pong table & set, 1/2" top, roll-away, \$20. Guttman, 299-7031.

SUBMINIATURE CAMERAS, Minolta 16mm, auto., \$30; manual, \$15; push lawn mower, Wards best, \$20. Magnuson, 296-3650.

LARGE FREEZER, \$165; small couch & chair in vinyl upholstery, \$45. Millard, 299-2039.

TWO BUNK BEDS, lt. oak. Anderson, 299-5727.

FISH & PUPS: Peke-a-Poo pups ready for homes, June 1, \$25; blue, green & orchid Delta Tail Cobra Guppies, descendants of '71 State Fair Winners, \$3/pr. Cover, 268-0921.

SCHWINN bicycle, 2-sp., new tires w/thorn-resistant tubes, \$25; minibike, \$110. Hart, 299-8832.

FREEZER, Norge 6 cu. ft. upright, \$25; Supreme mangle ironer, \$20; wardrobe trunk, \$5. Sweet, 255-0255.

SKI BOAT, 14' winner, 80 hp Evinrude, trailer & ski equip. Schroeder, 344-1011.

16' self-sufficient travel trailer, sleeps six, \$1095, Walker, 2511 Schell Ct. NE, 256-7391.

FOR SALE CARS & TRUCKS

'68 CAMARO 6-cyl., 3-sp., \$1050. Prevender, 299-5253.

'64 FORD Falcon, AT, AC, \$345. Radigan, 299-8345.

'70 DATSUN 240 Z, gold, AC, Michelin X radials, mags & orig. wheels. Goekler, 256-2028 after 5.

'68 IMPALA, 2-dr., pwr. & air, Michelin radials, 60,000 miles, \$1450. Wentz, 298-2630.

'65 GMC Suburban V6, AT, PS, PB, \$900; '66 Toyota Crown wagon, below book \$675. Ault, 282-3280.

'68 VW BUG, best reasonable offer, NADA avg. retail \$1050, NADA loan value \$750. Westman, 255-6048.

'66 VOLKSWAGEN, recently overhauled, R&H, best offer. Kraft, 296-3991 or 268-2832 after 5.

'69 VW BUG, beige w/vinyl interior, undercoating, 17,500 miles, \$1295. Kobs, 298-9133, call on 5/26 or after 5/30.

'61 VW BUS, 1600 cc, 12V, 16 gal. tank, w/gauge, ice box, split front seat, sleeping platform, \$800. Campbell, 268-8445.

'69 JAVELIN SST, V8, PS, 3-sp., AC, AM/FM, WSW belted tires, car still in warranty, \$1575. Gorin, 298-3100.

'53 CHEVY 4-dr., 6-cyl., make

offer. Branscombe, 265-2862.

'70 BARTH motorcoach, foam insulation, self-contained, AC, heaters, carpeted. Kersten, 3000 Aztec Rd. NE, space 63.

'64 OLDSMOBILE, Jetstar 88, all power, \$450. Rush, 296-9154.

'67 REBEL sta. wgn. 770, 232 six, OD, AC, overload shocks, \$850 (book). Edwards, 296-7164.

'66 JEEP Wagoneer, 6-pass., 4-wd, V8, AT, PS, PB, AC, hubs, almost new 6-ply tires, below book. Farnum, 877-7371.

'64 DODGE 4-dr. sedan, V8, \$550. Carrillo, 247-9700.

'55 FORD sdn., 3/4 race cam, balanced & blueprinted, new paint, Jones, 255-7924.

'66 VW CAMPER, factory equipped, nearly new engine. Jorgensen, 298-9834.

'71 MAVERICK, lt. gold, 6-cyl., low mileage. Gregory, 299-2461.

'65 FORD Country Squire wagon, all power, AC. Beauchamp, 298-6552.

'66 CORVETTE coupe, 4-sp., AC, AM-FM radio, transistor ignition, trailer hitch, Positraction, all offers considered. Summers, 266-3793.

FOR SALE REAL ESTATE

3-BDR. ADOBE on 1 acre near Corrales, brick floors, beamed ceilings, 2 baths, beehive fireplace, view. Carson, 898-2545.

3-BDR. HOUSE, NE, 1 1/4 bath, 2-car garage, new carpet, total \$21,000, 6% VA at \$115/mo. Herder, 294-4613.

4-BDR., den, Holiday Park, sunken LR, elec. range, dishwasher, disposal, drapes, carpeted, fp, dbl. garage, landscaped, camper/boat access, 3620 Singapore Circle NE. Smith, 299-8466 or 842-2173.

3-BDR. Holiday Park (1964), 2 bath, LR, paneled FR, carpeted throughout, 5 3/4% loan \$141/mo incl. taxes & ins., 3308 Chelwood NE. Schmiedeberg, 298-8188.

SELL OR TRADE: equity in lot in Tall Pines subdivision, Ruidoso, N.M., equity of \$1600 for \$1200. Miller, 298-3534.

FOR RENT

ADOBE HOME on dead-end lane in NW valley, 2 1/2 bdr., 1 bath, early June to mid-August, completely furnished except linens, \$250/mo. plus \$75 damage deposit. Clark, 344-6350.

SMALL 1-bdr. furnished house, utilities paid, available May 28, 204 San Pablo SE. Dodson, 255-0265.

IN SANDIA PARK, 2 rooms, 1/2 bath, private entrance, share mt. home w/single male, \$100/mo., utilities included. Gelinis, 282-3409 mornings.

WORK WANTED

SUMMER BABYSITTING JOB in vicinity of Louisiana & San Pedro SE, experienced, 15 years old. Denise Franklin, 255-0262.

8th GRADE student wants babysitting, Indian School & Eubank area, children over 3. Jim Harris, 299-8794.

WANTED

CEMENT MIXER, 1 cu. yd. or larger. Aragon, 344-5681 after 5.

TO RENT houseboat at Navajo, Conchas, or Elephant Butte for 5 days in June. Nielsen, 255-2045.

HOME for Collie/Shepard cross puppies. Wesley, 296-0494.

BABY CRIB in good condition. Gauster, 299-3745.

POSITION OPEN: Assistant entomologist w/primary interest in apiculture. Small stipend commensurate w/previous experience; lots of outdoors, room & board for summer for the right young student. Mills, 869-2045, 5:30-8:30 p.m.

USED LATHE, metal cutting, 6" or larger; 2 hp single phase motor. Silverman, 298-1308.

OLD swamp type air conditioners, any size, shape or design. Hoagland, 282-3825.

WATER SKIS for small 10-yr.-old; '70-72 Datsun in good condition; small tent — 8'x6' or so. Chandler, 296-3323.

CHILD CARE in my home, near base, play equipment, hot lunch, individual care & attention, near Bataan Hospital on Kathryn Circle SE. Moss, 265-5248.

INEXPENSIVE studio couch or hide-a-bed sofa. Miller, 298-3534.

LOST AND FOUND

LOST — Tues. Noon, May 9 on Base south of Wyoming entrance, ratchet socket wrench, 1/2" drive. Andes, 268-8951; 2 keys for auxiliary gas tank, 2 pr. Rx safety glasses w/black frames, safety glasses w/brown frames, man's Rx glasses, man's sweater. LOST AND FOUND, tel. 264-2757, Bldg. 832.

FOUND—Cabinet key, silver loop earring, GM car key w/tag, man's Sandia 5-yr. tie tac. LOST AND FOUND, tel. 264-2757, Bldg. 832.

Twin Pools Open Tomorrow

HAPPY HOUR TONIGHT could be the start of a brave new world. The image of the macho male may never be the same. When Wildman Bob Banks and the Terror Trio take an intermission tonight, there will be a fashion show with five male models and five female models. Lady-types do this kind of stuff all the time and they dig it. Guys hardly ever do this kind of stuff and arms have to be twisted. They will wear super mod fashions (including swim suits) from the Totem Pole while the ladies will wear hot pants and stuff from the Designer's Shop and K's Korner Boutique. Smiling Jim Noonan, Club manager, will spread an oriental buffet between 6 and 8 p.m. Happy Hour prices (cheap) will be in effect from 5 to 10 p.m. Yolanda Adent will conduct a sing-along in the main lounge from 9 to midnight.

Next Friday, June 2, Happy Hour will feature fried shrimp (lots of it), a group called Whisper, and Denny Gallegos in the main lounge.

TOMORROW the Coronado Club pools open at 11 a.m. Start of the swim season will be celebrated with an all-day party in the patio area. Happy Hour prices will be in effect at the outdoor bar and 10-cent beer will be available. The snack bar will be open for hamburgers, hot dogs and all those goodies that kids like. In the afternoon Denny Gallegos will entertain with favorite sing-along songs. Admission is free to members and families, but members only, please.

That evening at 8:30 p.m. Soul Session starts in the ballroom with something called Whisper screaming the rock sounds. The Harvey Wallbanger people will give special

prices on their potent potion plus a few T-shirts for door prizes. Happy Hour prices will be in effect and super sandwiches will be available. Admission is free to members, \$1 for guests.

ON SATURDAY, June 3, for Family Vaudeville Night, the Albuquerque Civic Light Opera will present selections from their forthcoming production of "Annie Get Your Gun." Sandia's own Gene Ives (1226) is one of the featured singers along with Susan Hafenfeld. The movie will be "Jungle Book." Happy Hour prices and super sandwiches will

be available starting at 6 p.m. Admission is free to members and families.

CORONADO CLUB LUAU is now scheduled Saturday, June 24. One of the biggest parties of the year, the Luau includes a tremendous Polynesian dinner — a huge porker is roasted on a spit in the patio — and Hawaiian entertainment like grass-skirted dancing girls. Tickets are \$4 for members, \$5 for guests, and it might be a good idea to get organized early.



they
said it
couldn't
be done



They said you couldn't get millions of Americans to quit smoking. But 21,000,000 have. That's one third of the adults who used to smoke. Be a quitter. Live longer.

American Cancer Society

IN HONOR OF SWIM SEASON opening tomorrow, a group of five male and five female models — including Mary Kite (TWA) and Buddy Mynatt (Coronado Club), above — will show a selection of the latest dress and undress fashions at Happy hour tonight. The mod menswear will come from the Totem Pole, lady's stuff from K's Korner Boutique and The Designer's Shop.