

LIKE OTHER NEWCOMERS to Albuquerque Betty and Morgan Sparks need a place to live. They arrived by plane Monday night (in a downpour) to spend the

week house hunting. Mr. Sparks comes from Bell Labs and assumes the Presidency on Oct. 1.

LAB NEWS

VOL. 24, NO. 19

SEPTEMBER 15, 1972

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

Team Development of PT 3015

Sandia Tester Sets New Standard

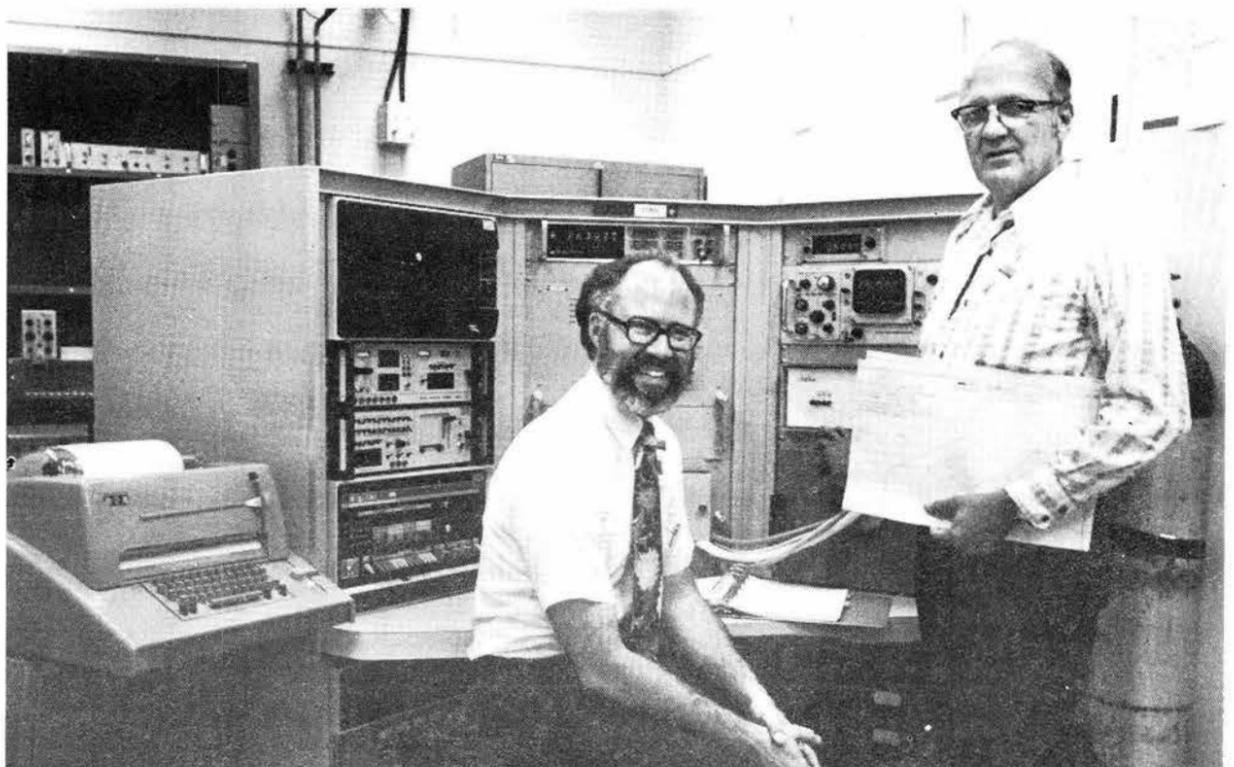
Occasionally, conforming to a master schedule, a Sprint missile and warhead is randomly selected, pulled from stockpile, the warhead rendered inert, and test fired under field conditions by a military crew. In the inert warhead, the missile carries a sophisticated telemetering package, designed by Harry Fisher (9483), that monitors and transmits performance data to the ground stations. Heart of the telemetering package is a complicated gadget called a PCM encoder.

Dave Trapp of Instrumentation Applications Division III 9483 is project engineer for the development of the latest

(Continued on Page Three)

Bob Kraay New WE VP

Bob Kraay, former Executive Vice President at Sandia, has been elected by the Western Electric Board of Directors to the rank of Vice President. He will head WE's Personnel and Labor Relations Division. After leaving Sandia, Mr. Kraay served briefly as General Manager of the Northern Illinois Works.



ALAN CAMPBELL (9481) and Bob McConkie (1811) demonstrate new PT 3015. Tester automatically performs 34 million performance checks on PCM encoder unit used in Sprint missile.

Afterthoughts

Raised But Approving Eyebrow Dept.--Glancing through SWAPS, the in-house publication of the Secretarial Training Division (3133), I noted one item listing the (I guess) customary and expected attributes of Sandia secretaries--"... sincere, able, interested, correct, trustworthy, etc. etc. "... effervescent, sexy." Sexy? Hey ... this quality many, well some, have in abundance, but to include it in this litany of the plain virtues sort of brings you up short. Guess it shows how far we've come. Which is good or bad, according to taste...

* * *

Eisenberg's First Law of Psychopharmacology--"The certainty with which convictions are held tends to vary inversely with the depth of knowledge on which they are based."

* * *

Follow Up On Bicycling--Got an interesting note from Don Bell at Pedal 'N Spoke following my recent article on cycling. "For the first time in modern history bicycle ownership will exceed automobile ownership by Dec. 1972." Sounds like a movement whose time has arrived.

* * *

That Ever So Slight Compromise--Second son, on the road for much of the summer, recounts conversation with 16-year-old runaway girl from Nebraska. Usual alienation stuff, had it up to here, finally broke away, now ready to get going in the real world as an adult, except had to be back in home town a certain day in September. Gee, why? "Well that's when I've got my appointment with the dentist to get my braces tightened."

* * *

Law & Order, KAFB--I was never really certain what a "victimless crime" was until I learned that Base Security Police are going to start issuing citations to all you master criminals out there who persist in not removing your old Sandia Base decals from your vehicles. I wonder what the citation will say--how about "illicit exposure?" Well I'm gonna demand counsel. *js

Events Calendar

Sept. 15-17, 19, 21 — Albuquerque Little Theater, "There's A Girl in my Soup," 8 p.m., 242-4750.
Sept. 15-17, 22-23 — Classics Theatre, "The Tempest," 8:15 p.m., (2:15 p.m. on Sunday), Popejoy Hall, 277-3121.

Sept. 15-17 — Old Town Studio, "Prime of Miss Jean Brodie," 8 p.m., 242-4602.
Sept. 16 — N.M. Mt. Club, Laice and Penitente Peaks, Gulf Mart, 7 a.m.
Sept. 16 — Football, UNM vs. N.M.S.U., 7:30 p.m., Stadium.
Sept. 18 — ASUNM Lecture Series, Charles Garry, Black Panther lawyer, 8 p.m., Popejoy Hall.
Sept. 23 — Football, UNM vs. Texas Tech., 7:30 p.m., Stadium.
Sept. 24 — N.M. Mt. Club, Tunnel Springs hike in Sandias, Gulf Mart, 8 a.m.
Sept. 25 — ASUNM Lecture Series, Jacqueline Ceballos, Eastern Regional Director, National Organization of Women (NOW), 8 p.m., Student Union.
Sept. 29 — Albuquerque Symphony Orchestra Concert, 8:15 p.m., Popejoy Hall, 277-3121.

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john shunny 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

Congratulations

To Mr. and Mrs. Gary West (9423), a son, Robert Leon, Aug. 20.
To Mr. and Mrs. Bill Brown (1933), a daughter, Mary Anne, Aug. 8.



Credit Union Reporter

By Bill Prekker, President
Board of Directors (4333)

Livermore Annual Meeting

Annual meeting of the Livermore membership was held at the Sunol Country Club on Aug. 3 with 200 plus members in attendance. Winner of the color TV set was Lloyd Meyers (8412). Board members attending were President Bill Prekker, General Manager Bill Bristol, Joe Maldonado and Bill Olheiser from Albuquerque and Bill Funk from Livermore, who fielded the questions from the floor. The many suggestions regarding the operation will be considered by the Board.

Another Milestone

Another milestone in the Credit Union's history was reached during the month of August when total assets surpassed \$15 million.

New IBM System 3 Installed

This newly installed computer is faster and more versatile than its predecessor and will be able to accommodate anticipated growth.

Credit Committee Changes

Your Board of Directors has accepted with regret the resignation of George Wayland from the Credit Committee. George served the Committee faithfully for nearly four years, but will be absent for a period of time and therefore unable to serve. The Board appointed Rocky Arroyo (4551) to the Credit Committee to fill the vacancy until the next annual meeting in January 1973.

CU Bulletin Board

Truck-Camper Loading — Ed Lenard, Labs attorney who recently returned to WE, sends an interesting item from the Federal Register. Title is "Federal Motor Vehicle Safety Standards, Truck-Camper Loading," issued by the Dept. of Transportation, and the content of the three-page notice deals with standards under which manufacturers are required to provide loading and load distribution information. A label affixed to the camper will include the weight of the camper when it contains standard equipment, and water, bottled gas, and icebox with ice, or refrigerator. An owner's manual will show pictorially the location of the longitudinal center of gravity of the camper when so loaded, and truck manufacturers also are required to show the recommended longitudinal center of gravity zone for the cargo weight rating of the truck. Aim of the standard, which goes into a number of other details, is to reduce the overloading and improper load distribution that have led to accidents with truck-camper combinations. Full text of the standard may be reviewed in the LAB NEWS office.

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Supervisory Appointments



JO SENA to supervisor, Secretarial Coordination Section 1000-A, effective Sept. 1. She will coordinate secretarial activities for Organizations 1300, 1400, 1800 and 1900.

Jo came to Sandia in June 1959 as a division secretary in the Library. She was successively promoted to department secretary, director's secretary — working for Harlan Lenander (1600) and Dick Claassen (1400) — and since June 1971 has been executive secretary to Klaus Bowers, Managing Director of Component Development (10).

Jo is a native New Mexican, born in Madrid. She completed her training at the secretarial school in Santa Fe.

Jo lives in Winrock Village; her two married sons and her parents also live in Albuquerque.

* * * *



RUTH BRITO, R.N., to supervisor, Industrial Medical Section 3302-1, effective Oct. 1.

Ruth joined Sandia's Medical Department as an industrial nurse in May 1970. Before coming to the Labs she had nursed in the Physical Intensive Care Unit at the V.A. and St. Joseph hospitals. She earned her R.N. at Hotel Dieu — Sisters of Charity — in El Paso.

She is a member of the American Business Womens Association and the American Nurses Association.

Ruth's husband Alfonso is a civilian employee at KAFB-W. They have five daughters and live at 2921 Texas NE.

* * * *



MARGARET LUCAS to supervisor, Secretarial Coordination Section 1000-A, effective Sept. 1. She will handle secretarial activities for Organizations 1200, 1500, 1600 and 1700.

Joining the Labs in August 1966, Margaret worked as a typist and later held a secretary steno position in the training organization. Since June 1969 she has been a staff assistant in the secretarial and clerical training group. Before coming to Sandia she worked for six years as an accountant for a firm in Houston.

Margaret earned her BS degree in education from Texas Woman's University in Denton.

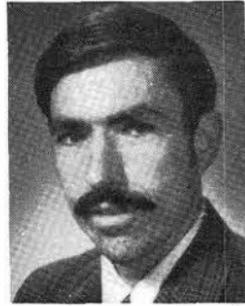
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Sympathy

To Tom Williams (1312) on the death of his mother in Albuquerque, Sept. 2.

To Emilio Lopez (7135) on the recent death of his mother in Utah.

To Audilio Barela (4338) on the death of his mother, Aug. 24.

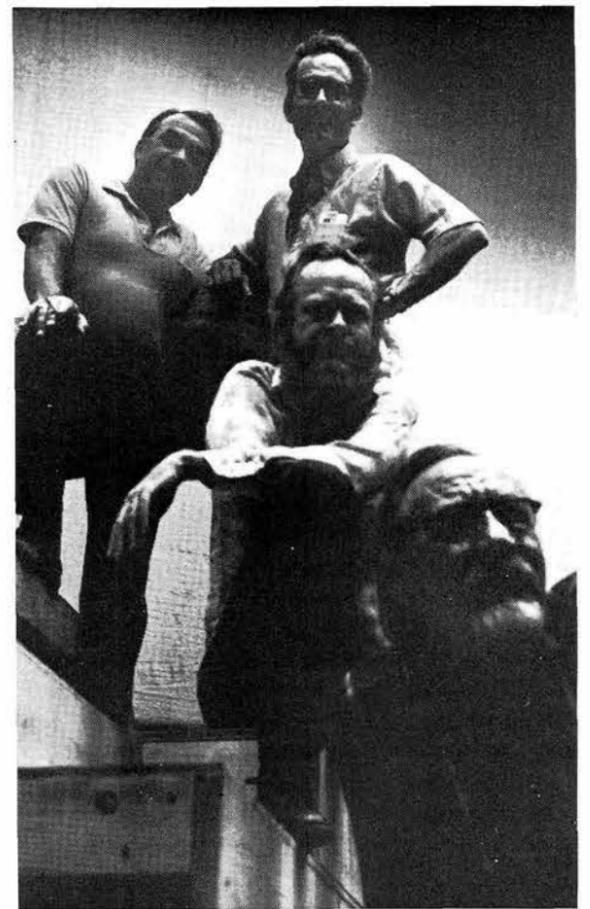


TOM PICRAUX to supervisor, Ion-Solid Interactions Division 5111, effective Sept. 1. He has been with this division since joining the Labs as a staff member in August 1969.

Tom's work has been the study of layered structures and ion implanted semiconductors, using the techniques of ion channeling and backscattering to determine composition, lattice disorder and lattice impurity atom location.

He received his BS degree in EE from the University of Missouri, spent one year at Cambridge, England as a Fulbright scholar, and then earned his PhD in solid-state physics from the California Institute of Technology. He is a member of the American Physical Society and the IEEE.

Tom and his wife Danice live at 1008 Princeton Dr. NE.



THE TEMPEST'S IN A THEATRE, not a teapot. Shakespeare's *The Tempest* plays this weekend and next (Sept. 15-16, 22-23 at 8:15 p.m.; Sept. 17 at 2:15 p.m.) at Popejoy Hall on the UNM campus. Top to bottom, John Gardner (3140) directs, Phil Mead (3152) plays the depraved Caliban, Crawford MacCallum (5231) is the ship's bosun, and Bill Carstens (3150) is a wise old councilor.

Continued from Page One

New 3015 Computerized Tester

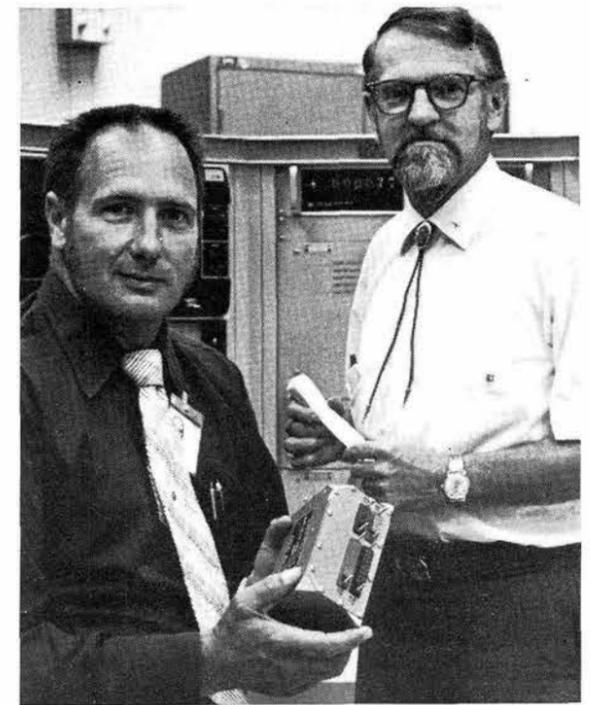
PCM encoder for the Sprint missile program. It is a complex device with 103 channels for data transmission, and it calls for an equally complex tester.

Early in the development program for the encoder, Dave got together with Bob McConkie of Special Test Equipment Division 1811 and Alan Campbell of Instrumentation Applications Division I 9481 to outline the specifications for the tester. Now, two years later and slightly ahead of schedule, the tester is complete and is being used to test product as it comes off the production line.

Computerized production testers are not new — they have been used for years, but the one designed by Campbell and McConkie has some unique features.

The tester, designated PT 3015, is an outstanding example of automated tester design. Except for a handful of manual operations, the entire test sequence is performed by the computerized PT 3015. It checks all 103 channels of the encoder, including its operation under vibration, heat and cold environments. Some 34,637,920 individual performance checks are made. The entire test program can be performed in less than eight hours.

In creating the program for the tester, the team had a number of objectives: test to specifications (Dave Trapp provided these in organized detail); make the program easy to change (to respond to specification changes, to incorporate improvements learned as development progressed); automatic operation and resistant to human errors (operator has minimum interaction with program and only under program controlled conditions); manual test repeating (in case of questions, any portion of the test sequence may be repeated and manually checked); test results must be credible (signal generators built into the tester system are cross linked with test points and the computer program); automatic documentation (the printout is flexible —



DAVE TRAPP (9483), project engineer, and Ed Newman (9483), one of the development team members on the PT 3015 tester, display a PCM encoder. The small device is a sophisticated piece of hardware containing a logic system and 103 channels for data transmission.

under normal operation only minimal information is printed); clear failure indication (in some computerized testers, the operator must scan hundreds of lines of data to spot something wrong); and the tester functions as a diagnostic aid (in case of failure, the program helps pinpoint the cause).

"These design objectives were met," Dave Trapp says, "and remarkably well. Both Campbell and McConkie along with Ed Newman of my group came up with clever solutions to some very difficult technical problems. This tester will set a new standard, as far as I'm concerned, in future designs of this kind." • dg

Speakers

W.A. Von Rieseemann (1541), "Survey of Static Geometric and Material Nonlinear Analysis by the Finite Element Method"; R.D. Krieg and S.W. Key (both 1541), "Transient Shell Response by Numerical Time Integration," Second US-Japan Conference on Matrix Methods of Structural Analysis, Aug. 14-19, Berkeley, Calif.

R.S. Blewer (1413) and J.K. Maurin (5522), "Utilizing the Rapid Scan Mode and Video Recording with the Scanning Electron Microscope in Dynamic Gas Release Studies," Aug. 18, SLL.

S.T. Picraux (5111), "Analysis of Epitaxial Layers by Ion Channeling," Naval Research Lab, Aug. 21, Washington D.C. and RCA Research Laboratory, Aug. 22, Princeton, N.J.

H.T. Weaver (5154), J.E. Schirber (5150) and A. Narath (50), "Effect of Pressures on the Knight Shift of AuGa₂," and N.S. Gillis (5151), "Self-consistent Calculations of the Lattice Modes of Solid Nitrogen," 13th International Conference on Low Temperature Physics, Aug. 21-25, Univ. of Colorado, Boulder.

C.W. Jennings (5332), "The Effect of Surface Preparation on Adhesive Bond Strength"; N.J. DeLollis and O. Montoya (both 5332), "Effect of Internal Stress on Strength of Bonded Assembly," Symposium on Adhesion, Picatinny Arsenal, Aug. 23-25, Dover, N.J.

J.E. Kennedy (5131), "Pressure Field in a Shock-Compressed High Explosive," 14th International Symposium on Combustion, Penn State Univ., Aug. 25-30, State College, Pa.

T.F. Marker (7130), "The Large Scale Characterization Tests of DBA-22M, DBA-65T2, and DBA-105T2 Commercial Gelled Slurry Blasting Agents," Symposium on Military Applications of Commercial Explosives, Aug. 28-29, Quebec, Canada.

J.C. Swearingen, J. Lipkin and C.H. Karnes (all 5165), "Mechanical Properties of 6061 T6 Aluminum After Very Rapid Heating"; J.M. McKenzie (1933), "Neutron Environment Expressed in Terms of 14 MeV Equivalent Neutrons"; R.J. Lawrence (5166) and D.E. Munson (5163), "A New Model for the Dynamic Response of Quartz Phenolic"; L.W. Kennedy and A.J. Chabai (both 5166), "On the Discrepancy Between Measured and Calculated Impulse from Graphite"; R.R. Boade (5323), "Effect of Porosity on Impulse Generation Properties of Metals"; L.D. Buxton (5166), "Prediction of Material Dynamic Response to Rapid Heating"; A.B. Donaldson (1543) and W.P. Schimmel (1222), "Design of Thermal Protection Systems for Hardened Rv's," 3rd Annual Meeting of the Nuclear Survivability Working Group on Propulsion and Ordnance Systems, Lockheed Palo Alto Research Lab, Aug. 29-30, Palo Alto, Calif.

R.G. Easterling (1643), "Approximate Confidence Limits for System Reliability: Exponentially Distributed Component Lifetimes," 132nd Annual Meeting of the American Statistical Association, Aug. 14-17, Montreal, Canada.

P.D. Thacher (7452), "Voltage Determinations Using the Electrooptic Effect in Ceramics," National Bureau of Standards Colloquium, Aug. 29, Gaithersburg, Md.

C.W. Gwyn (1933), "Ionizing Radiation Effects in the Insulator Region of MOS Devices," Metal Insulator Semiconductor Conference, Aug. 28-Sept. 1, Meriden, NH.

D.M. Mattox (5332), "Concepts and Applications of Ion Plating," Bay Area Section Meeting of the American Vacuum Society, Sept. 5, Palo Alto, Calif.

A.E. Hodapp, Jr. and J.R. Kelsey (both 5625), "Angular Motion Analysis for the MTV-I-1 and MTV-I-2 Reentry Vehicle Flight Tests"; C.F. Huff (5625) and B.M. Bulmer (5628), "Effects of Boundary Layer Transition at Low Altitude on Reentry Vehicle Dynamics"; Hodapp and R.C. Beckmann (1221), "Flight Test Evaluation of a Fluidically Actuated Monopropellant Hydrazine Roll Control System"; B.W. Marshall and A.A. Trujillo (both 5645), "Experimental Investigation of the Effects of Nozzle Orientation and Location on the Roll Control and Base Pressure for a Hypersonic Reentry Vehicle," AIAA 2nd Atmospheric Flight Mechanics Conference, NASA/Ames Research Center, Sept. 11-13, Moffett Field, Calif.

R.L. Chiburis (9215) and R.D. Jones (9463), "Severe Storm Observations from the Vela 4B Satellite," Waldorf Conference on Long Range Geographic Estimate of Lightning Sources, Sept. 11-13, Washington, D.C.

E.L. Clark, Jr. (5645) and A.E. Hodapp, Jr. (5625), "Experimental Determination of Asymmetry Induced Trim Angles of Attack"; O.L. George, Jr. (5645), "An Experimental Investigation of the Laminar Boundary Layer on a Spinning Ogive-Cylinder in Supersonic Flow," AIAA 7th Aerodynamic Testing Conference, Sept. 13-15, Palo Alto, Calif.



TOM RICHARDSON (5411), son Dale, discuss track techniques. Dale leads reasonably normal life in spite of sickle cell disease.

The Disease That Discriminates

Sickle Cell Anemia

A few years ago Dale Richardson, son of Tom Richardson (5411), experienced extreme pain in his stomach as well as other distress. He was in a bad way. Surgery seemed the answer. After numerous blood tests, however, doctors found Dale's blood contained an unusual substance and surgery was postponed until more could be learned about his blood. Finally he underwent surgery on his kidneys, but even then the findings were inconclusive and healing took an excessively long time. Dale is a Black. And today it is known that his affliction — a non-functioning kidney — derives from sickle cell trait, a blood condition almost entirely confined to Blacks or people with Black ancestry.

Sickle cell is an inherited condition caused by a slightly changed hemoglobin in the red blood cells. Normally round cells become pointed or sickle-shaped owing to a subtle change in blood chemistry. One medical text comments on this change: "It is a remarkable tragedy that the mere substitution of uracil for adenine in one of 146 codons produces a change in just 2 of 574 amino acid residues of a single protein, and causes the devastating disease which accounts for more than 80,000 deaths in Africa each year." Oddly enough, it is believed that this trait developed in evolutionary fashion as a mechanism to provide Blacks with resistance to another dangerous disease — malaria.

Until recently and to some extent even now, diagnosis was difficult. The multitude of symptoms — aches and pains in the bones, infections, yellowing of the whites of the eyes, undue fatigue, stomach pains — could easily be associated with many other diseases.

Today sickle cell disease is "... probably understood as well or better than any other disease." This passage is from the same medical text quoted above, which then goes on to say: "It is a tragic and sobering paradox that it is not yet possible to translate this knowledge into effective prevention or therapy. . ." There's the rub. No cure has been found, though one means to prevent the condition does exist.

"Don't have kids," says Tom, who is helping the local Sickle Cell Council. "The genetic pattern is known. When both the man and the woman have the sickle cell trait, there's a one in four chance their child will have sickle cell anemia. Because the sickle cell trait of itself normally causes no problems, people with it usually do not know they have it."

An estimated 50,000 Blacks in this country have sickle cell anemia, while two million are believed to exhibit the trait. Those who suffer this form of anemia rarely reach middle age. Most are frail, listless and plagued by one painful infection after another.

The program of the Sickle Cell Council calls for alerting, identifying, educating and counseling Blacks about this peculiar affliction. A simple blood test has been developed which reveals the trait. And research continues into possible cures. These activities take money, and on Saturday, Sept. 16, the Sickle Cell Council is sponsoring a dance at the Hilton (downtown), music by We The People. Tickets are three dollars a couple, two dollars for singles, and you can buy them from Tom (ext. 3852) or at the door. The dance starts at 9 p.m. •js

Raping the Land

Ed. Note: The following article, written by Sgt. Kent Nickerson, is reprinted by permission from Kirtland's weekly newspaper FOCUS. We're running it in the LAB NEWS because some of the dirt bikers he's talking about are Sandjians — and it's a problem that concerns all of us. If, after reading it, you feel moved to join the Kirtland Roadrunners Motorcycle Club, call Sgt. James Jones on x4661. He'll explain the benefits and collect the dues (\$5/year/family).

With a clattering roar, the rear wheel of a skeleton-framed dirt bike kicks a billowing plume of dirt and soil into the air as its rider twists the throttle hard to speed away up a twisting, bumpy stretch of Kirtland mesa.

In a matter of seconds, the bike, its rider, and even the sound of the machine, are gone in the distance. The rest of this article concerns what remains.

Men make their mark in a great many ways. One way is piloting a motorcycle across rough terrain at high speed. It's a recognized sport, a popular one, and one that demands a lot from the man and his machine. But the term "mark" in the context of dirt biking in this area has a dual meaning. The mark of skill and ability involved in such sport riding is not the issue. The mark left in the earth when the bike and man are gone, is.

This may sound like so much ecology-nut nitpicking at first and may appear to be a nonconsequential problem, not worth spending time and concern over. But think about it for a moment. With the number of dirt bikes running daily off the roads, the number of riders taking up the sport, the number of new areas being searched out for riding, the question begins to gain momentum.

In more temperate climates, the damage done by a hurtling motorcycle is not serious. The ground is firm, the rain soon washes away the tracks, the grass stands back up and continues to grow.

But here in New Mexico, the earth is dry, and particularly fragile. On the mesa land, which accounts for most of this base, indeed most of the land surrounding the entire city of Albuquerque, the earth is dry. Tap roots of the few grasses which grow here go down less than an inch. Less than a half inch of topsoil is truly firm. It rests like an eggshell over powdery dusty under-soil. Once that shell is broken, the grass clinging to it torn loose, what lays below is ready to be blown around by the wind, and unprepared to recover itself with plant growth for a long, long time.

According to a biologist at the University of New Mexico, there was once waist-high grass for as far as the eye could see, here and farther south than Socorro. Cattle have devoured much of that . . . and sheep have done the job on what remained, leaving the barest minimum of life in the soil to hold it down in the winds. Once that growth is gone, it takes a minimum of 40 years to get anything growing there again . . . if the winds leave the soil for anything to grow in at all.

Now a new problem is springing up in this same area. Thousands of bikes, riding in hundreds of fields like the ones mentioned above. Leaving their mark, and the damage it causes.

How much damage? It's simple math: the bike leaves a four-inch wide track in the soft

soil. The mark goes deep, since the weight of machine and rider is supported by narrow tires on the soft soil. With a four-inch track, the rider disturbs a square foot of land every three feet he rolls. If he rides a mile, he's breaking through the topsoil holding layer of 1,760 square feet of land. Given a conservative average of 10 miles off the road per outing (it takes only a matter of minutes to ride that far at 35-70 mph) the single bike and rider up the damages to 17,600 square feet per afternoon. If, again a conservative figure, that rider goes out only three days a week, you multiply by three and come up with a week-long total of 52,800 square feet of land which has been broken into. That's about 1.20 acres per week, seriously ripped up, by one rider and one machine.

Take a round number nearest the total weeks in a year's time, and you begin to see the problem. At a conservative glance, the biker is not only having a good time, but taking about 50 acres of range land along for the ride.

If that's not impressive enough to get one thinking . . . consider that there are more than a thousand bikes registered on this base alone . . . and that a healthy percentage are used off the road pretty regularly.

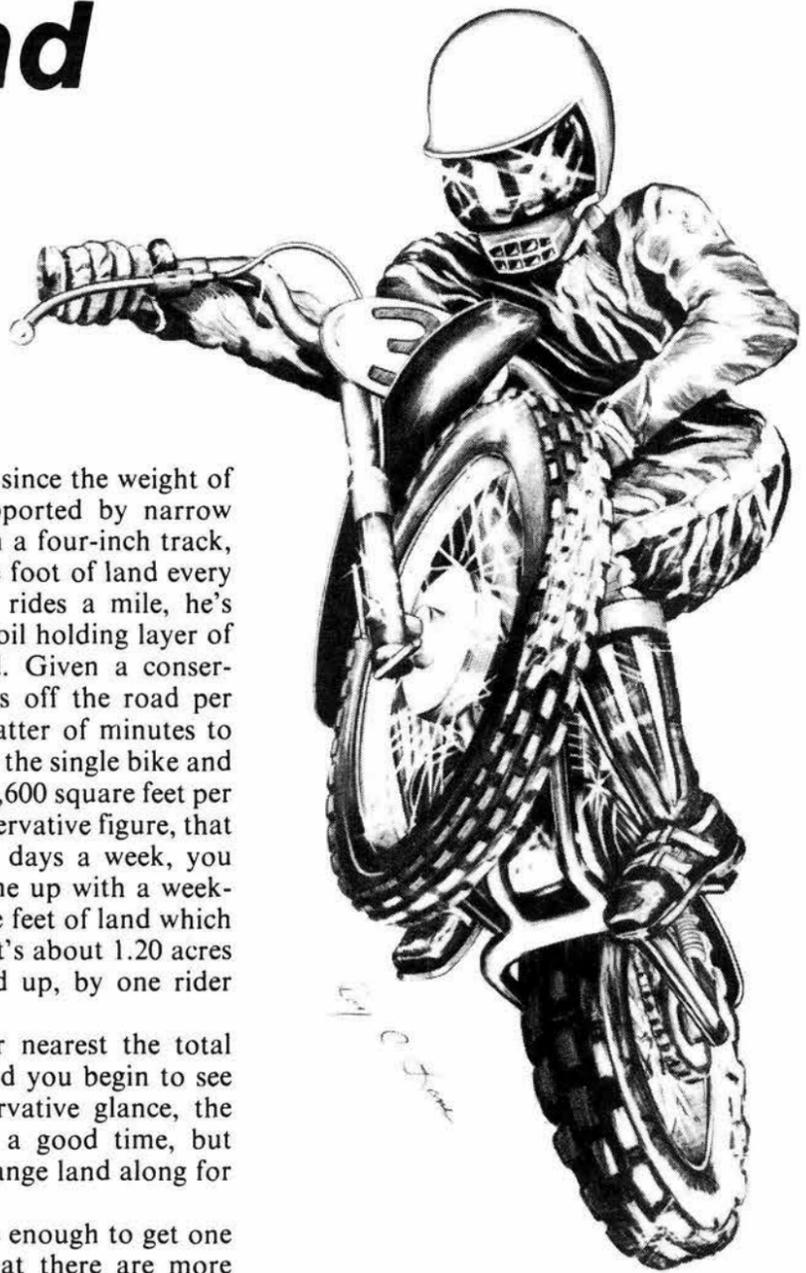
The solution is almost as obvious as the problem. Why not set aside an area for the bikers to ride, and contain the sport in an environment that would provide the best riding, and keep the wide-ranging damage down to a minimum. This has already been done. The Kirtland Roadrunners Motorcycle Club has a track in Tierjas Arroyo, for any and all Kirtlanders who want to join up and ride the dirt.

But something in a lot of bikers says "get away from it all," and they shun the "establishment" track for the wilds . . . finding open grass land more fun than beaten paths of the bike circuit. The result? Soon, there will be bike paths, and not a lot of grassland . . . everywhere they go.

Sure, Kirtland is not a national forest . . . as a biker informed me once when I asked what he was doing in a section of the base supposedly closed to recreational use. Kirtland is not a super valuable piece of greenery, something to be cherished for its scenic luster. But the base is a part of New Mexico as a whole, and a microcosmic view of what's happening elsewhere. And Kirtland depends on the same natural glues to hold it together as the rest of the state.

When the ground, to the tune of 50 acres a year, times many, many bikers, begins to blow away next March and April . . . there may not be a heck of a lot left for anything or anybody. It is something to think about. And if you're an off the road bike rider, think twice as hard.

You can have your sport, and not pay a price of 40 years worth of wasted land, by riding the track and surrounding land set up for you. Is it a lot to ask?



MAKING YOUR MARK with a California wheelie.

Take Note

Gene Haertling, supervisor of Active Ceramic Materials Division 1335, will deliver two lectures at Pennsylvania State University Sept. 27-28. The invitation to speak is a distinct honor — the event is the N.W. Nelson Memorial Lectures which brings outstanding materials scientists to the campus. Gene will discuss "Birefringence and Scattering Phenomena in Electrooptic Ceramics" and "Transparent Ceramics: Techniques of Processing and Fabrication."

* * * *

"Two Materials, Three Dimensional, Eulerian Hydrocode Development" will be presented by Lawrence Buxton (5166) at a meeting of the 5100 Staff Seminar Sept. 19.

On Sept. 26, Roger Chaffin (5113) will discuss "Radiation Effects in Microwave Semiconductor Devices (An Overview)." The seminar meets Tuesday mornings at 8:30 a.m. in Rm. 201, Bldg. 806.





BRAZOS MEADOWS YOUTH CAMP, portion of. The Camp is primitive, the setting primeval.

10-11,000 Feet

Kids High for a Week

People who own large ranches in the high country of northern New Mexico enjoy the wide variety of life forms around them — deer, elk, bear and smaller animals, trout and other fish, birds of all kinds, and of course cattle and horses. A certain 8227-acre ranch, located a few miles east of Cumbres Pass in the Chama area, is no exception.

Except that during the summer they also "run a hundred head of kids," according to Louie Narvaiz (5428) who owns part of the spread.

The kids aren't the four-legged kind; they're eight to fourteen year old boys and girls from the ghettos and barrios of the city and Indian youths from barren pueblos around the state. They're staying at the Brazos Meadows Youth Camp which is located on the Narvaiz family property. The property, a part of the historic Tierra Amarilla Land Grant, joins the Carson National Forest on two sides. The kids have lots of room to roam.

They are selected for the camp by a local agency which also pays their board and room. In Albuquerque it's the Parks and Recreation people. Northern Pueblo Enterprises, an Indian group, has furnished some tents for sleeping quarters at the camp. The National Guard and the Sanchez Bus Co. are donating buses to get the kids there and back (a new group goes up each week). And Indians from local pueblos are damming one tributary of the Brazos near the campsite to improve the trout fishing. Such help is essential — Brazos Meadow is nonprofit and has a very limited budget.

The camp is still acquiring facilities, but the kids don't seem to mind — the primitive living conditions fit their camp's wilderness character. They can run loose without fear of traffic. They can learn wood lore in the midst of acres of woods. They can hike for miles without feeling they've just been messing around on a mesa. They can fish and have some assurance that they'll catch enough to eat well that night. It's a real outdoors experience.

Kids may not be much of a cash crop, but one way or another the payoffs can be tremendous. •bh



TYPICAL CAMP COUNSELOR. They're a little different these days.

Letters to the Editor (Con't.)

To the Editor:

Item 1 - Re: Lab News "Letter to the Editor by Mr. Ralph Trujillo."

It would indeed be a blessing, Mr. Trujillo, if the words "advantaged" and "disadvantaged" need not exist. The ship of the white man is at long last being rocked. No longer is he always given preference for employment, traveling accommodations, restaurants and most neighborhoods. When the white man was the preference in these and other areas, he was not at all concerned that Blacks, Mexicans, Spanish, Indians, Orientals and often Jews were repeatedly rejected. Now the white man is crying "discrimination," "we're the minority group." Many are bitter that the pill we have long deserved must now be swallowed. I pray that it will fill our hearts with shame, compassion, empathy, and, at last, concern for others.

Item 2 - Re: Sandia's Program to Assist Alcoholic Employees

It is commendable that Sandia Laboratories is concerned about employees who have an alcoholic problem. However, I hope that a Sandia employee in a supervisory

Take Note

An article by Cecil Kinney, a technical illustrator in Division 3155, appeared in the Aug. 20 issue of "Sunday," magazine section of the Dallas Times-Herald. Title of the article was "Wiley Post — What Made Him Tick" which was written as an assignment for the Famous Writers School. Cecil is only four assignments away from completion of the course. This was his first article to be published, and it was a natural — Cecil's father and the famous pioneer aviator Wiley Post were good friends.

* * *

George Williams (5413) was one of 150 delegates to a recent Black Leadership Conference held in Hobbs. Representing Omega Psi Phi, an Albuquerque social fraternity, George served on conference committees and helped draft the resolutions adopted at the meeting. The Black Coalition plans to promote voter registration, particularly among the new young voters, and political education aiming at more Black involvement in politics. Another concern is public education programs promoting Black awareness and culture.

* * *

An item about the State Fair. The traditional parade tomorrow, Saturday, follows a new route: from Lomas and Louisiana east to Wyoming, south on Wyoming to Central, and west on Central to Louisiana to disband.

* * *

Western Electric is again sponsoring the National Merit Scholarships for children of employees. The qualifying NMS test, given in high schools across the country, is open to students currently juniors. A student who intends to take the test should contact his principal ASAP. Sandians interested in the WE scholarships should write to WE, Ed. Relations, Room 1626, 195 Broadway, New York and ask for the scholarship booklet.

capacity explains in the Lab News how Sandia can justify a policy in which the dismissal or retention of an alcoholic employee who refuses treatment is determined by his supervisor's judgment of his production record while it appears that no judgment is made on the production record of high-salaried, non-drinking, non-productive employees.

Fran Schroer (7631-1)

"Editor — Lab News

Sir:

I hope that before 'some hastily assembled group protests the desecration of Main (sic) Street on the Base' they will pause to consider that the *real* Main Street remains alive and well in Old Town. Interlopers come and go. Changes are rung and undone, there was even a recent attempt to have the real Main Street paved - both blocks - but nothing came of it. Military-industrial complexes rise and fall like castles in the sands of time; unnoticed, *Main Street lives!*

Sincerely,
Crawford MacCallum (5231)
613 Main St. NW"

FUN & GAMES

Fall hunting seasons on teal, doves and band-tailed pigeons have been set by the State Game Commission.

The season on blue-winged, green-winged and cinnamon teal will be Sept. 16-24 in that portion of the state east of the Continental Divide, except for Sierra and Dona Ana Counties which will be closed. Daily bag limit is four with a possession limit of eight birds, singly or in the aggregate of the three species. No special teal permit is required this year, but the proper state license and migratory waterfowl stamp are required.

The statewide season on band-tailed pigeons runs from Sept. 2-24 with bag and possession limits of 5 and 10. Hunters must have a special bandtail permit in addition to a license valid for taking game birds. Permits are available at no charge by applying in person to any Department of Game and Fish office or by mail to the Santa Fe Office. Mail applications should include the applicant's name, address and number of his hunting license.

A split season on dove was set with the first half open Sept. 1-30 and the second half open Nov. 19 to Dec. 17. Daily bag and possession limits are 10 and 20 for mourning and/or white-winged doves.

Doves and pigeons may be taken from one-half hour before sunrise to sunset. Teal shooting is limited to the period between sunrise and sunset.

* * * *

President Nixon has signed a proclamation designating Sept. 23 as National Hunting and Fishing Day. Local sportsmen are invited to visit the city-wide displays and exhibits at Los Altos Park from 9 a.m. until noon, Sept. 23. All types of hunting, camping and fishing gear will be on display, as well as horses, pack mules, four-wheel drive vehicles and even a cook tent. For more information, contact any of the following Sandians: John Dobias (1913), John Patrick (9323), Tom Harrell (4364), or Gerald Wilson (9343).

* * * *

One way to get your jollies is to find a mountain with a seven and a half mile trail up to its top and proceed to run races up the trail. Bob Fox (1325) and Pete Richards (5152) did just that last month on the La Luz Trail Race to Sandia Crest. Jim Tollison and Bob Lowrey of AEC also competed. All completed the event, which has to be some sort of indicator that the Republic hasn't declined completely.

* * * *

Billy Caskey (1555) reports there will be a Square Dance Open House tomorrow from 7 to 10:30 p.m. at the Annunciation Hall, Claremont and Utah NE. Guests are welcome, it's free, Billy says it's groovy, and you don't have to be square, but bring your energy.

The Labs chess thing is moving right along. Over 50 players showed up at the last meeting to compete simultaneously with Chess Federation expert Steve Sandager and Sandia's own Warren Miller (9425), resident hot shot. Winning club members are Howard Cilke (5421), Bill Roady (5624), Richard Palmer (5214), and Ken Renquillo (7145). Next meeting of the Chess Club will be Sept. 25 at 7:30 p.m. downstairs in the Coronado Club. Bring chess set and board. All Sandia and AEC types are invited as well as retirees. New editor of the Club's newsletter is John Vogel (1751).

* * * *

Women employees of Sandia Labs or the AEC interested in participating in a Women's Intramural Basketball League should contact Dora Montoya (1542). •nt



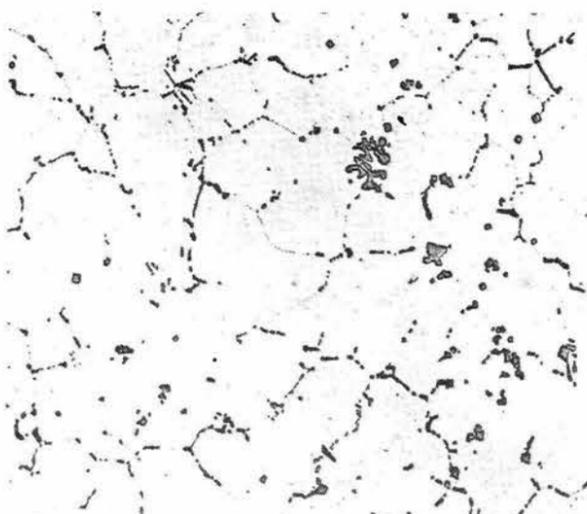
NATIONAL MICROFILM WEEK is Sept. 24-30. Rather than staging a gala in its honor, how about a quiet moment to reflect on microfilm's many uses at the Labs — engineering drawings, microfiche for the library, COM (computer-output-microfilm), patent notebooks, personnel and medical records, QA paper, contracts, plant engineering documents, etc., etc. Even the LAB NEWS. There. The moment's up.

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SEPTEMBER 15, 1972



(a)

500 x



(b)

~130x



~1300 x

BEST OF CLASS award went to this display in the scanning electron microscopy category at the recent annual meeting of the Electron Probe Analysis Society. It was prepared by Jim Horak and Dan Sasmor of Reactor Studies Division 5252 as part of an investigation into the failure of SPR-II reactor fuel. Photo at lower left is a straight-on view of the fuel structure before matrix was etched away. Top photo was taken at 12° tilt angle and shows dendritic structures of uranium carbide at grain boundaries. At lower right is a high magnification of a single dendrite. Precipitation of dendrites along the grain boundaries resulted in a brittle fracture of the fuel during reactor operation.

Shield for Cf-252 Source Now Open for Business

Discovery of the element californium-252 during this country's atmospheric test program in 1952 is providing the atomic age with a new neutron source. The manmade element is difficult to produce and only 2.5 grams (less than 0.1 ounce) exist in the entire world. However, more is being made available for laboratory research and industrial use.

Because of a potential radiation hazard, neutron sources must be shielded. At Sandia/Livermore, a portable, multipurpose radiation shield for a five-milligram Cf-252 source is now being used in nondestructive testing experiments and evaluations.

Lutz Dahlke of Physical Properties Acceptance Division 8137 designed the shield, while detailed mechanical design support came from Dick Gorman (also 8137) and Harold Faulkner (8432-1). Fabricated to Sandia specifications by Caral, Inc., of Albany, Calif., the shield features a 10-inch beam port with a manually operated sliding-rotating internal shutter which allows positioning of the source anywhere within this area.

By inserting different plugs into the port, a variety of applications are possible, such as neutron radiography, radiation effects studies, neutron gauging, shielding material evaluations, activation analysis, and isotope production for on-line tracer studies or detector energy calibrations.

"The major advantage of the shield is the enhanced capability within the Labs to support component development," says Lutz. "Previously, we had to go to a reactor at LLL, GE/Vallecitos, or Aerotest/San Ramon for all of our radiography, where regulations unique to a particular facility can be limiting."

Almost spherical — 60 inches in diameter and 67 inches high — the neutron source shield weighs about six tons. It can be visualized as a pair of truncated cones 60

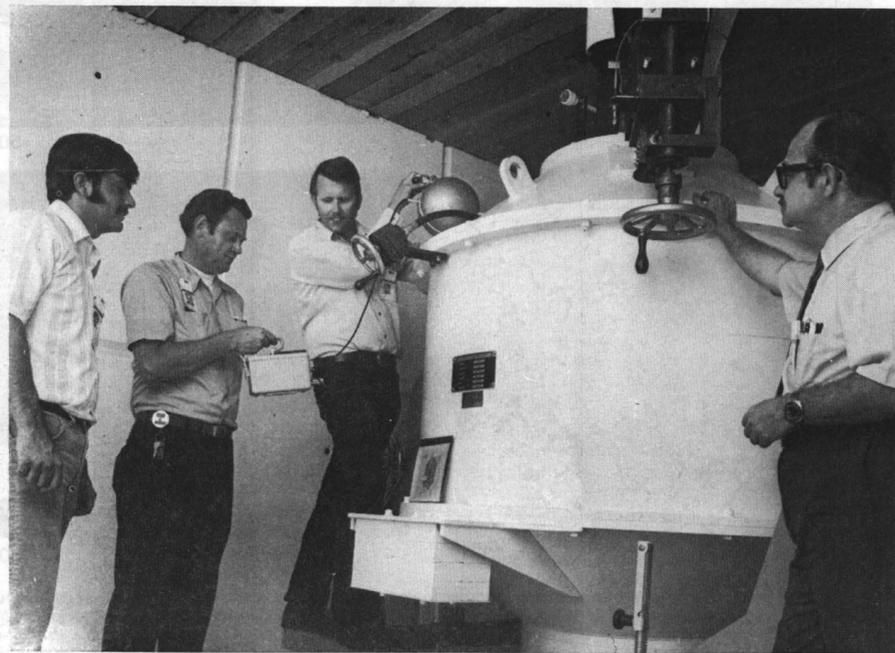
inches in diameter joined by a cylindrical, center section 34 inches long and mounted on an A-frame cart.

The shield is currently loaded with a 3.8 milligram Cf-252 source. When the source is in the storage position, the shield has a combined neutron-gamma surface dose rate of 3.5 millirem per hour (0.5 mr/hr, neutron; 3.0 mr/hr, gamma). Three feet away, the average mid-plane neutron-gamma dose rate is only 1.0 mr/hr. For comparison, the three-foot dose rate from the bare source is 195,000 mr/hr (a chest X-ray dose is approximately 100 mr/hr).

Exciting to scientists and industrialists because of its ability to emit neutrons at a very high rate (2.3 billion per second per milligram), Cf-252 is a unique tool for tasks ranging from fighting pollution and cancer to discovering new energy and mineral reserves. The intense neutron emission from Cf-252 can be used to look at materials in a new light.

Design for the source shield was backed up by computer-generated shielding data. Basic shielding materials include polyethylene, boron, depleted uranium and steel. The core of the shield contains a four-inch polyethylene moderating assembly with the Cf-252 source positioned near a surface. This core, in the storage position, is surrounded by 0.25-inch of Boral, two inches of depleted uranium, four inches of 35-percent boron-loaded polyethylene, 2.75 inches of structural steel, 16 inches of five-percent borated polyethylene and a one-inch-thick external steel shell.

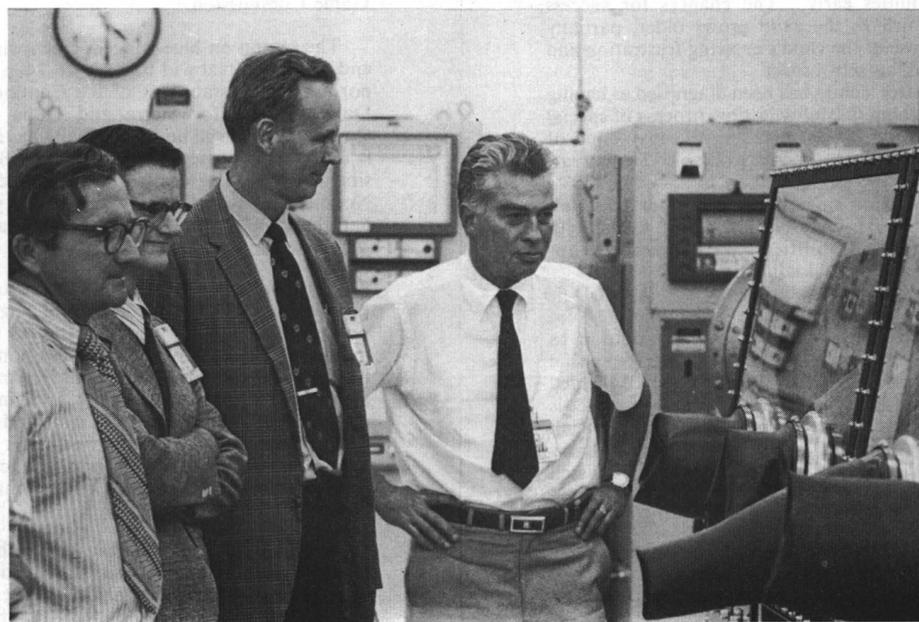
Lutz explains the reason for using a material as expensive as borated polyethylene instead of water or magnetic concrete. "We wanted to keep overall size and weight down so that the shield is portable, giving us the capability of moving it where needed. The reduced size allows us to get in and work closer to the source." •



RADIATION MEASUREMENTS are performed on Sandia/Livermore's neutron source shield by (from left) John Machado (8137), environmental health specialist Ron Hoffman (8263) and Lutz Dahlke and Dick Gorman (both 8137).

LIVERMORE NEWS

VOL. 24, NO. 19 LIVERMORE LABORATORIES SEPTEMBER 15, 1972



VISITING SANDIA/LIVERMORE recently for briefings was Major General Frank Camm (center right), new head of AEC's Division of Military Application. With him as he toured some of the Labs facilities were (from left) Vice President Tom Cook (8000); Chuck Gilbert, formerly LLL, now Deputy Director of DMA; and President Hornbeck.

Election Sept. 26

Voters to Decide Parks, Recreation Issues

Future development of parks and recreational facilities in Livermore will be at issue when voters go to the polls in a special election September 26.

Voters are being asked to approve expenditure of up to \$5 million over the next eight years to meet current and projected recreational needs. Included are plans for neighborhood parks, a large district park with swimming pool and tennis courts, lighted softball fields, soccer fields, development of a Senior Citizens Center, improvements of existing parks, and other special purpose facilities.

Maximum cost of the bond issue, 22 cents

per \$100 of assessed valuation, would be reached after five years. At this maximum rate, the cost would be \$1.15 per month for a family living in a \$25,000 home.

The Livermore Area Recreation and Park District (LARPD) master plan; the reports of the citizens' committees which reviewed the plan and helped to prepare the present bond issue; and a fact sheet on the bond issue prepared by the citizens' committees are available at the LARPD office.

Sandians from whom additional information is available include Marlin Pound (8236), member of the LARPD board, and Bob Johnsen (8161), chairman of the citizens committee in charge of the bond election.



LIVERMORE VISITOR — Ira Adler (second from left) from the White House Office of Management and Budget visited Sandia/Livermore recently for briefings. Others shown during a tour of Laboratories' facilities include Vice President Tom Cook (8000); Z.N. Zafiris, AEC/SAN; and Walt Bauer (8334).



LIVERMORE GALS (from left) Cathy Imhoff (8433), Glenda Kamppinen (8139), Mary Lattig (8168) and Sharon Heckler (8414) show the way to meet this year's LEAP campaign goal of a ten percent increase is to "up" your contribution. LEAP serves as a "once-for-all" method for Sandians to contribute to local and national health and service agencies.

Leap Committee

'72 Campaign Set

The employee committee for LEAP (Livermore Employees' Assistance Plan) has announced plans for its 1972 fund raising campaign. The week-long drive starts at Sandia/Livermore Oct. 2, with employee meetings scheduled for Tuesday the 3rd and Wednesday the 4th.

Chairman of this year's campaign, Bill McGuire (8431), says that a ten percent increase over last year has been set by the committee as the campaign target.

"Actually, we're encouraging several interpretations of this 'ten percent' goal," adds Bill. "Since we like to feel that LEAP represents all Livermore employees, an additional ten percent participation or a ten percent increase in the number of LEAP shares would be most gratifying and would result in a better than ten percent increase in our total response to the needs of the agencies we support. Members of the committee felt individual employees could consider this a 'ONE-ONE-TEN' program, suggesting three alternative ways of giving: ONE percent of earnings, ONE hours pay per month — the LEAP share, or a TEN percent increase over last year's contribution."

LEAP serves as a means for Sandians to contribute to local service agencies in addition to the United Bay Area Crusade (UBAC) and national health agencies through the Bay Area Combined Health Agencies Drive (CHAD). Thus, LEAP provides employees the opportunity of giving "once for all."

Bill says that after studying employee recommendations involving about 14 agencies, the committee reviewed and changed the percentage of employee funds allocated to agencies last year. In each case, the immediate and basic needs of the agencies, as well as their service in the community, were carefully considered in arriving at the new percentages.

Beneficiaries of 1972 funds will be five local agencies, plus CHAD with 12 member

agencies, and UBAC with over 200 member agencies. The percent allocations are:

	Allocation %
LOCAL AGENCIES	9
1. Nursery School Scholarship Fund	3.0
2. Livermore-Amador Valley Emergency Fund Center	3.0
3. Cerebral Palsy Center for the Bay Area (Lincoln Center)	2.0
4. Twin Valley Counseling Service	.5
5. Connection	.5
NATIONAL AGENCIES	
Bay Area Combined Health Agencies Drive CHAD	15
UNITED BAY AREA CRUSADE AGENCIES	75
RESERVE (for emergency use or to be distributed at year end according to specific participating agency needs)	1
TOTAL	100%

New on the list are two local agencies, Connection and Twin Valley Counseling Service. Connection is a 24-hour telephone service staffed by volunteers trained to aid callers with crisis problems in such areas as alcohol and drugs, legal involvement, family relationships, runaways, suicide, etc. Twin Valley Counseling Service provides professional assistance to emotionally disturbed children and their parents.

"Contributions by Sandians at Livermore have increased considerably each year since LEAP was inaugurated in 1969," notes Bill. "Hopefully, this year we can again show an impressive increase. After all, 1972 is a LEAP year!"

Sympathy

To Gabe Gutierrez (8433-1) for the death of his mother in Stockton, Aug. 16.

To Dick Watkins (8323) for the death of his mother in Chickasha, Okla., Aug. 20.

The In-Betweeners

About 4000 kids in Albuquerque are in-betweeners. They're not mentally retarded or physically handicapped. But they're not average, run-of-the-classroom kids either. Emotionally and intellectually, they're in a sort of twilight zone in between.

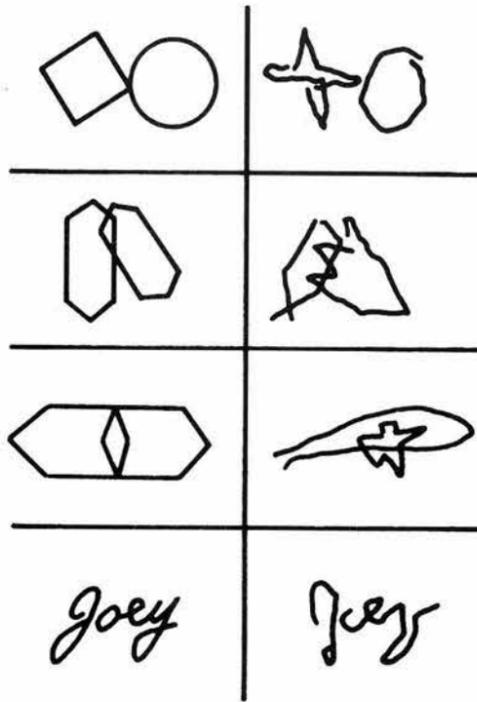
Not long ago, pediatricians and teachers put all kinds into one of the two camps — normal and not normal. But 3 to 15 percent (depending on which source you check) of the nation's children don't fit in either category. And now we call them children with learning disabilities.

They usually have average intelligence — or even high IQ's. But they have difficulties in areas like language development, reading, and writing. They're kids with parents that say, "He can be a bright kid, but he just doesn't try." They're kids with teachers that say, "I know he'd learn to read if only he'd settle down."

They're kids — mostly boys by a 5 to 1 ratio — with a problem that doesn't show up on the standard tests. They're kids who do try — but who seldom succeed. They're kids who would like to settle down in a classroom but who can't and who become increasingly frustrated by the whole educational experience. And they're kids who — it now appears — often end up as delinquents or worse.

Their problem is perceptual. They see and hear perfectly well. But they are unable to process their perceptions properly. It's as if there were some wires crossed in the brain, as if there were a filter that prevents what goes in from coming out the right way. When asked "How old are you?" the learning disabled child may answer, "Fine," apparently believing the question was "How are you?"

Progress, real improvement, for kids like this is possible. That is where the Albuquerque Association for Children with Learning Disabilities (AACLD) comes in. This local group is one of several across the country, all of them started by, and still basically dependent on, parents of kids with



A LEARNING DISABILITY is the probable cause of the difference between the left and right columns. A 9-year-old boy's reproduction (right) illustrates his inability to, in his words, "get what's in my head into my hand."

learning disabilities. It's no wonder that the parents get involved — a child with learning disabilities puts a tremendous strain on home life. In fact, the parents and siblings of such a child may need help almost as much as the child himself.

"Now that AACLD is a part of UCF, we can do a lot that we couldn't do on a very low budget," says John Cantwell (3132), current president of AACLD. "We can expand our work with parents and medical people — for example, we will continue to publish our directory of tutors, physical therapists, and speech therapists in town so the parents know where to get some help. And we'll conduct more workshops to help parents adjust to their learning disabled child. But our biggest task is to push toward a comprehensive

diagnostic facility — something Albuquerque doesn't have now — so we can detect learning disabilities early." The chances for success diminish as the child grows older, partially because of the child's growing frustration and shrinking self-respect.

After a child has been diagnosed as having a learning disability, a slow process of special education is the most scientifically sound of the several treatments available. Such treatment is increasingly likely in New Mexico — in five years, states a new law, all of the state's exceptional children, including those with learning disabilities, are to receive appropriate special education.

It's an enormous task, but AACLD is firmly committed to sharing the task of implementing the new law. In addition to Cantwell, one other Sandian deserves special mention — Noble Johnson (3163) helped found the local chapter (and his wife is currently membership chairman). Rich Anderson (5513), Bill Atkins (1614), Larry Harrah (5511), Sam Martin (1325), Russell Maxwell (1313), Peter Richards (5152), Fred Schelby (7511), and Bill Sullivan (1933) are also part of AACLD. •bh

Those Were the Days . . .

From LAB NEWS, Summer 1952

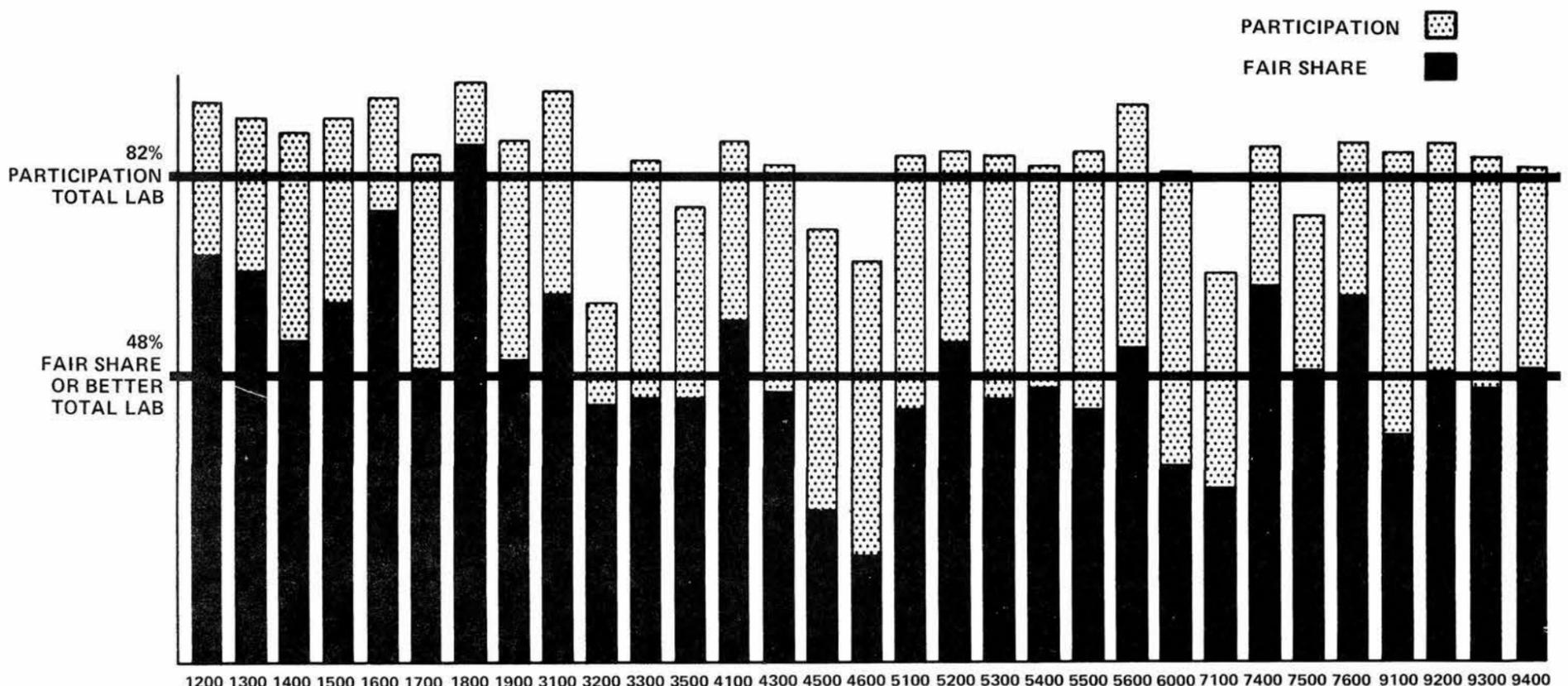
—A payroll deduction plan is to be started for Sandia Corporation employees who are members of the Sandia Federal Credit Union. . .

The Credit Union recently approved loans for the purchase of new automobiles.

—Ernest C. Peterson, 2512-1 (now 3220), has received notification that he has been awarded a Bronze Star for duty while serving on Bougainville on June 14, 1944.

—Congratulations to Joe Mahboub, 2452 (now 3520), and his wife on the new arrival in their home. Joda is the name of the new-comer.

Percent ECP Participation by Directorate as of June 30, 1972





Jack Lawrence — 4122

20



Carter Broyles — 9100

20

MILEPOSTS

LAB NEWS September 1972



Carl Bachmann — 8168

20



Carl Drew — 5535

20



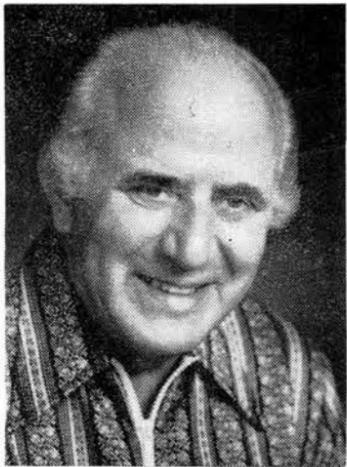
Walt Adams — 7423

20



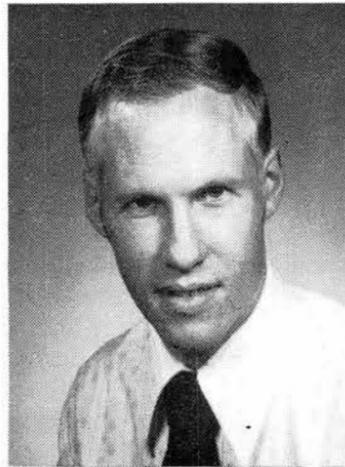
Marcella Madsen — 5234

10



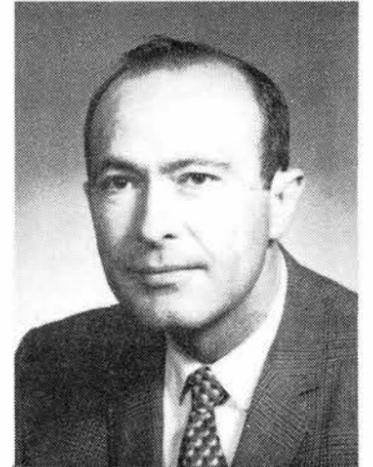
John Barnhouse — 8421

15



Keith Treece — 1815

10



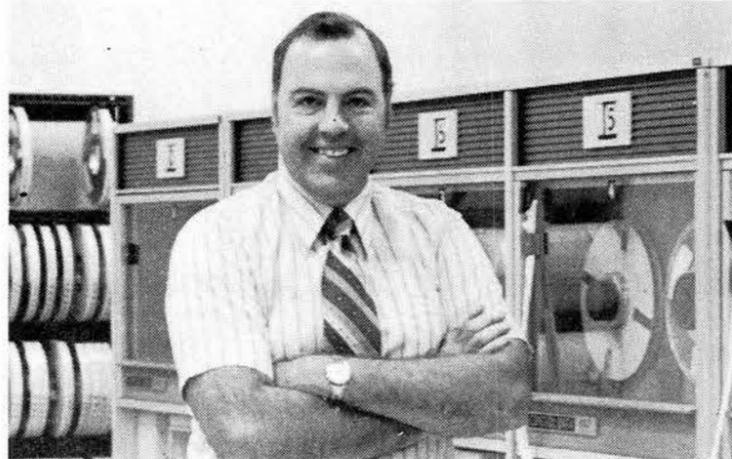
Jerry Hood — 1930

15



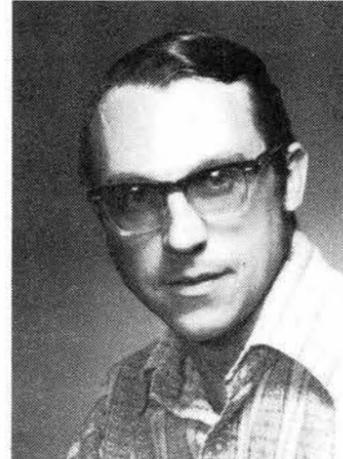
Stephen Butkus — 1831

15



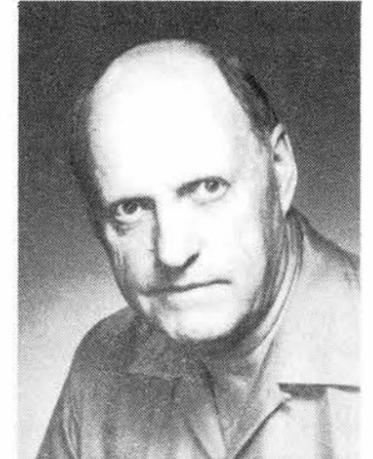
Arnie Schuknecht — 8322

20



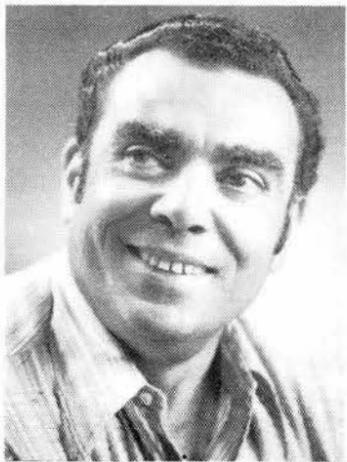
Norman Corlis — 9421

10



Cecil Johnson — 7654

25



John Rogers — 8263

15



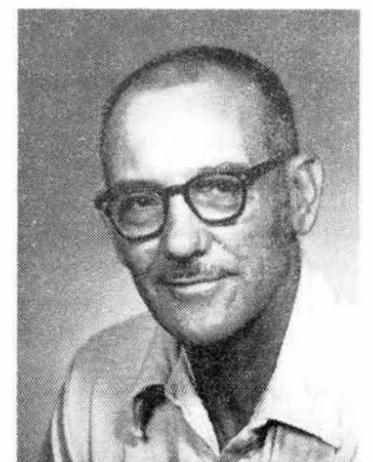
Mary Campbell — 3256

15



Willard Benson — 1532

15

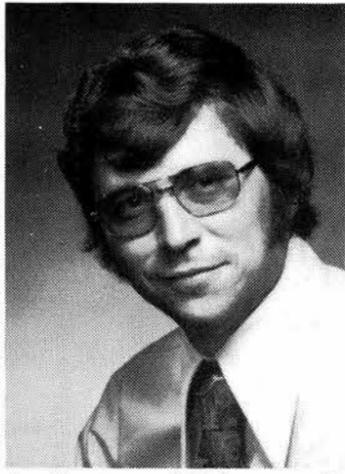


Stanley Whittet — 9335

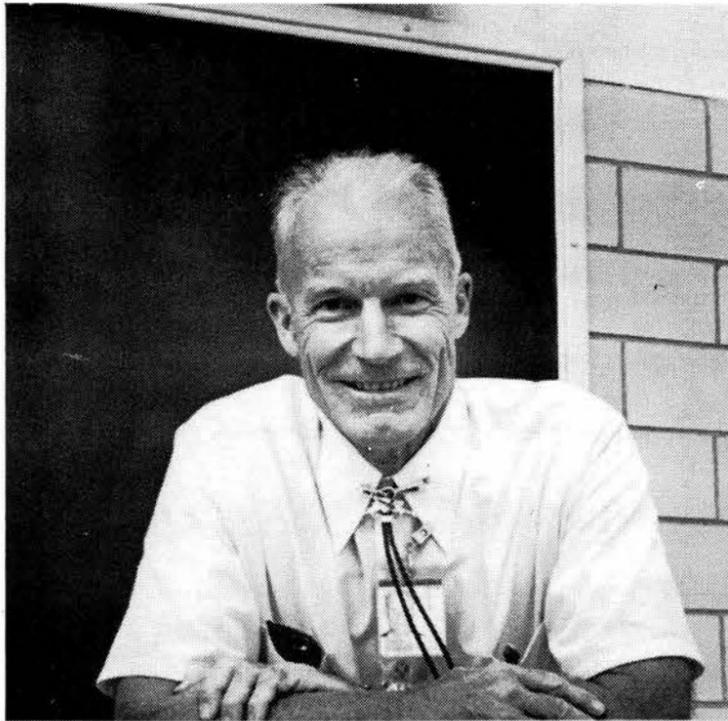
15



William Jackson — 7142 15



Joe Montoya — 5411 10



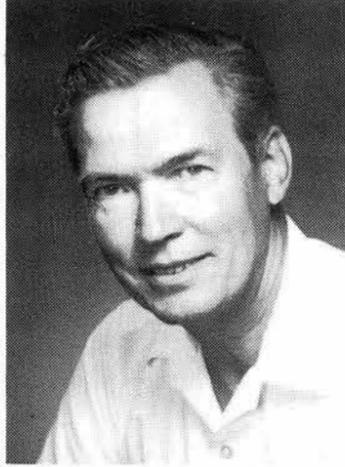
Oren Worden — 1613 15



S. F. Harvey — 4151 15



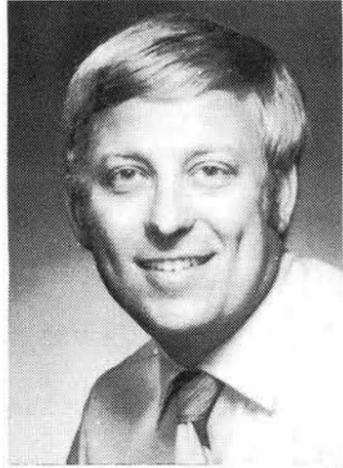
John Costello — 8168 15



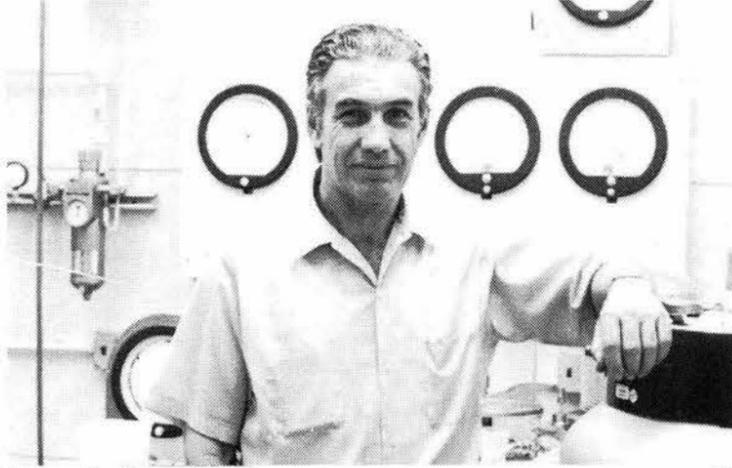
Herbert Howe — 7121 20



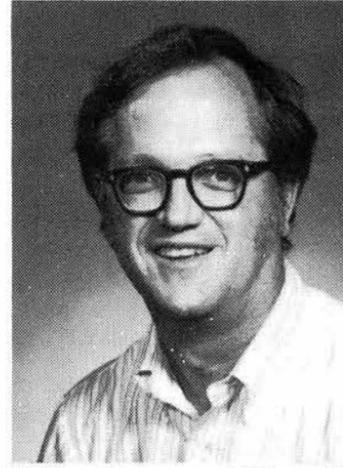
Florence Lesperance — 7632 15



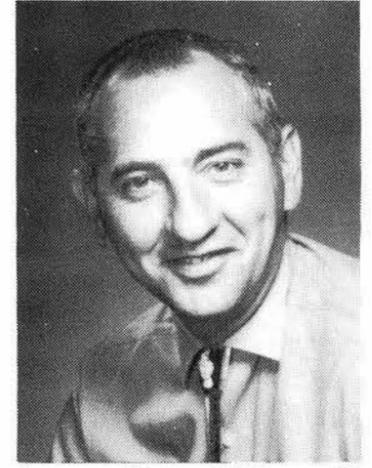
David Schafer — 9335 10



Harvey Pouliot — 8332 20



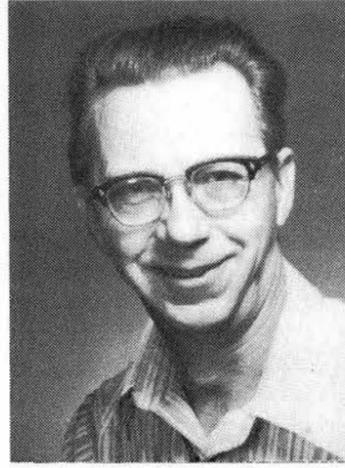
William Hartman — 1541 15



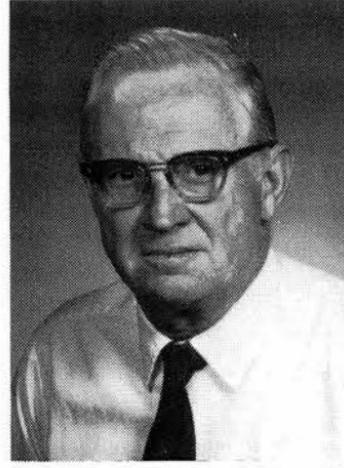
Lawrence Kent — 5133 15



Ruth Gustin — 7133 20



Raymond West — 1813 20



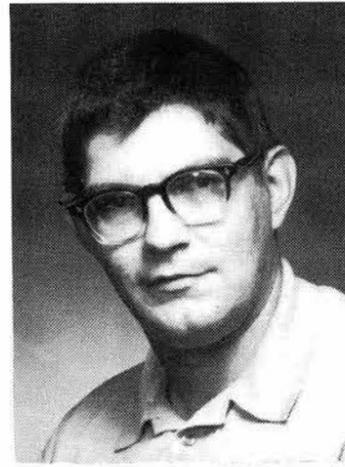
Severn Starzynski — 1511 20



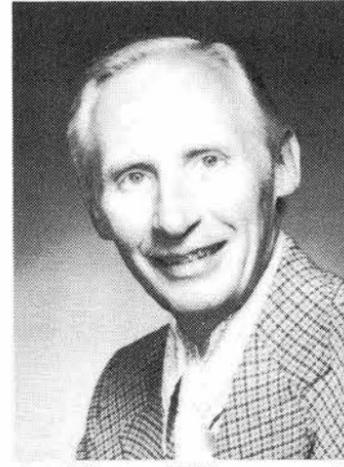
James Hall — 4515 20



Al Ford — 8168 20



James Clabaugh — 7423 10



Art Eiffert — 7140 25



T. K. O'Kelley — 8263 15



David Weingarten — 1431 15



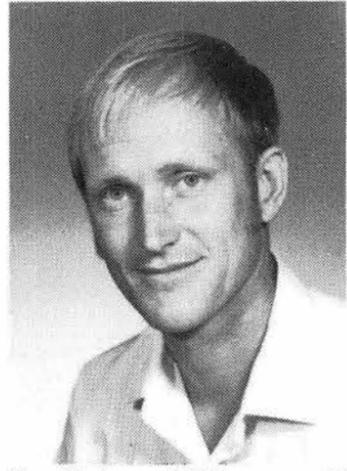
Fern Robinson — 4332 20



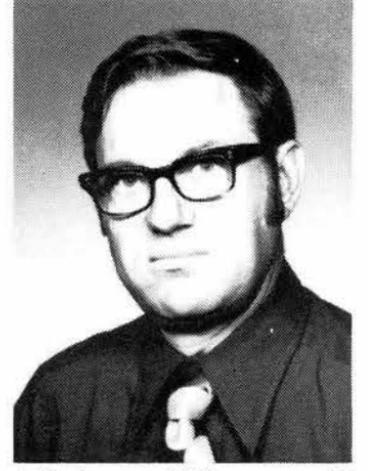
John Cunningham — 7453 20



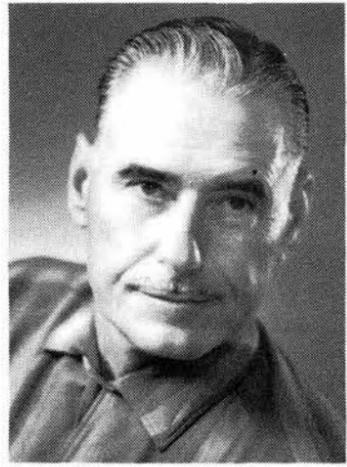
Ellis Roper — 7433 20



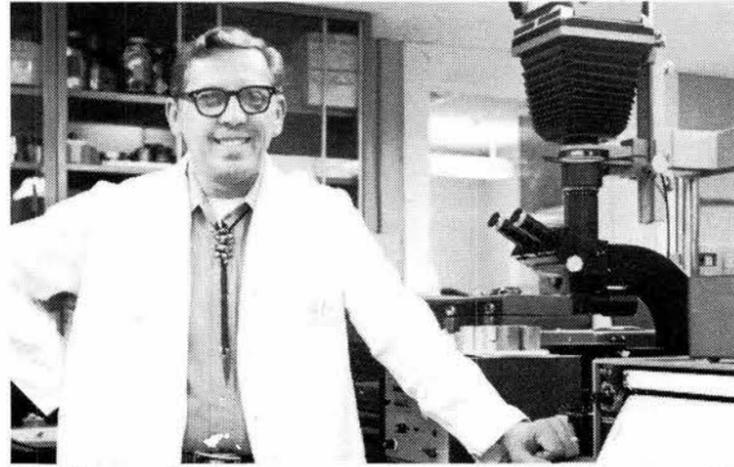
Ron Madsen — 9231 10



J. D. Jones — 1526 25



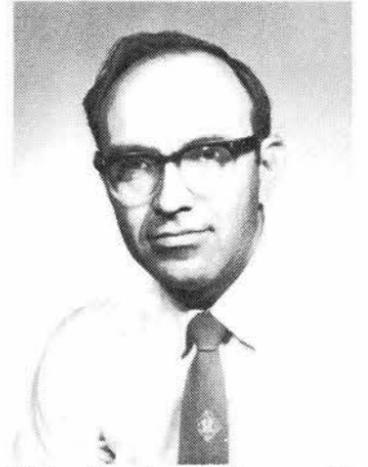
Rex Richardson — 8264 15



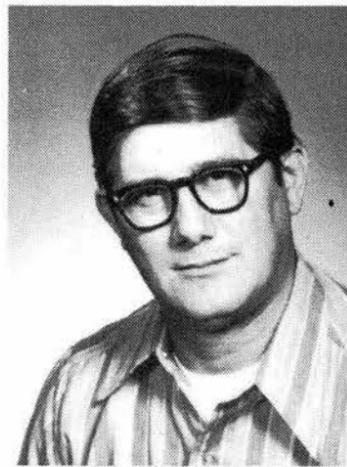
Dick Zaluga — 1913 20



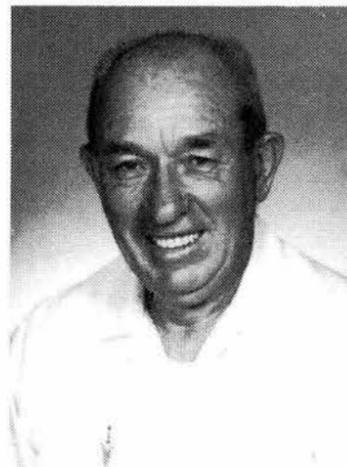
Ken Harrington — 1813 25



Walter Joseph — 1553 20



Cal Sifre Soto — 7512 10



John Harper — 7133 20



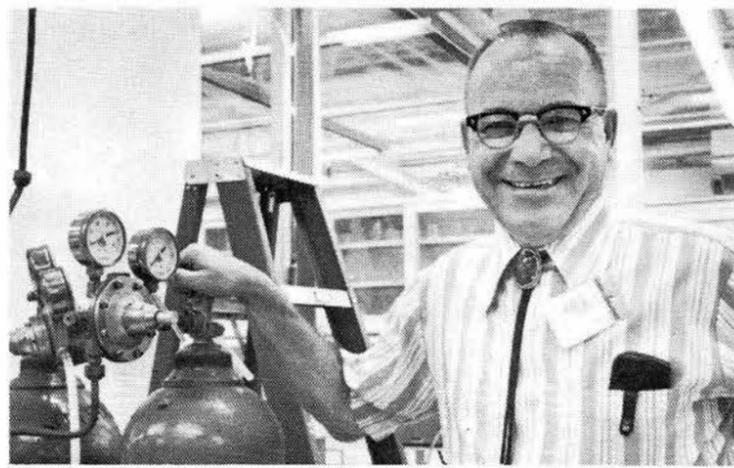
H. W. Richardson — 9342 20



Heinz Schmitt — 1225 10



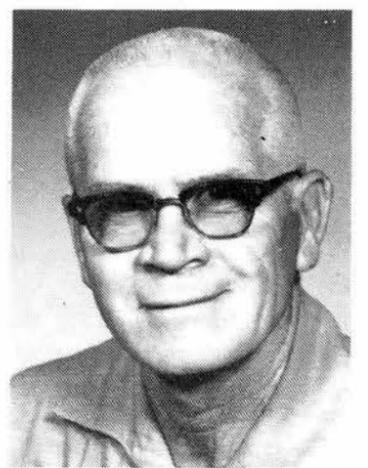
L. Max Spivey — 8176 20



Chet Corbin — 7121 20



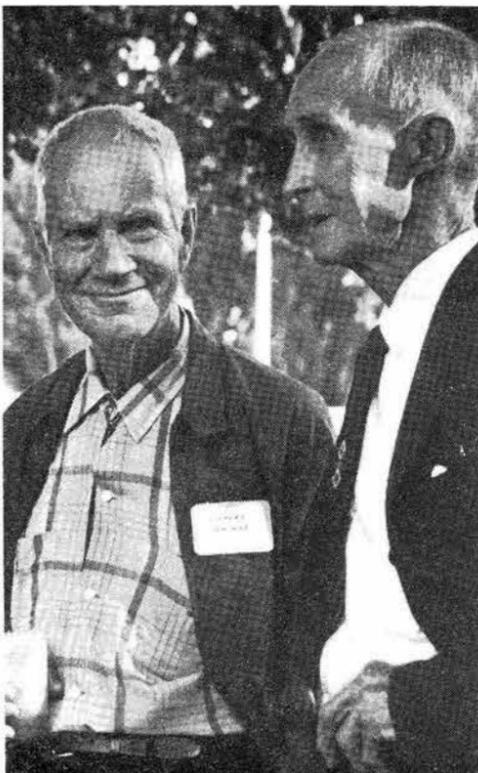
John Watterburg — 9421 20



Winford Mabery — 4541 20



**Retiree
Dinner
'72**



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FOR SALE MISCELLANEOUS

HO MODEL LAYOUT, 4 lanes, 4 cars on 4x8 plywood board, \$40; will hold until later; misc. track, accessories. Binder, 299-2937.

SKIS, bindings, poles & size 10 boots, \$65; two gravity flow wall heaters, 16"x16"x78", 50,000 BTU, \$35 ea. Houghton, 299-3386.

STUDENT TRUMPET, \$15; McCullough 250 chain saw, \$180; beer tapper, \$50; Kaw, 238 chamber, \$25; 100-plus complete dance band orchestrations, \$50. King, 298-2991.

WESTINGHOUSE stove, dinette table, 6 chairs. Callahan, 2604 Mary Ellen NE, 299-3273.

USED MUSICAL INSTRUMENTS, Clarinet, \$35; trumpet, \$50. Gunckel, 299-3543.

2 EA. MAHOGANY paneled closet doors, sliding type, 79 1/2"x24", both for \$6.50. Moyer, 2916 Florida NE, 255-8807.

14' BOAT, 35HP Johnson motor, Holsclaw trailer. Myers, 116 Girard SE, 256-0750.

TRUMPET, stand, mutes, case, \$60; track shoes, size 12, \$5; Cub Scout uniform, size 14, \$10; Hotwheels supercharger set, \$8; Speedline race set, \$3; motorized race set, \$5. Holck, 298-0361.

BICYCLE, \$20; tricycle, \$4; swing-slide set, \$9; rocking horse, \$5; APS gym suit, size 36, \$1.50. Hitchcock, 299-2581.

'70 HONDA SL-350, low mileage, w/extras. Hopper, 294-5717.

BOOKCASE, 3 modules, corner & two wing units, hardwood, antique finish, \$25; double bullet brass floor lamp, \$5. Officer, 256-0337.

BED, hard rock maple, \$100; bike, girl's 20", misc. items. Traver, 294-2138.

GIRL'S 26" bike, AMF Texas Ranger, chrome fenders, wire

basket, \$25. De Vargas, 299-0477.

ROTH student violin, full size, used 1 semester, \$95. Martin, 299-7045.

E-FLAT ALTO saxophone, Evette and Schaeffer w/Selmer mouthpiece, \$175. Hill, 299-1241.

2 USED 7:75x14 tires, both for \$15. Hall, 298-8617.

USED TINTED windshield for '69 Pontiac or Chev. sedan or stn. wgn. Peabody, 296-6239.

SAKO RIFLE .243 cal., L57 action 4X scope, 3/4 inch groups, 7 pounds, \$185. Roth, 877-4997.

TWIN BEDS, 38x74, seldom used, includes pads, sheets, extra sheets, gold spreads, bed frames w/lg. rollers, \$100. Cooper, 299-6448.

PINTO MARE, Reg. 4-yr.-old, green broke, for good rider, \$400; new \$320 list western saddle, \$150. Nielsen, 255-2045.

B-FLAT BARITONE, Conn w/case, short-action valves, prof. quality for advanced student, Sandy, 299-0120.

SEARS 6" jointer w/motor & stand; bench belt & disc sander w/stand; 7" grinder on pedestal, nearly new. Kjeldgaard, 296-2212.

EPIPHONE CASINO elec. guitar, many extras, \$225. Esterly, 256-9251.

REEL TYPE ELEC. powered lawn mower, recently sharpened, \$15. Slesinger, 299-4626.

LARSON 16' boat, 110 HP Mercury outboard, & trailer. Brewer, 298-6018.

CLARINET, B-flat Belmont Artist w/case, \$50; Honda 50cc mini trail bike, \$135. Carlson, 299-6610.

THIRTY 06 deer rifle w/4-power Weaver scope. Maydew, 294-5663.

BOX SPRINGS & mattress for dbl. bed, \$35. Beatty, 299-3429.

UTILITY TRAILER, 4'x7' (approx.), spare tire, '72 license, \$75. Frauenglass, 344-8344.

SILVER MINIATURE poodle puppies, 6 wks. old, \$30. Myers, 299-2219.

BUNDY CLARINET, \$75; 3/4 violin, \$50. Fligner, 265-2663.

TRUMPET w/case, music, stand, & 2 yrs. beginning band music. Johnson, 296-5957.

WROUGHT IRON fireplace utensil set, 4 pieces plus stand; slide in camper, 8' long, icebox, insulated, lights. Vigil, 296-3590.

'70 KAWASAKI trail 90, trail & street sprockets, 1500 miles, \$225 or best offer. Fewell, 268-9084.

CHEVY close ratio 4-spd. trans. w/shifter, \$125; posi-traction rear end, \$40; stock rear end, \$20; 2 racing tires, \$40 each. Shaw, 268-7938.

REFRIGERATOR, couch, chair, dinette set, dbl. bed, single bed, end table, coffee table, chest of drawers, lamps. Gutscher, 298-7203.

BABY CRIB, \$12; baby car seat, \$5; clean, lined custom drapes, gold, blue on white, 84" wide, \$20. Reed, 299-7425.

AKC REG. Yorkshire Terrier pups, 6 wks. old; Sears Allstate Silent Guard Dynaglass tire, 7:75x14, 6-ply tread; 4-ply side wall, 1000 miles, \$40. McCoy, 296-2865.

SCHWINN, man's 26" 3-spd. bike, hand grip brakes, puncture-proof tubes, snap-spring carrier, touring bag, generator lights, \$50. Browning, 268-8260.

EUROPEAN HEALTH SPA CONTRACT, expires 4/2/75, transferable due to special circumstance, will sell at significant discount. Gear, 282-3166.

BABY equip: 2 cribs w/mattresses, \$25 ea.; playpen, \$15; wooden room divider, 6 panels, \$30. Jones, 298-8492.

STANDARD SIZE & 1/2-size mattress, box springs w/frames; CLP ratchet camper jacks. Wilson, 282-3225.

'58 EDITION OF WORLD BOOKS ENCYCLOPEDIA w/year books 1960 through 1972, \$125. Smith, 299-6873.

WARDS Signature refrig., \$75. Dahlgren, 298-8168.

WROUGHT IRON GATE, \$60; fire screen, anvils, \$30; 8 track car stereo, \$35; sunlamp, \$5; Rack, 294-1751 after 6.

CLARINET w/case & music, Evette B-flat. Ashcraft, 299-1011.

CAR TOP SLEEPER for sta. wagon, sleeps 2 adults & 1 child, \$35. Coalson, 298-0061.

MAPLE TWIN BED SET including headboard, sides & foot, \$30 or best offer. Magruder, 255-2078.

VIOLIN, 1/2 size, \$35. Love, 296-6328.

TOW BAR KIT, Reese, \$14; bike, man/boy 26", 3-spd, \$30; unicycle, \$20. Gray, 265-1883.

BICYCLE, 20" 3-spd., \$23; minibike, \$95. Hart, 299-8832.

AUTO. Frigidaire elec. range, \$30", white; solid maple high chair. Aeschliman, 298-7846.

B-FLAT EVETTE FLUTE, \$90. Jeffers, 299-7020.

7.65 RIFLE w/80 rds. ammo; 16-gage dbl. barrel shotgun; twin Hollywood bed; exercise bike; mosaic kitchen table. Swiss, 265-5346.

WARD'S clothes washer and dryer, coppertone, \$100; Magnavox console TV, AM-FM radio, stereo, \$75. Sisson, 296-3883.

GERMAN SHEPHERD PUPPIES, 6 wks. old, males, \$10; females, \$5. Cox, 282-3109.

WESTINGHOUSE refrig. w/cross top freezer, \$25; Maytag auto. washer, \$10. Ortiz, 296-9758.

'70 HONDA CL 350, \$650, will negotiate. Singleton, 299-1613 after 6.

23" B&W RCA console TV, \$40. Hauer, 298-3624.

LUDWIG DRUM SET, 6 piece, \$225. Thompson, 299-0092.

FOR SALE CARS & TRUCKS

'71 FORD Ranchero, metallic blue, laser stripe, super wide 60 tires, sell or trade. Otero, 294-0060.

'71 PLYMOUTH DUSTER, low mileage, \$2100, 1421 Marcella NE. Gray, 299-7035.

'65 MUSTANG, AT, PS, PB, new engine, new tires, \$850. Silva, 344-6641.

'68 CHEVY Malibu, loaded, low mileage, \$1595; pool table & ping pong table, both for \$139. Winblad, 344-3109.

'67 PONTIAC Firebird, 327 engine, AT, air. Bedeaux, 344-6277.

'69 CHEVELLE SS 396-400 HP, engine & drive train 4500 miles — balanced and blue printed. Thatcher, 268-4443 after 5:30.

'69 FORD Window Van, new heavy duty tires, make offer. Dodd, 9706 Morrow NE.

'64 DODGE 3/4 ton, V8, 4-spd., w/8' cab over camper, \$995, 14' fiberglass ski boat, 45 hp Mercury, trailer w/ski equip., \$550. Schwiner, 282-5207.

'63 BUICK Special sta. wgn., bucket seats, 4 on the floor, new tires-clutch-brakes, air. Anderholm, 255-6835.

JEEP 4-wd, CJ2-A Universal rebuilt throughout, hubs, tow bar, good top, rear seat, turn signals, 4-cyl. engine. West-

fahl, 298-5087.

'64 FALCON 2-dr. auto., 6-cyl., \$150. Kohut, 298-0695.

'69 OLDS Cutlass Supreme, 4-dr., green & white, AC, AT, R&H, PS, PB, \$1750. Scott, 898-1748.

'67 SPORT FURY convert., air, radio, PS, AT, 52,000 miles, best offer above \$1195. Ray, 298-0408.

'55 FORD SEDAN, engine & trans. redone. Jones, 255-7924.

'68 VW, radio, AT. Prevender, 299-5253.

FOR SALE REAL ESTATE

3-BDRS., lg. kitchen, 1 bath, carport, landscaped yard, AC. MacGibbon, 344-0725.

4-BDR., 1 1/4 baths, hw floors, 2-car garage, FHA appraisal \$33,150, excellent schools, landscaped, immediate occupancy, \$170 PITI. 6300 Loftus NE. Bertholf, 299-8549.

3-BDR., den, 1 1/4 baths, garage, pitched roof, covered patio, drapes, carpeted, FHA/Conv. refinancing, 9701 Bellamah NE. Gunckel, 299-3543.

1 ACRE 5 miles south of Rt. 66 on Hwy. 217, view, shade trees, ideal picknicking & trailer camping, \$1500, terms. Brown, 296-5949.

WOODED mountain property, several pieces, 5 acres or larger near Frost Road, Hwy. 217; 10 acres Juan Tomas Johnston, 282-5789.

WANTED

MERCHANDISE of any kind for garage sale for Louise Bates (wife of Gene, 3132) Kidney Fund. Will pick up. Riggan, 268-1961; Durham, 298-0733; Westfahl, 298-5087; Jacobs, 344-2534.

SET OF heavy duty 7.50x16 truck chains; used camper shell for long, wide bed pickup. Causey, 299-0089.

BOLSTERS for studio couch w/ or w/o matching bedspread. Magruder, 255-2078.

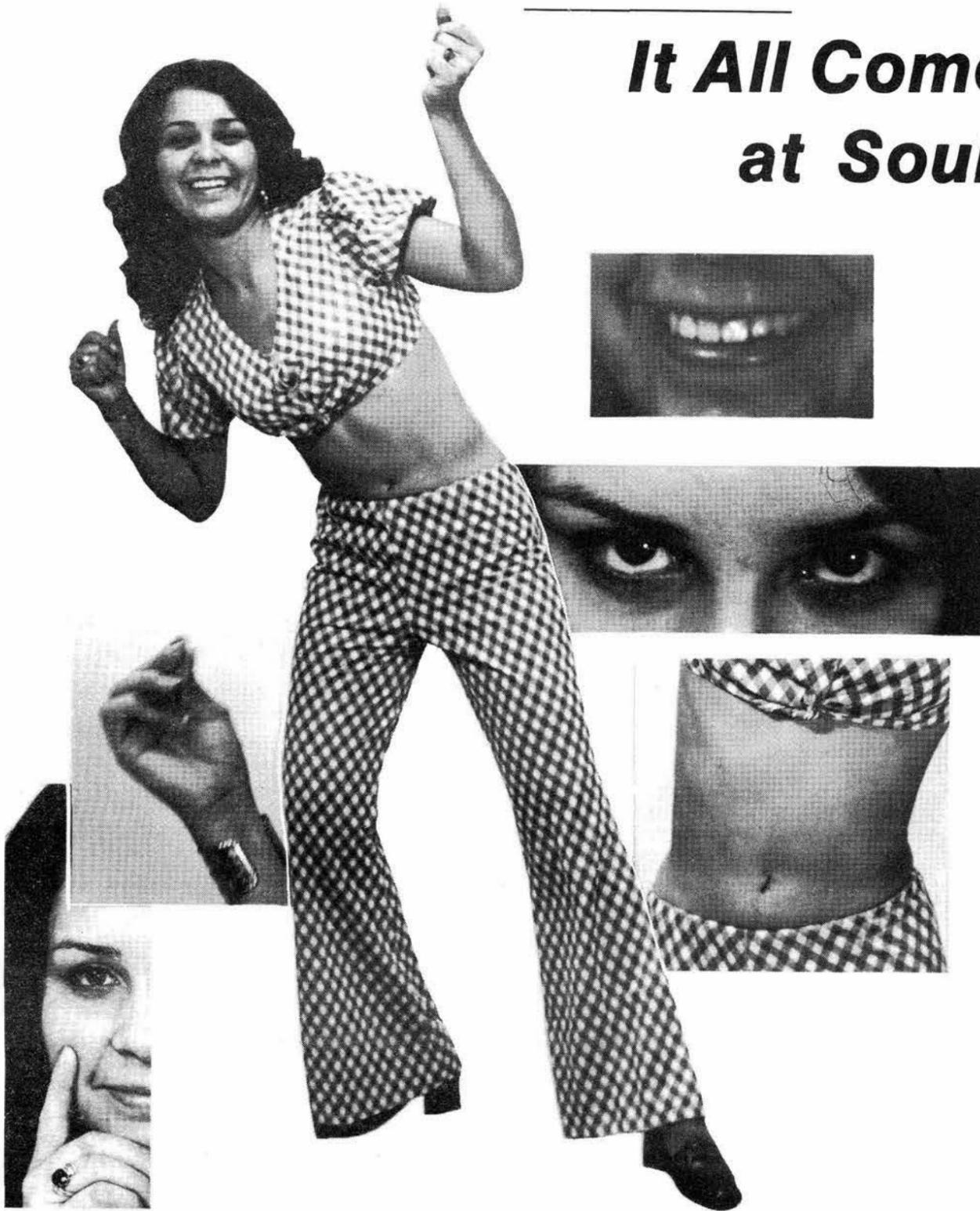
HOCKEY players, officials, coaches for N.M. Amateur Hockey Assn., registration Sept. 18 & 25 at Iceland Arena, 8 p.m. Pfarner, 298-3206.

GO KART in good condition. Walsh, 344-3771.

WORK WANTED

TWO SENIOR HIGH students will haul your trash — do odd jobs. Brian, 255-6727.

It All Comes Together at Soul Session



Irene Chavez (4154)

A SOUL SESSION is a now-it's-happening kind of thing with rock music, Happy Hour prices, and free admission for members (guests \$1). This month the date is Saturday, Sept. 23, from 8:30 to 12:30. Something called Magic Sam will be wired into the bandstand. (There must be someone, somewhere in a padded cell, who creates names for modern musicians.)

* * * *

SWIM SEASON at the Club's twin pools ends Sunday, Sept. 24, with a patio party—10-cent beer and Happy Hour bar available. It's your last chance to make a splash this year. By the way, if you want to qualify for the \$5 family swim season ticket for next summer, you should join the Club this month—only continuous members from the previous September qualify for the reduced rate. Otherwise, the family swim season ticket costs \$28.

* * * *

CASINO NIGHT scheduled Saturday, Sept. 30, will be a repeat of past spectaculars where the Club ballroom has been converted into a Las Vegas fantasyland and the big spenders (play money) roll a bundle. Elton Travis with his easy-on-the-ears western music will play for dancing until 1 a.m. Door prizes will include two tickets to Octoberfest, New Year's Eve, and Seafood dinner at the Club along with six bottles of champagne. Admission to the casino will be \$1 for members, \$2 for guests.

* * * *

A CRIBBAGE CONTEST, an earthshaking event about 5.4 on the Richter scale, is scheduled in the Club's patio area Sept. 23 and 24 to determine once and for all if Bill Weinbecker (7142) is truly the fleet champion. Registration will start at 11:30 a.m., play at 1 p.m. An entry fee of \$1 for either singles or doubles play will be charged to provide for prizes and refreshments. Officials will monitor the double elimination tournament. Please bring your own board.

* * * *

MAZATLAN tour group will meet at the Club on Tuesday, Sept. 26, at 7:30 p.m. for a briefing.

* * * *

TWO TALKS, three movies and free refreshments are scheduled at a Coronado Ski Club meeting in the Club ballroom at 7 p.m. on Sept. 21. Pete Stirbis (1542) will discuss ski bindings and Bea Jones will describe the new Telluride, Colo., ski area. Movies include, "Hot Dog on Skis," "Fall Conditioning" and "Ski Touring."

All ski club members who have paid their dues by meeting time will be eligible for the drawing, in which the winner gets free weekend (Lodging and lift tickets for two) at the Telluride ski area.

SCHOOL BEGINS WITH YOU DRIVING SAFELY

HAPPY HOUR tonight will see a group called Christopher, featuring a tall girl singer named Kris Ellis, on the bandstand. A veal cutlet buffet will be spread starting at 6 p.m., and Denny Gallegos will entertain in the main lounge. Next Friday, Sept. 22, Sol Chavez and the mighty Duke City Brass will make the happy music while Italian food is spread for the buffet. Frank Chewiwie and the group will play for dancing on Friday, Sept. 29. Seafood will be the buffet feature.

* * * *

LOBO FANS who hate traffic at the games can ride the Coronado Club bus to the stadium. The bus will leave the Club at 7 p.m. tomorrow and return afterwards. Tomorrow, the Lobos face New Mexico State. On Sept. 23, the Lobos will tackle Texas Tech, and, again, the bus will leave the Club at 7 p.m. The bus is free to members.

