

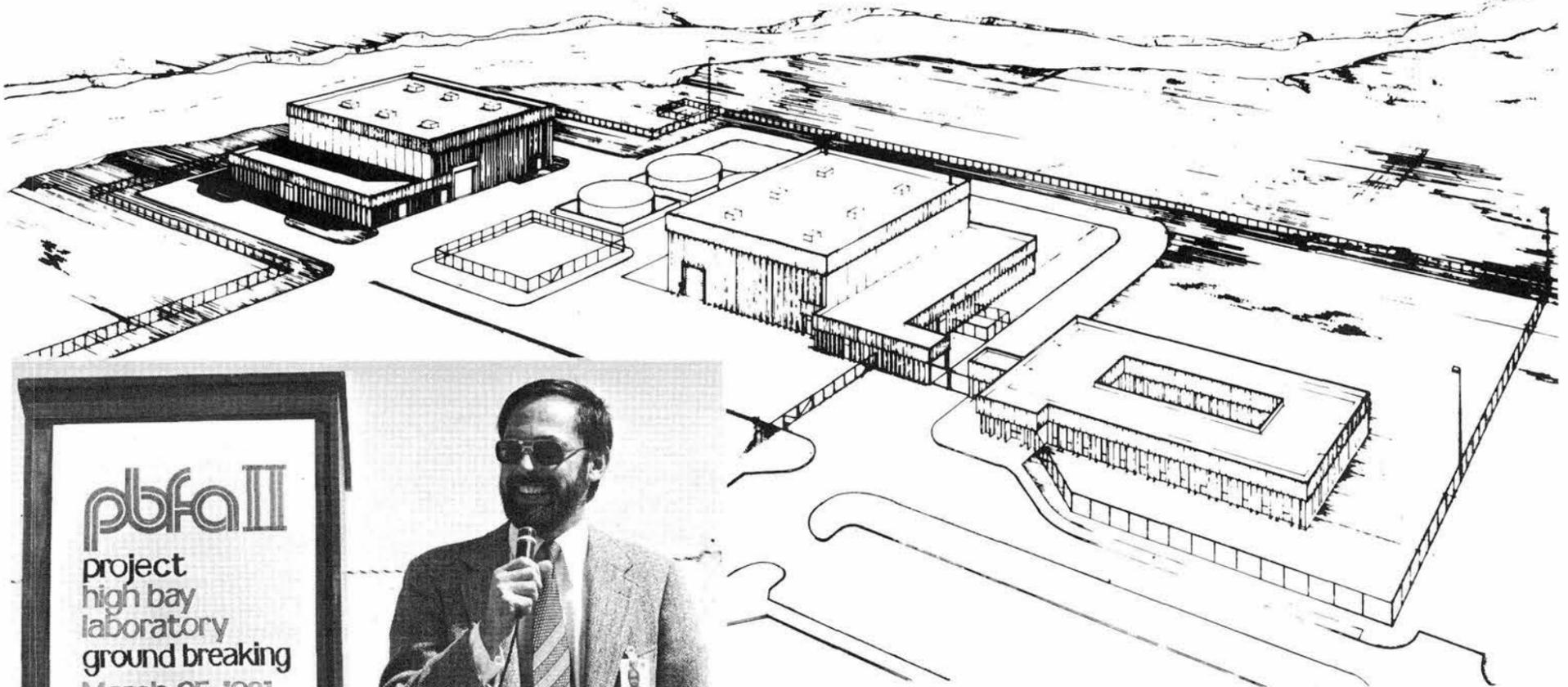


LAB NEWS

VOL. 33, NO. 7

APRIL 3, 1981

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



GERRY YONAS, Director of Pulsed Power Programs 4200, was master of ceremonies at the groundbreaking last week for a new high bay laboratory building for the PBFA-II project. Also participating were President Morgan Sparks, Don Schueler of ALO's Office of Projects and Energy Programs and Al Narath, VP-4000. The new lab is shown at upper left in drawing, located east of Bldg. 981, which houses the PBFA-I accelerator. At right is the PBFA program office building in Area IV.

\$2.86 Million Project

DPS Award To Pres. Sparks

At a banquet tomorrow night at the Classic Hotel, Sandia President Morgan Sparks will be honored by presentation of the New Mexico Distinguished Public Service Award.

His nomination, prepared by Herm Roser, Manager of DOE's Albuquerque Operations, reads in part: "Under his leadership, Sandia Laboratories has gained a reputation as a highly qualified research and development organization capable of tackling the most difficult technological problems and coming up with a sound solution within the most demanding time schedules . . .

"(He is) a humanitarian first, and a scientist second. He believes that science and technology must serve the interests of mankind, and that great progress in the solution of most of civilization's problems can be achieved through the proper combination of technology and sociology."

Purpose of the DPS award program is to recognize unusual contributions to public service and to the improvement of government. Two other Sandians, Ray Powell (VP-3000) and Dick Bice (retd.) have received the award in the past.

Ground Broken for New PBFA Lab

At a brief ceremony last week on the mesa east of the PBFA-I (Particle Beam Fusion Accelerator) facility in Area IV, ground was broken by President Morgan Sparks and other officials for construction of a PBFA-II laboratory.

The new building will be both a high bay and light lab structure similar to Bldg. 981 which houses PBFA-I.

First part of the \$2.68 million construction contract calls for building the shell and installing utilities. This should take about a year. In the second phase of construction, the interior will be com-

pleted to reflect ongoing PBFA-II development.

It was only four years ago that ground was broken for the PBFA-I building. This unique accelerator was first fired on June 28 last year and achieved its design goals in October.

For 40 nanoseconds, it fed 15 mega-amperes at two megavolts into 36 flow lines terminating at the center of the accelerator in electron beam diode loads, an input into the target area of one megajoule. For that incredibly short moment (in which light would travel only 40 feet), the power created by the machine was 30 terawatts (30,000,000,000,000) or several times the entire power generating capacity of the world.

"Essentially," says Gerry Yonas, Director of Pulsed Power Programs 4200, "the initial plan was to place a second accelerator with another 36 power flow lines on top of PBFA-I and connect the two into a single massive machine to be called PBFA-II. Theoretically, PBFA-II would produce 100 terawatts, four megavolts at 25 mega-amps in a 40-nanosecond pulse with an output of 3.5 megajoules at the target center. PBFA-I is providing the technology base for this upgrade. We're

[Continued on Page 3]

Savings Bond Drive Scheduled

The 1981 Sandia Labs Savings Bond campaign is scheduled for April 27-May 6. This year's Bond Committee is headed by Art Eiffert (2450) who has set a Labs-wide goal of 95% participation. Present enrollment is 89%. One of this year's goals is to increase the allotment of one out of every two employees already participating.

Afterthoughts

Making it--When I graduated from college a few (35) years ago, it was a common aspiration to someday make \$10,000 a year. With such a grand sum, you really would have arrived, maybe not in the big time but certainly in the almost-big time. Last weekend I completed my federal and state income tax returns and dolefully noted that, including social security, my contribution now comes to some \$10,000. It reminds me of the story, attributed to Abraham Lincoln, concerning the man being ridden out of town on a rail who declaims: "If it wasn't for the honor of the occasion, I'd just as soon have passed it up."

* * *

First names--There's a few holdouts, but calling nearly everyone by his or her first name is a well entrenched custom at Sandia. The alphabetic section of our phone book gives first names, yet most listings in the organization section do not, a minor inconvenience when you call a person and realize you've forgotten his or her first name (or never knew it). You can include your first name in the organization section, assuming the department secretary goes along, when she does the periodic updating of your department's section.

* * *

Good account--I've long thought our Credit Union was a super outfit, and when they offered us checking accounts that paid interest, well that made them even better. Now the banks are jumping on the checking-account-with-interest bandwagon, and the breathless tone of their commercials would have one believe they've just found the money machine and are passing this largess on to us from the wellspring of generosity. But there's an underlying flaw in their blandishments, which may be expressed in the form of a question: if today you can give me a checking account with interest and, presumably, still make money for yourself, then what about all those yesterdays when you took my money, charged for the privilege, and provided no interest? *js

Events Calendar

- April 3*—Benefit Art Auction at Winrock Inn (Crystal Room) for N.M. Ballet Company, 7 p.m.
- April 5*—Fine Arts Music Series: Master Chorale Concert, 4 p.m., First United Methodist Church.
- April 5*—Albuquerque Museum, "The Velveteen Rabbit," two free performances for children, 2 & 4 p.m., museum auditorium, 2000 Mountain Rd., NW.
- April 7*—Combined Concert: Youth Symphony and Orchestra, Junior Symphony and Orchestra, 7:30 p.m., Popejoy.
- April 10-11*—Spectacular VII: UNM Collegiate Singers, 8:15 p.m., Popejoy.

- April 12*—Maxwell Museum of Anthropology presents "The Excavation of Tijeras Pueblo," 3 p.m., UNM.
- April 12*—Bonnie Jo Hunt (Sioux Indian opera singer) in concert with Artists of Indian America, 4 p.m., First United Methodist Church, 4th & Lead SW, tickets \$5, reception following concert.
- April 15-June 28*—NM Watercolor Society exhibition, Albuquerque Museum.
- April 17-18*—NM Symphony Orchestra Concert, Cho-Liang Lin, violinist, 8:15 p.m., Popejoy.

Supervisory Appointments

GEORGE KUPPER to supervisor of Purchasing Division D 3715, effective March 16.

Since joining the Labs in September 1963 as a buyer in the purchasing organization, George has been a section supervisor in the accounts payable group, a job analyst with the compensation department, and a price and cost analyst in purchasing. For the past seven and a half years, George has been a buyer in Purchasing Department 3720.

He received his BS in industrial management from the University of North Dakota and his MBA from the University of Arizona. George is a colonel in the Marine Corps Reserve. He enjoys hunting, fishing and camping. He and his wife Karen have three daughters and live in NE Albuquerque.

* * *

JAMES KELSEY to supervisor of Drilling Technology Division I 4741, effective Feb. 1.

For several years after coming to Sandia in 1968, James was a member of the technical staff participating in exploratory development work in the aerodynamics department. In 1976 he joined a systems analysis group conducting utility and feasibility studies for advanced weapon systems. For the past year and a half he has been a project leader with the drilling group.

James earned a BS and MS in aerospace engineering from the University of Texas and, under Sandia's Education Aids Program, he received an MS and PhD in EE from UNM. He is a member of the Society of Petroleum Engineers and the Geothermal Resource Council.

James enjoys off-road motorcycle riding, carpentry, photography, camping and skiing. He and his wife Suzanne live in the SE heights.

LAB NEWS

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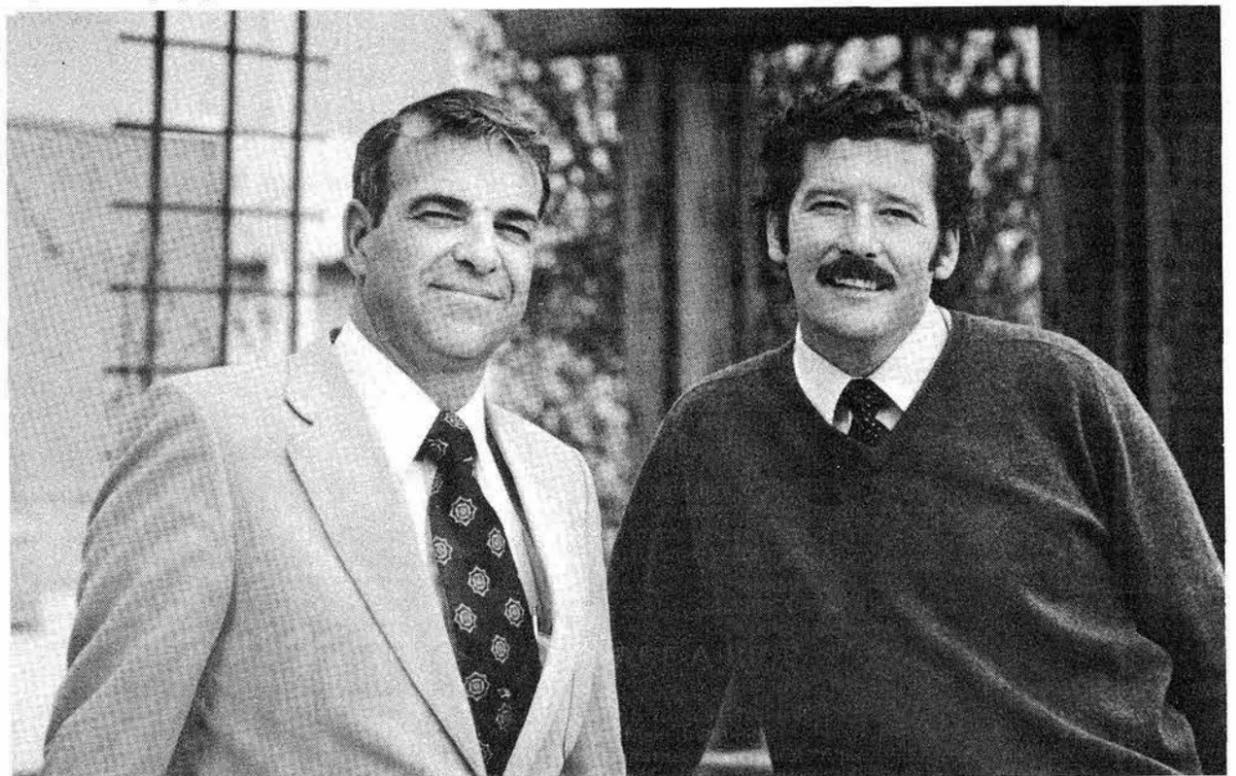
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GEORGE KUPPER (3715) and JIM KELSEY (4741).

New Ultrasonic Thermometer For Measure of Hot

An ultrasonic thermometer has been developed at Sandia that accurately measures very high temperatures by converting changes in the velocity of sound waves at points along a sensor wire into temperature readings.

The thermometer can measure temperatures up to 2845°C (5150°F) and can be used where conditions prevent use of conventional thermometry equipment—thermocouples and optical pyrometers, for example.

Acoustic waves have been used in temperature measurements for several years, but the Sandia device is the first used in high-temperature scientific investigations. (A system available commercially measures temperatures below 500°C.)

Success of the new thermometer is largely attributable to the thermal aging of selected materials to prevent the sensor wire from sticking to its protective sheath and to use of special electronics to permit accurate, repeatable calibration of the wire.

Under development for four years, the thermometer consists of a magnetostrictive iron-cobalt head welded to a thoriated tungsten wire whose tip contains small notches (acoustic reflectors) cut at regular intervals. A thin tungsten sheath protects the tip.

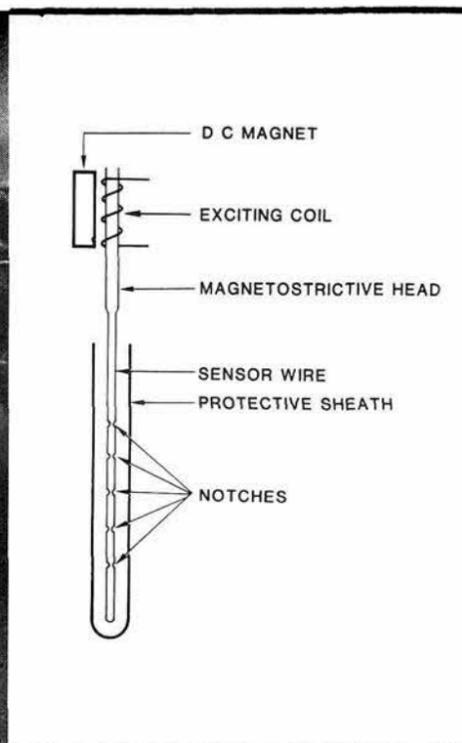
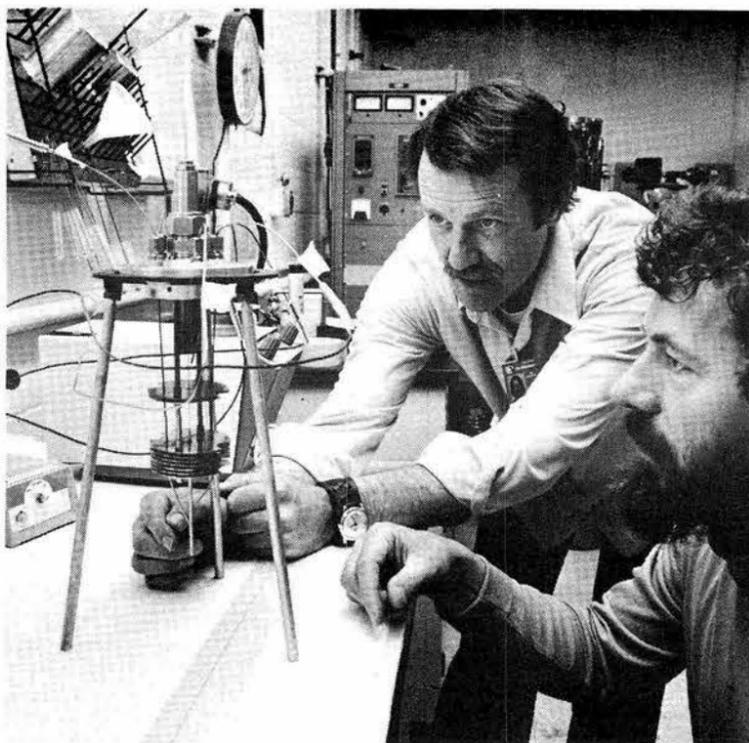
Microsecond-long pulses, generated 60 times a second by an electromagnetic exciting coil wrapped around the thermometer head, pinch the head, creating acoustic pulses that propagate through the wire. Each notch reflects a small part of each pulse back to the coil, where the reflected energy is amplified and sent to a signal processing console for conversion into temperature data.

Velocity of the reflected pulses is dependent on the wire's temperature, so the time for reflections to travel from adjacent notches can be translated, by means of a calibration curve, into the average temperature of the wire between two notches.

The system's signal processor detects time differences as short as two nanoseconds (two billionths of a second) over notch intervals as small as one centimeter, reducing temperature uncertainties to +1°C above 1000°C and to ±5°C below 600°C. High-temperature thermocouples typically have an accuracy of ±5°C in any temperature range.

"Because a wire has several notches, a real time temperature profile along that wire can be easily determined," says Tom Kerley of Reactor Containment Safety Studies Division 4422. "Also, 3-dimensional temperature profiles can be obtained by using a helical sensor wire." Equivalent detail from thermocouples would require use of many devices, and test results would be affected.

During a recent test series in the Labs' Annular Core Research Reactor (ACRR),



ULTRASONIC THERMOMETER—You can't see it but it's there, a length of what appears to be wire—note schematic of thermometer at right. Gary Carlson (2335, right), early developer of the device, and Tom Kerley (4422), who is using the thermometer in high temperature reactor safety studies, prepare laboratory experiment with device.

the new thermometer helped provide information about the behavior of stainless steel in a stainless steel/uranium dioxide (UO₂) debris bed. Such a debris bed would form at the bottom of a reactor containment vessel after a severe core disruptive accident.

Three high-temperature ultrasonic thermometers, each with five notches spaced at 1-cm intervals along a 20-mil diameter sensor wire, were suspended in a test vessel filled with UO₂ and stainless steel particles and placed in the ACRR test chamber for fission heating. Steel melted at 1400°C, but the temperature of the mixture reached 2150°C for about 40 minutes before being allowed to cool.

"Information provided at the many thermometer data points gave the clearest picture yet of the stainless steel's movement through a simulated debris bed," Kerley reports. "Basically, the molten steel migrated down the thermal gradient (moved from the areas of highest temperature to those of lowest temperature) in the bed and then froze in a donut-shaped mass when heating ceased."

Earlier tests, all conducted outside research reactors, indicated that the steel would agglomerate in random locations throughout the bed. "This new information will play a vital role in determining if beds of reactor debris can be cooled following a reactor accident," Kerley says.

Future tests instrumented with the thermometers will investigate debris bed coolability on a larger scale and the interaction of debris with other reactor structural materials. The temperature of materials in these tests will reach almost 3000°C. The lengths and diameters of the thermometers and the distance between notches will vary, depending upon the needs of the tests.

Sandia's reactor safety studies are supported by the U.S. Nuclear Regulatory Commission.



Police received an alarm signal indicating a robbery was under way at the Mercantile and Industrial Bank. When a policeman telephoned the bank to check, one of five bandits inside answered and calmly said it was a false alarm. They got away with \$3,700.

—Human Nature

Continued from Page One

PBFA-II Lab Groundbreaking

now considering locating PBFA-II in the new lab building, and the possibility of keeping PBFA-I operating while the new machine is being built."

Concurrently with accelerator development, Sandia is investigating experimental fuel pellets for the eventual production of fusion power. Smaller than a child's marble, the fuel pellets of deuterium and tritium (D, T) are imploded by the PBFA beams. This action fuses the D-T atoms to produce inertially contained micro-explosions and thermonuclear ignition. Once laboratory breakeven of fusion power is demonstrated, i.e., when power output equals or is greater than power input, commercial production of fusion power would be a next but distant prospect.

At the groundbreaking ceremony, Gerry called PBFA-II "the next step" in the fusion power program. Sandia's pulsed power people are looking at 1986 as the year they hope to achieve laboratory breakeven.

Don Schueler of ALO's Office of Projects and Energy Programs and Al Narath, VP-4000, also participated in the ground breaking.

Death

Bill Otero, who headed Reclamation Division 3418 when he went on sick leave a year ago, died March 21. He was 58.

He had worked at the Labs 32 years, most of them in Shipping and Receiving Division.

Survivors include his widow, a daughter and a son.



Labs Bit Can Reduce Drilling Costs

Field tests indicate that a synthetic diamond-tipped bit designed by Sandia for drilling roof bolt holes could reduce drilling costs substantially in some coal mines.

Although the new bit is more expensive, it drills faster and lasts much longer than conventional tungsten carbide bits. In coal mines where the roof consists of rock such as sandstone or shale, this bit would reduce total production costs, particularly when reduced labor costs resulting from faster drilling and reduced frequency of bit changes are considered. The new bit may also be useful for rock drilling in gold, potash, and uranium mining.

The new bit consists of a .02-inch-thick synthetic polycrystalline diamond cutter (GE Stratapax) mounted on a .313-inch-thick tungsten carbide tip which is brazed to a steel alloy body. It costs about \$200. In comparison, a conventional tungsten carbide bit costs \$6 but will only drill from two to 60 feet of hole, depending on the type of rock.

For one of the first field tests, a diamond bit was tested to destruction, drilling 135 holes—a total of 607 feet—before the steel body failed. The diamond cutter, however, was still usable.

During the same test, tungsten carbide bits averaged about 4½ feet of drilling in the mine before sharpening was required. (A tungsten carbide bit can usually be sharpened two or three times.)

Subsequent field operations, which

tested a modified steel bit body, consistently show that diamond-tipped bits should last more than 25 times longer than conventional bits.

The field tests also show that the new bit design can operate at penetration rates up to 50 percent faster than conventional bits tested in the same mine.

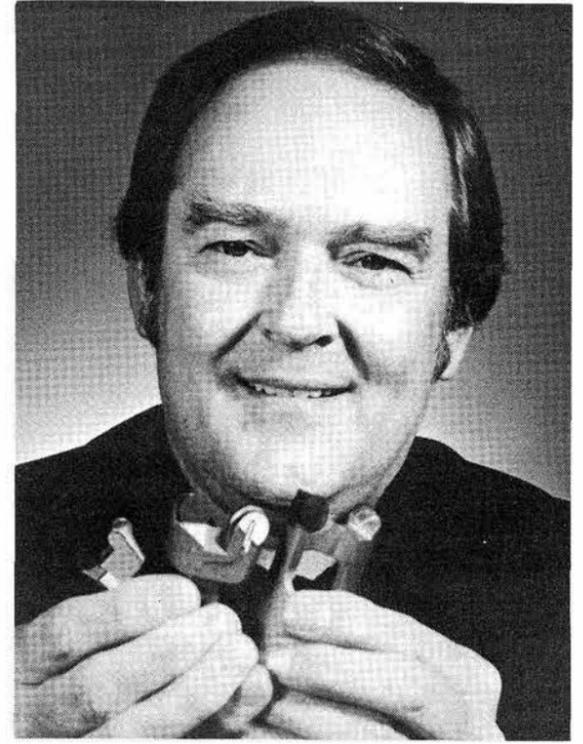
“An analysis prepared for Sandia by TRW (McLean, Va.) concludes that the new diamond cutter bit is economically feasible, even at the present cost, in those applications where abrasive drilling conditions cause conventional tungsten carbide bits to be discarded after drilling up to 20 feet,” says Joe Tillerson, supervisor of Drilling Research Division 4751.

“Commercial production of these extended life bits should lower total costs to the point where the new technology bit will be competitive with conventional bits that drill up to 60 feet,” he adds.

Roof bolts are typically inserted every four feet in tunnels and mined areas to increase roof stability. Varying in length from one to several feet, the 1-3/8” diameter bolts are inserted in holes made by special drilling equipment and anchored in place with an expanding nut.

Some 180 million bolt holes, requiring use of about 20 million bits, are drilled annually.

Laboratory tests are now being conducted on the new bit to determine optimum drilling parameters—thrust, torque, RPM—and design specifications,



DIAMONDS are a driller's best friend, so says Carl Longfellow of Drilling Research Division 4751. He's holding synthetic diamond-tipped bits designed here for use in drilling roof and bolt holes in coal mines. Field tests show significantly longer life and better performance for the new bits.

such as cutter angle and bit body shape. Based on the results of these tests, a re-designed bit is being developed. Bits of different sizes are being laboratory and field tested as well.

The bits under test were prepared at Sandia, with machining of the bit bodies done in the 1481-5 section of the Shops and attachment of the PCD cutters performed in Development Labs 1473.

LAB NEWS Survey

Readers Tell Us Like It Is

Every so often we survey a sample of the Labs population to get some notion of how LAB NEWS is doing, and we're always impressed with the candor and, ah, incisiveness of the views expressed. We think we put out a pretty good paper and, in fact, the survey substantiates that view; nonetheless, our readers' admiration is not unalloyed. Here are a few of their comments and our rebuttal . . . when we could think of one.

Runners, bikers, health crusaders receive too much press! As a confirmed sinner and anti-crusader, the constant harassment is irritating . . .

Livermore does not get enough space. 'Afterthoughts' are boring. I never read them. It's an ego trip for the author.

Drafting gets no recognition at all.

You don't give enough coverage to intramural sports, particularly softball.

These are comments directed at editorial judgment—how we put the paper together. Since we always have more copy material than we have space, it follows that anything and everything in the paper is there to the exclusion of other material. Our editorial aim is to make each issue a mixed bag, wherein every reader finds something of interest. It would be nice if every reader found *everything* of interest, but that happy circumstance is unlikely in the real world.

As for softball news and other un-

reported activities: we've noted that the quantity of this type of grousing is usually in inverse proportion to the level of the communication effort—if you don't tell us what's going on, chances are it won't appear in LAB NEWS.

I'd like to see a once-a-year listing of mountain cabins, ski area condos, and the like for rent by Sandia owners.

Good idea—we'll see what we can come up with.

I take it home, throw it away the next day. My wife never reads it.

My wife really chews me out if I forget to bring it home.

One of these wives is very perceptive.

I'd like to know how some of the retirees are doing.

So would we, but we can't seem to get much from them (and we've tried).

I love the old time pictures.

We like them, too.

Put the cheesecake back—let 'em complain.

I miss the good-looking girls on the back page.

Sorry . . . how about an aerial view of the Tech Area?

Very difficult to grade—some issues are great, others fair.

Like we said, the paper is a mixed bag.

Would like to see LAB NEWS be a forum for the urgent controversies of our day, such as tactical use of nuclear weapons, affirmative action, etc.

Controversy is not the stuff of house organs, which is why it's been said that reading a house organ is like going down for the third time in warm maple syrup. Compared to other company papers, LAB NEWS has wide latitude; stop by our office sometime and glance through our collection of papers from other companies—we're pretty sprightly by comparison. There's no doubt that controversial subjects are an editor's dream, but we have some problem with the propriety of Sandia LAB NEWS coming out strongly for something like, for example, WIPP.

Best newspaper I've seen for an organization the size of Sandia . . .

Just not that good overall for what we as taxpayers pay for this paper . . .

This is why surveys are sometimes called “inconclusive.”

Article on hotel fires was good and well timed.

Sometimes we luck out.

When I see something like the editorial about cussing, I don't subject my family to this! This type of editorial is uncalled for!

Don't let the NEWS run out of the fun you insert now and then . . . good serious tech stuff is OK and needed but so are good laughs!

Good publication—would guess staff enjoys publishing it—why change?

To all our readers who participated in the survey: thanks. Your views have been noted.



THE SMILE of completion, or near-completion, shows as Al Chernoff (ALO), Bob Neel (4717) and Kent Campbell (ALO) examine plans for the two nearly completed group homes (in background) sponsored by the Albuquerque Association for Retarded Citizens. The three are on ARC's building committee. The homes are located just east of the Armory on Copper Ave. NE, near the golf course, and will shortly be occupied by clients of the ARC.

Take Note

If the space shuttle Columbia takes off next month, and if the flight goes well, and if it isn't able to land at its primary landing site (Edwards AFB, Calif.), then it will land at our own White Sands Missile Range. And if you want to see the thing, then you possibly can because the Army is going to run a public viewing program for one or two weekends after the landing. The landing strip is 45 miles north of WSMR headquarters and you don't drive to it—the Army plans to bus the tourists, and the only other vehicles allowed are charter buses. You need tickets. They're free, first come, first served: send a stamped self-addressed envelope asking for no more than six tickets to Space Shuttle Tickets, Public Affairs Office, White Sands Missile Range, White Sands, NM, 83002. The round trip will take about three and a half hours.

* * *

Stop smoking! You can . . . and Sandia Medical will help. Clinical psychologist Arlene Price is again offering Medical's Stop Smoking Clinic and the classes start April 13. They'll run Mondays and Wednesdays from noon to 1 p.m. until May 6. Location is the Bldg. 832 conference room. Enrollment is limited—call Arlene on 6-0021 to sign up.

* * *

A TV show entitled "That's Incredible" will run a clip of Sandia's power tower on April 6. We are informed that the power tower's knack for melting through thick steel plates qualified it for show biz. Who knows . . . Hollywood may want to do another King Kong and the tower would be a nifty successor to the Empire State Building.

* * *

"Recreational Programs for Sandians" is the title of Medical's Go For Health program for April. It's scheduled Tuesday, April 14, 12 to 12:30 p.m. in Bldg. 815

(outside). The C-Club recreation director, Tom Lenz, is the speaker, and he will describe the multitude of recreation programs available to all Sandians (not just C-Club members). Tom will also cover the military facilities available to Sandians and will touch on what you do to start a new recreational activity.

* * *

It's been five years since the last one: Family Day '81 is now slated for Saturday, Oct. 17, and a committee is already planning events and displays. If this is all new to you, Family Day is when the Tech Areas are opened for visits by families and friends of employees, giving you the opportunity to show off your place of work. LAB NEWS will carry update items on Family Day '81 as plans are developed. For more information, call Joe Laval (3163), 4-6531, coordinator.

* * *

Henry Romero and Ivan Alderete of Automated Processes Division 1483 completed machinist apprentice training March 1. Both completed the five-year program six months early.

* * *

Moved lately? Need to change your voter registration? Yolanda Armijo, secretary in Benefits Division 3543, can take care of it for you. She also handles lost and found items and can notarize documents. Stop by Bldg. 814.

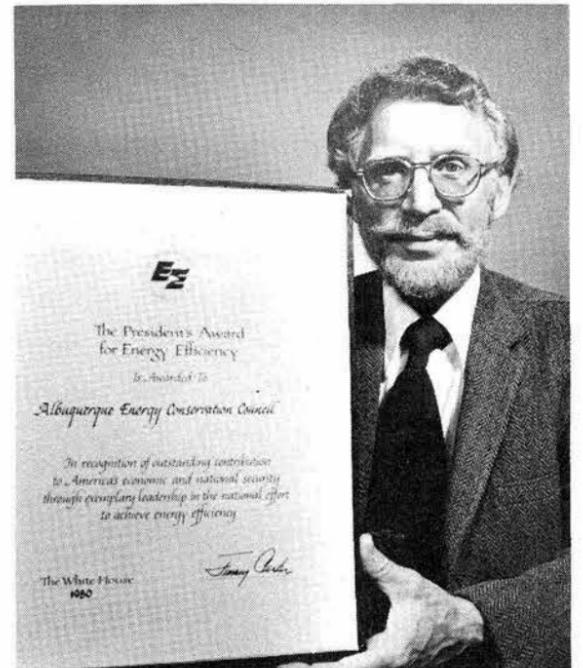
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Vern Henning, retirement counselor in Benefits Division 3543, passes this advice along to employees planning retirement—join the KAFB Officers Club (Sandians earning \$17K or more are eligible) now. Club regulations do not permit retirees to join, but Sandians who are C-Club their membership during retirement. Dues are \$11 a month.

Sandia Groups Get United Way Award

United Way of Albuquerque has awarded its Silver Award to the Sandia organizations listed below. The Silver Award is presented to an organization of 20 or more employees (if lower than department level) that has 75% or more of its personnel participating at the Fair Share level.

Management Staff 400
 Reliability Analysis Department 1220
 Quality Assurance-Engineering & Evaluation Department 1410
 Quality Assurance Systems Evaluation Department 1420
 Track and Cables Division 1535
 Power Conditioning Subsystems Department 2160
 Directorate of Weapons Electrical Subsystems 2300
 Electromechanical Subsystems Department 2320
 Digital Electronic Subsystems Department 2330
 Exploratory Radar Development Division 2345
 Information Department 3160
 Budget & Financial Planning Department 3240
 Weapon Development Department II 4330
 Waste Management Technology Department 4510



MARVIN MOSS (5824) missed the White House ceremony but he did receive the award, namely the President's Award for Energy Efficiency. Marvin is the long-time chairman of the Albuquerque Energy Conservation Council, and he and the Council have done such a good job that their work was formally recognized by the White House. There really was a White House ceremony for award recipients, but notice of it went astray in the mail and Marvin missed President Carter's presentation.

There's a new head man at KAFB's Air Force Weapons Lab. He's Col. Bob Francis, former base commander at Patrick AFB in Florida. He succeeds Bill Lehmann who is retiring from government service. Col. Francis, a command pilot with 9000 hours, was graduated from the Naval Academy and gained a master's from Harvard.

Fun & Games

Bowling—SBA's final tournament of the season will be a four-game no tap event at Fiesta Lanes, April 11 and 12. Contact Lou Sanchez (Sandia) on 4-4281 or Bob Henderson (DOE) on 6-2107 for entry forms.

* * *

Skiing—The Coronado Ski Club elected officers for the 81/82 season, and all campaigned on the promise of profoundly deep snow by Thanksgiving. President is Milo Navratil (1584), VP Lynn Grace (DOE), Secretary Sadie Hesselden (1540), Treasurer Pat Cox (3734), Membership Chairman Wes Pfarner (1261), Equipment Bob Neel (4717), Trips Sharon Mackel (4550) and Area Rep Walt Westman (retd.).

One skier found snow and a little gold last week. Bob Lassiter (1768) took first place in the Purgatory Standard Race, beating out number two by a slim fifteen/one-hundredths of a second over a giant slalom course. The gold? a season pass for next year.

* * *

Biking—A Sandia biker was injured while biking home recently, fortunately not too seriously. Apparently, his quick release on the front wheel was loose, he hit a bump, the wheel dropped out of the fork, the bike stopped abruptly, he went sailing over the handlebars and suffered lacerations on his lips and ear. He wasn't wearing a helmet, now thinks one would have helped. Moral: check your wheels from time to time with a good tug to make sure they're firmly secured.

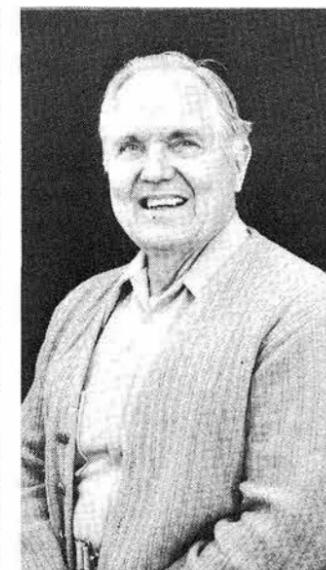
Other bike notes: a Western European manufacturer is turning out what is claimed to be the world's first composite rim, a 50% glass fiber-reinforced grade of Maranyl (a species of nylon). "Stringent field tests have failed to damage or buckle the wheel . . .," so says the release. Meanwhile, at Sandia, we've received an indignant note from a cyclist who ". . . walked out of the building in time to see some turkey hosing down my bike with weed killer . . . nobody knows what that stuff does to rubber, aluminum or paint, and it's probably carcinogenic to boot." So don't park near the petunias. Finally, our military contact reports that the Air Police plan a crackdown on bikers running stop signs and doing other foolish things. To which we say amen. A few citations will clear the air nicely.

* * *

Running—LAB NEWS now has NMTAC's schedule of running events through June, and you can get a copy at our trailer next to Bldg. 814. Coming up April 5—the Albuquerque Child Care Center's 5-miler (we have entry forms); April 11, Diet Pepsi 10k; and April 18—Sun Run 7K. If you have entry forms for these or other events, send LAB NEWS a copy so that we can make the form available to other Sandia runners.



RETIRING—back row, Ralph Campbell (3154), Joe Maldonado (3613), Christine Baca (1549), Luis Sandoval (3418). In front, Florence Brewster (2431) and Kay Duvall (2456). Below, Allen Beck (5611).



RETIRING — Jim Holpp (2425), Richard Candlin (1482) and Leon Day (3425).

Slimnastics—A new exercise class for women starts April 7 at the Base gym, running Tuesdays and Thursdays from 9 to 10 a.m. An existing class runs from 5 to 6 p.m. at the Que Pasa Rec Center on Tuesdays and Thursdays. Contacts: 299-6505 or 844-5420.

* * *

Fitness Day—Mark May 1, a Friday, on your calendar as the Labs' first annual Fitness Day, with a walk/jog/run, a speaker on health, music and other events, all staged on the Parade Ground from 12 to 1 (yes, you can take an extra half-hour if you participate). More on this later.

Sympathy

To Rudy Lewis (1471) on the death of his father-in-law in Albuquerque, March 18.

To Joe Madrid (1485) on the death of his brother-in-law in Albuquerque, March 26.

To Mark Montavon (1172) on the death of his sister in Otway, Ohio, March 6.

To Addison Cockrill (1172) on the death of his mother in Boston, March 17.

To Lucille (3152) and Roy Smith (2632) on the death of her brother in Dona Anna, March 13.

To Betty Mathis (4041) on the death of her mother in Amarillo, March 16.

To Ed Sims (3432) on the death of his daughter in Denver, March 29.

Congratulations

To Dave (1253) and Nina Baldwin, a daughter, Kerry Margaret, March 13.

To Chuck (2336) and Linda Borgman, a son, Timothy Ryan, March 10.

To Jim (2629) and Sandy Raines, a son, Kevin Scott, March 10.



Army war games in central Finland nearly ended in disaster when a hunting party opened fire on the troops, it was reported here. Parachute troops ambushed the hunters and shot at them with blanks, believing them to be "enemy forces." But the astonished hunters returned the fire with live ammunition. However, the misunderstanding was soon cleared up, and no one was hurt.

—Agence France-Presse

Bob Ferguson: Not Quite The Usual 25-Yearer

Bob Ferguson (3155) had promised us a demonstration of his new TDD, or Telecommunications Device for the Deaf, so we dropped in on him recently. The device is a teletypewriter with a telephone hookup. It's necessary for the person on the other end to have one, too. Then both can type messages to each other—the words appearing simultaneously on both units' LEDs.

"There are about 60 of these devices in Albuquerque," says Bob. "It's possible to call long distance—including outside the U.S.—provided the person at the other end also has a TDD. It enables a deaf person to overcome his or her isolation—I can now make my own dentist appointments or other business calls. I can even call my wife to ask her if she wants me to pick up anything on my way home—simple, everyday things for most people but which have always presented major problems for the deaf."

Bob has a terminal at home so that he can communicate with his wife, who is also deaf, or his children who are all hearing. But what if a deaf person wants to call someone who doesn't have a TDD? Then there's an interpreting service in town that will dial a number for a deaf caller and communicate between him or her and the hearing person.

"The TDD was invented in 1964 by two deaf radio hams in California," Bob points out. "They got together with a dentist and a PhD in physics and marketed the device in 1965. Not only does the TDD help the deaf person to be more independent, it also makes it much easier for the hearing to communicate with deaf people."

Bob celebrated his 25th anniversary with Sandia on Dec. 28 and, looking back on his years with the Labs, he shared a few thoughts with us:

"Since I was born deaf, I can't comprehend the concept of sound, although I'm aware of it through vibrations. My parents wanted me to talk and learn lip reading along with the basic three R's. In the Denver public schools deaf and hearing-impaired children were integrated with hearing children by the sixth grade. In high school there were no Special Ed teachers, so I was pretty much on my own.

"All the credit for my ability to communicate belongs to those people—my parents, teachers, and friends. It's remarkable how much time they were willing to devote to helping and teaching me. In junior high my teachers encouraged me to teach other kids to swim. That way I had to communicate with them. I benefited from giving—I helped them to learn to swim in order to help myself with my speech.

"Previously, I depended on my parents to tell other people my messages. One day in a candy store I asked my father to tell the clerk what I wanted. He refused and told me to tell the clerk myself. I was scared but I got the candy I wanted. It was the beginning of my self-confidence with people."

Bob went on to attend the Rochester Institute of Technology and Santa Barbara School of Photography. He was a com-



BOB FERGUSON (3155) making a phone call with his Teletypewriter Device for the Deaf (TDD).

mercial/industrial photographer in Denver and a lifeguard and swimming instructor at the YMCA.

"When I applied for a job at Sandia, I showed my photos," continued Bob. "Although my first supervisor was impressed with them, I couldn't be a photographer because of medical restrictions. It was hard for me to swallow, but I decided to make the best of it. I take satisfaction knowing that I do my work well and accomplish my task, first as a still photo lab printer and now in motion picture processing as an SAT.

"Attitude and self-rehabilitation is a lifetime project because if I make no effort to improve it affects my ability to function. My real responsibility is to make communication easier for the non-deaf person. I remember one of my teacher telling me not to speak with a 'lazy tongue'—since I can't hear the words being pronounced it would be easy for me to make less of an effort when speaking. On the other hand, in lip reading, a dead-pan face makes it harder for me because expression is a big part of understanding—even whole

body movements. It's also tough to lip read a man with a shaggy mustache and beard.

"All in all, conditions have improved for the handicapped. People now are more aware of our problems, and Sandia has always accepted a person for what he or she is able to do," Bob concludes.

Jim Hayes, head of Technical Art and Photo Services Division 3155, says "Bob's deafness has not affected his assigned job at Sandia. He has a good, solid background in ground in photography and relates well to his colleagues. Bob developed a system of sensors that enabled him to read the chemical balance of any tank at any time, eliminating time-consuming analytical measurement to check them out individually."

Ken Smith, Director of 3100, following his usual practice of visiting with recipients of 25- and 30-year awards, comments: "Bob enjoys excellent relations with his fellow workers and has performed very well for Sandia. By any measure, he's a very good example of the important contribution an employee can make, whatever his or her personal situation."

feed *li*back

Q. I'm curious about the limited option for selection of 30-year service awards. If you don't want [or need] a watch or clock, you are permitted to select items totaling \$150 in Nambe ware in lieu of the watch or clock.

Why can't an employee have the option of selecting something useful and worthwhile—such as, in my case, golf woods?

A. The service award program currently includes a selection which is representative of such programs and which is considered of universal appeal. The award is intended to be a memento of service with the Laboratories and not a personal gift.

The range of items is reviewed from time to time and changes or additions made as deemed appropriate.

Q. I've attended five lectures in Bldg. 815 [theater] this month at noon, and in three of the lectures people were sitting in the center aisle. Isn't this a safety hazard?

A. This is indeed a violation of fire safety codes and, in the event of a panic, could result in injuries.

The capacity of Bldg. 815 is limited to the number of fixed theater seats.

It is unlawful to move sofas or chairs into the theater, or to stand or sit in the aisles or egress routes. The person in charge of the presentation is responsible for closing the doors when the theater capacity is reached and should prohibit further entrants. A program should not be started if the lawful occupant load is exceeded. Persons reserving the theater will be advised.

All persons are asked to cooperate in this safety-related matter.

Livermore Labs' New TM Package Saves Money, Offers Flexibility

Integrated into the development of any weapon program is the planning for the Joint Flight Test Program—a quality assurance activity that selects a weapon at random from stockpile, pulls the unit into DOE's Pantex facility at Amarillo, replaces the nuclear segment of the weapon with a non-nuclear substitute containing a telemetry (TM) package and ballast, and returns the modified weapon to its military operation group where it is fired or dropped under simulated combat conditions.

The substitute assembly very nearly matches the size and weight of the nuclear portion of the weapon. Its job is to measure the internal functions of the weapon, monitor performance data and transmit this data throughout the weapon trajectory.

Not many units of the TM package are fabricated but, as in the case of all weapon components, reliability is the foremost consideration. As a result, through the years the TM package has become a very expensive item—about \$80,000 each for the W79, for instance.

Now in the final stages of development testing are new TM packages for the B83 and W84 utilizing new technology that promises to cut costs by more than half—production units are projected to cost \$30,000.

At the heart of the new system is a microprocessor and two custom large-scale integrated (LSI) circuits, the first to be used in a TM package for the Joint Flight Test Program. The tiny (about one-fourth-inch-square) chips, each containing thousands of active devices and associated circuits, are fabricated in Bob Gregory's Microelectronics Technology Department 2140.

The new TM package uses six data acquisition system (DAS) chips which provide a total of 144 channels for data handling—nearly twice more than conventional TM systems.

These telemetry packages monitor sensor readings and performance of weapon components, convert analog signals to digital form, compile and sort data and direct transmission of data to ground station receivers. In four milliseconds, a data frame of 128 eight-bit data words is processed and transmitted. The microprocessor is capable of being programmed to select varying data rates and formats in flight, and to monitor changing sequences of data, depending on preprogrammed decision logic. This provides additional flexibility to the entire system.

The first prototype flight test unit was dropped in a B83 at Tonopah Test Range in late October last year.

"It performed very, very well," says Bob Tockey, supervisor of Joint Test Instrumentation Systems Division 8461, where development of the TM package is centered.

"We've not only reduced unit costs," Bob says, "we've provided a system with

greater capacity and capabilities. The microprocessor TM offers other advantages as well—a given system design may be adapted to other applications by changing software with minimal hardware changes. Due to the modular partitioning of functions into a few standard, compatible components (the microprocessor, memory, custom LSI chips, etc.), new system designs can now be generated with confidence, covering a broad spectrum of capability. The modularity and packaging technology are strong contributors to the inherent environmental hardness, low cost, and short reaction time to new requirements. Development costs of future systems cannot be calculated, but they will be significantly reduced by adapting our new system."

Art Kellom and Dave Bray (both 8461) originated and implemented the concept for the new TM system and led development team activities. Chuck Gwyn's Integrated Circuit Design Department 2110 contributed to the project, as did Ray Sheppard's Model Labs Division 8424.

Take Note

Tom Cook (8000) has been elected to membership in the National Academy of Engineering. He is one of 63 Americans and 12 foreign associates to receive the honor this year. Election to the Academy is the highest professional distinction that can be conferred on an engineer. Cook was recognized for his outstanding contributions to the understanding of nuclear weapons effects and to the design of weapons to penetrate nuclear defenses. The Academy was formed in 1964 to share in the responsibility given the National Academy of Sciences under its congressional charter to examine questions of science and technology at the request of the government.

Congratulations

To Charles (8460) and Mrs. Tapp, a son, David Charles, Feb. 1.

To Pat (8451) and Mrs. Eicker, a son, Peter James, Dec. 26.

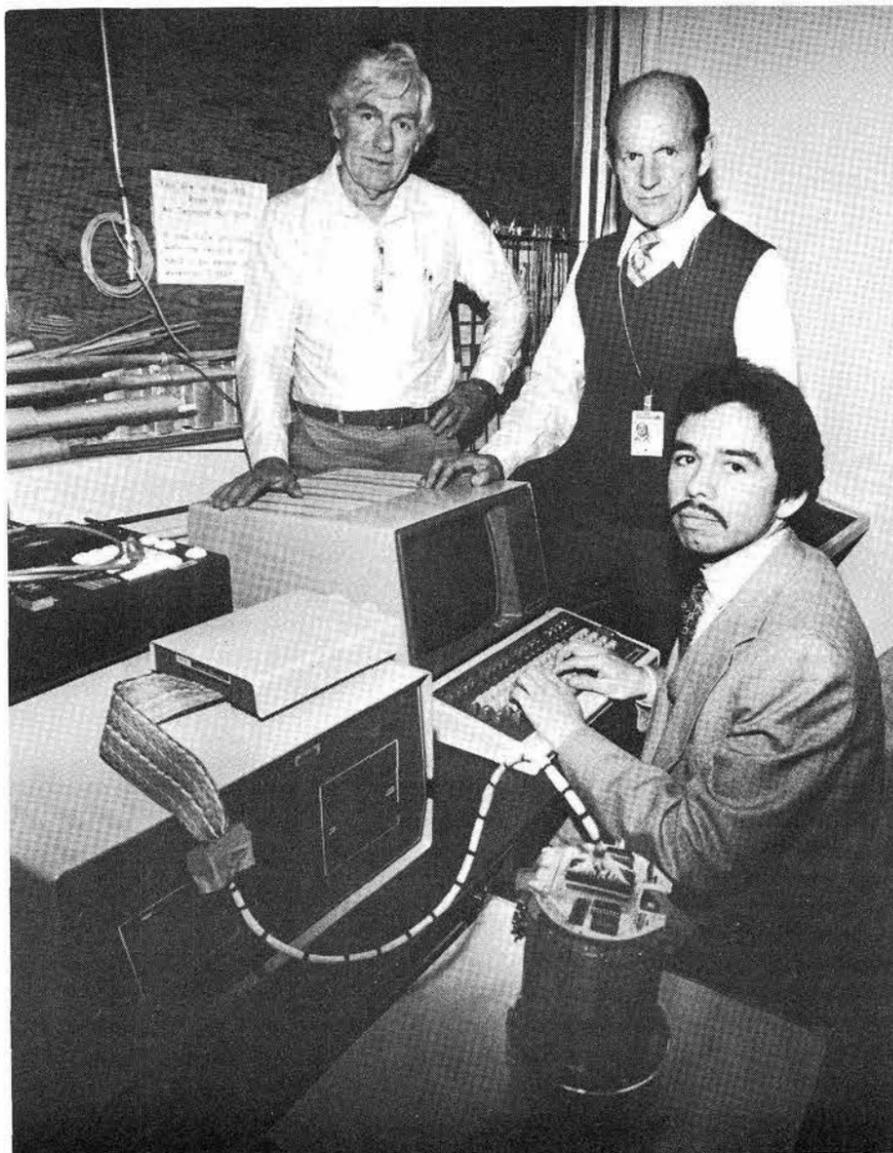
Karen Pashman (8443) and Fred Greulich (8316), married in Livermore, Feb. 28.

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TESTING of newly-developed microprocessor TM package for the B83 (in foreground) continues in Bob Tockey's Joint Test Instrumentation Systems Division 8461. Art Kellom, Dave Bray and Tony Lucero (at test computer console) have automated testing procedures to reduce fabrication and production costs of the TM package.

Country Music—From Bluegrass to Country Blues

Weekdays, Jon Pallitto works in Sandia Livermore's general stores (8262). But on weekends, don't be surprised to find him performing at a Bay Area event. He and partner Linda Cohen (LLNL) duo on country music, mostly country blues style.

Jon's interest in music began while in the service in 1964, when he bought himself a \$12 guitar, and his buddy taught him a few chords. He's since taught himself the dobro (a steel, lap-held guitar) and the mandolin.

Over the years, Jon has played with the locally well-known "Black Hill Ramblers" group and, about eight years ago, he originated Livermore's Annual Spring Folk Concert. The event provided folk, country and bluegrass performers in the area a chance to appear on stage, with proceeds donated to local charities and service organizations.

The Ramblers group, now known as the "Third Generation" and in which Don Clarin (8152) plays banjo, still participates in the yearly folk benefit. Other Sandians involved are sound engineer John War-mouth (8262) and recording engineer Curt Cofield (8463) who tapes the concert live.

Jon considers bluegrass, with its roots in Appalachia, a species different from the traditional black blues. "It's the music of poor whites who came from the south and rural areas, but played strictly non-amplified on stringed instruments including the guitar, banjo, dobro, mandolin, string bass and fiddle. Country western music, on the other hand, is amplified and more citified, with wailing electric guitars and string bass and often orchestral background."

Bill Monroe, the father of bluegrass, created the style in 1945. Sometimes called the homemade music of America, most of

it was played in rural areas where people had little money and little to do, so many just sat around and created and played their tunes. This music today has a big following and great popularity.

"But for our current Bay Area appearances," says Jon, "we play what has come to be called country blues—different from bluegrass in that it is a cross section of country and blues, using microphones but no amplification.

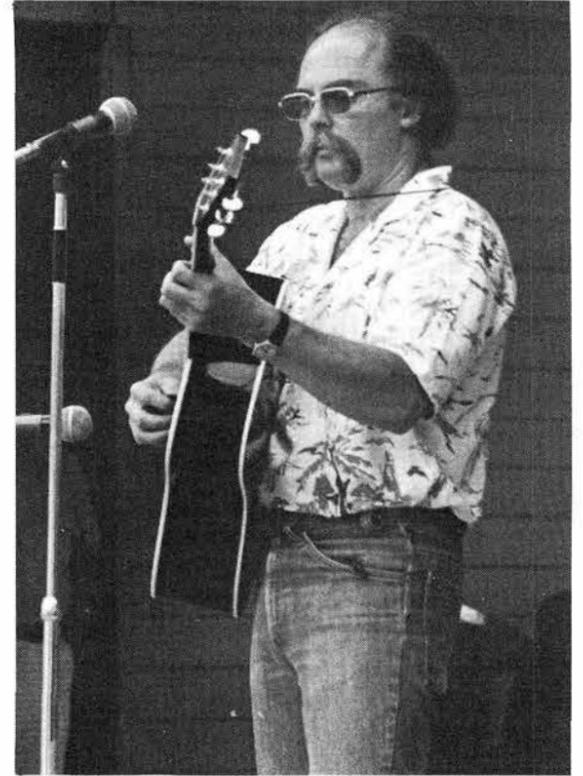
"We blue most of the music by doing our own arrangements. For example, the old gospel song, 'I Saw the Light,' is done both bluegrass and country, but we've gone to our new arrangement of guitar, mandolin and two vocals."

In addition to arranging, Jon also composes. But since he neither reads nor writes music, he and his partner tape a song the way he wants it to sound, then she writes the score from the tape.

Music has been an important part of Jon's life and, although he would like to become a full-time musician, he realizes how competitive the field is. He has several of his tapes out for review but doesn't plan any ventures to Nashville.

"I enjoy being on stage, but even more the relaxation of just playing the guitar and mentally drifting off. I've met many great people, recorded an album, appeared on a TV special, and saw my dream of the yearly folk concert, now in its eighth year, come true. The many thanks from various community organizations, the school district and recreation department are rewarding, too."

Jon will perform again at this year's Spring Folk Concert, scheduled for April 11 at Livermore High School for the benefit of the Senior Service Center.



JON PALLITTO (8262) on stage plays country blues.

Sympathy

To Morris Mote (8312) on the death of his mother in Denver, Jan. 15.

To Ralph Kelley (8411) on the death of his mother in Denver, Jan. 10.

To Len Bedinger (8254) on the death of his father in Sequim, Wash., Jan. 21.

To Sally Antochuk (8271) on the death of her mother in Martinez, Calif., Feb. 1.

To Jim Lathrop (8332) on the death of his stepmother in Los Angeles, Feb. 1.

To Vern Barr (8424) on the death of his brother in Red Bluff, Calif., Jan. 28.

To Tom Klimowicz (8312) on the death of his brother in Hazlet, N.J., Feb. 8.

To J. D. Porter (8461) on the death of his mother in Tuscaloosa, Ala., Feb. 7.

To Arlyn Blackwell (8200) on the death of his mother in Oakland, Feb. 27.

Retiring



Roy Tackett (8445)



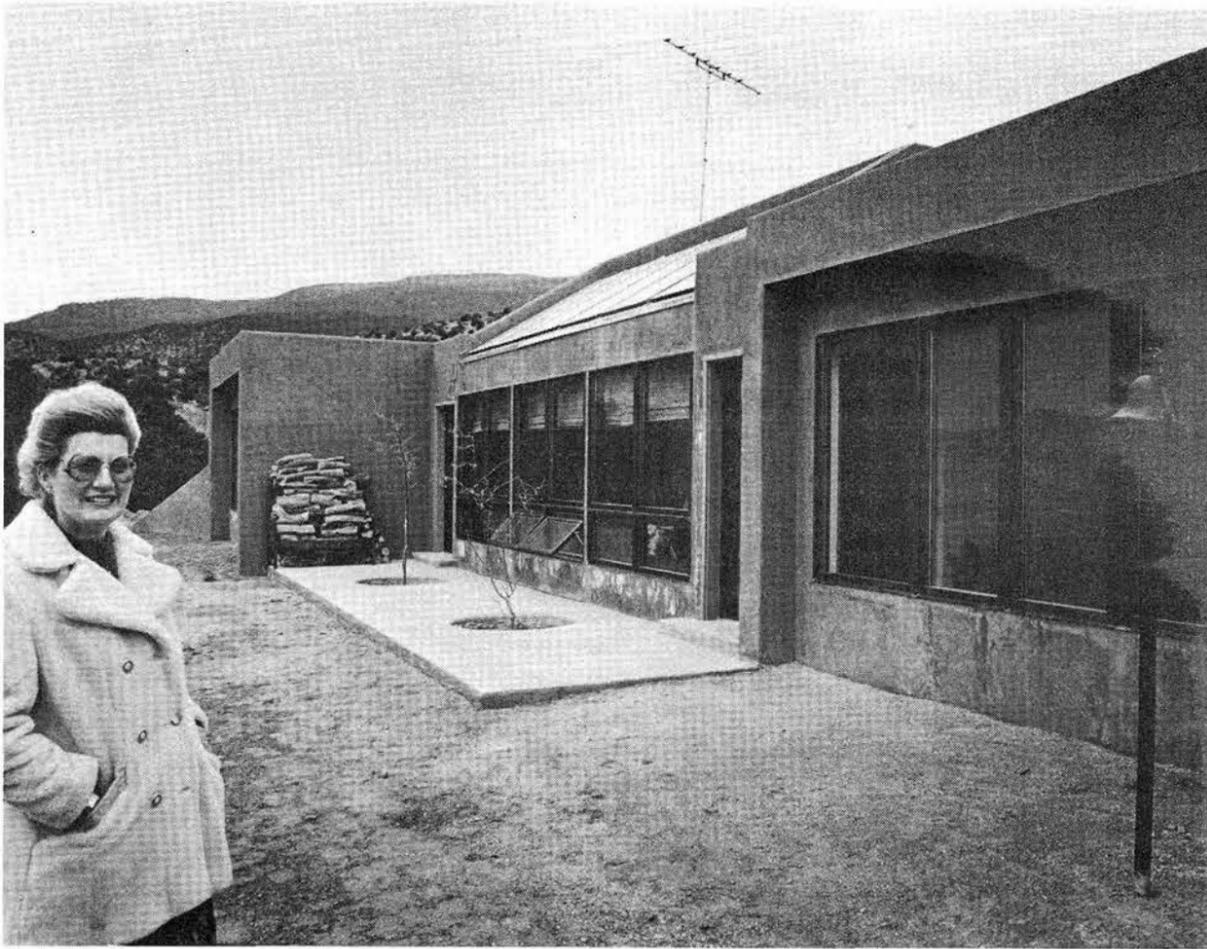
George Smith (8322)

NINTH DISTRICT Congressman Pete Stark, at left, is briefed by Arlyn Blackwell (8200) on operations at Sandia Livermore's Combustion Research Facility during a March visit. In back are the congressman's assistant Penny Deleray, Dan Hartley (8350) and Byron Murphey (8300).



RECEIVING A MEDAL of appreciation for his support of the Sandia Livermore Runners Team is Tom Cook (second from right, 8000). It was presented by team members John Martin (right, 8161) and Barry Bolden (at left, 8216) as Sandia president Morgan Sparks looks on. A master's relay team from SNLL placed in the annual Corporate Cup competition held earlier this year.





BOBBI VOELKER in front of her passive solar house in Tijeras.

Energy Saver

Sandian Goes Passive Solar in Tijeras

Believing in Frank Lloyd Wright's dictum that a house should be unobtrusive in its location, tech writer Bobbi Voelker (3151) achieved this inconspicuousness by blasting away the south face of a Tijeras hillside and tucking her home into the shelf. "It solved my landscaping problems," Bobbi says. "My front yard is tons and tons of rock cascading down the hillside.

"In designing my home, I modeled it after a passive solar house in Santa Fe built by Doug and Sara Balcomb. He's a Los Alamos scientist who's the primary proponent of passive solar housing in New Mexico. I used their 'wraparound' concept in a Southwestern style which blends in very well with the surroundings. It's a semicircle design with a two-story greenhouse at the center. The north side of the house is set into the mountain and the east and west sides bermed with dirt. It looks like a mushroom growing out of the hillside, or at night even a spaceship."

Bobbi tells us the house contains 1400 square feet, excluding the 400-square-foot greenhouse and garage. It's an "open" plan with the kitchen, dining area, and living room/den all together. Her home has seven skylights, making the use of artificial light unnecessary during the day.

"In the winter, the temperature inside the house ranges from a low of 63 to the mid-70s most days, with the greenhouse temperature fluctuating much more widely," says Bobbi. "If there are two or more cloudy days, my backup system—electric baseboard heating—takes over. In the last six months my utility bill has totaled only \$200—for an all-electric home.

"There's a lot of 'crank' work associated with a solar house—cranking windows open, closing doors—to move the warm air



GREENHOUSE INTERIOR with planting area. Note slumped rock trombe wall at right.

where it's needed most. The fact that it's set into the hillside and dirt is bermed against the two sides greatly improves the insulation, much like in a subterranean 'cave' house. However, I had to fence off the roof because during full moons the neighborhood dogs would romp all night on it. Anyway, the point is that passive solar homeowners get a lot more involved with their homes than most conventional homeowners."

Bobbi's house is entered in the American Institute of Architect's Homes for Better Living contest.

First Baby 'How-To' Aim of Parentcraft

Unfortunately for first-time parents, babies don't come with a set of instructions. That's where Parentcraft, Inc., steps in. Explains Tom Mehlhorn (4247): "We form a group consisting of a number of couples due at around the same time. The program is in four phases—the first starts three to four months into pregnancy and ends at delivery. Phase two is from birth to six months, the third from six months to a year, and phase four from one to two years. The program ends when the child reaches toddler stage.

"Parentcraft provides information in a relaxed, social atmosphere," explains Tom. "We don't subscribe to any particular theory of childraising. All children and all parents are unique. What works for some won't necessarily work for others."

Tom and his wife Noelle are "facilitators"—roughly, group leaders. "Each group has two couples experienced in childraising to provide information without doctrine," says Tom. "We present a balanced view of the options available and let them choose what's best for them."

Tom and Noelle got involved with Parentcraft "through the back door." Their own child was already a toddler when Noelle heard about the program while attending a workshop at UNM. Last year, Nancy Weaver, Albuquerque program coordinator, asked Noelle and Tom to be facilitators. They agreed, took a training session, and are now guiding the tenth such group in Albuquerque.

"We have a pretty cohesive group of over 20 people," Tom tells us. "Some of the babies have come along—there were half a dozen at the last meeting. Their parents describe the births to the others."

Keith Matzen (4247) offers some thoughts on Parentcraft: "My wife's a medical student, and we joined at the urging of one of the doctors she works with. We got some very useful information before and since our baby's birth. Parentcraft might not be the thing for people who are uncomfortable in group discussions, but it is a social support group—friendships form and there's a common bond when the children are born."

Lyle (4325) and Betsy Schultz are facilitators for another group. Says Lyle: "Our own children are grown, but since Betsy is a schoolteacher, she's interested in parent-child relationships. Our group's off to a good start. There're no babies yet—the first ones are due in June. Right now we're talking about the father's role in parenting and where to buy baby things."

Nancy Weaver tells us Parentcraft is a spinoff of MELD (Minnesota Early Learning Design). "Albuquerque's is the program's first offshoot outside Minnesota," she says. "New Albuquerque sessions are set for April 14 for women expecting after July and April 21 for couples expecting between September and November."

The groups meet every other Monday for two hours. Tuition for the two-year program is \$40 which covers book cost. For more information, call Nancy Weaver at 345-1752 or Judy Hendren at 274-8109.

Flora, Fauna, Evolution & Sailing Make A Nice Package

[Ed. Note: Have you taken an unusual vacation? Tell us about it. Call 4-1053.]

The Galapagos Islands, where Darwin's historic observations of plants and animals preceded his publication of *Origin of Species*, straddle the equator some 600 miles off the coast of Ecuador. The cold Humboldt current washes the island shores, and the sea water temperature is well below the equatorial average. With little rainfall, the vegetation is desert-like and chiefly cactus. Beaches of white sand and rugged gray lava cliffs form the arid landscape. In the island uplands, what little rain there is supports farmlands and tropical growth.

Mina (5633) and Don (2328) Carnicom and Zelma Beisinger (5521) spent two weeks in February on a chartered sailboat cruising among these islands.

After several days on mainland Ecuador, the party flew to the Galapagos, landing on Baltra Island where they boarded the *Tigress*, a 57-foot, two-masted schooner carrying a crew of three and six passengers. The other passengers included Bill and Mildren Tryon, also from Albuquerque, and Alice Yarish, a reporter for the San Francisco *Examiner*.

"Being on the equator," Mina explains, "meant we had 12 hours of daylight and dark each day. We hiked along the nature trails and snorkled among the sea lions and fur seals each day. We dined royally—fresh fish and lobster with cheese, soup, bread, eggs, fresh fruit and vegetables, all from the Islands. We drank a grapefruit-flavored powder mixture and lukewarm beer because there was no refrigeration. Temperatures ranged from 70° to 90°F, with some cloudiness and a little rain."

The name of the islands comes from the Spanish *galapago* (a tortoise), and giant forms of the tortoise have evolved here. They are the oldest living animals on earth, ranging up to 300 to 400 years.

Mina describes the wildlife: "We watched these tortoises grazing among the cattle on Santa Cruz Island and at Darwin Station. Frigate birds, swallow-tailed gulls, oyster catchers, and red-, blue- and olive-footed boobies all nested along the trails. Mockingbirds flocked around us to eat the insects we disturbed. We watched various Darwin finches and land iguanas dine on cactus blossoms, and marine iguanas and 'Sally Lightfoot' crabs dine on sea plants. And we saw frigate birds steal food the other birds were bringing back to their nestlings.

"We swam among the clouds of brightly-colored reef fish and over mustard-colored manta rays, sea urchins, and white-tipped reef sharks (even the little ones look big when they swim toward you). We also saw an occasional sea turtle.

"Other colorful birds and lizards are common. The landscape is a mix—forests of giant prickly pear cacti, pale palo santo plants, stark and barren lava flows,

delightful lagoons, sandy beaches, lush farmlands, mangrove swamps, and dormant volcanic craters. Flamingos dredged the bottom of shallow lagoons for food, stomping away at the mud to loosen crustaceans. Trees bearing avocados, papayas and bananas are common in the higher, wetter regions of Santa Cruz Island. Our guide frequently stopped during a tour to gather the ripened fruit. Fragrant coffee bean bushes line the road as well as the flowering Flamboyant trees."

Life on board the sailboat was elemental. The only fresh water on board was used for drinking and dish rinsing. Bathing and laundry were done in the sea. With little on-board power, candles and flashlights served after dark. Bunks extended from the hull below deck in a communal array.

"The absence of fear in the native animal life is intriguing," Mina notes. "Everywhere we went, the birds and animals were abundant, sometimes curious—like the sea lion who climbed into our beached dingy—sometimes disinterested in all the visitors. Dolphins played in our bow



GALAPAGOS GIANT TORTOISE—In the days of whalers and buccaneers, these creatures were nearly exterminated. Because of their ability to live for months without food, they were carried away on the sailing ships as a fresh meat supply. A protected species today, the giant tortoise may live 300-400 years. Some have a shell size of four feet and weigh up to 600 pounds.



HOME FOR SANDIANS on a two-week cruise of the Galapagos Islands was the schooner *Tigress*. Because no trade winds blow along the equator, the boat was motor-driven most of the time; sails were raised to add speed for longer runs between islands.

waves and the sea lions are astonishingly tame. It was a super vacation!"

Logistics—Many travel agents offer a package tour of the Galapagos. "We arranged our boat charter through a travel agent in Sausalito, Calif.," Mina says, "deciding on the *Tigress* because we liked her description." The party flew to Quito, Ecuador ("a beautiful city in the mountains which I'd like to visit again"), and left the mainland from Guayaquil ("a coastal city on the equator, which I have no desire to revisit"). Total cost was \$2200 each, with half of that covering the air fare.



ARIZONA OR MEXICO?—No, it's Playas Island of the Galapagos chain in the Pacific Ocean. Zelma Beisinger (left) and Don and Mina Carnicom rest amid the giant prickly pear cacti.

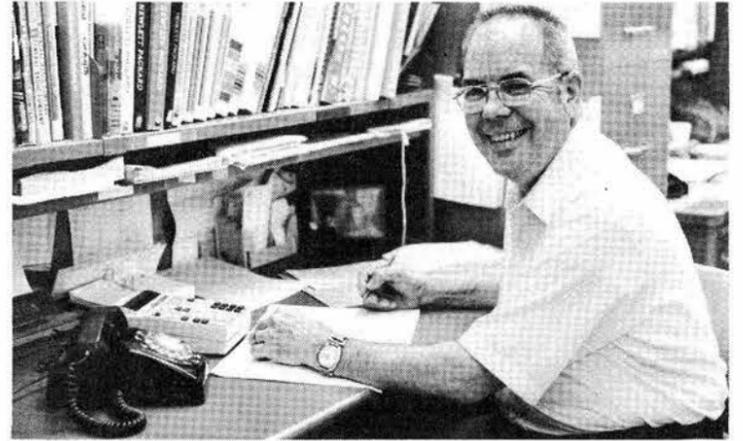
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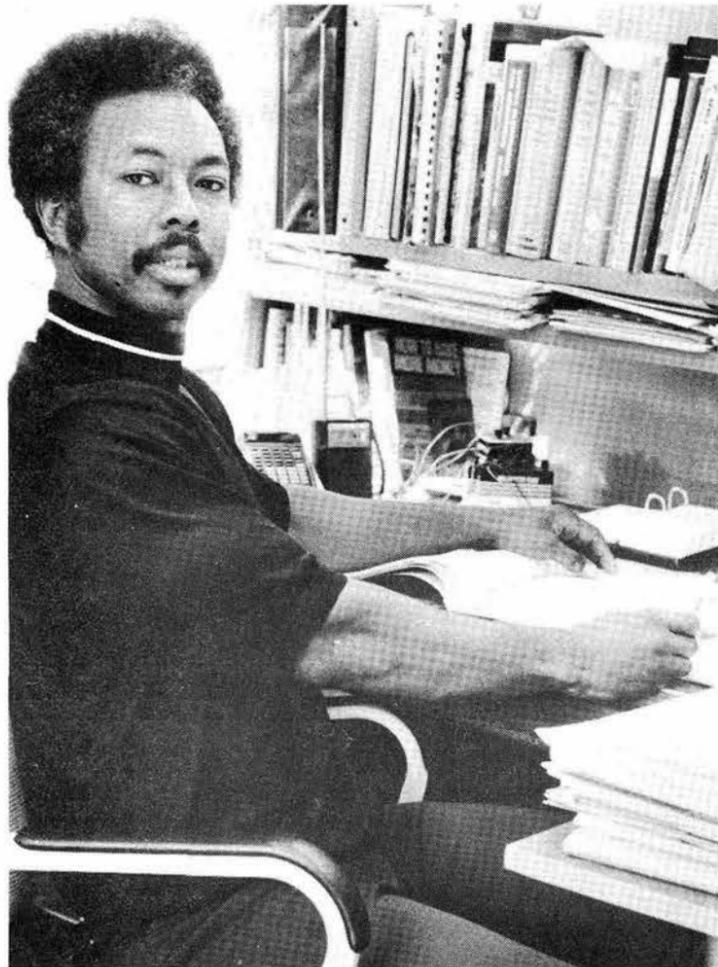
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Pat Newman - 3144 10



Rudolph Stefoin - 3425 30



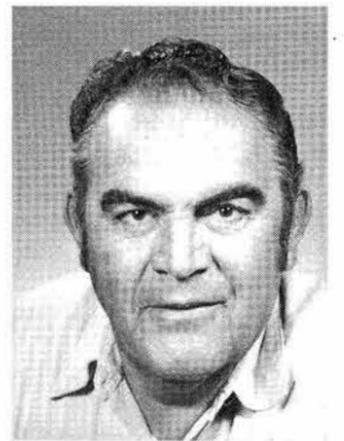
Dallas Allen - 1263 15



John Cronin - 1473 15



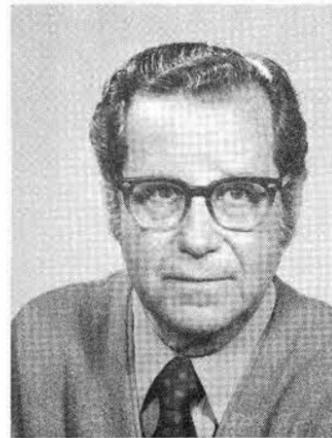
Richard Lynch - 4530 15



Esquipula Navarez - 3618 15



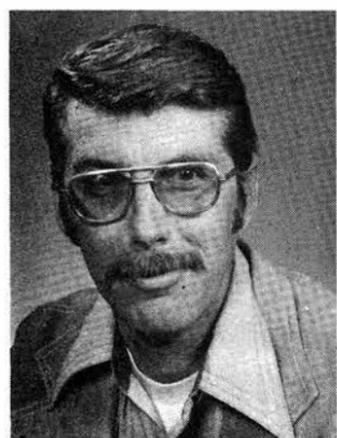
Harry Rouckus - 2454 25



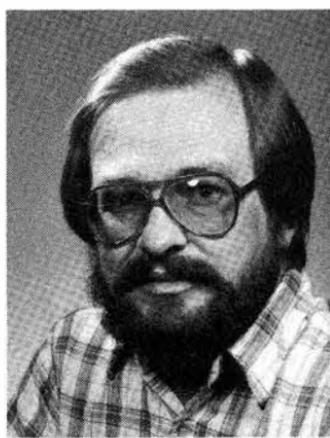
Billy Hickerson - 4372 35



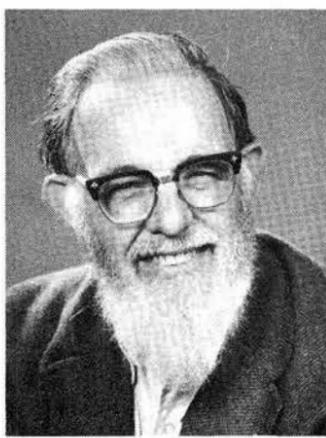
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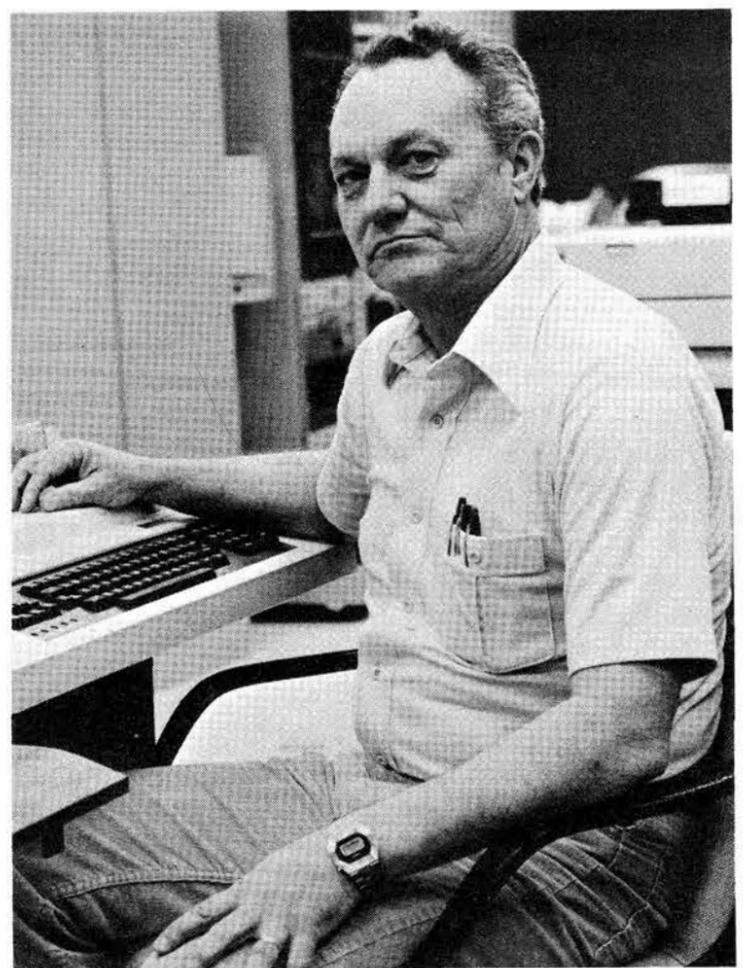
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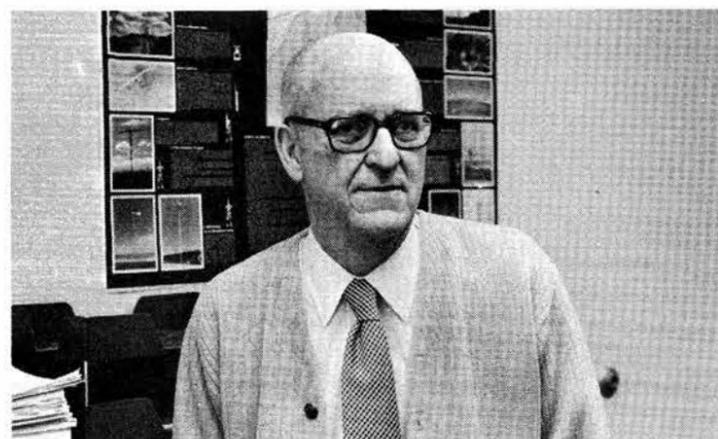
Arthur Sena - 2533 15



Paul Miller - 3155 20



Melvin Fimple - 1723 20



Bill Boyes - 1221 35



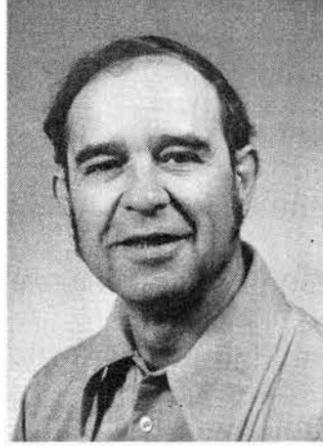
Viola Barela - 3431 30



Jack Martinell - 8322 25



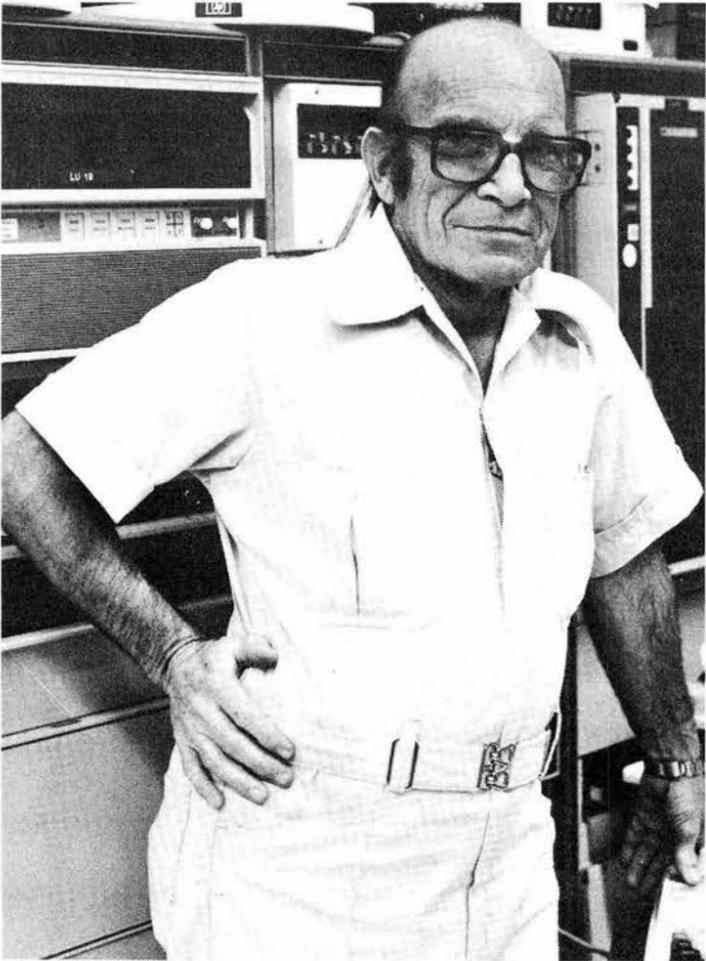
Mickey Banfield - 8273 15



Amarante Carabajal - 4251 30



Betty Gray - 3531 15



Howard Davis - 1543 30



Paul Stickler - 1733 30



Bob Humphrey - 8411 15



Richard Heckman - 2151 20



Bill Foy - 1556 30



John Benson - 1414 25



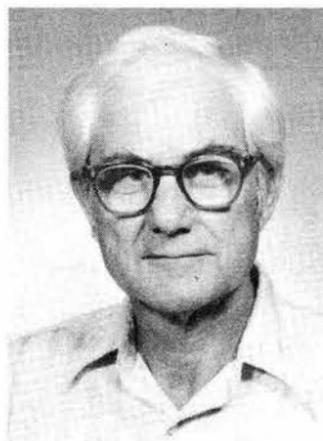
Don Harrison - 3411 30



Milt Jones - 8168 30



Willard Clark - 2160 30



Mel Oberst - 1247 25



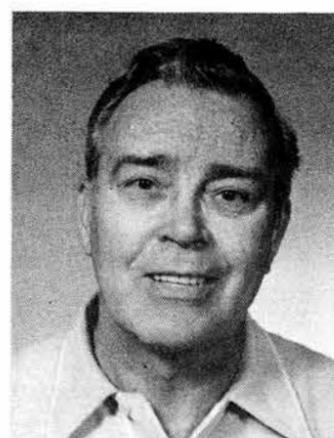
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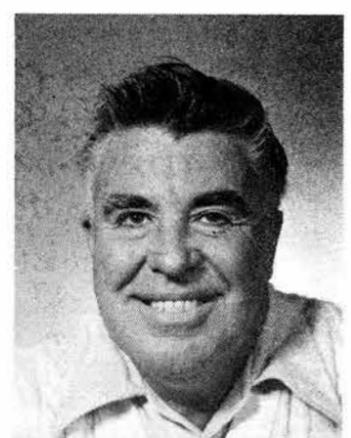
John Wichelns - 2611 30



Foster Tennant - 1471 15



Harry Cherb - 3615 30



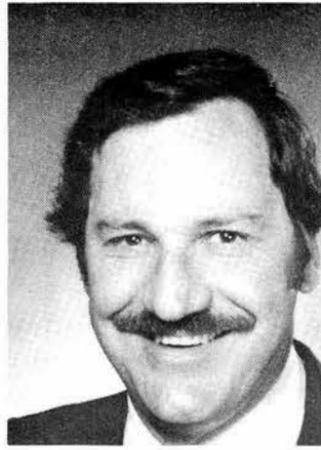
Dean Yearout - 2162 30



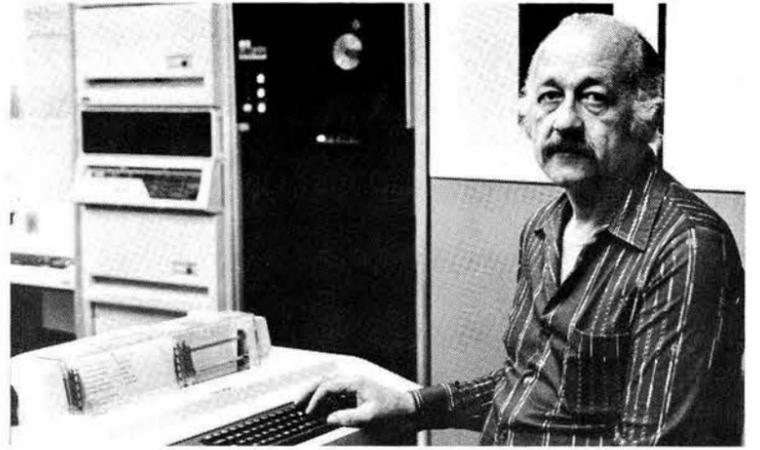
Phil Rogers - 1112 25



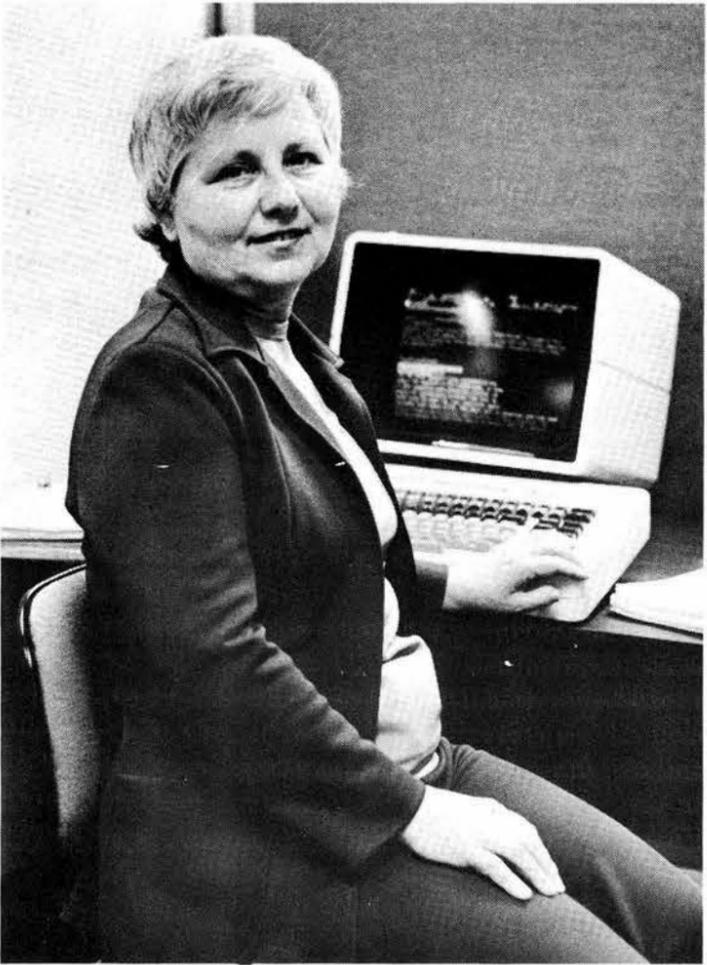
Everet Beckner - 4500 20



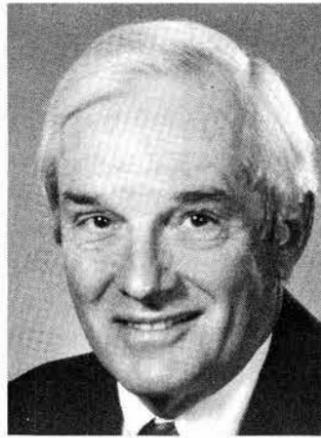
Gerry Hockrein - 5622 15



Jim Malloch - 2454 20



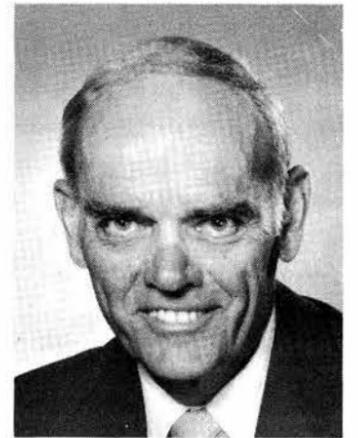
Lucille Smith - 3152 25



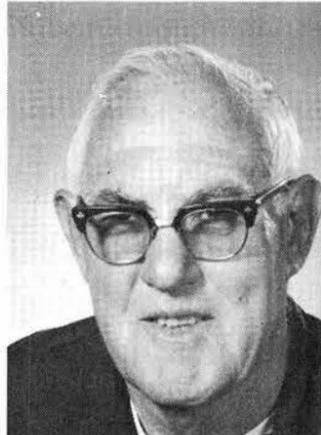
Dick Classen - 5800 30



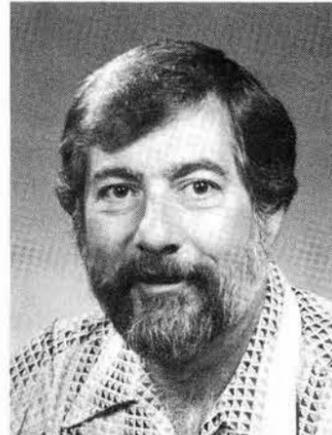
Harry Saxton - 2520 10



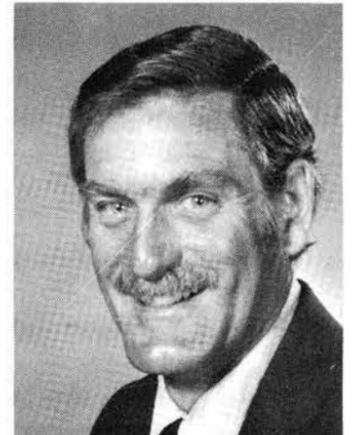
John Ford - 2327 30



Frank Sanchez - 1471 30



Tom Cleveland - 1483 20



Herb Filusch - 1242 25



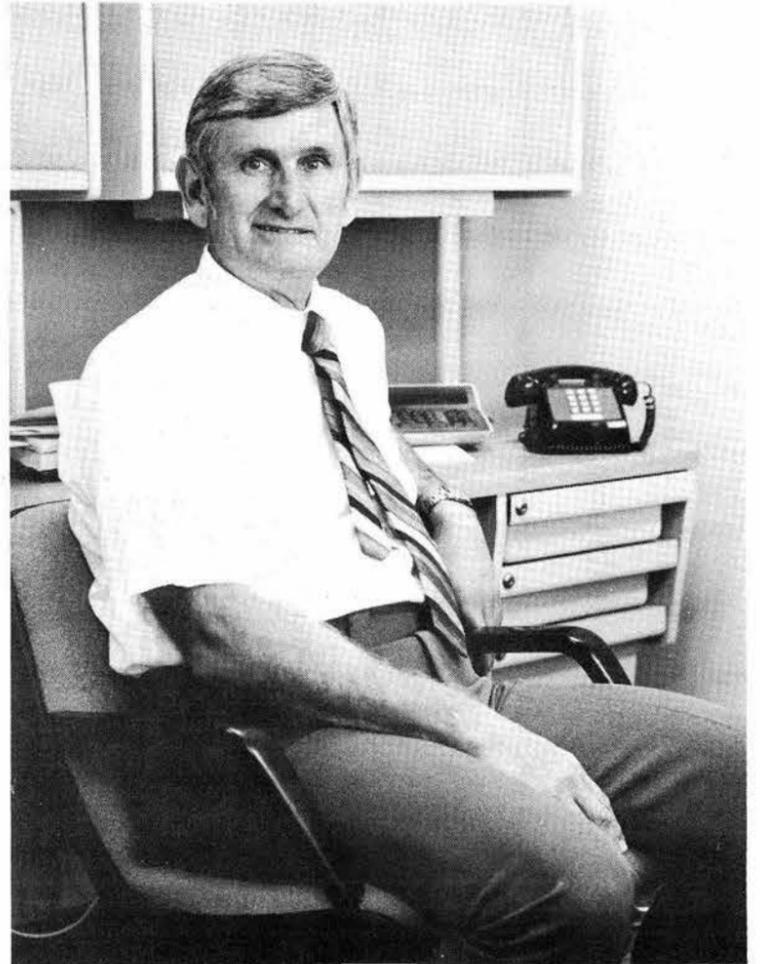
Al Esea - 8274 25



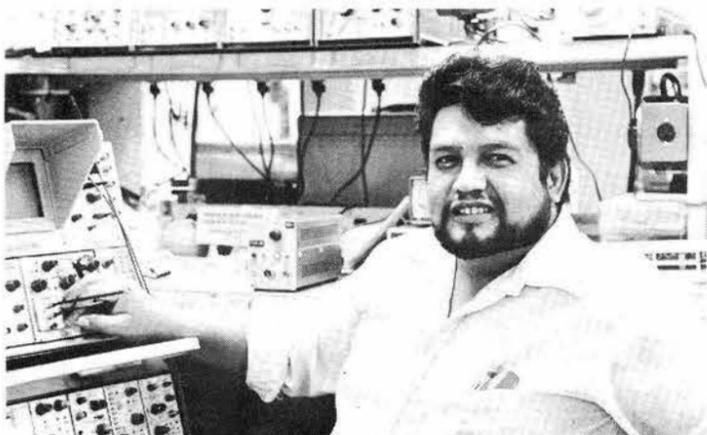
Allen Dale - 2436 30



Francis Thatcher - 3618 15



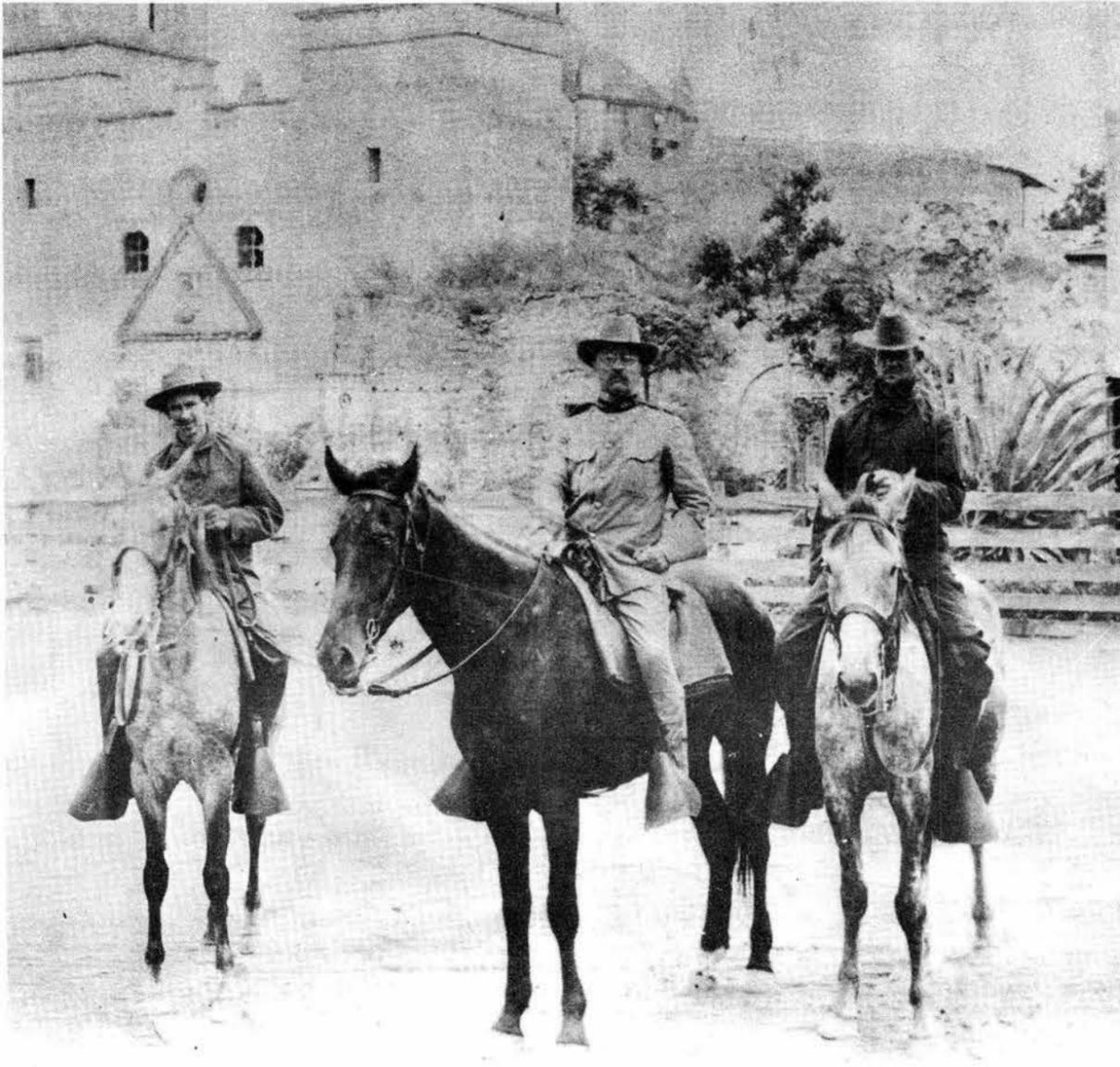
John Hart - 3711 30



David Cordova - 3425 15



Harold Brint - 8272 30



My Favorite Old Photo

[Have you an old photo that tells a story? Tell us about it—4-1053.]

TEDDY ROOSEVELT trained the Rough Riders near San Antonio in 1898. That's the Mission La Purisma Concepcion de Acuna in the background. My maternal grandfather, Joseph Proctor, right, served with the United States Cavalry, Troop D, First Regiment Volunteers, from May 18 to Oct. 8, 1898, the extent of the Spanish American War. He enlisted from Guthrie, Oklahoma Indian Territory. After the war, he served as a U.S. Marshal in Omaha, then joined WE, retiring in the 1930s in Chicago. (George Horne—2613)

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. Mail to: Div. 3162 (M0125).

RULES

1. Limit 20 words.
2. One ad per issue per category.
3. Submit in writing. No phone-ins.
4. Use home telephone numbers.
5. For active and retired Sandians and DOE employees.
6. No commercial ads, please.
7. No more than two insertions of same ad.
8. Include name & organization.
9. Housing listed here for rent or sale is available for occupancy without regard to race, creed, color, or national origin.

MISCELLANEOUS

SANDIA LABS caps, \$5; T-shirts, \$6; windbreakers, \$15; Tech Area color aerial views, \$5 & \$15. S. Hwy. 14 Village Project. LAB NEWS (next to Bldg. 814).

FOUR F78-14 deluxe Champion belted tires, less than 200 miles w/full wheel covers for a Ford, \$120. Craven, 298-0978.

SKI BOOTS, Munari Pacesetters, size 9 1/2 men's, worn once, half price at \$90. Caffey, 296-3320.

PIANO, elec., in carrying case; 12 ga. Lyman reloader, shot, wads, powder, empties. Blaine, 299-1036.

FREE to good home, 2-yr.-old Lab, Great Dane cross, healthy, w/current shots, friendly, loving, watchdog. Gallo, 293-5473.

19" PORTABLE GE color TV, '68 model in working condition, \$150. King, 299-8768.

NORELCO 12-cup Dial-A-Brew coffee maker, used 3 times, \$25; Kodak Colorburst 50 Instant camera, \$15. Simons, 821-9343.

USED LAVATORY, standard porcelain, white, w/faucets, \$10. Hall, 299-3594.

UMBRELLA TENT, 8x10', \$30; new Coleman lantern, \$13; steel 5-gal. cans, w/spout, \$2; '53 DeSoto wheel covers, \$12.50 ea. Stuart, 299-9190.

RUGER, new model; 4-5/8" single action revolvers—41 Magnum, \$150; 45ACP/45LC, \$150. Nielsen, 299-0198.

21" B&W TV, Magnavox floor model,

\$50; antique table model radio, make offer. Pavelko, 296-3346.

FREE PUPPY, male, between 4 & 6 mos. old, probable Collie/Retriever cross, w/bowl, leash, etc., Wenrich, 294-1006.

NEW ZEALAND RED rabbits, purebred, 7 weeks old, \$8 ea. Orr, 345-0631.

VW PARTS: 1972 superbeetle rolled, no engine; '72 bug body, no chassis; '54 chassis w/transaxle & front end. Tibbetts, 293-2856.

TV TABLE, vinyl grain finish, \$15; GM child safety seat, \$20; tricycle, \$10. Newcom, 293-5180.

SOFA, green, \$50. Smith, 299-7151.

WHITE, portable dryer, \$50. Jaramillo, 265-9430 after 5.

'74 SEARS zig-zag sewing machine, no cabinet, \$55. Syroid, 299-8256.

CAMPER, 10' slide-on Mobile Traveler, fully self-contained, refrig., \$1200. DuMond, 898-3155.

CROSSMAN 22 cal. CO₂ powered pellet rifle, 22 yrs. old, in orig. box, \$15. VanDenAvyle, 898-6474.

BALDWIN Orga-Sonic spinet organ, model 54A, \$100 under Blue Book, \$495. Parker, 255-5923.

DINETTE, laminated top, 2 leaves, 6 chairs, \$70. Caster, 299-4308.

TYPEWRITER, Olympia elec., office model, \$175. Carter, 294-3267.

LUGGAGE, pullman on wheels, comb. lock, matching tote, burgundy vinyl. Easton, 256-7717.

CHROME front bumper for Ford pickups, vans; w/mounting hardware, \$25; tool-box roll bar fits up to 2 3/4" box, \$185; 4 7.50-16 M/S tires, \$18 ea. Olson, 898-8909 or 842-4177.

BLACK LAB, 1 yr. old, AKC, female, \$100. Altwies, 292-3884.

OIL COOLER, Lockhart, thermostat, oil lines, fittings for Kawasaki 1000s, 9mm brass, cleaned, deprimed, \$10/100. Johnson, 268-1043.

STEEL TUBING: 2"x6"x11", \$25; 3x6x11", \$30; 3x3x9", \$15; assortment of 14 gauge sheet steel. Wright, 296-3850.

NEW FORD wheel, 14", \$10. Hall, 298-8617.

CAMPER SHELL for small pickup, \$250. Shortencarier, 292-3575.

USED Frigidaire built-in dbl. oven, turquoise color, window in upper oven, meat tender, rotisserie, broiler, \$35; weights, various kinds, make offer. Halpin, 299-7710 after 5.

KODAK Autograph camera w/leather case, \$125. Manhart, 265-6010.

ROAD & TRACK magazine, 24 issues, '72-76, including 25th anniv. issue, \$10; Color photo starter kit, prints from slides using B&W equip.,

Cibachrome, \$15. Smith, 242-9576.

ELECTRIC DRYER, Sears Kenmore model 800, avocado green, 9 yrs. old, \$65. Bauman, 822-0200.

INTERNATIONAL Harvester elec. start rider mower, '76, \$250; elec. Weed Eater, \$25. Martin, 898-2708.

FISH FINDER, Lowrance elec. model LFG-150 & LFG-160, Fenwick flyrod 7 1/4' #6, Daiwa flyrod, 8' #7, Daiwa reel Millionaire 3R. Northcutt, 293-1318.

FRIGIDAIRE custom deluxe elec. clothes dryer, sell or trade for gas dryer. Tischhauser, 268-2764.

FLEX-A-STEEL sectional, blue/green design, \$200. Roehrig, 299-8284.

PORT. DISHWASHER, brown w/cutting board top, \$100. 7700 BTU air conditioner, adjustable window widths, \$100; playpen, \$10. Bolwahn, 294-3475.

SCHROBER concert organ w/full pedal clavier, reverbatan & speaker, best offer or will trade for baby grand piano. Bateman, 298-9502.

VIDEO TAPE, new TDK Super Avilyn T120 in sealed boxes, \$15. Bloomquist, 821-3018.

DBL. BIT AX, \$12. Need maul. Shunny, 265-1620.

TRANSPORTATION

'75 MAVERICK, AT, AM/FM/8-track, \$1750. Padilla, 831-3151.

'76 HONDA CB750E, windshield, dbl. saddle seat, luggage rack, 48 mpg, many extras, \$1700. Redder, 831-5067.

'76 OLDS Cutlass salon 4-dr., PS, PB, AC, cruise, tilt steering, AM-FM stereo, 42,000 miles, \$3100. James, 294-6837.

BICYCLE, Boy's 20" high-rise bike, new tires, \$35. Anthes, 884-3644.

'65 JEEP Wagoneer 4x4, \$1095. Syroid, 299-8256.

VOLKSCYCLE MARK XV 10-spd., 21" steelight frame, 27" Schusmann super wheels, thorn resistant tubes, pkg. rack, security cable & lock, \$150. Granfield, 268-1942.

'76 MUSTANG, all options, one owner, \$2800 or best offer. Corradini, 296-6939.

'79 CHRYSLER LeBaron Medallion, PS, PB, AC, PW, CC, PS, 6-cyl., vinyl top, tan on tan, 14,000 miles, \$5795. Hernandez, 268-5000.

'70 MUSTANG fastback, 15K miles on rebuilt 250ci engine, everything original, \$2700. Johnson, 268-1043.

'75 CHEVROLET Monza Town coupe, dk. green w/lt. green vinyl top, std., AM-FM-8 track, \$1250. Wilkinson, 299-8327.

'75 DATSUN B210, 4-spd., 2-dr., 26 mpg city, \$2045. Martinez, 821-8692.

'79 SUZUKI GS425EN, 55-60 mpg, \$1300. Hasti, 294-4631.

SAILBOAT, Salem 13' family day-sailer sloop rig, positive flotation, self-bailing w/trailer, \$800. Newman, 292-4228.

'47 BUICK Roadmaster 4-dr. sedan, \$500. Hewitt, 265-2439.

'77 MAZDA GLC, yellow, chrome luggage rack, 5-spd. Armstrong, 281-5710.

BICYCLE, 10-spd., Volkscycle Mark V, 26", \$90. Tischhauser, 293-9768.

REAL ESTATE

3-BDR., LR, DEN, 1 1/2 baths, dbl. pane windows, 1738 sq. ft., assumable 8 1/2% VA loan, \$75,000, 8316 Ruidoso NE. Fresquez, 298-0090.

MH, 1 bdr., 1 bath, in 4-Hills park ready to move into or can be moved, awnings, carport, patio cover. Grifin, 294-5702 after 5.

3-BDR. tile block house, 1950 sq. ft., assumable 10-5/8% loan, low equity, cash to loan or REC, Ridgecrest area. Corradini, 266-4307.

CEDAR CREST, nearly new 3-bdr., 2-bath, solar house on 3 acres, \$125,000, flex. terms. Hopper, 281-1890 after 5.

40 ACRES IN Colo. Mts., in National Forest, fishing stream, owner financing, \$56,000. Syroid, 299-8256.

10 or 20 ACRES Manzano property, 7800' altitude, heavily forested, \$1700/acre. Schmidt, 869-6493.

10 ACRES flat land 4 miles N. of Estancia, good roads, water, electricity, \$15,000, terms. Tessler, 255-0108.

NORTH ABQ., two one-acre lots, corner lot San Bernardino & Browning St., not in flood zone, \$19,500/acre. Madani, 884-3650.

1971 TOWN & COUNTRY, 14x70, 3-bdr, 2 bath, partially furnished, Terrace

Park, Zuni & Wyoming, adults only. Walko, 292-3193.

WANTED

OLD or unusual cartridges, will buy or trade. Egerly, 898-2983.

PORTABLE elec. typewriter. Hayes, 821-3227.

CDI, 12V, prefer Delta Mark 10, "A" or "B" version. Marchi, 299-3653.

GARDEN TOOLS. Webb, 293-4781 after 5.

PATIO DOORS: either 6' or 8', single or double glazed, need two w/all hardware. French, 821-6144.

FLAGSTONE; fenders and grill for '74 Ford pickup. Myers, 255-7460.

CONVERTER, 12VDC to 120VAC. Prior, 296-2930 after 5.

RV to rent for trip to Kansas, May 23-June 6, would leave Honda CVCC if transportation needed. Bennett, 293-1217.

LOADING PRESS for pistol ammo; scales, powder measure & other accessories. VanDenAvyle, 898-6474.

"N" gage electric train set. Stuart, 299-9190.

DRAFTING BOARD. Claassen, 255-4347.

LAB NEWS needs book donations for the S. Hwy 14 Village Project. Bring your old paperbacks & hard covers in—we'll pick them up from your car or office. LAB NEWS, 4-7841.

POWER lawnmower in good condition. Hall, 298-8617.

BICYCLE FRAME & fork, 25" lightweight, good condition, will buy or trade for 23" Frameset, 27" acceptable. Baldwin, 821-5924.

BABY FURNITURE: July arrival needs the whole works. Burnham, 867-3023.

COLLECTOR would like to buy glass milk bottles—quarts, pints, half-pints, creamers, must have dairy or store markings. Wilton, 299-8507.

SHARE-A-RIDE

CARPOOLERS from N14/old 66 area in Tijeras. Mason, 281-3052.

WANTED, another Van Pool rider from the Moriarty, Edgewood, Tijeras area. Dungan, 281-3862 or Hansche, 281-5623.

Coronado Club Activities

Kids Easter Party April 11

HAPPY HOUR TONIGHT features steak for two specially priced at \$13. Gary Waters entertains in the main lounge while a group called Country Capers holds the bandstand. Happy Hours start right after work on Fridays and run until midnight with special prices (very reasonable) in effect all evening. The buffet is served from 6 to 8 p.m., and the band plays for dancing from 8 to midnight. It's a good idea to call the Club office by mid-week and make reservations for the buffet. The Club calendar carries a discount ticket which takes \$2.50 off the top of food cost once a month.

TOMORROW is Variety Night at the Club which means a super supper is available for the entire family starting at a new time of 5 p.m. Magic and laughs follow with Fumbles the Magic Clown entertaining. The Movie, *Charley and the Angel*, starts at 6:30 p.m.

THE THIRD ANNIVERSARY of the Coronado Grandsquares will be celebrated Monday, April 6, with a gala free dance open to all city square dancers. The party starts at 8 p.m. with John Lewin calling the steps.

THE WOLFPACK holds its annual meeting Tuesday, April 7, starting at 7 p.m. Sportscaster Mike Roberts is the featured speaker. Business includes election of an executive committee. Free beer, snacks and soft drinks follow. Membership in the Wolfpack costs \$5 per year, and new members are always welcome.

HAPPY HOUR on Friday, April 10, is a sit-down special with your choice of king crab, shrimp or prime rib. As appetizers, try escargot, oysters or nachos. O. J.



STUDENTS from the Navajo Academy in Farmington came to Sandia to learn about Labs activities and to tour computer facilities. Dennis Ghiglia (2644) here explains an element of computer equipment to the students while Gary Shepherd (2614, at right), who also assisted in the tour, and Lori Lauriano (3510, next to Gary), the tour hostess, look on.

Metzger entertains in the lounge while the Freddie Chavez Foundation is wired into the bandstand in the ballroom. Pick up your dinner tickets by noon on Thursday, April 9, for a guaranteed dinner.

KIDS (age 6 and under) have a giggling good time at the Club's annual kids' Easter party. They hunt for hidden eggs, receive prizes, gobble chocolate rabbits, consume Cokes and watch clowns and cartoons from 9:30 until the goodies run out. Member parents and their youngsters admitted free.

TRAVEL DIRECTOR Frank Biggs (4231) announces a special deal for vacationers to Cozumel, a resort island adjacent to Mexico's Yucatan Peninsula and famous Mayan ruins. The package costs \$359 and various dates are available. Check with the Club office.

The Chaco Canyon bus trip April 25 is full, according to Frank, but a few spaces are left on the Las Vegas/Hoover Dam charter bus tour set May 24-27. Cost is \$132 which covers fare, snacks and drinks on the bus, three nights in Las Vegas, a tour of the dam and other goodies.

Mazatlan is open (June 1-8, \$354) and Puerto Vallarta (May 5-12, \$399) as well as a few spaces on the Disneyland/Catalina Tour April 14-18.

Frank can arrange a tour to New Zealand or China for about \$2000. On the China trip, a better deal could be arranged if a few of the participants could give talks to student groups. If you want to talk about it, see Frank in the lobby tonight between 6 and 7.

SWIM SEASON starts Memorial Day, May 25. Tickets for pool and patio admission go on sale April 15 at the Club. Family memberships are \$25 and individual memberships are \$12.50 (no guest privileges). In addition to the twin pools, the patio recreation facilities include volleyball courts, horseshoe pits, shuffle-

board, table tennis and playground equipment for the little ones. A snack bar operates all summer.

Chopper Will Be Overhead This Month

If you note a helicopter making many passes over the various Labs areas during April, don't be concerned. It's part of a radiation background survey that DOE is making of all its nuclear facilities.

The helicopter will be flying at 150 feet, making east/west passes at 300-foot intervals starting at the Isleta Reservation boundary (south) and continuing to the northern boundary of Tech Area I.

George Tucker of Health Physics Division 3312 is the Sandia person to contact if you need further information on the survey.

Seminar for Secretaries Coming Up

Education and Training Department 3520 has arranged for a one-day professional development seminar, "Management for Secretaries," to be conducted over four days, April 20 to 23. Professor John Loveland from NMSU's College of Business Administration and Economics and Associate Professor Eleanor Heins from the School's Secretarial Administration Department will present the seminar. The topics of their presentations are "Nature of Management," and "State of the Art."

In addition, Dolores Chaves of Compensation and Benefits Department 3540 will conduct a session to answer participants' questions concerning job classification and salary administration.

All secretaries are urged to attend the seminar at the Coronado Club on one of the four days of the offering. Secretarial coordinators Elsie Wilkins (1001), Alice Brinkley (2001), Ann Michele (3001), Thelma Foster (4001), and Shirley Dean (5001) are handling the scheduling.

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