

LAB NEWS

VOL. 24, NO. 6

MARCH 17, 1972

SANDIA LABORATORIES • ALBUQUERQUE NM • LIVERMORE CALIF • TONOPAH NEV

State of the Labs — Conversation with John Hornbeck

How Sandia is and will be doing was the subject of an interview last week with President Hornbeck. Highlights of that interview follow.

What is your view of the state of the Labs?

Let me summarize the financial picture first, since that affects the overall picture. My projections extend through fiscal '73 (June 1973) and represent estimates based on information now in hand. Naturally, the further we look, the greater the uncertainty.

We now have behind us President Nixon's budget presentation to Congress and the subsequent hearings before the Joint Committee on Atomic Energy, where the weapons budget was discussed. Fiscal '73 shapes up from a funding standpoint as a "normal" year — normal on the "tight" side. The present fiscal year — FY '72 — has been extremely tight, and we were fortunate in gaining a little additional funding at the recent mid-year review, which will enable us to complete this year as planned, without a layoff.

As far as the work itself is concerned, I see greater emphasis in the area of command and control because of the increasing concern about the security of nuclear weapons, particularly those deployed outside the U.S. Sandia's experience in the PAL and secure container programs bears directly on the resolution of these security problems.

Within DOD, many are concerned about the technical renovation of the stockpile, but it is too early to say how and where this concern will affect us.

As you know, we were recently commended by the Navy for our work in connection with POSEIDON, and this should help us in future programs. A good reputation is very important. The MK 3 vehicle resembles to a marked degree a design developed at Sandia in the mid-60's and can be considered an excellent example of the payoff from exploratory systems work. Sandia also made important contributions in the materials area of this program.

What about test activities?

Activity in underground nuclear testing, for us at least, will be at a fairly low level for the next year or so. We're still much involved in evaluation of the results of our last test. However, our efforts to simulate the nuclear environment — for example, with electron beam machines — have been highly successful and work in the simulation field will be expanded. This includes laser research and investigation of laser fusion as a means of providing high x-ray and neutron fluences.

What can you say about the personnel picture?

With respect to the size of our staff, I do not foresee any layoff for the balance of this year or for the next fiscal year either. My prediction must of course be accompanied by

the usual qualification — that is, it is based upon data now in hand. In addition, I do not wish to rule out the possibility that during this time span we may decide again to offer the "voluntary layoff" option. That really isn't a layoff in the usual sense of the word, but it has proved to be a useful device — both for the employee taking advantage of this option and for the Labs — as one means of promoting turnover, enabling us to bring in some new people.

Another way to increase turnover is to make retirement at an earlier age more attractive. Last year I indicated that we hoped to make it possible to retire at age 55 without the current actuarial penalty. I can report that we have now worked out the details of such a liberalization of the plan to our satisfaction and hope to gain the necessary Bell System and AEC approvals this year. Approval, I should mention, is not automatic, because the effect of a retirement liberalization on the total benefits package has to be considered — and we already have an attractive package.

Also in the benefits area, I should mention that we're hoping to offer a health maintenance program — similar to that now

available to Sandia Livermore people — to employees at Albuquerque, if satisfactory arrangements with local medical groups can be worked out.

With the expected attrition it will be possible for us to have a modest hiring program, and we are aiming at the employment of some 75 new staff people by the end of fiscal '73. I feel strongly that new people are indispensable to the vitality of the Labs. In the graded area, hiring will be chiefly on a replacement basis, and careful attention will be paid to gaining the proper mix of different skills. Our apprentice programs will continue at about the present level.

How about reimbursable programs, such as Planetary Quarantine?

We're phasing ourselves out of the Planetary Quarantine Program since we have essentially completed the research and development activity we agreed to undertake for the NASA. The major goal of Planetary Quarantine is to control the level of contamination we might bring to the planets with our vehicles, and I think Sandia's con-

(Continued on Page Two)



Afterthoughts

Man's Greatest Work?--A reader sends in this interesting item from the book The Ancient Engineers: "It was, in terms of sheer size, the greatest single engineering work of antiquity. Alone of the works of man, it could be seen from the moon. It is the Great Wall of China..." Now wait a minute. When the smog over LA (4071 sq. miles) has the advantage of a nice, stable temperature inversion, I'll bet the resultant mess--certainly a work of man--can be discerned even by a myopic astronaut strolling around on the moon. So let's see if those Chinese engineers can top that...

* * *

More Mark Twain--"Few things are harder to put up with than the annoyance of a good example." & "Always do right. This will gratify some people, and astonish the rest."

* * *

Call From Irate Motorist Dept.--"Many drivers in the parking lots seem to think anything goes. The use--or non-use--of turn signals for example. With so much congestion it's important that you let the guy behind you know what you're going to do. Use your turn signals."

* * *

What's Happening?--One lunch hour back in 1960 Walt Troy suggested we try the Base Gym. So we did, played some squash, and have been going there since. But in those days perhaps 10 people showed up daily--the place was largely empty. I checked yesterday what the present daily body count is over the lunch period. It averages 150, mostly Sandia Labs people. The noontime bridge game must be losing its luster.

Speakers

J.D. Williams (1932), "Computer Aided Design of Sandia Integrated Circuits," Lectures at UCLA and UC Berkeley, Jan.-Feb. 1972.

C.W. Gwyn (1933), "Numerical Analysis of Modern Semiconductor Devices," Lectures at UCLA and UC Berkeley, Feb.-March, 1972.

G.R. Case (1932), "Design and Analysis of Radiation Hardened Integrated Circuits," Lectures at UCLA and UC Berkeley, Feb.-March 1972.

J. Suknot (7651), "Drafting," Career Fiesta, Rio Grande High School, March 1.

H.T. Weaver (5154), "NMR Studies of Hydrogen Motion in Metals," Colloquium Auburn Univ., Feb. 24, Auburn, Ala.

E.L. Burgess (5335), "Thermoelectric Power Generation: Advances & Applications," Graduate and Faculty Seminar, EE Dept., Univ. of Arkansas, March 10, Fayetteville, Ark.

A.J. Toepfer (5241), "Relativistic Electron Beams," Colloquium in EE and Applied Physics, Case-Western Reserve Univ., Feb. 17, Cleveland.

H.S. Levine (5324), "Formation of Vapor Nuclei in Liquid Melts at High Temperatures," AIME Annual Meeting, Feb. 22, San Francisco.

O.M. Stuetzer (1440), "Communication System," Albuquerque/Los Alamos Section of IEEE, Feb. 24, Albuquerque.

F.M. Morris (5221), "Applications and Experience with a New Instrumented Fuel Element," Texas A&M Univ., Feb. 22-25.

K.E. Lawson (5522), "Characterization of Thin Films by X-Ray Emission Spectroscopy," Conference on Analytical Chemistry and Applied Spectroscopy, March 6-10, Cleveland.

D.M. Mattox (5332), "Ion Plating -- Concepts and Applications," NASA Technology Utilization Conference on Sputtering and Ion Plating, March 16-17, Cleveland.

Continued from Page One

CONVERSATION WITH JOHN HORNBECK

tributions in this area have been outstanding. We are sorry to be leaving this activity.

The percentage of our work that falls in the reimbursable category remains about the same -- between 10 and 15 percent -- and I foresee little change there. We prefer not to seek reimbursable work actively, but rather to have our work sell itself, and this approach has kept the reimbursables activity at about the same level through the years.

Any other observations about the Labs?

It's gratifying to me, after five years in this job, to note the appraisal of Sandia Labs by people -- new to the Labs and with fresh perspective -- who can judge this sort of activity. I have in mind Al Clogston (VP for Research), who has arrived fairly recently from long experience at Bell Labs. He is most enthusiastic about our work and our capabilities.

I think one significant change during those five years is the closer coupling of research activities to programs in development. A good illustration of this is our successful progress in development of the RTG (Radioactive Thermoelectric Generator). This component represents a very high level of technical sophistication, and I'm not sure we could have done the job two or three years ago. But today we have those people in both research and in development activities who can undertake and meet such technical challenges. As I see it, applying the results of research to programs in development is what research should be all about at Sandia Laboratories.

Promotions

Frances R. Aaron (7121) to Specialty Worker (Microelectronics)

Marvin L. Barrett (9461) to Staff Assistant Technical Ann R. Hawk (7121) to Specialty Worker (Microelectronics)

Deanna B. Rawlinson (3234) to Member of Laboratory Staff

David G. Sample (9461) to Staff Assistant Technical Edward P. Sanchez (4514) to Auto Serviceman Eloy D. Cota (7121) to Technician (Physical Electronics)

LAB NEWS

Published every other Friday

SANDIA LABORATORIES

An Equal Opportunity Employer

ALBUQUERQUE, NEW MEXICO

LIVERMORE, CALIFORNIA

TONOPAH, NEVADA

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Bill Lasker takes/makes pictures
&

in Livermore Lorena Schneider does all



HEART TALKING TO CHICAGO COMPUTER -- Nurse Mary Winter (3302) fixes an electrode to patient's arm (left), then uses phone lines to feed electrocardiogram of patient to Telemed in Chicago (right). The device is a "Patient transmitter" and gives a complete reading on the state of a heart in a few seconds. In addition, a local printout makes it possible for Sandia physicians to check the areas of possible concern identified from the computer feedback.

Have You Wondered About Your Property Tax?

"Our Constitution is in actual operation; everything appears to promise that it will last; but in this world nothing is certain but death and taxes."

Benjamin Franklin — 1789

The certainties that Ben wrote about are still true. The only uncertainty is the amount of the taxes.

A quick look at a 1971-72 tax bill for Livermore (the second half of which is due by April 10) reveals the tax rate is \$13.505 per \$100 of assessed valuation — up 7.7 percent from 1970-71.

In addition to an increase in rate, the assessed valuation of land and improvements being taxed has probably also climbed. Present California laws provide that property is to be assessed at 25 percent of its full cash value. "Cash value" is the price that would be paid for property by a willing buyer to a willing seller on a cash basis. These assessment valuations are established by the County Assessor.

All property, both city and county, is assessed each year as of March 1. After that date, a property owner may find what his assessed valuation is from the County Assessor. The Assessor does not notify the owner; the owner must ask for the information.

If the assessment does not seem fair, the burden of proof is on the owner. Prior to May 1 he may ask the County Assessor for a review, either by appearing in person in the Assessor's office or by writing a letter stating the case. This is considered the informal protest period. If the matter cannot be worked out with the Assessor, the owner may protest formally to the Assessment Appeals Board by filing a protest form between July 2 and Sept. 15. The Appeals Board decision is final.

A portion of the assessed valuation may be exempt if the property owner qualifies as a veteran or resides on the property — a veteran's exemption or a homeowner's exemption, as the case may be. Filing date for either exemption is between March 1 and April 15 each year.

Your tax bill is computed by multiplying the assessed value of your property by the applicable tax rate.

But, you ask — how is the tax rate established?

Under the law, each county is required to collect property taxes not only for its own operations but also for the operation of various other government agencies within its boundaries such as cities, school districts, and special service districts. The tax rate is determined by requirements shown in the budgets adopted, after due process, by the governing board of the agencies served, or, in the case of bond issues, by the payment schedule of bonds authorized by the electorate.

Where does the tax money go?

The money is distributed to the taxing agencies as itemized on each individual tax bill. The basic Alameda County tax rate, shown on the bill at \$3.19 per \$100 assessed valuation, is detailed in the charts. Further information is available in Public Relations Division 8235.

LIVERMORE NEWS

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1971/72 COMBINED CITY TAX RATES *

(Including Flood Control Zone Rates Levied on Land & Improvements Only)

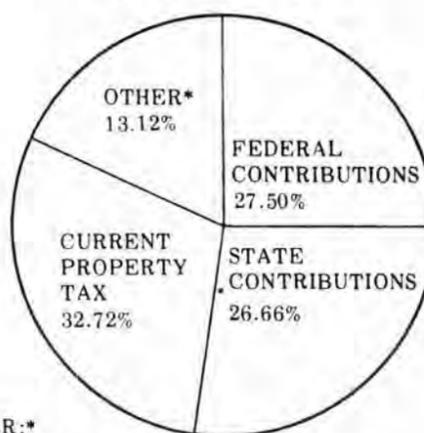
City	1971/72 Tax Rate	Change from '70/71 Dollars	Per Cent
Emeryville	\$ 9.056	\$.371	4.3
San Leandro	\$10.481	.858	8.9
Alameda	\$13.028	.435	3.5
Pleasanton	\$13.213	1.097	9.1
Fremont	\$13.438	.627	4.9
Union City	\$13.465	1.103	8.9
Oakland	\$13.495	.732	5.7
Livermore	\$13.505	.970	7.7
Hayward	\$13.510	.972	7.8
Albany	\$13.568	.433	3.3
Piedmont	\$13.921	.984	7.6
Newark	\$14.326	1.045	7.9
Berkeley	\$16.058	.564	3.6

*per \$100 of assessed valuation.

COMPARISON OF CURRENT TAX RATES for cities in Alameda County, including dollar and percent changes from the past year. Average percentage increase is 6.4 percent; three cities show a rate increase of more than one dollar. Bar chart courtesy of the Alameda County Taxpayers Association.

ALAMEDA COUNTY BUDGET FISCAL YEAR 1971-72

TOTAL BUDGET \$269,619,611
TAX RATE \$3.19

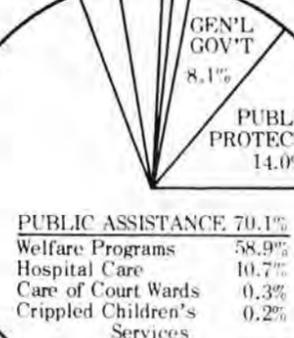


OTHER*:
Sales Tax .95%
Fund Balance .71%
Miscellaneous 3.71%
Current Services 9.17%

MONEY FROM THESE SOURCES

THE 1971-72 BUDGET WILL PROVIDE THESE SERVICES

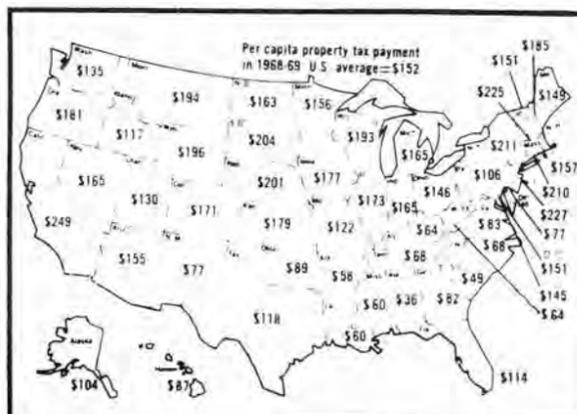
HEALTH 2.9%
ROADS 3.5%
RECREATION & EDUCATION 0.3%
RESERVES 1.1%
GEN'L GOV'T 8.1%
PUBLIC PROTECTION 14.0%PUBLIC ASSISTANCE 70.1%



NOTE: Functional breakdown does not agree with Auditor's figures because Employee Benefits and Capital Projects have been distributed to departmental budgets.

SOURCE OF FUNDS FOR WELFARE PROGRAMS

Source	Amount	Percentage
State	\$ 45,444,997	28.6%
Federal	70,894,053	44.6%
Other Revenue	7,923,456	5.0%
Property Tax	\$34,554,318	21.8%
Total	\$158,816,824	100.0%



U.S. per capita property tax payment. Statistics courtesy Business Week.

Comparison With Other Counties

County	Budget Requirement Per Capita	Tax Requirement Per Capita
Los Angeles	\$295.24	\$107.14
STATE AVERAGE	252.02	84.63
Contra Costa	246.00	80.81
San Bernardino	242.53	76.63
Riverside	241.56	75.02
Sacramento	237.88	71.81
Alameda	227.19	68.81
San Mateo	211.06	67.09
Santa Clara	187.12	65.85
San Diego	176.90	57.35
Orange	151.47	47.82

Mark Your Calendar — May 13 Family Day

Another Family Day program, the third in Sandia's history, will be held at SLA on Saturday, May 13.

A steering committee made up of representatives of all directorates in SLA is working on arrangements for the day-long program. Ted Sherwin (3160) is chairman of the committee and Joe Laval (3163) is serving as Family Day coordinator. As was the case in 1959 and 1966, when the two previous Family Days were held in Albuquerque, emphasis will be placed on letting families see where dad or mom works. The only buildings not open will be those in which hazardous operations or security restrictions place the area off limits. Other small areas may be closed because of construction, limited interest or remote location.

The tour route planning sub-committee is working out some suggested self-guided tours for employees and their families, with areas of major interest to be indicated on a simplified map. The map and a souvenir pamphlet about Sandia Labs will be handed out to visitors at all gates. Areas III and V, as well as Area I, will be open, with continuous bus service

provided within Area III to minimize congestion. Movies describing Sandia activities will be shown continuously in Bldg. 815 and in Area III, and several demonstrations are planned along the main tour routes.

Employees will receive full instructions in the next few weeks concerning advance arrangements for bringing guests. Each employee will be responsible for his own family, but arrangements may be made for another employee to escort them if circumstances warrant. In bringing visitors into the area the Q-cleared employee assumes responsibility for their behavior. In the interest of safety and because of the walking involved, employees are urged not to bring pre-schoolage children.

To spread out the crowd employees will be asked to choose the morning or afternoon tour period. The gates will be open from 9 a.m. to 4 p.m. but since there will be no lunchrooms open that day, it is expected that there will be a normal break in the traffic at noon. Punch and cookies will be served at various locations and regular vending machines will be operating.

Sandia Labs families may wish to visit the Atomic Museum on Kirtland, just south of the Credit Union on Main Street, where historic ordnance items are on display. Sandia's Exhibit Center (the Sphere of Science) will not be open, however, because of the difficulty of handling large crowds there. In 1966 some 14,000 people attended Family Day at Sandia.

A similar Family Day program is planned for SLL on May 20.

Sandians to Participate In Base Open House

On Sunday, March 26, Kirtland Air Force Base will be opened to the public from 10 to 4 as part of the commemoration of the 25th anniversary of the United States Air Force. Open house ceremonies will include an air show by the Thunderbirds — the Air Force Aerobatics Team — and displays of old and new aircraft and equipment. March 26 also marks the observance of national POW/MIA week; POW/MIA families from New Mexico will be guests of the Base Commander at the open house.

Among participating Sandians are John Dishuck (1651), Bill Denison (7421), and Al Fine (1711), all of whom will represent the Albuquerque Chapter of the Air Force Association at a display booth. The booth will be shared with UNM Air Force ROTC Unit and representatives of New Mexico POW/MIA's.

Sympathy

To Don Metheny (4515-2) on the death of his step-father in West Virginia, Feb. 21.

To Loyd Kelley (4152) on the death of his sister in Los Angeles, Feb. 26.

To George Arnot (5642) for the death of his mother in Albuquerque, March 12.

Congratulations

Mr. and Mrs. John Paul Stark (5413), a son, Bruce, born March 5.

Mr. and Mrs. Hugh Bivens (1415), a son, Hugh Powaton, Feb. 28.



BRUCE HAWKINSON is back (yes, he was gone) and LAB NEWS has got him. He arrived carrying a curious implement — said we'd find out soon enough what it was for. Bruce has returned from a two-year leave of absence to join the LAB NEWS staff. The two years were spent in the Office of Education of the Department of Health, Education and Welfare in Washington, D.C.

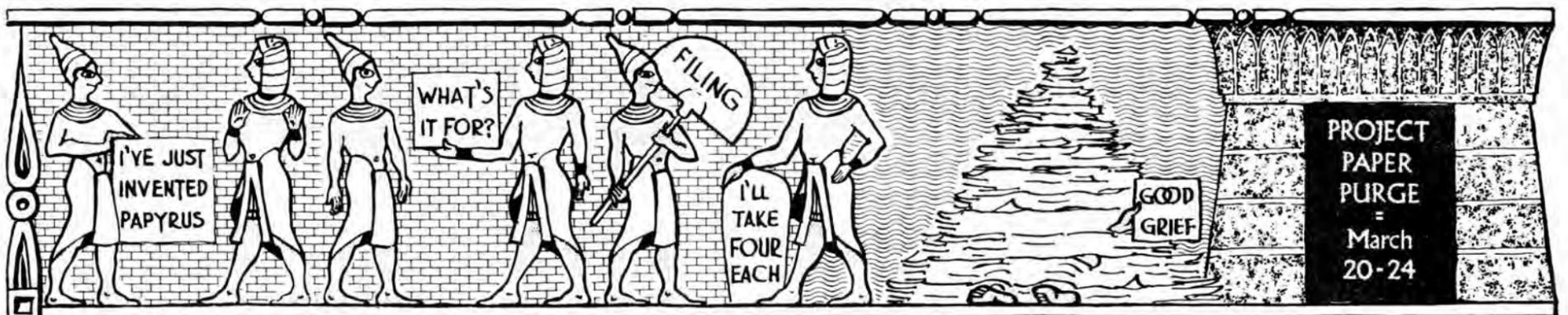
Monday: Paper Purge Day

Your supervisor is expecting great things (or great amounts) from you this coming Monday — Project Paper Purge is upon us. On this one day, Sandians are asked to ferret out paperwork which no longer deserves a place in Sandia society. It's all a part of the ALO goal to reduce the volume of records and reference materials by 20 percent.

Once isolated — after a search of drawers, files, cabinets and other repositories — stuff the collection into the boxes which will be provided and affix the labels which the special pick-up people will use to identify the boxes for disposal. While you're encouraged to rid your area of classified documents while you're at it, don't mix classified with unclassified.

Over the weekend then, work at developing a pro-Project-Paper-Purge position so that you're ready to deliver the goods on Monday. •bh

HOT SCOOP — Karleen Walters (3148) shows us how it's done. Our turn comes Monday.





OPERATOR Joe Tapia (5411) inspects the cathode ray tube of the new 4460 computer during installation in Sandia's Computing Center in Bldg. 880. The new system provides increased capabilities in computer created graphics, including animated motion pictures and automatic production of microfiche and aperture cards.

New Graphics System Installed in Sandia's Computing Center

Greatest value of a modern computer to a scientific laboratory is its ability to simulate physical events — for instance, material deformation in a particular configuration undergoing an impact test. By programming a computer simulation of the test, an engineer can get an accurate projection of the real event. By transferring this output to another kind of a computer, he can get graphs, charts or an animated movie of the event.

Sandia's capability in this area of visualization was greatly increased recently with the installation of a new Stromberg DatagraphiX 4460 system of Film Recording for Computer Output Microfilm (COM). The new COM system controlled by its own minicomputer with three cameras, film processing unit and DatagraphiX 3400 Film-to-Hardcopy printer is located in the Computing Center in Bldg. 880.

Phil Eyer of Operating Systems Division 5421 reports that the 4460 is much faster, more powerful and graphically complete than the old 4020 system which Sandia has used for several years. The new system provides 16 times the matrix addressability and plot resolution of its predecessor. In addition, the 4460 requires less input to generate displays possessing far greater precision, resolution and image clarity.

Magnetic tape output from Sandia's IBM 360/50, CDC 6600, IBM 7090 and Univac 1108 are used in combination with the 4460 to produce graphic displays and films. The displays appear on a cathode ray tube and are photographed by any of three computer-contained cameras.

In addition to 16mm and 35mm movie film, the system can also handle unperforated 16mm and 35mm film as well as 105mm film used for the automatic generation of microfiche. This is done at high speeds without costly stripping of roll film or manual photography. A special camera is available for producing 35mm film in the format used in engineering aperture cards.



AUTOMATIC FILM PROCESSOR (shown with cover removed) rapidly runs exposed film from the 4460 computer magazine through various chemical solutions to dry reel in foreground. Operator is Joe Tapia (5411).

The movie film transports contain a special pin-registered movement for high precision frame-to-frame registration.

The hardcopy printer output is fan-folded, tractor-driven paper, similar to the standard impact-printer sheets. The printing process employs an exceptionally clean toner and an image of very good quality is produced. The rate is about 87 pages (5700 lines) a minute with up to 15 copies per page. Pre-printed paper forms may also be used. Film may be duplicated quickly with an auxiliary unit which uses a dry process, heat developed film. The process reverses the original image — from positive to negative — which is desirable for some screen projection applications.

Phil Eyer is responsible for the systems support of the 4460 system.

Gary Shepard (5428) serves as consultant to users of the COM system. Gene Emerson (7625) is a consultant on user systems and applications. •dg

Take Note

The Parks and Recreation Department Band needs more members, old or young, highly or barely talented. The group rehearses at Grant Jr. High every Monday evening (7-9 p.m.) and plays for a variety of occasions around town. No auditions are necessary. Players of exotic instruments (bassoon, oboe, etc.) are in real demand, but any performer is welcomed. Call band president Dave Judd (9311) at 282-3346 for further information.

* * * *

The Del Norte High School Band is sponsoring a spaghetti dinner tomorrow from 5 to 8 p.m. at the school cafeteria. Proceeds from the event will help finance the band's participation in the Greater Southwest Regional Music Festival in Amarillo.

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The fifth Craft-O-Rama, sponsored by the Albuquerque Altrusa Club, will be held Sunday, 1-5 p.m., at the UNM union ballroom. Over 100 arts and crafts displays will be exhibited, and the craftsmen will give demonstrations. Voris Hope (3155) will show her bread dough art and Tom Mickey (7132) will show his popular western woodcarvings.

Altrusa is an international service organization for professional women, and the Albuquerque club helps finance many community projects. Proceeds from the Craft-O-Rama will be used to purchase additional special equipment for the infant intensive care unit at BCMC. Tickets (\$1.50 for adults, 75¢ for students) may be purchased at the door.

* * * *

LAB NEWS goofed last issue by running the name Max Hodge (5413) under the picture of retiree M.T. Hodge (4515). Proves we're human. We're sorry about the goof, that is.

* * * *

Gordon Pike (5155) will present "Non-Inertial AC Conductivity in Insulators and Semiconductors" at the 5100 Staff Seminar March 21.

David Brice (5111) will discuss "Three-Parameter Formula for Electronic Stopping Cross Sections" March 28.

The seminar meets Tuesdays at 8:30 a.m. in Rm. 201, Bldg. 806.

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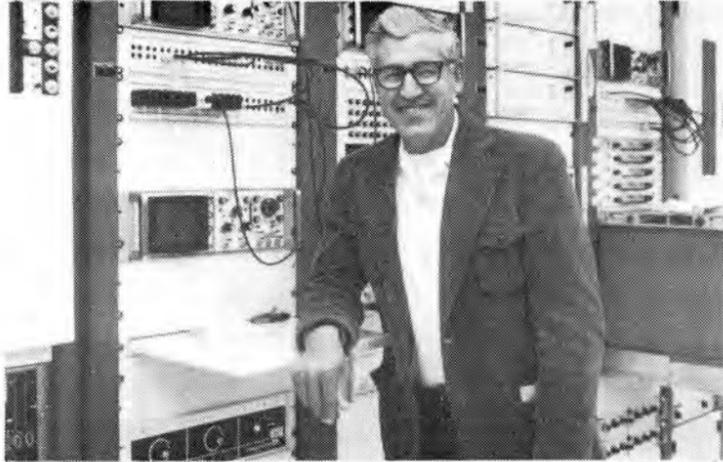
The Albuquerque Childbirth Education Association is meeting tonight at 7:30 p.m. at the Newmec School, 4800 Eubank NE. The topic for discussion is "Child Development." For more information call John LaBarre (1753), 299-3569.

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The Mid-North Valley Community Center is conducting a drive to raise funds for the Joseph Sandoval family whose home was destroyed by fire recently. Two small children died in the blaze and three others are still in the hospital. Art Trujillo (5645) and Ernest Sanchez (7542) are active in the drive. Contributions may be made to the Sandians or mailed to the Center, 1620 Griegos NW.



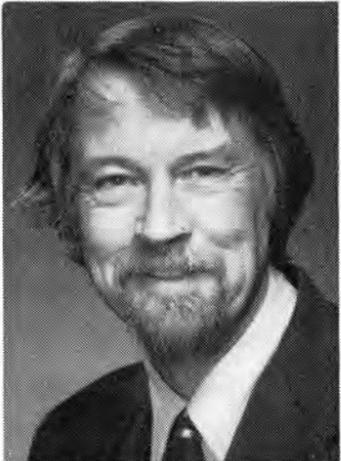
Richard Clifton — 4613 25



Josue Martinez — 9425 20

MILEPOSTS

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Bob Sharp — 4551 15



Joyce Willford — 8432 15



Calla Crepin — 3144 15



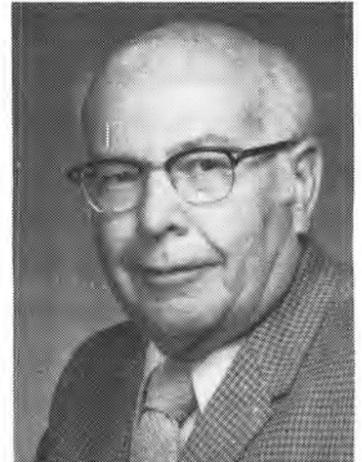
Paul Stang — 9222 10



Alton Anderson — 1823 20



Felix Almarez — 7511 20



Eugene Baker — 4611 20



Anne Crow — 8322 10



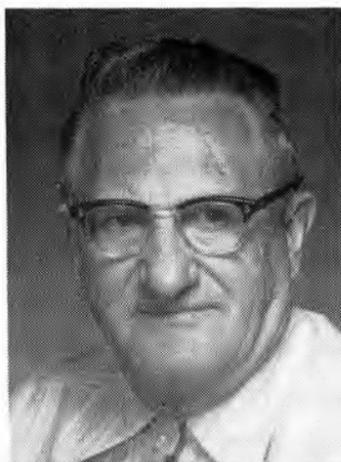
R. J. Brown, Jr. — 9333 20



Lou Berry — 5500 20



Helen Pipher — 7412 15



Jay Andrews — 7151 20



Patrick Proulx — 9472 20



Loyd Kelley — 4152 15



Robert Jaramillo — 7133 20



John Neuberger - 8412 20



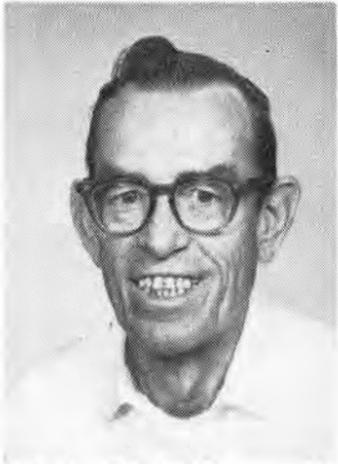
Steve Drago - 4137 20



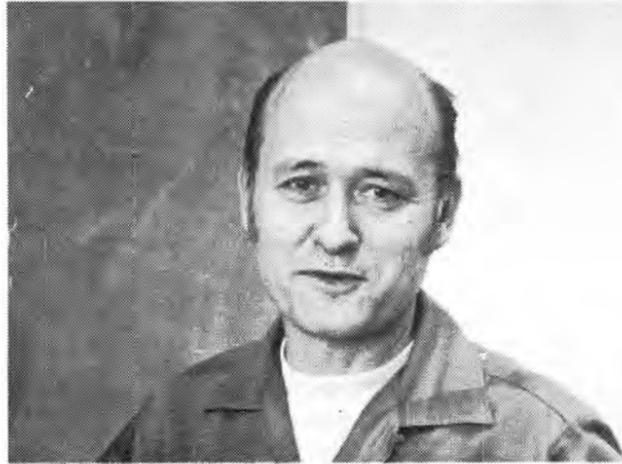
Jim Stueber - 9483 20



Roy Furrow - 4518 10



Orrin Caudill - 9344 15



Vic Engel - 100 20



Theresa CDeBaca - 7631 20



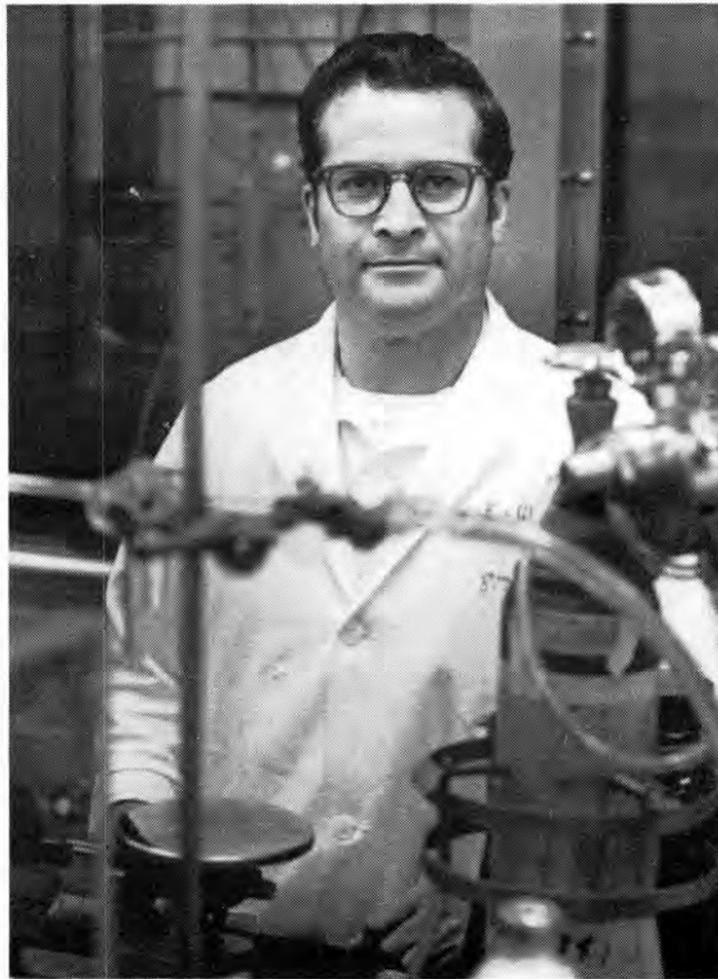
Larry Kohl - 5411 10



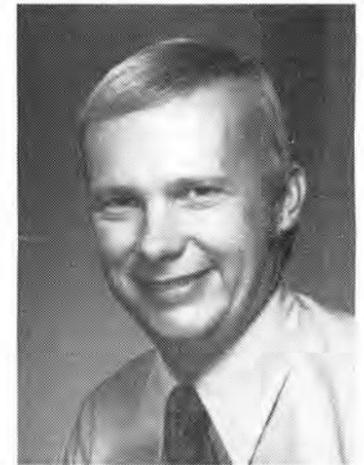
Joseph Darginis - 8313 15



Ray Dunaway - 5322 15



Frank Gurule - 1915 10



Robert Anderson - 7612 15



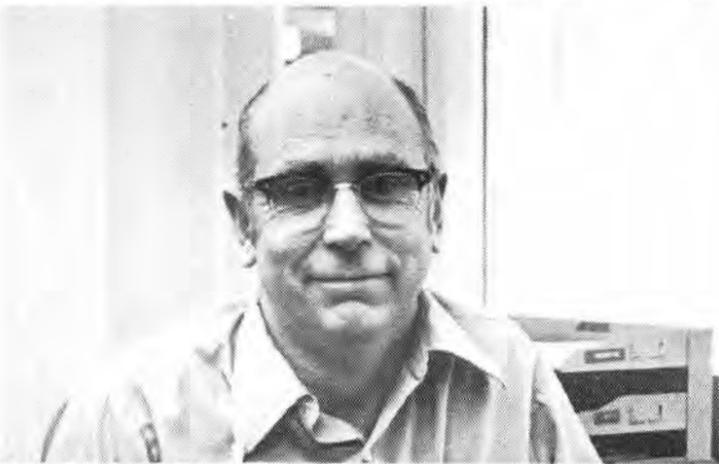
Ralph Fries - 1523 20



Dick Jacobson - 8414 20



Ronald Bump - 7432 15



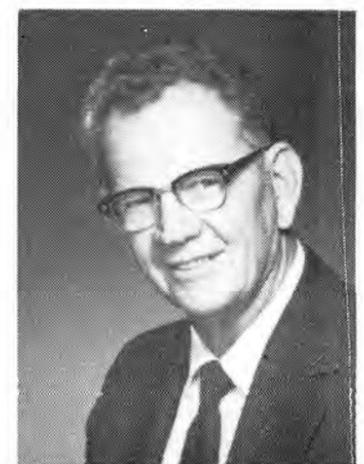
Hank Baisdon - 7113 20



Ed Austin - 1531 15



Bob Milby - 8168 20



Dale Cone - 3513 20

New Automated TM Ground Station Developed by Department 9480

An automated ground station for checking telemetry instrumentation, one of the most advanced facilities of its kind, is now in operation in Bldg. 880. The facility was designed primarily to serve Instrumentation Applications Department 9480, but designers throughout the Laboratories are using its unique capabilities.

Telemetry (TM) instrumentation is that equipment which transmits data collected by sensors on board test units. The sensors may be on rockets and howitzer projectiles fired at Tonopah Test Range or on units being tested in the laboratory, in Area III, or in Coyote Test Field.

Through the years TM instrumentation has evolved into the very small and the very complex. Many channels of information are coded, transmitted and decoded by either Pulse Code Modulation (PCM) or Pulse Amplitude Modulation (PAM) systems.

The new ground station is designed to provide automated checkout of both kinds of systems during the development stages of TM designs and also prior to "flying" the equipment during a test. Previously, checkout of TM systems was a tedious, time-consuming manual operation.

Heart of the new ground station is an EMR 6135 computer and software programmed by Doug Browne and Bill Whalen of Analog Computing and On-Line Systems Division 5425. Doug and Bill had the software ready for integration with the computer hardware by the time the equipment was delivered, and programs were operational (debugged) within six weeks.

The computer programs control a signal generator which simulates signals that the TM equipment should "see" and transmit. The development engineer plugs in his system, selects the appropriate deck of program cards, hits the go key and receives the results of his test almost immediately.

The computer provides him with printout of the values for some or all channels, dropout or "glitch" information, linearity check, format verification, crosstalk check, limit check, real time printout of a few channels, and format change verification for adaptive PCM encoders.

One of the features of the facility is that, unless otherwise specified, the printout lists only deviations from expected normal performance.

"This point seemed particularly important when designing the system," says Alan Campbell (9481), project leader for the ground station facility. "We insist that the computer do most of the data analysis and print only significant data — otherwise you have to pour through columns and columns of figures to find what you're looking for."

The ground station includes nine remote stations where development engineers can plug in their hardware, usually without leaving their workbenches. Preliminary checking can be accomplished with four roll-around racks and two mobile mini-computers.

Gene Bates of Technical and Crafts Training Division 3132 conducted a training session for about 50 development engineers on how to use the automated checkout system. Because it is not necessary to know anything about the computer, a user can concentrate on his equipment and the results of his test.

Alan made a videotape lecture about the ground station which was used during the



PROJECT LEADER Alan Campbell (9481), right, discusses software of the new automated TM ground station with programmers Bill Whalen, left, and Doug Browne (both 5425). The ground station, one of the most advanced facilities of its kind, provide automated checkout capabilities for telemetry equipment.



TOM CARRIERE (9484), left, responsible for operation of TM ground station facilities, assists Dick Vigil (9483) with one of the system's two mobile mini-computers.

training sessions. The tape is now available in the Department 9480 conference room.

In day-to-day activities of the ground station, Tom Carriere (9484) is responsible for all equipment, operations and scheduling. He is the man designers see before plugging in their equipment, and they also ask Tom for advice during breadboard stages of TM development. Tom is also responsible for the remote stations and mobile equipment. •dg

Events Calendar

- March 17** - ASUNM Lecture Series, Bobby Seale, 8 p.m., Popejoy Hall.
- March 17-19, 21-26, 28-30** - "Once More With Feeling," Albuquerque Little Theatre, 8 p.m. For reservations, 242-4750.
- March 18-19, 23-26** - "Escorial" by Michael de Ghelderode and "The Maids" by Jean Genet, Old Town Studio. For reservations, 242-4602.
- March 19** - Harvest and social dances, Laguna Pueblo.
- March 19** - N.M. Mt. Club, Jemez Mts. hike, Gulf Mart, 8:30 a.m.
- March 19 and 26** - The Potts Puppets and Children's program by the Pumpkin People, Old Town Studio, 2 p.m. For reservations, 242-4602.
- March 22** - "How a Sales Gallery Functions," Charles Gallenkamp; Friends of Art Lecture Series, UNM Art Museum, 7:45 p.m. (public invited).
- March 22** - N.M. Mt. Club, River Running slide show, Lovelace Clinic, 3rd floor lecture hall, 7:30 p.m.
- March 24-25** - N.M. Orchid Society Spring Flower Show, Montgomery Ward Garden Center, Winrock.
- March 25-26** - Albuquerque Symphony Orchestra Young People's Concert, Rodey Theater production "Hans Brinker and the Silver Skates," 3 p.m., Popejoy Hall.
- March 25** - N.M. Mt. Club, Pottery Mound exploration, State Police parking lot, Carlisle and Menaul, 8:30 a.m.
- March 26-27** - The Neighborhood Dramatics Project presents "The Search," an Easter musical, Baptist Neighborhood Center, 1020 Edith SE, 7 p.m.

Vista NEW MEXICO

Growing Up Navaho

Late in 1868 – 104 years ago – the 8000 Navaho survivors of the “Long Walk” straggled back to their homeland along the Arizona-New Mexico border, a defeated and bitter people. They had seen their homes and livestock destroyed by Colonel Kit Carson prior to their surrender at Ft. Wingate in 1864. They had walked 300 miles, under armed guard, to Ft. Sumner and survived four years as prisoners living on handouts from the enemy.

This is the central fact of the Navajo outlook, just as defeat in the Civil War remains the central fact in the outlook of some Southerners.

Revitalization of the Navahos was a slow process. From a proud history, through defeat, and adaptation to a pastoral existence in an arid land, the Navaho tribe has become the largest and richest in the country. Still the average individual income is only \$1000 annually. Royalties from sale of oil, gas and mineral rights and from land leasing arrangements bring the tribe some \$14 million annually. Controlled by the Tribal Council, this money is used for education, roads, law enforcement, and development of tribal industries for the benefit of the more than 90,000 modern Navahos.

* * * *

Kathy Manygoats joined Sandia Laboratories as a mail room messenger last September. She had worked here the previous summer as a trainee under the Youth Opportunity program.

An attractive 23-year-old, Kathy has survived the “Navajo identity problem” and she is now something else – more than a Navajo, more than an Anglo. She is an articulate and concerned individual reestablishing her roots with the past and looking forward to a full life.

“There was a time,” she says, “after I finished high school that I didn’t want to be a Navaho. I wanted to be me and I wanted all I could get – car, house, bank account – and I was impatient.”

At that time Kathy had little reason to rejoice in her life. Born near Indian Wells, Ariz., she spent her early years with the responsibility for four younger brothers and a flock of sheep. She never knew her father.

At 10, she was sent to a boarding school and did not see a relative or receive a letter for more than two years. Then she was adopted by “grandparents” and moved to Portland, Ore. For two years she did not attend school. Her grandparents moved back to Leupp, Ariz., where Kathy resumed her schooling and she then came to Albuquerque to attend the Indian School.

“These were unhappy years for me,” she says of the Indian School, “although I could not afford to admit this to anyone. I had no friends – I was the only Navaho at the school



Kathy Manygoats

– and for two years there I felt I was wasting time. Finally, through Mr. Murphey, pastor of the Rio Grande Presbyterian Church, I was able to transfer to Menaul High School. During the summers I worked as a maid in various homes in Albuquerque.”

Four years ago Kathy enrolled at Ft. Lewis College at Durango, Colo. She majored in English and did well. She still had few friends and very little money.

“Finally,” she says, “I came out of my shell enough to attend meetings of various Indian student organizations – there are many Indian students at Ft. Lewis from across the country.

“These are vital kids,” she says, “and dedicated. They are excited about the new programs for equal employment and excited about the way Indians are standing up for their rights. They intend to see to the redressing of past wrongs and to help in the progress that Indians still have to make.

“I changed. I rediscovered my heritage. I read books about the Navaho, cultivated Navaho friends, relearned the language.”

After three years without a break, Kathy returned to Albuquerque and Sandia.

“My summer here was a good one,” she says. “Sandians treated me well and I learned a great deal about large organizations. I was happy to get a job here again. Now I save my money and hope to return to college in the fall.”

Kathy’s goals are to obtain a degree and qualifications to teach. She will return to the Navaho reservation and work in one of the new schools being built, hopefully the new Navaho Community College. She feels that she can contribute, work to ease the way for the younger kids, be someone that they can talk with about the way it is for an Indian in modern America.

In the meantime, Kathy enjoys her work at Sandia, enjoys her own apartment, goes on casual dates – bowls, dances, and rides an occasional horse. Come September, she will be back in school. •dg

Authors

A.B. Campbell (9481), “A Computerized PCM Data Presentation and Real-Time Monitoring Scheme,” Dec.-Jan. 1972 issue, *TELEMETRY JOURNAL*.

G.P. Steck (1723), “The Probability that the Empirical Distribution Function Lies Between Two Non-decreasing Functions,” Vol. 42 (1971), *ANNALS OF MATHEMATICAL STATISTICS*.

W.J. Camp (5151), “Behavior of Two Point Correlation Functions Near and On a Phase Boundary,” Vol. 26, 565 (1971), *PHYSICAL REVIEW LETTERS*.

F. Schelby and R.A. Hill (both 5642), “A Non-Iterative Method for Computing Rotational Temperatures From Electron Beam Excited Nitrogen Fluorescence,” Vol. 14, No. 11 (1971), *PHYSICS OF FLUIDS*.

A.R. Champion (5134), “Shock Compression of Teflon from 2.5 to 25 Kilobars – Evidence for a Shock Induced Transition,” Vol. 42, 5546 (1971), *JOURNAL OF APPLIED PHYSICS*.

P.J. Chen (1721), “One Dimensional Shock Waves in Elastic Non-Conductors,” Vol. 43, p 350-362 (1971), *ARCHIVE FOR RATIONAL MECHANICS AND ANALYSIS*; “External Influences on the Growth and Decay of One-Dimensional Shock Waves in Elastic Non-Conductors,” Vol. 7 (1971), *INTERNATIONAL JOURNAL OF SOLIDS AND STRUCTURES*; P.J. Chen with H.H. Wicke (1721), “Existence of the One-Dimensional Kinematical Condition of Compatibility,” Vol. 105 (1971), *ISTITUTO LOMBARDO*.

P.B. Bailey and P.J. Chen (both 1721), “On the Local and Global Behavior of Acceleration Waves: Addendum,” Vol. 41, No. 2 (1971), *ARCHIVE FOR RATIONAL MECHANICS AND ANALYSIS*; P.B. Bailey, “A Variation of Hadamard’s Finite Part Integrals,” Vol. 2, No. 4 (1971), *SIAM JOURNAL ON MATHEMATICAL ANALYSIS*.

W.E. Warren (1721), “The Spread of Plastic Slip in a Notched Half-Plane,” Vol. 23, No. 5 (1971), *ARCHIVUM MECHANIKI STOSOWANEJ*.

D.E. Amos (1722), “Computation of a Multivariate F Distribution,” Vol. 26, No. 117 (1972), *MATHEMATICS OF COMPUTATION*.

J.A. Borders and S.T. Picraux (both 5111), “Comments on ‘A Simplified Technique for Crystal Alignment during Channeling Effect Measurements,’” Vol. 42, No. 11 (1971), *The Review of SCIENTIFIC INSTRUMENTS*.

B.D. Duggins (9321), L.W. Bickle (9324) and D.E. Mitchell (9321), “High Frequency Low Amplitude Strain Measurement with Strain Gauges,” Vol. 42, No. 11 (1971), *The Review of SCIENTIFIC INSTRUMENTS*.

R.C. Hughes (5514), “Geminate Recombination of X-Ray Excited Electron-Hole Pairs in Anthracene,” Vol. 55, No. 12 (1971), *THE JOURNAL OF CHEMICAL PHYSICS*.

G.W. Kuswa (5243), “Simple Methods for Determining m/z of Particles in Quasistationary Plasmas,” Vol. 42, No. 11 (1971), *The Review of SCIENTIFIC INSTRUMENTS*.

D.P. Aeschliman and R.A. Hill (both 5642), “Method for Measuring Doppler Shifts in Arc-Heated Flows,” Vol. 11, No. 1 (1972), *APPLIED OPTICS*.

J.C. Crawford (1410), “Piezoelectric Response of a Ferroelectric Memory Array,” Vol. 2 (1971), *IEEE Transactions on SONICS AND ULTRASONICS*.

C.E. Barnes (5112), “Radiation Effects in Electroluminescent Diodes”; R.J. Chaffin (5112), “Neutron Damage Effects in Step Recovery Diode Frequency Multipliers,” and “Permanent Neutron Damage in PIN Microwave Diode Switches”; C.W. Gwyn (1932) and B.L. Gregory (1933), “Designing Ultrahard Bipolar Transistors”; B.L. Gregory (1933) and others, “Neutron Produced Trapping Centers in Junction Field Effect Transistors”; D.H. Habing and B.D. Shafer (both 1934), “Modeling and Radiation Effects Study of an LSI/MOS Logic System”; H.H. Sander and B.L. Gregory (both 1933), “Circuit Applications of Transient Annealing”; B.D. Shafer and R.A. Burghard (both 1934), “Evaluation of Combined Radiation Effects to Transistors”; W.H. Sullivan and R.L. Ewing (both 1532), “A Method for the Routine Measurement of Dielectric Photoconductivity”; J.H. Weinlein (1934), “A New Propagation Delay Time Bridge for the Study of Displacement Damage Effects in Bipolar Transistors”; R.C. Hughes (5514), “Radiation-Induced Conductivity in Polymers: Poly-N-Vinylcarbazole,” Vol. 18, No. 6 (1971), *IEEE Transactions on NUCLEAR SCIENCE*.

D.D. McBride (5628) and P.M. Sherman, “Pitot Pressure in Hypersonic Flow with Condensation,” Vol. 9, No. 12, *AIAA JOURNAL*.



Pilot Roger Gelder Builds Dream House

Roger Gelder (9217) loves to fly but he hasn't been doing much flying lately. For the last seven months every spare minute has gone into building a five bedroom home some three miles south of Los Lunas. The house contains about 3000 square feet of living space and another 3000 square feet of garage, shop and hangar space, all under one roof. That's right, hangar space. Roger built his house at Mid-Valley Air Park adjacent to the airstrip.

The idea is that eventually he will be able to commute to work in either his Piper Cub or Beech Bonanza. The thing that bugs most pilots is the time it takes to drive to and from the airport. Now, he keeps the Cub like a car in a garage.

"It's great," Roger says, "I've dreamed of a setup like this for years."

Roger started hanging around the airport when he was a kid in upstate New York. He got a job wiping windshields and generally being handy, and by the time he was 17 and old enough to get a license he was an experienced pilot.

He started thinking about his home/hangar about eight years ago. With his wife Pauline and using the suggestions of his four sons, Roger completed detailed plans after purchasing the lot at Mid Valley. He obtained a contractor's permit and started construction about a year ago. Except for the masonry, most of the plumbing, and the laying of the asphalt on the roof, Roger and his sons — Tom, 18; Mike, 15; Alan, 13; and Jeff, 9 — performed nearly all of the construction work in the house.

Basic construction is white slump rock. Huge laminated wood beams support the roof. Digging a trench for the concrete foundation was a pick and shovel job. Inside framing is standard with double insulation. Many of the rooms are paneled. The large kitchen features built-ins and birch cabinets. The hand carved doors and wrought iron lighting fixtures came from Juarez. Focal point of the family room is a massive native stone fireplace.

"There is a tremendous amount of inside finishing work left to do," Roger says, "and there's grass and shrubs and all the outside yard work left, but we've moved in now and we know we are going to like it."

Roger is looking forward to flying to work but that's a while off yet. Now he drives a pickup the 27 miles to Albuquerque and usually returns home with a load of building materials.

"One of these days. . ." Roger says.

A remarkable aspect of Roger's achievement is the fact that during the past year he has been working three nights a week on a master's degree at UNM. He joined Sandia as a staff assistant in 1958, took three years on leave of absence in 1966-69 to earn a BS in EE at New Mexico State University and is now determined to earn the MS.

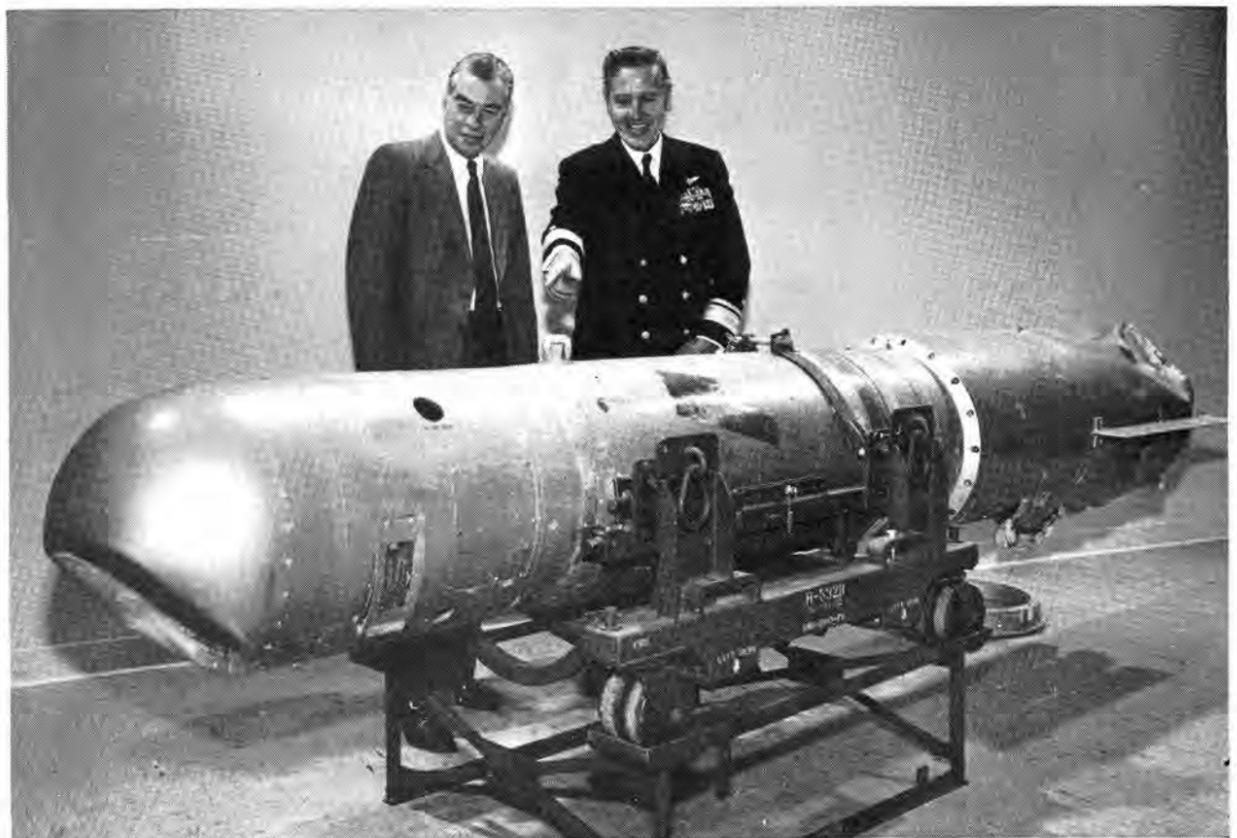
Roger rents out both the Cub and the Bonanza to help meet expenses.

"And half the house belongs to the Credit Union," he says.

ROGER GELDER (9217) built this five bedroom home with garage and hangar during the past year. As a flyer, he has dreamed of a setup like this for years.



AERIAL VIEW of Roger Gelder's house at Mid Valley near Los Lunas shows his Beech Bonanza in "the driveway."



THIS slightly beat-up weapon, on permanent exhibit in the 190 Display Area, Bldg. 892, is being examined by President Hornbeck and Rear Admiral Swanson, who was recently appointed head of DNA. The unit is the one which was recovered from the ocean off Palomares, Spain, back in '66 following an aircraft accident. Admiral Swanson was involved in weapon recovery operations.

BOB COLGAN (7544), right, interviews Gen. Sam Donnelly, manager of the AEC Albuquerque Operations Office, as part of a 13-week series on the work of Federal agencies in New Mexico. The series is broadcast on KNME-TV, channel 5, at 7 p.m. on Thursdays. The shows are sponsored by the Albuquerque/Santa Fe Federal Executive Committee.



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**FOR SALE
MISCELLANEOUS**

THOMAS ELECTRIC ORGAN, fully equipped, \$925. Silverman, 298-1308.

19' HOLIDAY travel trailer, sleeps 6, fully self contained, \$2650. Heckman, 298-3116.

GITAR, Martin D-18, cost \$375, sell for \$250 w/case. Sandoval, 247-1913.

AKAI X-150D tape deck, walnut case; Pioneer SX-1500TD stereo receiver, 145 watts at 8 ohms, walnut case, make offer. Ackley, 296-8654.

WHEELS: 2 15" mags, 2 Corvaire wheels, 3 14" 5-hole. Dunn, 255-9213.

ARABIANS: bay stallion, well trained, fine disposition; his yearling son, chestnut w/4 stockings & blaze, terms. Walter, 296-4534.

UTILITY CAMPER, wide bed truck, \$150; air pressure grease gun, \$20. Heath, 869-2181.

HOLIDAY TURRET 8mm movie camera, case, light bar; B&H 8mm projector, auto. threading, all for \$50. Perea, 265-0861.

UTILITY TRAILER, 8' x 12', alum. sides & roof, plywood floor, elec. brakes, steel frame, \$200. Kelsey, 256-2460.

HIGH CHAIR, \$5; early American 5-globe chandelier, \$10. Erlandson, 296-7351.

EPIPHONE Casino elec. guitar w/case, \$250; Fender super reverb amplifier w/fuzztone, extras, \$250. Esterly, 256-9251.

LG. TAN ARM CHAIR, matching 3-piece sofa, make offer. Marchi, 299-8516.

WARD'S straight stitch sewing machine, elec. port., \$20. McFadden, 298-4024.

'48 LIBERTY house trailer, 8'x33', at Conchas Dam, must be moved by April 30, \$500. Longfellow, 299-7062.

BOY'S bicycle, 20" Swinger, \$22.50. Denney, 268-0004.

3-YR.-OLD REG. QH filly, partially broke, \$350. Hollingsworth, 299-8171.

ELEC. FLOOR POLISHER, \$10. Kavet, 299-1793.

GO CART w/6 1/2 HP engine, tubular steel frame, racing slicks, set up for twin engines, \$60. Faucett, 255-0320.

TWO metal wardrobe closets, size 66"x36", ivory color, sliding doors. Hayes, 296-3909.

TWO LG. 3-way lamps, gold & white; small brown & white lamp; plastic baby bathtub; lt. brown wiglet. O'Bryant, 268-9049.

HONDA 350, \$650. Gonzales, 877-6762 after 5.

1000-GAL. coated water tank, mounted on 4-wheel trailer, \$300. Conant, 256-0012.

DANISH modern couch, gold tweed, 92" long, \$40. Barnes, 898-2375.

FENDER AMP & Kays guitar, \$100 cash. Jones, 247-9209.

CEMENT MIXER w/motor, never been used; Ward's model 26471, value \$195, sell for \$160. Predika, 855-4530.

PIANO, upright, antique, w/o stool, best offer over \$200. Chavez, 298-4250.

MOTORCYCLE, '64 Honda, 90cc model C-200, green color & includes green crash helmet, tool kit & '72 tag, \$50. Weber, 299-1389.

COMPLETE set of heavy aluminum cookware; fancy brass decorator shelves; port. hair dryer. May, 299-2624.

EASY auto. washer, \$40; ski boots, size 9, \$5; ladies hair-dryer & makeup mirror. Chandler, 296-3323.

BOY'S 20" Spyder bike, never used, won in contest, new price \$47.99, sell for \$35. Coughenour, 296-4146.

HOTPOINT washing machine, \$25; hand mower, \$5. Calvelage, 298-1560.

FENDER MIRRORS, detachable, chrome plated, for trailer pulling, \$17.50; 2 trailer stabilizer jacks, \$5. Garst, 299-5870.

SOFA, Chippendale styling, approx. 75" x 36", useable as is but when reupholstered back should be repaired, \$50. Campbell, 256-1015.

MOBILE HOME, '71 Fleetwood, 12' x 64', 3-bdr., 1 1/2 bath, w/awnings, completely skirted, \$600 down. Nevada, 294-1023.

OUTBOARD MOTOR, 5hp w/remote tank, \$95; travel trailer, 14' '64 teardrop, sleeps 6, \$595. Bentz, 299-3448.

REG. QUARTER mare & filly, filly halter broke for show, mare perfect for women/children. Jean, 282-5257 or 282-3383.

AIRSTREAM TRAILER, 22', '61 Landyacht series, many extras, \$2650. Arthur, 299-1802.

1500 CC VW ENGINE, good for parts; set of red vinyl bucket seats from '66 Chev. Super Sport. Hoagland, 282-3825.

6X REDFIELD SCOPE, never been used; 7 x 35 Bushnell binoculars, Morris, 266-1849.

BOY'S quality suit, size 16, brown dbl. breasted Edwardian style, from Strombergs, \$20. Scheiber, 299-4743.

METAL TENNIS racket from Cook's, nearly new, "Chemold Fireball, size 4 3/4 L, \$15. Baxter, 344-7601.

LADIES GOLF SHOES, new, never worn, size 6 1/2 A, Sear's red & white, \$10. Martinez, 265-3123.

ELEC. GUITAR & amplifier; near new Zenith Hi-Fi record player. Martinez, 344-2238 after 6.

6-YEAR-OLD sorrel mare, 4 white stockings & forehead, good riding horse, \$125. Castillo, 298-1984 after 5.

AIR CONDITIONER, evaporative type, side discharge, 4200 cfm, \$40 complete. Snelling, 268-5895.

ORGAN, port. electronic w/100w amplifier, 15" musical speaker in cabinet, \$150. Whelchel, 299-1134.

75-POUND camper ice box, never used, \$25. Hansen, 898-3173.

RCA console stereo, 1970 model, mahogany Mediterranean style cabinet. White, 243-6919.

**FOR SALE
CARS & TRUCKS**

'70 CHEV. 3/4w/8' cabover, lwb 350 V8, 4-spd., gas/elec. refrig., furnace, 4 jacks, oven/range/fan, pressurized water, \$3895 or sell separately. Guzman, 344-9287.

'68 OPEL Rallye, less than 22,000 miles, gold w/black trim, new shocks & front tires. Creamer, 296-8450.

'59 CHEV. pickup, new V8 motor, long bed, 4-spd. trans., \$500. Disch, 299-0765.

'69 OPEL station wagon, AC, AT, radio, disc brakes, 1900 cc engine, \$1295 Schmierer, 299-2352.

'68 OLDS 442, \$1700 or best offer; '67 Volks, \$850, both w/Michelin radials. Melville, 296-3378.

'61 SCOUT, 4wd, \$500. McCampbell, 294-0891 evenings.

'62 CORVAIR convert., AT, new brakes, \$300. Roberts, 255-9527.

'71 DATSUN sta. wgn., bought new May '71, 4-spd. manual, red outside, black inside, 9600 miles, radio, \$2000. Marquess, 296-1443.

'69 VW sedan, 17,000 miles, vinyl interior, undercoating. Kobs, 298-9133.

PICKUP CAMPER, 11 1/2', side dinette Mobil Travler, self contained, fully equipped, \$2300. Dramer, 298-7019.

'71 NOVA SS, 350 cu., 4-spd., solid lifter Crane cam, Holley carb., Hurst Hooker headers, Baker, 298-3341 after 5.

'61 MERCURY 4-dr. HT, mech. sound, best offer. Quinn, 296-1810.

'65 FORD sta. wgn., PS, AT, AC, R&H, \$600 or trade for camper. Davis, 298-6944.

'69 VW BUS, R&H, AC, \$1300. Wheeler, 282-3321.

'66 MUSTANG 2-dr. HT, 3-spd., 289 V8, R&H, chrome wheels, dual exhaust, \$700. Miltcham, 299-8425.

'61 CHEV convert., good throughout except engine block cracked, lifetime auto. trans., make offer. Hueter, 242-1620.

'68 IMPALA, 4-dr. sedan, AT, R&H, AC, PS, PB, under Blue book. McEwen, 268-1440 after 5.

'68 CAMARO, yellow, blk. vinyl roof, blk. interior, PS, AT, AC, 327, all options, \$1750 or best offer. McGovern, 296-6813.

WANTED

ENLARGER, 35mm, Durst M301 or Omega equivalent. Robertson, 298-2388.

HOME for Penn State Professor & family during summer employment at Sandia, 4-bdr. preferred, July to early Sept. Meyer, 264-8140.

3-SPD., 26" boy's bike. Shepherd, 299-1507 after 6.

CANOE, prefer Grumman, will look at any and all. Baxter, 344-7601.

TWO-WHEEL utility trailer; steel casement windows; single section overhead garage door;

fireplace builder. Fisher, 299-9235.

EMPTY .270 cal. brass. Jellison, 296-9155.

PROPANE/BUTANE bottle, 2-3 gal., upright or horizontal, w or wo/regulator. Ristine, 298-8383.

USED POOL TABLE, slate top, reg. size, 4x8 or 4 1/2x9. Kavet, 299-1793.

LADIES 5-speed bike. Chandler, 296-3323.

TENT, approx. 8'x8', without center pole. Kelsey, 256-2460.

LARGE air compressor in working condition. Hoagland, 282-3825.

FOR RENT

GARAGE at 13th Ave. SW & Coal SW, \$18/mo. Perry, 268-7019.

3-BDR., 1 1/2 baths, built-in oven/range, carpet, walled yard, landscaped, Los Altos golf course area, \$175/mo.-first & last month's rent. Patterson, 243-6219.

NEW, 2-bdr., partly furnished, AC, no children, no pets, NE, Available April 1, \$165 plus utilities. Piraino, 255-5126.

WORK WANTED

Cars waxed and hand polished, experienced, reasonable rates. Hubbard, 299-7818.

**FOR SALE
REAL ESTATE**

3-BDR., 1 1/2 baths, lg. sunny kitchen, utility room, DR or family area, 1 car garage, \$17,550. Huston, 298-3323.

5-BDR., 2700 sq. ft. Mossman, DR, den w/fp, lg. rec. room, 6505 Natalie NE. Moore, 299-3758.

2-BDR., separate dining, fenced front & back, assume 5 1/4 loan, Tapia, 299-3685.

3 LOTS in Paradise Hills; full acre plot in Sierra Encantada Addition, 5 miles south of Central on Hiway 217. Brown, 295-5949.

LOST AND FOUND

LOST—Set of keys including car/ apt./mail box, black ANB check book w/name & address & a government check, brown wallet w/license & ID cards. LOST AND FOUND, tel. 264-2757, Bldg. 832.

FOUND—Stenographer notebook. LOST AND FOUND, tel. 264-2757, Bldg. 832.

The Wildman Is Too Tame For Tonight

THE THING about Wildman Bob Banks is that occasionally he has rational moments. This would never do for the Coronado Club's St. Patrick Day celebration tonight. So the original Irishman himself Tommy (Never A Rational Moment) Kelly will join the Wildman and the Terror Trio on the bandstand for a total Irish celebration.

The world's largest leprechaun — club manager Smiling Jim Noonan — will spread corned beef and cabbage plus Irish stew and other goodies for the buffet while Denny O'Gallegos, entertaining in the main lounge, will wear a green tie.

Happy Hour prices including 10-cent green beer and 35-cent Irish whiskey will be in effect from 5 to 10 p.m. The buffet will be served from 6 to 8 p.m. and Denny will entertain from 9 p.m. to 1 a.m.

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NEXT FRIDAY will see Happy Hour prices extended from 5 to 11 p.m. in honor of the Carter Brothers show which has been booked for the occasion. This versatile touring group features a young country/rock sound and some versatile and talented performers. Some of you may remember them from last year when they were a hit at the Club. Smiling Jim will spread a pork cutlet buffet with country goodies like sawmill gravy (whatever that is) but if Smiling Jim says it's ok, it's ok. Denny will hold the main lounge until 1:30 a.m.



SOUL SESSION EXCITEMENT, reflected in the eyes of Rosie Sanchez (AEC), includes great modern rock music, free admission and Happy Hour prices. Try it 8:30 to 12:30 Saturday, March 25.

THE SAFE DRIVER

ALCOHOL IS INVOLVED IN AT LEAST HALF OF ALL FATAL AUTO CRASHES. SOME 28,000 PERSONS IN THE U.S. WILL DIE THIS YEAR AS A RESULT OF DRUNK DRIVING — THEIR OWN OR SOMEONE ELSE'S.



THE SAFE DRIVER WON'T DRINK AND DRIVE. AND HE KNOWS THAT CONTRARY TO BELIEF, COFFEE, TEA OR OTHER STIMULANTS CANNOT COUNTERACT THE EFFECTS OF ALCOHOL!



DRINKING WHEN YOU'VE BEEN TAKING MEDICINE ALSO CAN BE DANGEROUS. WHEN TAKEN IN COMBINATION, THE EFFECTS OF BOTH CAN BE AMPLIFIED GREATLY!

HAPPY HOUR will be observed on Thursday, March 30, since the Club will be closed on Good Friday. Frank Chewiwie will make the happy music and fried shrimp (lots of it) will be spread for the buffet. Yolanda Adent will take over the main lounge and entertain with a sing-along until midnight.

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THREE HUNDRED earlybird Club members (they made reservations early) will enjoy Maine lobsters tomorrow along with a wine taste and dancing to Bud Fischer's orchestra. The rest of us will eat our hearts out.

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SOUL SESSIONS are a now-it's-happening kind of thing where something gets in the air, the blood, the booze or someplace and people that you've known for years are suddenly 16 years old. They're out there doing the frug, the bugaloo or a shaky sagebrush shuffle and if you're not with them then you're left out. For a night out, a Soul Session

is a great buy — members are admitted free, Happy Hour prices are in effect and super sandwiches are available. Try it Saturday, March 25, from 8:30 to 12:30. The Star Sapphires will be wired into the bandstand.

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LITTLE KIDS six and under will enjoy the annual Easter Egg Roll at the Club on Saturday, April 1, starting at 10 a.m. There will be fun and games, cartoons and prizes. Member parents should accompany their kids.

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TRAVEL NEWS The recent Hawaiian tour group will meet Tuesday, March 28, in the Club's dining area to show slides and movies of the trip.

In the meantime, the Spain/Portugal tour, scheduled for October, has 160 travelers signed up. This makes the package feasible but the minimum is still 170 — more are needed. Reservations will be taken through July 1. Pay a \$100 deposit at the Club office now.