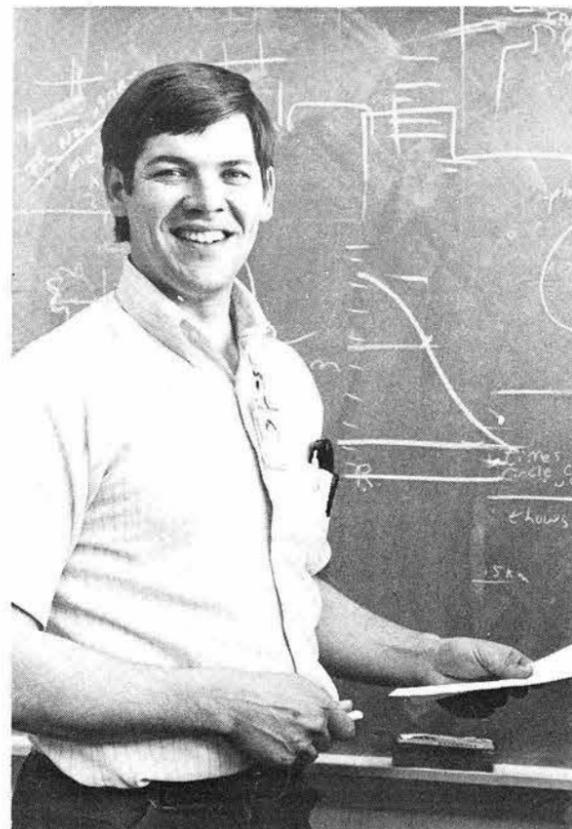




SERIES OF WORKSHOPS FOR SANDIA LIVERMORE SECRETARIES featured Education and Training Division Supervisor Mary Quigley (3131), here interpreting results of interpersonal relations orientation. Other speakers at the one-day workshops held at the Holiday Inn included clinical psychologist Bette Graham (3300) and Bob Gaeddert, Manager of Personnel and Budgeting Department 8210. Evelyn Foote, supervisor of Secretarial and Clerical Development Section 8212-1, was coordinator.



Garry Brown

LIVERMORE NEWS

VOL. 27, NO. 7

LIVERMORE LABORATORIES

APRIL 4, 1975

Supervisory Appointment

GARRY BROWN to supervisor of Systems Studies Division II 8324, effective April 16.

Joining the Labs in June 1967, Garry earned an MS in electrical engineering from the University of New Mexico under Sandia's Technical Development Program. Subsequently, he did systems studies of tactical nuclear weapons.

Garry received his BS degree in EE from the University of Missouri at Rolla in 1967. He is a member of the American Defense Preparedness Association. A history buff, Garry's other leisure time activities include camping, biking and cross country skiing.

Garry, his wife Anne, and their four-year-old daughter plan to reside in the Livermore Valley area.

Authors

Marty Abrams (8111), "The Temperature of Cavity-Type Solar Absorbers With a Circulating Fluid," JOURNAL OF HEAT TRANSFER, Nov., 1974.

John Brooks (8314), "Effect of Alloy Modifications on the Heat Affected Zone Cracking of A-286 Stainless Steel," WELDING JOURNAL, Vol. 53, p. 517S.

Walt Bauer (8334) and George Thomas (8313), "Helium and Hydrogen Re-emission During Implantation of Molybdenum, Vanadium, and Stainless Steel," JOURNAL OF NUCLEAR MATERIALS, Vol. 53, p. 127; and "Formation of Surface Features on Niobium During High Temperature Hydrogen Irradiation," RADIATION EFFECTS, Vol. 23, p. 211.

Bob Gallagher (8334) and J.B. Fenn (Yale University), "A Free Jet Study of the Rotation Relaxation of Molecular Nitrogen from 300-1000°K," RAREFIED GAS DYNAMICS, Vol. 1, DFVLR Press, Porz-Wahn, Germany (1974).

Ray Mar (8313), "Melting Temperature and High Temperatures Enthalpies of Erbium Tetraboride," JOURNAL OF CHEMICAL THERMODYNAMICS, Vol. 6, pp. 943-47.

Jim Shelby (8334), "Viscosity and Thermal Expansion of Alkali Germanate Glasses," JOURNAL OF AMERICAN CERAMIC SOCIETY, Vol. 57, pp. 436-39.

Jack Dini and Rudy Johnson (both 8312) and Mike Baskes (8341), "Fracture Toughness and Reduction in Area Data for Some Electrodeposits," METALS TECHNOLOGY, 1974, p. 391.

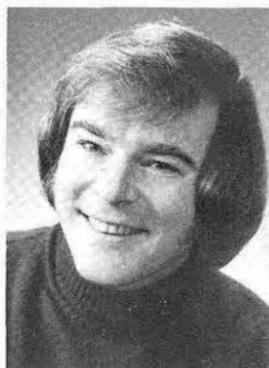
Sympathy

To Eric Hasseltine (8321) on the death of his mother-in-law in Seattle, Wash., March 2.

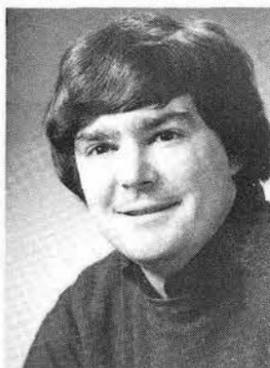
Two Sandians Awarded PhDs



GREAT LIVERMORE BLIZZARD OF '75 brought about an inch of snow. It was quite a treat for local residents and Marlene Ballou (8323) couldn't resist trying out her skis on a Sandia tech area slope. Snow reportedly was up to six inches deep on surrounding hills.



Sheridan Johnston

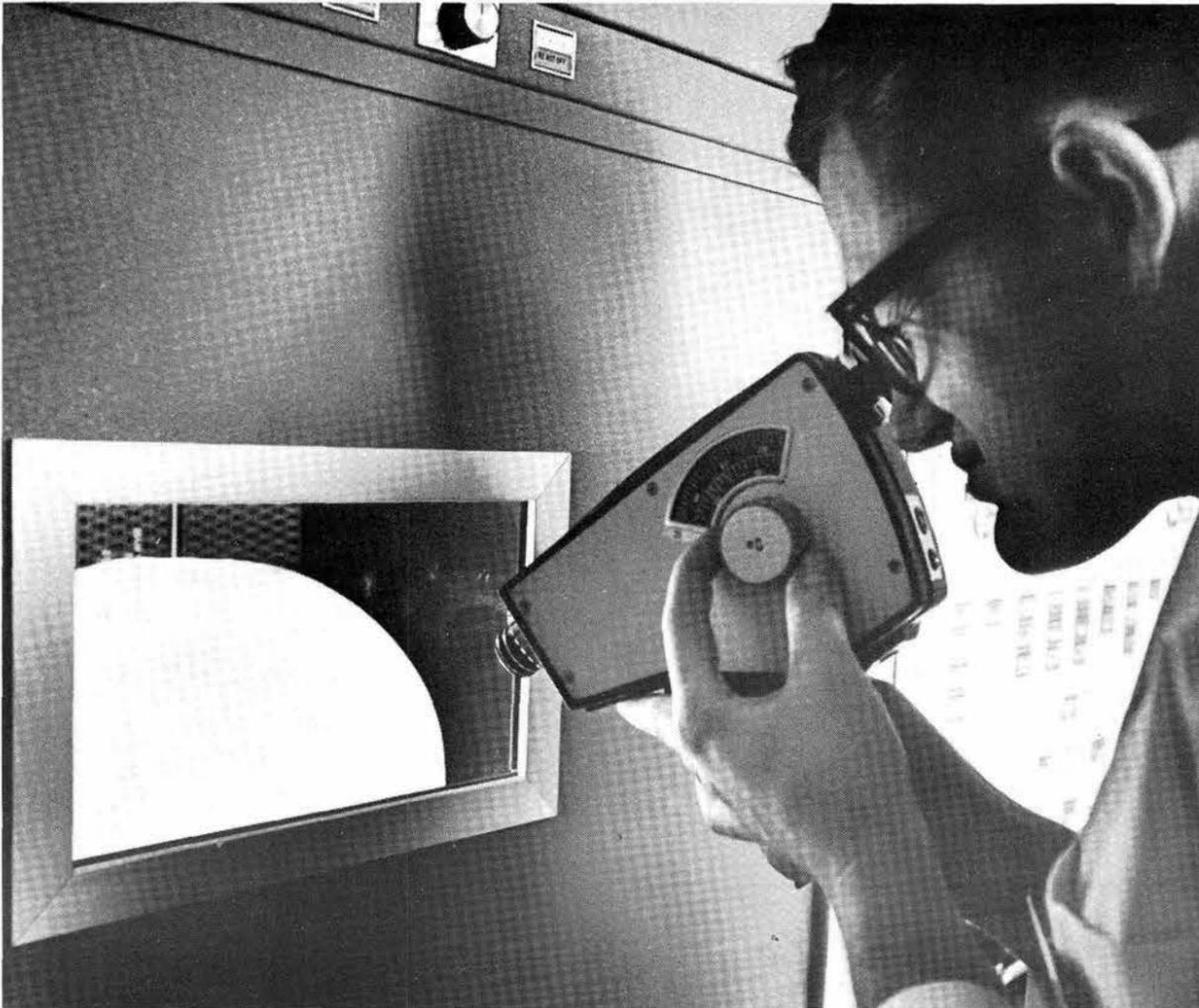


Pete Witze

Pete Witze (8115) and Sheridan Johnston (8111) received PhD degrees in mechanical engineering recently from the University of California at Davis through Sandia's Educational Aids Program. Both participated in the UC/Davis educational television classes on site at SLL.

Title of Pete's dissertation is "A Study of Impinging Axisymmetric Turbulent Flows: The Wall Jet, the Radial Jet, and Opposing Free Jets." Since joining Sandia in June 1966, he has performed design analysis of reentry vehicle nose tips and heat shields and, most recently, experimental studies of turbulent gas behavior. Pete's BS degree is from Cornell and his MS from Stanford Univ.

Sheridan, whose dissertation is "Characterization of Unsteady Gas Discharge from a Vessel," has been working on gas and heat transfer studies since joining Sandia in September 1969. He received his BS degree from Boston University, his MS from Rensselaer Polytechnic Institute, and a diploma in experimental aerodynamics from the Von Karman Institute for Fluid Dynamics in Brussels, Belgium.



CHECKING THE TEMPERATURE in the epitaxial reactor with an optical pyrometer is Vic Wells (2141). The system is used for chemical vapor deposition of materials used in the fabrication of semiconductor devices. Availability of the reactor provides the Microelectronics Lab with the processing capabilities required for such advanced technologies as silicon gate and MNOS integrated circuits.

New Lab Underway Semiconductor Progress

One of these months, Integrated Circuit Process Department 2140 will have a new development laboratory filled with the latest equipment for the design and fabrication of silicon integrated circuits (or, colloquially, semiconductors). The lab, now under construction in Bldg. 870, is scheduled for completion in late 1975. But the group isn't waiting for the new lab to start integrated circuit development.

Vic Wells (2141) notes three recent advances: fabrication of integrated circuits known as complementary metal oxide semiconductor devices (abbreviated CMOS and pronounced "sea-moss"); improvements in the technology of producing radiation-hardened circuits; and improved understanding of silicon solar cell design and fabrication.

"We have two principal objectives here," says Vic. "One is to understand how to assure the survival of a circuit in a radiation environment. This requires a greater understanding of how fabrication steps affect device properties.

"Our second objective is to develop a CMOS technology for making prototype LSI (large scale integration) circuits. We've succeeded at fabricating simple CMOS circuits." (See photo.)

A complementary MOS is one which contains both p and n channel transistors on the same chip. CMOS devices can give improved performance at much less power than the discrete circuits they replace. The savings in weight and power make possible more sophisticated designs of logic circuits used in, for example, computers and coded switches.

While waiting for the new facility, the department has set up two temporary laboratories, one in Bldg. 828, one in Bldg. 802. These use the same equipment that will be installed in the new microelectronics lab. Availability of these labs provides experience and training for the staff. This will reduce the start-up time and allows a better definition of equipment requirements. "The new facility will allow us to perform state-of-the-art integrated circuit fabrication," says Bob Gregory, 2140 department manager.

"Throughout the lab, we've used commercially available equipment. This will facilitate the transfer of our designs and technology to the American semiconductor industry when we require a production run of a circuit developed for a Sandia system and prototyped in our microelectronics laboratory."

"We've learned that building integrated circuits means that the purity of the chemicals used must be monitored," says Vic. "Even the ones sold as 'High Purity' can vary enough to cause some batches to fail performance tests. We've had to develop some sophisticated analytical techniques to ensure that the materials we use really are high quality.

"In short, we're trying to make device fabrication more of an engineering science, less of an art."

Credit Union Reporter

Savings Plans and the Credit Union

By Clarence Sandy,
VP, Board of Directors

Most Sandians have experience with passbook savings plans, either at a bank or a Savings & Loan Association (S&L). These plans are used to save money in some methodical fashion, usually by weekly or monthly deposits, and the money is then available for emergency use or for payment of some single large bill.



Sandy

By law, insured banks can pay a maximum interest of 5% annual percentage rate (APR) on passbook savings, while insured S & L's can pay up to 5.25% APR. (Uninsured institutions can advertise and pay any rates they want. There are two such institutions in Albuquerque.) Further, systems of computing and crediting interest to your account vary. In the case of banks, interest may be computed semi-annually on the smallest balance during the six-month period. For example, if your balance ranges from \$500 to \$1500 during the six-month period, your interest is based on the \$500 figure.

A similar practice is followed in the Credit Union except that the dividend period is three months and, should you need cash, a single-payment loan can protect your dividends.

S & L's are more generous than banks. They typically have "day in-day out" interest computation, paid quarterly. That is, you are paid interest on your money from the day you place the money in the account until the day it is removed. This amount is then credited to your account quarterly.

If you are thinking about a savings plan, consider these advantages which the Credit Union can offer:

- 1) A 6½% APR, and
- 2) A means whereby your dividends for the quarter can be protected should you need to make a withdrawal.

Additional long-term savings plans are available at banks and S & L's that pay higher interest in return for guaranteed times of deposit. Locally (Albuquerque), these are known as "Golden Passbook," "Blue Chip," "3 in 1," etc. Typically, interest rates run from 5½% for 90-day deposits to a high of 7¾% for a six-year minimum \$1000 deposit.

But certain penalties are associated with early withdrawal of this type of deposit. For example, you must give a 90-day notice of your intention to withdraw funds, and no interest is paid on those funds during the 90-day wait. Further, interest that is paid (on funds withdrawn) reverts to the regular passbook rate of 5% or 5.25%. Thus, these plans are pretty much like long-term Certificates of Deposit. They may be an excellent way for you to put your money to work, but you do incur a loss of flexibility.

Like CD's, these plans require action on your part when they mature. If you simply leave the money in, it becomes "locked" into that plan with its minimum length of deposit, 90-day notification period and attendant loss of interest and interest rate penalties.

This table summarizes maximum rates offered by insured banks and S & L's:

Account	Banks	S & L's
Regular savings	5%	5¼%
90-day	5½%	5¾%
1-to-2½ years	6%	6½%
4-to-6 years (minimum deposit \$1000)	7¼%	7½%
6 years or more (minimum deposit \$1000)	7½%	7¾%

Variable Annuity Unit Value

April 1975	1.257
March 1975	1.175
Average 1974	1.336

Recreation Notes

FUN & GAMES

Tennis — If you're interested in a spring mixed doubles tournament, then give Jim Buttz, ext. 3076, or Pat Freeman, ext. 2273, a call.

Sandia Runners Ass'n. — Mark Percival (2411) and Pete Richards (5132) are charging down the road with the organization of the Southwest Masters Running Club. Mark is especially anxious for the group to gain members who run or jog for fun and health and not necessarily for competition (although that will be offered). Club objectives are being defined, and they include the encouragement of running for health and the reduction of cardiovascular disease, the clinical assessment of the runner's physical performance, and the exchange of health and training information. Initial meeting dates aren't firm yet but will be announced. In the meantime, check with Mark or Pete for further information.

Sandia Bicycle Ass'n. — In the ever-changing saga of how bicyclists are supposed to come through the Wyoming Gate, here's today's word: A. If you enter on the east side (using the bikeway) you are permitted to stay on the east side all the way. B. If you enter on the west side you must now join one of the traffic lines as you go through the gate; you are not allowed to enter by passing through the visitor's parking area. The latter is in direct contradiction to what our military friends told us last month. But cheer up; we do have two bikeways operational once you've made it through the gate. We are further informed that as you leave in the evening, using the east side bikeway, you may cycle directly to the bikeway, i.e., the "wrong" way on the one-way street (11th Loop).

April 27 is the date of the 3rd Annual Tour of the Rio Grande Valley, 50 or 100 miles depending on your preference. Tour literature and entry blanks are available in the LAB NEWS office (ext. 1053).

Take Note

Veterans who had at least 19 months in military service between Jan. 1961 and Sept. 1973 and who had been residents of the State of Michigan for at least six months when they entered the service are eligible for a cash veterans bonus. For further information, write Vietnam Veteran Era Bonus Section, Department of Military Affairs, P.O. Box 1500, Lansing, Mich. 48904.

The Friends of the Albuquerque Public Library are again collecting used books for their annual Used Book Sale. As in the past, books may be taken to any city fire station. Hardbound or paperback books on any subject are welcome. Books will be collected from April 1-23.

Purchasing's Jay Hughes (3731) reports that a local firm was nominated by Sandia to compete for the Region VI Small Business Contractor award and has since won first place. The firm is Hi-Q Machining and Manufacturing Inc., a Labs supplier whose rise to successful operation was described in LAB NEWS a few years back. Owners Ben



Vic Schaeffer (3646-2) and Gene Lucero (3617-2).

Supervisory Appointments

GENE LUCERO to supervisor of Electronic Testing Section 3617-2, effective March 1. Joining the Labs in February 1951, Gene worked in the weapons components testing organization for five years. Since then he has been with his current organization as a leadman, staff assistant and, most recently, an engineering science assistant. He graduated from Highlands University Technical Institute in Las Vegas.

During WWII Gene was in the 12th Air Force for three years. On his 33rd mission as a crew member on a B-26 bomber, his plane was shot down over Italy and he spent one year in a German prison camp. His leisure time activities include ping pong, handball, fishing, song writing, and leading his own musical group. Gene and his wife Lorine have four children and one grandchild and live at 5601 Iliff Road NW.

VICTOR SCHAEFFER to supervisor of Projects and Toxics Section 3646-2, in the machining department, effective March 1. For almost 21 years Victor has been a machinist at Sandia. He has worked in a number of areas of that department, including model and instrument making, layout operations in the heavy machine shop, and experimental machine work.

Victor enjoys hunting, fishing, bowling, golfing, and woodworking. He spends much of his spare time on home improvement projects. Victor and his wife Esther have an 11-year-old son at home, a married daughter and five grandchildren. They live at 9501 Shoshone Rd. NE.

Speakers

B.L. Hulme (5122), "A Lattice Algebra for Finding Simple Paths and Cuts in a Graph"; R.B. Worrell (1233) and B.L. Hulme, "Finding Simple Paths in a Graph by Symbolic Manipulation of Boolean Equations"; G.J. Simmons (5120), "A Lower Bound on the Chromatic Number of a Sphere," Sixth SE Conference on Combinatorics, Graph Theory and Computing, Feb. 17-20, Boca Raton, Fla.

C.E. Hackett (5642), "Laser Velocimetry Measurements in Chemical Laser Cavity Flows," Chemical Laser Technology Conference, Feb. 19-21, KAFB.

R.S. Blewer (2413), invited paper, "Studies of Helium and Hydrogen in Metals Using Proton Elastic Scattering," Southeastern Region of AVS, Feb. 20-21, St. Petersburg, Fla.

F.G. Blottner (5640), "Computational Techniques for Boundary Layers," Computational Fluid Dynamics Course, sponsored by the Advisory Group for Aerospace Research and Development, Feb. 17-22, Brussels, Belgium.

H.H. Sander (2115), "Nomograph to Determine Annealing Factors for Various Circuit Situations," and "Transient Annealing in Diodes"; E.F. Hartman (2144), "Electrical Pulse Stressing of Transistors in Ionizing Radiation," TREE & AGEMP/IEMP symposium, Jan. 14-17, Los Alamos, N.M.

R.R. Rye (5114), "Crystallographic Dependence in the Surface Chemistry of Tungsten," UNM Chemistry Dept., Feb. 14.

J.M. Peek (5641), "Quantum Effects in Molecule Formation Rates," General Physics Colloquium, Feb. 26, University of Texas.

H.E. Nuttall and R.M. Curlee (both 5825), "Mathematical Modeling and Experimental Investigation of In Situ Oil Shale Retorting"; R.J. Lawrence (5166) and E.G. Young (5163), "Some Aspects of Spark Drill Phenomenology"; S.G. Varnado (4733), "Electron Beam Fusion - A Systems Viewpoint," 15th annual ASME Symposium, March 6-7, Albuquerque.

Sympathy

To Lorraine (1711) and Don (5825) Cook on the death of their husband and father in Albuquerque on March 23.

To Andy Fuller (4251) on the death of his father-in-law in Albuquerque on March 28 and also on the death of his father in Oklahoma on March 31.

New Instrument 'Sees' Single Atoms

Fundamental studies of surface physics and catalytic reactions by Surface Physics Division 5114 have led to the development of a unique device capable of determining the chemical composition of the surface of a metal seen in atomic resolution. Called an imaging field desorption mass spectrometer, the instrument was recently patented by ERDA. Inventor is John Panitz.

"The size of the specimen examined by the instrument approximates that of a single catalyst granule in a commercial catalyst (10 to 1000 Å)," John says. "This permits investigation of catalytic properties on an atomic scale. The unique surface and species sensitivity also allows examination of part-per-billion impurities in specimens representative of alloys and materials used for

Controlled Thermonuclear Reaction (CTR) devices. The ability to image individual hydrogen atoms and determine their location on a surface is extremely useful since other surface techniques cannot detect hydrogen directly, particularly in such small concentrations."

The instrument can identify one preselected surface atom or the crystallographic distribution of a given species as well as its depth profile in the near surface region. This is accomplished by applying a nanosecond high voltage pulse to the specimen surface in a vacuum. The resulting electric field removes, in a controlled fashion, the constituents of one atomic layer of the specimen as positive ions, which are then accelerated to a spherical channel plate detector. The gain of the detector and its imaging properties permit individual ion impacts to be photographically recorded through a special fiber optics vacuum window. Time-of-flight techniques identify



JOHN PANITZ (5114) looks at helium on the first atomic layer of a solid surface through the viewer of a unique new instrument he invented. Called an imaging field desorption mass spectrometer, it was recently patented by ERDA. Bob Crozier (3646), Foster Tennant (3621) and Jim Taylor (3623) contributed significantly to fabrication of the instrument in the Sandia shops.

arriving ions with specific masses. By time-gating the detector with a 10 nanosecond pulse, applied simultaneously with the arrival of a given species, only that species will be recorded. This recorded image also reveals the surface crystallographic distribution of that particular species.

Several studies are in progress or planned by Division 5114 using the field-desorption technique. Included are depth profiles, measurements of implanted hydrogen and helium in the first several Angstroms of selected materials, adsorption properties of reactive and inert gases on an atomic scale, and direct structural analysis of organic and biologically active molecules and their adhesion to metal surfaces.

John earned his PhD in Physics from Pennsylvania State University where he participated in the development of the atom-probe field ion microscope. He joined Sandia in 1970 and has since performed studies of basic processes on solid surfaces.

Events Calendar

- April 4-27 — "Twigs," Barn Dinner Theatre, 281-3338.
- April 4-6 — Rodey Theater, UNM: Edward Albee's "A Delicate Balance," 277-4402.
- April 5 — KNME channel 5, The Ascent of Man, 9 p.m.
- April 5 — N.M. Mt. Club, Stone Lion, 12 miles, 7:30 a.m., Gulf Mart.
- April 5 — Music Dept. & General Honors Program, UNM: Spring Arts Festival (Poetry, Music, Dance, Film, Art), 4 p.m., Keller Hall.
- April 5 — Metropolitan Opera Broadcast: Verdi's "Falstaff," KZIA (1580 AM), 11 a.m.
- April 6 — N.M. Mt. Club, La Luz hike, 8 a.m., Gulf Mart.
- April 6 — Albuquerque Civic Chorus: Beethoven's "Choral Fantasia," 4 p.m., United Methodist Church.
- April 7 — KNME channel 5, Book Beat interview S.J. Perelman, 6:30 p.m.
- April 8 — KNME channel 5, Do It Yourself Guide to Solar Living, 8 p.m.
- April 9, 11, 17, 19 — Rodey Theater, UNM: Cole Porter's "Anything Goes," 8:30 p.m., 277-4402.
- April 10 — Arlen Asher — Bob Brown Jazz Workshop: Concert, featuring Bobby Harriot, 8:15 p.m., Albuquerque Academy Theater.
- April 11-13 — Experimental Theater, UNM: Annual Children's Production, "Greensleeves Magic," 277-4402.
- April 11-12 — Albuquerque Symphony Orchestra with ASO Chorus, 8:15, Popejoy.
- April 11-13 — Old Town Studio: "The Great Western Melodrama" and "Cast Up from the Sea," 242-4602.
- April 12 — N.M. Mt. Club, The Malpais, 6 miles, 8 a.m., Carlisle & Menaul, State Police.
- April 13-14 — Rudolf Nureyev's ballet film, "Don Quixote," 13th at 2 p.m. & 7:30 p.m., 14th at 7:30 p.m., Popejoy.
- April 16 — Keller Hall, UNM: UNM Concert Choir & Orchestra, Bach's "St. John's Passion," 8 p.m.
- April 16 — Club Culturale Italiano: Dr. Vittorio Farinelli, Consul Gen. of Italy, 7:30 p.m. Reception Center, 146 Quincy NE.
- April 17 — ASUNM: Speaker Series, Erica Jong (author of *Fear of Flying*), 8 p.m., Popejoy.

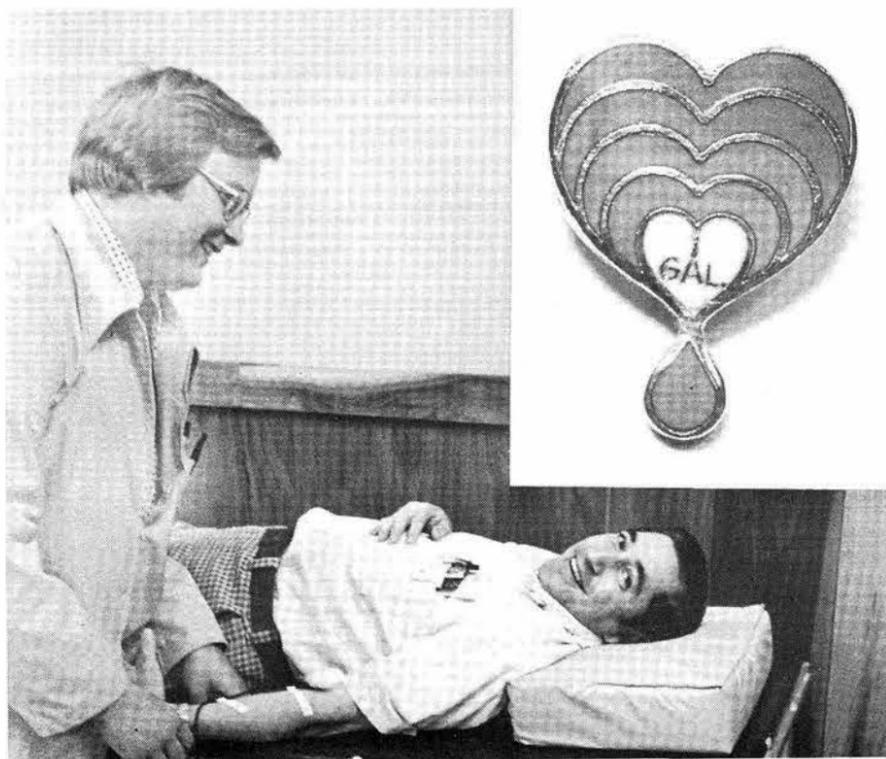
Jim Boespflug Named Head of New Reserve Unit



Jim Boespflug (2331) is the commander of a newly-created Army Reserve unit, the 423rd Supply and Support Battalion.

"Our mission," Jim says, is to supervise supply and service companies. The companies provide logistics in such areas as fuel and ammunition supply, laundry and food facilities, and equipment repair."

Jim joined Sandia in June 1957. He joined the Army 22 years ago and now holds the rank of lieutenant colonel. He has a Masters degree in industrial engineering from Montana State University and is a graduate of the US Army Command and General Staff College. He is currently enrolled in the US Army War College.



MIKE BARELA (3733) is one of 265 Sandians who are members of the "One-Gallon" club, denoting donation of eight pints of blood or more. They are being awarded pins (see inset) as a token of appreciation from Blood Services of New Mexico. At left is Greg Larson, friendly Blood Services vampire.

Group Life Insurance

High Protection, Low Visibility

"Keep your beneficiaries current" is wise and common — and usually disregarded — advice.

Betty Gatto (4213) knows. She processes beneficiary changes on Sandia's Group Life Insurance Plans. "I enjoy the job," she says. "It's a good feeling to get someone's beneficiaries straightened out before it's too late. Last month a man came by to check his beneficiaries. Sandia offers three life insurance plans; this man was aghast to learn he had named a different wife on each."

The stimulus that gets us to thinking about updating beneficiaries can be a happy one: a trip overseas, a marriage, a new baby, even a divorce. (Incidentally, telling your secretary your new marital status, or publishing the name of your new progeny in the LAB NEWS doesn't change your beneficiary automatically. It's up to you to get the changes made in Benefits: 800/107.)

Or the stimulus can be a tragic one: an unhappy divorce, death of family member or close friend, some other reminder of our mortality.

Betty's recollections reveal the human foibles — like the guy who dashed into her office late one Friday afternoon and demanded that his estranged wife be stricken from his policy before he left on a hunting trip. Turned out he'd never bothered to put her on in the first place.

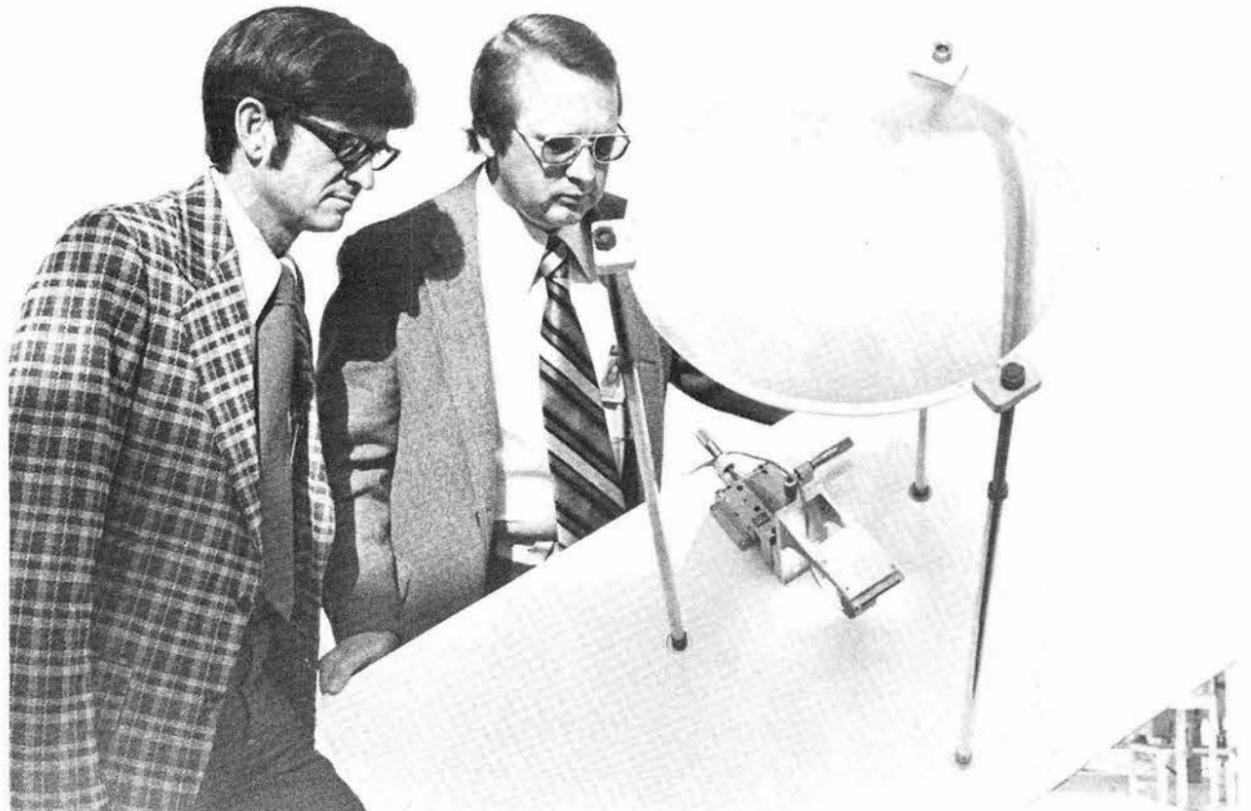
In many cases, the amount due your survivors has grown larger than you may think. Way back when you signed in at \$6000 a year and turned down the supplementals, a death benefit of that size wasn't worth your concern.

Now, let's say, you're earning \$15,000, the company is paying for the First Supplemental, and somewhere along the line you said okay to Second Supplemental. Your natural death nets your beneficiaries \$47,000 (\$15,000 Basic + \$16,000 First Supplemental + \$16,000 Second Supplemental). Your accidental death pushes it to \$63,000 (First Supplemental carries double indemnity for accidental death, and it also pays benefits for "dismemberment"; see your Prudential policy).

"The initial reaction of most Sandians we help is surprise," says Bill Wolfarth, one of the Minnesota Mutual counselors. "Most aren't aware their taxable estate is so large. That's where Dick Kuidis and I can help. In addition to simple personal insurance counseling, we can explain the effects of estate taxes and can assist in the planning necessary for estate liquidity. Incidentally, a New Mexico wife should plan her estate as carefully as her husband does." The MM counselors are located in the Coronado Club basement.

Eighty percent of us sign up for the optional Second Supplemental. It's pretty cheap insurance — 20¢ per thousand salary dollars to age 40, 35¢ to 50, 60¢ to 60. Our example, if in the 40's, pays \$5.60 a month for \$47,000 worth of insurance. Sandia, of course, pays for two of those policies.

Why does a company come up with \$200,000-plus every month in premium payments? Jack Merillat, manager of



ENERGY RESEARCH in New Mexico is the theme of an IEEE symposium set for April 17-18 at the Hilton Inn. Chuck Gwyn (2142), Albuquerque section chairman, and Don Schueler (5133), program chairman, examine a photovoltaic solar energy converter test bed on top of Bldg. 807. Solar energy is one of the session topics in the forthcoming symposium.

'Energy Research in NM' IEEE Symposium Subject

"Energy Research in New Mexico" is the subject of a two-day symposium scheduled by the Albuquerque and Los Alamos Sections of IEEE for April 17-18 at the Hilton Inn.

"We expect a large crowd," says Chuck Gwyn (2142), section chairman, "and the reason is the program put together by program chairman Don Schueler (5133). The symposium features good speakers talking about important projects in New Mexico."

Their subjects include fossil fuels research, solar energy, the environmental aspects of energy development, nuclear energy, and wind and geothermal energy research. Papers from LASL, UNM, NM State, El Paso

Natural Gas, and Bridgers & Paxton are scheduled.

Sandians presenting papers include: Dave Northrop (5826), "Underground Coal Gasification Experiments"; Max Newsom (5718), "Research on Spark Drilling Methods"; Dick Braasch (5712), "Solar Total Energy Systems"; Al Toepfer (5242), "E-Beam Fusion Research at Sandia"; Ben Blackwell (5628), "Vertical Axis Wind Turbines"; and Jack Reed (5644), "Wind Power Climatology."

Two luncheons and a cocktail party are also scheduled. Registration fee is \$15. Additional information is available from either Chuck, x5373, or Don, x4041.

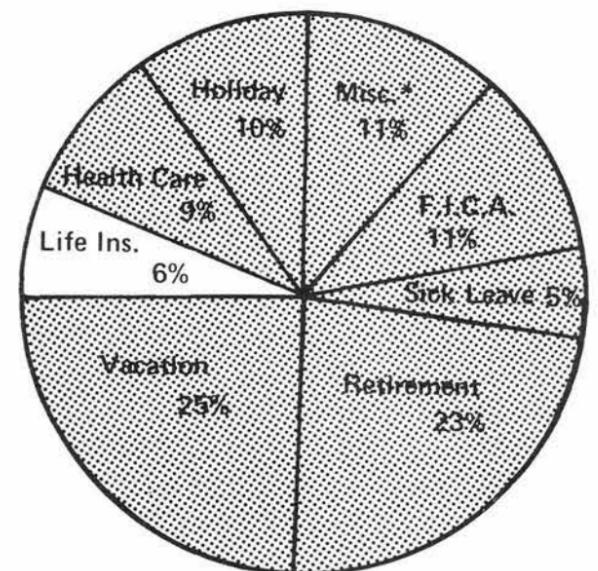
Compensation and Benefits Department 4210, replies, "Many larger companies take steps to protect an employee's family from financial disaster after loss of the wage-earner. And, given the amount of insurance, premiums are relatively inexpensive because it's a group plan. That means good risks and bad all lumped in together, and only three big premium payments, rather than several thousand from individuals."

Dean Irwin of Benefits Planning Staff 4210 reminds us that all three plans are term insurance. None has cash surrender or loan value. They're not design to replace your personal insurance, savings or other retirement income program, or a will.

Both the Basic and the First Supplemental are effective after six months of service with Sandia. Second Supplemental is available from the day of hiring up to seven months later without proof of insurability — anytime after with such proof. Coverage under Second Supplemental stops at age 60.

All in all, our life insurance benefits mean a lot of protection with little expense or hassle. But do keep those beneficiaries current.

(A later article in this series will cover group life insurance as a part of our retirement benefits.)



THIS ARTICLE is one of a series designed to give readers an overview of Sandia's Benefits Program. It is not intended to replace the applicable contracts, SLI's, or other official documents. Salary, of course, accounts for most of a Labs employee's total compensation; the benefits portion of compensation varies from group to group but averages about 40% (around \$40 million annually) of base payroll. Total benefit costs are split according to the pie chart above. * Miscellaneous includes: unemployment insurance, other insurance, rest period, savings plan, personal absence, missed time, conferences with management, training, meals, etc.

MILEPOSTS

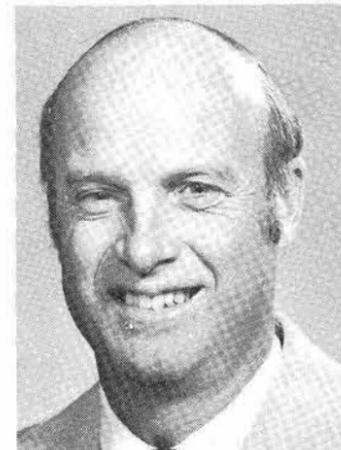
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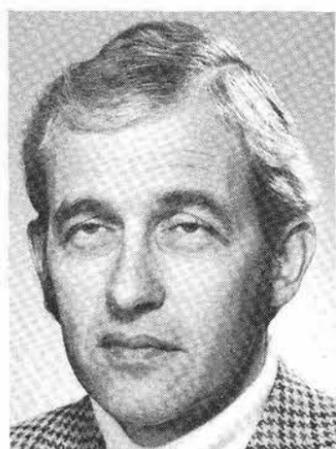
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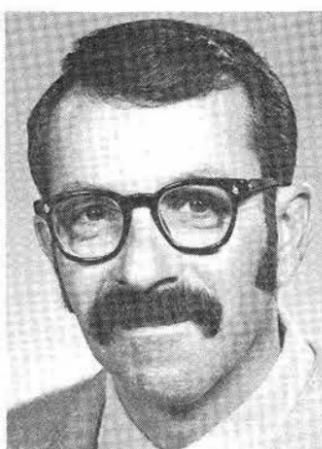
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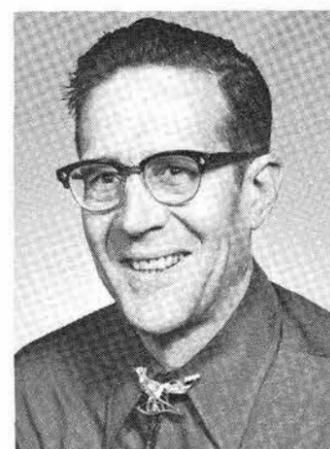
Jon Reuscher - 5221

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Howard Tessler - 9324

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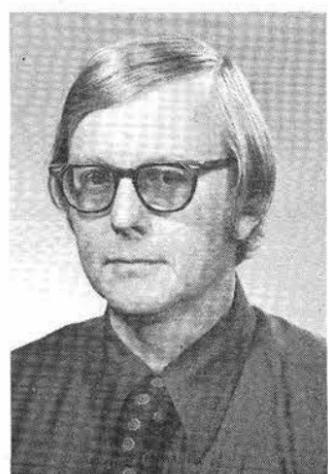
Ed Vulgan - 2341

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Bernard Stiefeld - 9351

20



John Anderson - 1563

20



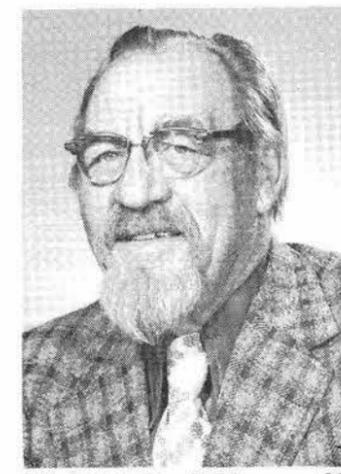
Don Tipton - 1535

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Albert Gower - 9743

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Bill Carstens - 3151

20



Thomas Williams - 2312 20



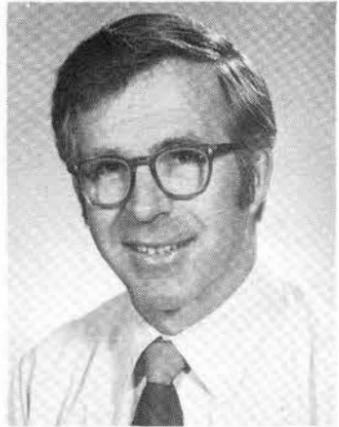
David Kendall - 9526 15



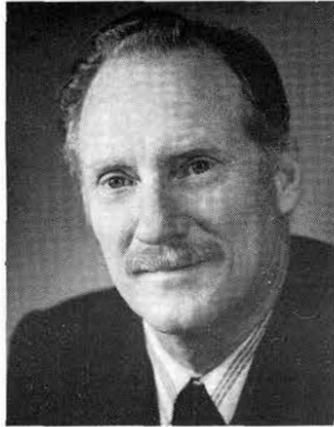
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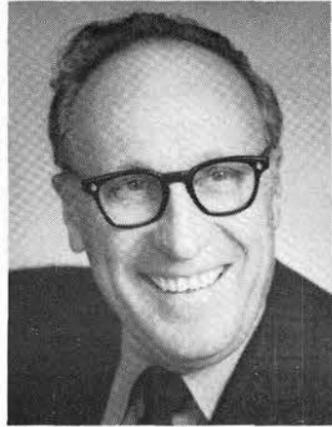
Donald Grab - 2331 20



Kenneth Timmerman - 1537 15



Charles Mauck - 8168 20



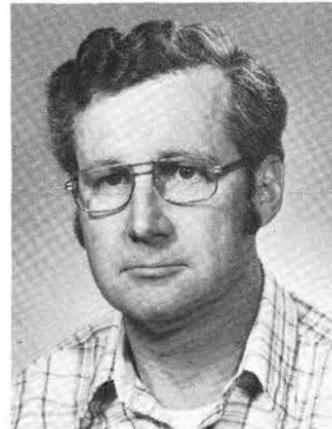
Ollie Olivotti - 8412 15



Dorothy Bliss - 3141 20



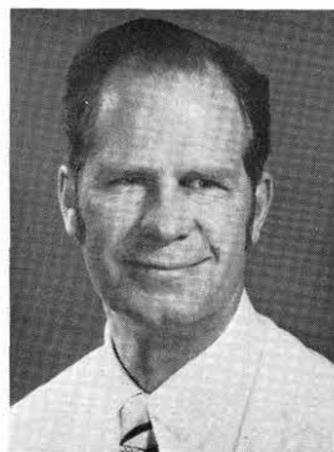
Jack England - 2342 25



Lynn Tyler - 1111 10



Edgar Richardson - 2342 20



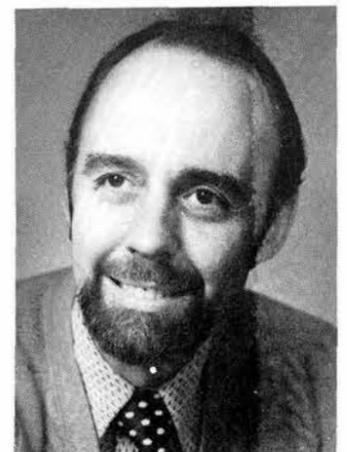
Alton Meador - 2131 20



George Hirota - 8431 15



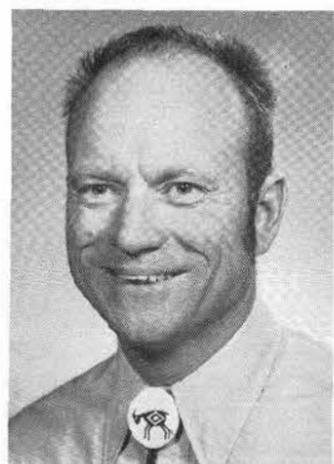
Allen Asselmier - 2111 15



Bob May - 8254 15



Dee Allen - 8256 10



Farrell Perdreauxville - 5722 10



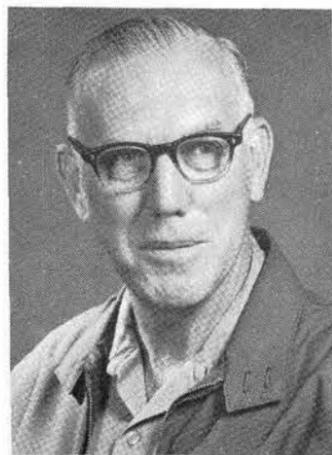
Frieda Salazar - 9631 25



Ken Gels - 8313 15



Rand Rozelle - 9651 15



Robert Orr - 9712 25



Nadine Sheppard - 9631 15



Ruth Farley - 3144 15



William Owens - 1212 20



Howard Stuart - 2317 20



Bill Carstens - 3151 20



Robert Alvis - 5718 15



N. A. Bourgeois, Jr. - 2415 20



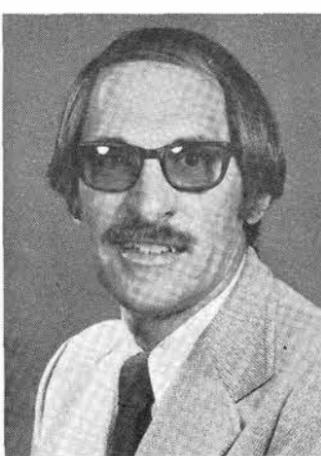
John Sullivan - 9718 25



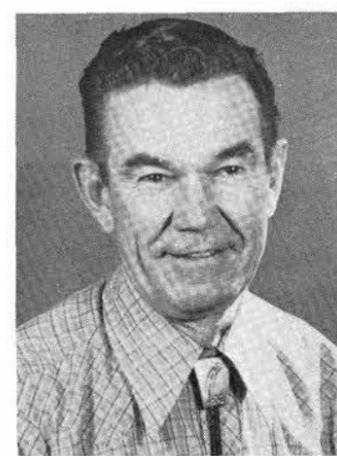
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Robert Nagel - 2131 15



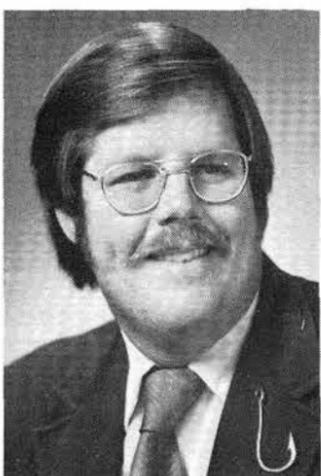
David Poli - 9535 20



Cyrus Hall - 2344 15



Prospero Toledo - 9718 10



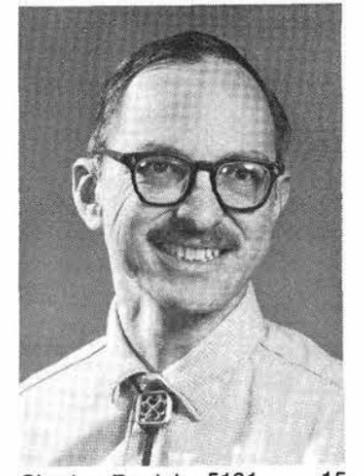
Durwood Green - 8413 10



Charles Huff - 5718 10



Bill Denison - 9521 25



Charles Daniel - 5131 15

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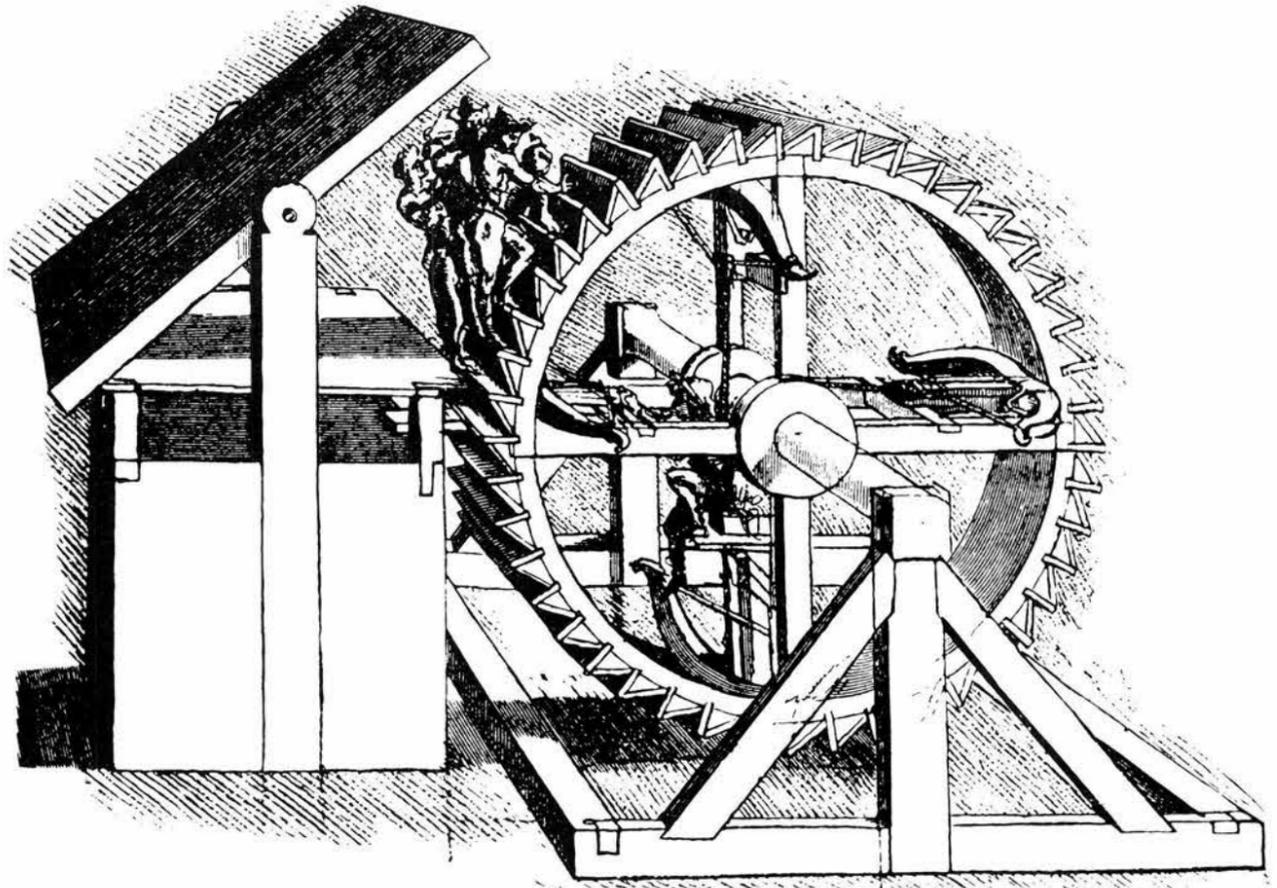
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MILITARY ENGINE BY LEONARDO

WORKING TOGETHER on problems which may have technological solutions. That's the concept to be explored at the Southwest Technological Utilization Conference on April 16-17 at the Convention Center. Several hundred technology users (manufacturers, business people, government people) have been invited to discuss their problems with technological innovators. It's an opportunity for Sandians working in areas with spin-off potential to meet possible consumers. If you're interested, check with your supervisor. Sandia's Technology Utilization program is an ongoing one which can use ideas later if not now. For more info on the Conference or the program, call Corry McDonald at 4-1947.

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3. Must be submitted in writing.
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5. For Sandia Laboratories and ERDA employees only.
6. No commercial ads, please.
7. Include name and organization.
8. Housing listed here for rent or sale is available for occupancy without regard to race, creed, color, or national origin.

TRANSPORTATION

- '65 PONTIAC, best offer, drive it away; '74 Yamaha 360 Enduro, \$900 firm. Jeff, 292-2693.
- '68 OLDS station wagon, Vista Cruiser, PS, PB, AC, engine needs repair. Rex, 299-6264.
- SCHWINN 26" boy's bicycle, 1-sp., \$15. Clark, 296-4541.
- '65 CHEV., 283 V8, AC, AT, AM/FM radio & 8-track w/Jensen speakers, extra wheels w/sno-treads. Barnum, 298-2865.
- '71 GMC pass. van, white, AC, AT, 65,000 miles, \$2295. Call after 5 p.m. Lusk, 296-5145.
- '72 PINTO station wagon, red, AC, AT, 2000cc engine, 32,000 miles, \$2000. Schmierer, 299-2352.
- 125CC HODAKA dirt bike, '73 model, \$450. Karp, 897-0333.
- '66 FORD pickup, F-100, 6-cyl., new brakes, \$700. Martin, 869-2049.
- '73 POLARA 4-dr. hardtop, low mileage. See after April 10. Hayes, 299-1157.
- '69 FORD van, Club wagon, std. trans., 6-cyl., 17 mpg. Rand, 299-1048.
- '68 PONTIAC GTO, AC, AT, PS,

- PB, vinyl top, \$700. Detorie, 255-2864 after 6.
- '73 HONDA SL-70 dirt/street bike, \$225. Barnes, 898-2375.
- '64 FORD Galaxie, new tires, PS, AC, AT, needs brakes; 10-spd. Regina Sport, lightweight, 27" frame, \$75. Magnuson, 268-5955.
- '73 BUICK Century Deluxe, 2-dr., leather bucket seats, tape deck, below book, low mileage, \$2995. Browne, 294-6603.

MISCELLANEOUS

- CAR seat, \$8; bed/mattress, \$25; high chair, \$12; stroller, \$15; bassinet, \$10; sterilizer, \$5; infa seat, \$2. Tichenor, 298-0192 or 255-6125.
- COLDSPOT refrigerator, apartment size. Owens, 881-0815.
- WASHER, dryer & refrigerator. Greenway, 299-8540.
- TENT trailer, new tires, 2 spares, built-in sink & storage, capacity for lots of gear, \$250. Worrell, 299-0381.
- MEDITERRANEAN leather couch, black, 7' long, \$185. Hobbs, 296-7113.
- KENMORE electric sewing machine in cabinet, all attachments, \$40. Hart, 298-8012.
- TWO bunk bed mattresses. Prevender, 299-5253.
- BABY'S playpen, mesh walls, \$20; baby scale, \$4. Smathers, 298-0613.
- FOUR 15" Chev. wheel assemblies; rims, wsw-tires, tubes, full disc hubcaps and lug nuts, fair tires, all or none, \$60. O'Bryant, 268-9049.
- BLACK Labrador puppies, purebred, no papers, \$30 or

- bid. After 6. Williams, 293-1792.
- 270 REMINGTON model 721, bolt action, 6x Texan scope, less than 25 rounds thru this weapon, \$120. Burks, 821-0132.
- WATER ski belts, Western Wood's competition model, size 36-42, two, \$6 ea. Rainhart, 821-3690.
- LUGGAGE, 2-piece, tweed leather bound, \$25; Samsonite dark gray companion case, \$20; Samsonite tan cosmetic case, \$15. Re, 298-0290.
- TERRAZZO floor tile from Mexico, black & white, \$1 ea.; youth bed w/mattress, \$15. McDowell, 299-6222.
- TOMATO, cabbage & chili plants, also, coleus house plants, will bring to area 1 parking lot. Kroth, 293-9565.
- 8 FT. USED garage metal door, \$15. Pino, 242-9553.
- 5 HP. outboard motor, used only 1 wk., \$125. Sanchez, 298-9619.
- APPROX. 70 sq. yds. of used turquoise carpet, \$100. Shoemaker, 255-8820.
- 2-BDR. '72 Concord mobile home, 12' x 60', furnished or unfurnished, set up in adult park near Wyo. gate. Schubeck, 266-2780.
- FRENCH provincial sectional, Italian cocktail & lamp tables, orange Parsons table, 28" high, 54" long, matching table lamps. Randall, 821-0388.
- 12 FT. WARD'S boat, motor & trailer, oars & life jacket, \$400; pool table, Brinkton, accessories, \$150. Anderson, 299-8676.
- 14 FT. BOAT, 35 hp, tilt trailer, elec. starter; chrome rack for short-narrow pickup.

- Sanchez, 344-5031.
- '74 REMINGTON BDL 300, Winchester magnum, Buehler mounts & rings, RCBS dies & 5 boxes new brass, \$200. Gonzales, 242-6264.
- '73 BLACK & Decker, model 8021, 18" dual blade, elec. mower w/100 ft. cord, \$60. Barnes, 898-2375.
- GONSET 4-channel CB. rig, tube type, 115VAC/6VDC, CB. antennas & parts, \$30; Webley MK-IV revolver, \$50. Scranton, 299-4902.
- 2 NEW Tyco HO trains, \$50; oscilloscopes, 2 with trigger sweep-signal tracer, Hickox tube checker. Matthews, 869-2370.
- BOSTRON pickup seats for a soft ride with your camper; rollaway bed. Windham, 293-8107.
- CABIN water system, Sears, 1/3 hp shallow well pump, 40 gal. pneumatic diaphragm tank, air/vol. control, \$75. Stevens, 299-6086.
- ASSORTED kittens, free, 7-wks. old. Graham, 293-8823.

REAL ESTATE

- 4-BDR., 2-1/2 baths, den, formal dining, extra large heated garage, Glenwood Hills, lot bounds city limits & Gallegos Grant, \$55,000. Zanner, 294-7613.

WANTED

- TRACTOR implements, 5' or 6' disk w/3pt. hitch. Guth, 298-3548.
- POTTER'S wheel, kick or motor. Roherty, 265-3244.

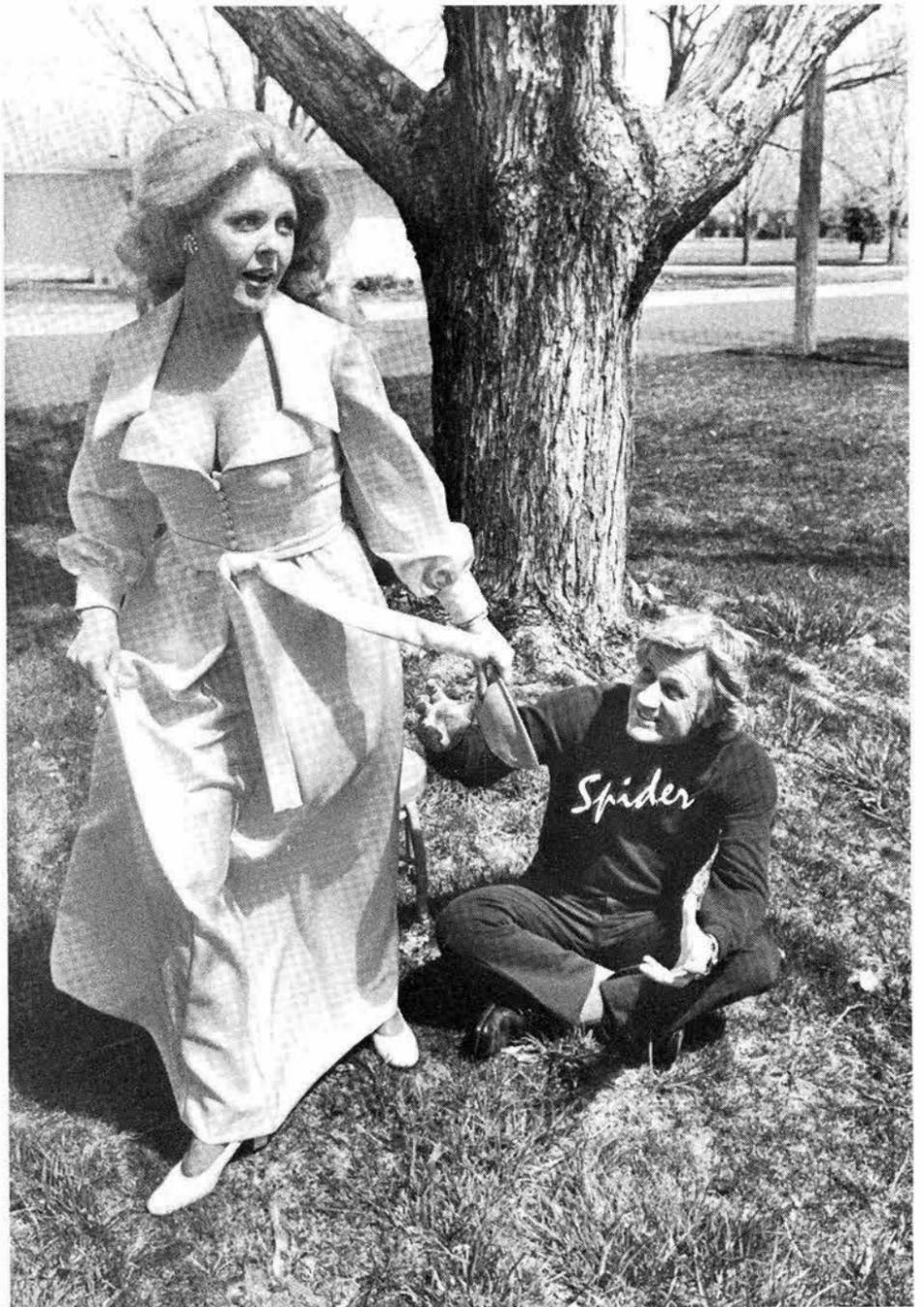
- CHEVY van, panel or pickup body to put rebuilt 6-cyl. engine into. Mikkelsen, 881-3921.
- RETIREE for part-time bartender (Sat. 10-6 and private parties) at Coronado Club. Will train. Call Foster or Davis, 265-6791.
- SMALL 2-wheel trailer, 1/2-ton capacity. Norris, 299-4717.
- LET'S swap my left-handed refrigerator for your right-handed one. Stickler, 299-6843.
- BARKING collar for dog training. Acton, 299-3276.
- WHELP box, borrow, rent or buy. 243-1693 or write W.R. Luxford, 2519 New York Ave. NW. Albuquerque, N.M.
- ENGLISH riding hard hat, size 6-3 4 or 6-7 8. Beattie, 898-2706.
- BELT SANDER, Hawkinson, 281-5239.

FOR RENT

- 1-BDR. house, living room & kitchen, refrigerator & stove, \$100/mo. Pino, 831-0198.

LOST AND FOUND

- LOST — Safety glasses w/black case; black rim safety glasses; small pearl handle knife; man's sunglasses; man's brown wallet; brown frame RX sunglasses; \$100 bill; plastic coin purse. LOST AND FOUND, Bldg. 832, tel. 264-3441.
- FOUND — man's tinted glasses; man's black glove; house key; Papermate pen; 2 ILC keys; grey rim bi-focals w/black case; pair lady's black gloves; man's brown fur-lined glove. LOST AND FOUND, Bldg. 832, tel. 264-3441.



LITTLE MISS MUFFET and spidery foe, Both of them tell you just where you should go: C-Club next Friday, a Fashion Show Fling; Fashions for summer and fashions for spring. Thanks a lot, Donna, (a Reel ingenue); Thanks too to Zig (thirty-one, thirty-two).

FRIDAY	SATURDAY
4 — HAPPY HOUR BARBECUED RIBS Adults \$2.75 Under 12 1.75 Thomas & Marcia On Stage SOL CHAVEZ	5 — FAMILY VAUDEVILLE Clef Dwellers Quartet With Six You Get Eggroll Food @ 6 Show @ 7 Members Free
11 — HAPPY HOUR ROAST BEEF BUFFET Adults \$2.95 Under 12 1.95 Fashion Show NATURAL PERSUASION	12 — SOUL SESSION 8:30 - 12:30 MIDNIGHT SPECIAL Happy Hour Bar Members Free Guests \$1

IF — you're turned on by the latest in men's and women's Spring Fashions (or by the good-looking people who wear them), get a springside table at next Friday's Fashion Show. Gilbert's furnishes the women's attire, Stromberg's the men's, Flair (and Sandia) the models, Rosario Ayers the coordination/comments.

I — hear cribbage champs Wes Pfarner and Bill Weinbecker have been deposed. Bob Banks and John Dean (not that one; Shirley's husband) proved proficient peggers and powered their way to the championship. Congrats, both.

CAN'T — sew? Sanado says it's easy, Sew Easy. A seamster's union (Judy Love and Charlotte Johnson) will prove it on the 8th at 1:15. Reserve with Ann Tapp today.

LIVE — a little. Live a lot. Bus to Vegas. Win a pot. In fact, we guarantee you'll come home with a small fortune (if you leave home with a large). The shows, the lights, the games, the sights. Fun coming and going too. All of this and more for only \$99. Trip is May 13-16 and deadline is soon.

FOREVER — and ever is how long you'll remember Switzerland. Eight days, seven nights, RT jet fare, castles, churches, hiking, scenery, sports, flowers, concerts, and, of course, authentic yodeling (smuggle some to the States). \$550 does it all.

MORE INFO — 265-6791.



I'LL — bet you need to polish your gaming table skills before heading to Las Vegas. Even if you can't go, Las Vegas Night at the Club is a trip in itself. Lots of play money, lots of fun. Games of chance, space to dance. This month's biggy, but no reservations necessary. It's Saturday, the 19th, and it's a buck for members, two for guests.

JUST — another Soul Session? Nope. It's a Special. The *Midnight Special* shines its ever-lovin' light and plays its ever-swingin' rock for Soulers next Saturday.

DIE — laughing at *With Six You Get Eggroll*, tomorrow night's comedy at Family Vaudeville. Widow (Doris Day) marries widower (Brian Keith), her kids must adjust to his and his to hers. Trials and tribulations but no tragedies. *Clef Dwellers* too — a beautyshop quartet from the Sweet Adelines.