



Tom Cook Will Receive AEC's Lawrence Award

The first Sandian has been named to receive the prestigious E.O. Lawrence award for 1971. He is Tom Cook, vice president at Sandia Laboratories Livermore. Along with the other recipients, Tom will receive his award from Glenn Seaborg, Chairman of AEC, later this month.

Purpose of the award is to recognize meritorious contributions in the field of atomic energy. Tom's citation reads as follows: "For his significant contributions to the study of nuclear weapon effects, for his original work in the translation of this knowledge into advanced technology for peaceful and military uses of atomic energy, and for his outstanding contributions to the nation through his service as an advisor to the Atomic Energy Commission and the Department of Defense on the effects of nuclear detonations."

Besides the citation, those named to the award receive a gold medal and \$5,000. The award was established in 1959 to perpetuate the memory of the late E.O. Lawrence, inventor of the cyclotron and director of AEC's Radiation Laboratory at Berkeley and Livermore. Not more than five recipients are selected in any one year.

SME Award of Merit Presented to Oscar Schroll

A Sandia retiree received the 1971 Award of Merit from the Society of Manufacturing Engineers during the annual meeting of the organization's Region VII in San Diego on April 3 and 4.



Oscar Schroll was recognized for his "valued balanced contributions to the Society's professional activities and growth. Acknowledgment is made of unusual effort and dedication in service to his chapter and region in aiding the work of national committees, and in contributing to the Society's greater recognition and prestige with industry."

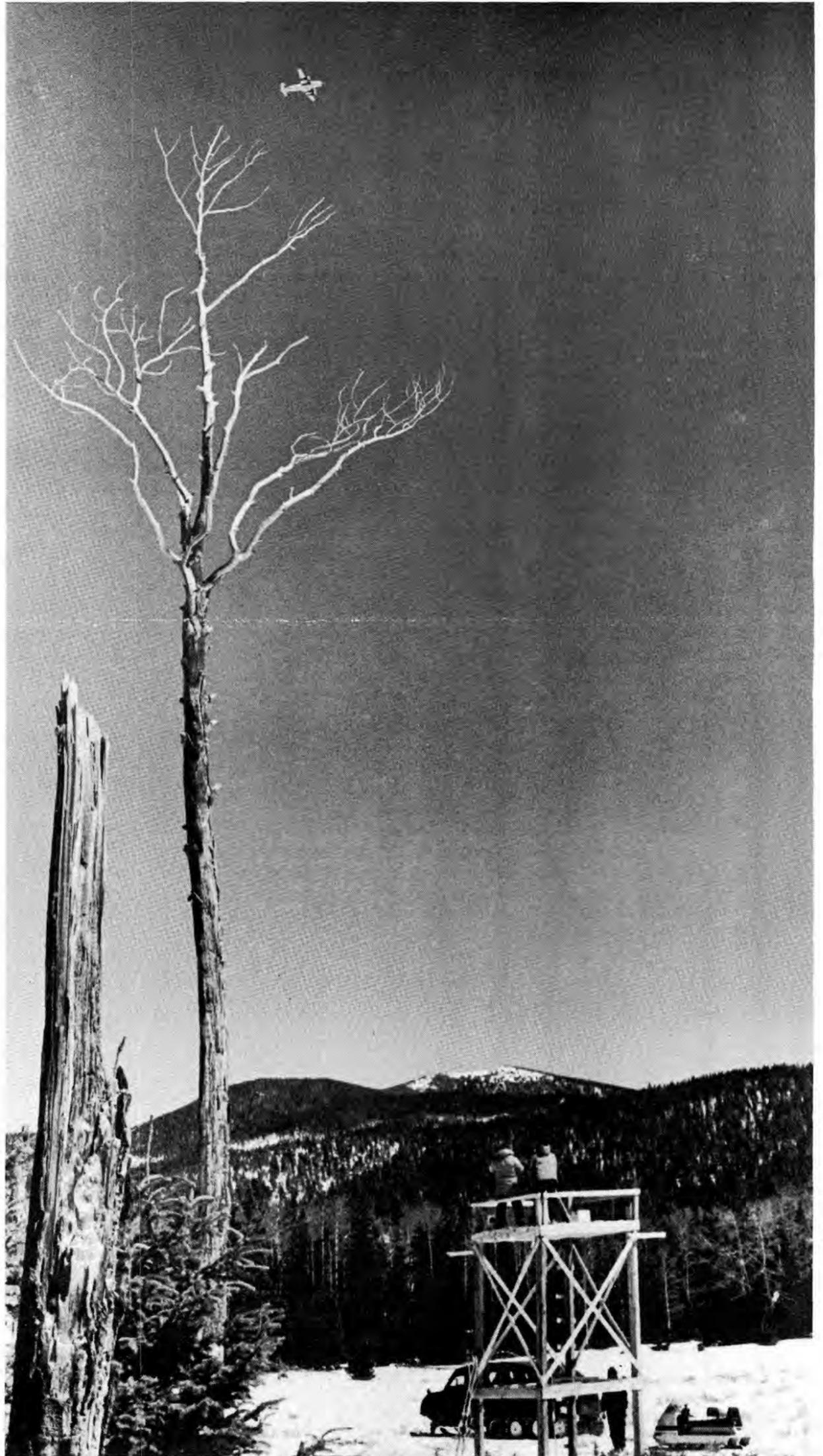
An active member of SME's Albuquerque Chapter 93 since 1954, he has held all of the elective and appointive offices in the chapter and was chairman in 1968-69. He is currently treasurer of Region VII which includes 24 chapters in 11 western states.

LAB NEWS

VOL. 23, NO. 7

APRIL 8, 1971

SANDIA LABORATORIES • ALBUQUERQUE NM • LIVERMORE CALIF • TONOPAH NEV



FIELD TESTERS of Mobile and Remote Ranges Division 7252 track low-flying C-54 over snow covered Saladon Meadow in northern New Mexico. See page 4 for photo story of their eventful trip to the Meadow.



Credit Union Reporter

By **BILL BRISTOL**
Credit Union Manager

of work for the Credit Union, and members who use securities as collateral are requested to use where possible only those securities they do not plan to sell.

Single Payment Loans

In the past, single payment loans were restricted to those secured by Credit Union shares and carried the requirement that the loan be paid off at the end of the dividend period. As a new service, the Credit Union will now make single payment 90-day loans to members who are active employees against any type of collateral now being accepted for monthly payment loans, including signature loans. Loans to retired members and members on military leave of absence will be restricted to those secured by shares or non-depreciating collateral such as life insurance having cash value, stocks, bonds, mutual funds, savings accounts, etc.

Individual or Joint Tenancy Account

If your Credit Union account was originally set up as an individual account, and you have since married, you may want to include your wife or husband in a joint tenancy account. Only the individual member can transact business on an individual account. If you already have a joint account, has anything occurred since the account was set up whereby you would want to change the joint owner? Remember, in the event of your death, ownership passes to the surviving owner and is not subject to disposition by will.

EARTH DAY

April 21

Ride the bus (1¢)

Ride a bike, walk (free)

ELIMINATE

CARBON MONOXIDE

First Quarterly Dividend

As announced earlier, the Credit Union will pay dividends on a quarterly basis in 1971. The Board of Directors have declared the dividend at an annual rate of 6% for the first quarter; this will be credited to your share account on April 1, 1971, and will be based upon your account as of March 31, 1971.

Around mid-April, members will receive quarterly statements for the first three months of 1971. The dividend shown will be that credited on January 1, not the quarterly dividend mentioned above since this was credited April 1. The statement also shows total interest paid during the quarter.

Securities Pledged Against Loans

A number of members use securities such as stocks and mutual funds as loan collateral to obtain the lower interest rate. If necessary to pay off the loan, the Credit Union can use its "stock power" to sell the securities.

Although it would seem logical that a member could authorize the Credit Union to use the stock power to sell the securities at any time the member requested, such action has not yet been authorized for Federal Credit Unions. However, two methods are available to members to sell pledged securities:

1. If the securities are stocks or a load type mutual fund, the member can call his broker and authorize their sale. At the same time, he must ask his broker to send a "due bill" to the Credit Union stating what is being sold and advising that the proceeds from the sale will be sent directly to the Credit Union. The due bill must be signed by the cashier or manager of the brokerage firm.

2. If the member does not wish to go through the due bill process, he may in most cases use other collateral, including his signature, as a substitute for his securities, which he can then sell in order to pay off his loan. In the case of a "no-load" fund sold by mail the second method is much faster.

Use of either methods involves quite a bit

Be Nice to Your Secretary

It's 'Her' Week

April 18-24

"Profile of a Professional Secretary" is the theme of the 1971 workshop sponsored by the Albuquerque Chapter of the National Secretaries Association in observance of Secretaries Week April 18-24.

Jean Langston (5200), general chairman of the workshop, announces that the workshop on April 24 at the Hilton Hotel will include talks by Robert Manna of Dallas on "Management's Profile of a Professional Secretary"; Professor Leo Kanowitz of the University of New Mexico on "Legal Status of Women"; and William Greenhalgh, senior vice president, Bank of New Mexico, on "International Affairs." The afternoon session will be devoted to a panel discussion on the "8 to 5 profile." One of the panelists will be Helen Walsh (5300/5500), who is also general chairman for Secretaries Week.

During the workshop luncheon, the Secretary of the Year award will be made and the annual scholarship award will be presented.

Other Sandia secretaries helping with special events marking Secretaries Week are: Ann Michele (4500), workshop program chairman; Helen Davison (1700), finance chairman; Josephine Hanna (4000), chapter vice president; Hazel Minter (4200); Veronica Russell (4612); Mavis Bowland (5130); Anna Maria Farina (5240); Eunice Frank (7410/7430); and Nancy Jacklin (9421/9424/9427).

One of the major projects of the National Secretaries Association is the Certified Professional Secretary (CPS) program. To earn a CPS certificate, a secretary must follow a course of professional study and pass a two-day certifying examination in secretarial skills and business practices. Sandia Laboratories currently has eight women holding the CPS rating.

Sandia Secretaries Say—



HELEN WALSH (5300/5500)
"Helpful qualities are courtesy in dealing with people, a good memory, and a sense of humor."



ANN MICHELE (4500)
"Secretarial jobs at Sandia are different—you have to be flexible to adjust to changing work situations."



JEAN LANGSTON (5200)
"A business executive and his secretary should work together as a team."

LAB NEWS

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Take Note

Joel Sweet of Analytical Mechanics Division 8352 is the author of a technical article entitled "Impulse of a Ring with Nonlinear Material Behavior," which appeared in the February issue of the *AIAA Journal*. He also presented a technical paper entitled, "Squeeze Film Bearing for the Elimination of Oil Whip," at a recent ASME-ASLE Lubrication Conference held in Cincinnati, Ohio.

* * * *

Jim Shelby of Physical Research Division 8331 wrote "Temperature Dependence of Helium Diffusion in Vitreous Silica," which appeared in the February issue of the *Journal of the American Ceramic Society*.

* * * *

Harold Faulkner (8274), shot a low net score of 69 to win the first place trophy in the Sandia Employees Golf Club tournament played at the Alameda/North Golf Course March 13. Don Skinrood (8323) and Gene Aas (8181) tied for second place with net scores of 72.

LIVERMORE NEWS

VOL. 23, NO. 7 SANDIA LABORATORIES APRIL 8, 1971

Watchmaker's Craft Useful In Modern Research

To the casual observer, Hartmut Spetzler's (8311) wristwatch looks like any other watch. But a closer look tells you there's something quite different about it. For one thing you can't tell what kind it is; the manufacturer didn't put his name on it:

There's a reason for that. Hartmut was the "manufacturer." He made the watch when he was 16. And the techniques he learned then are an aid in his equation-of-state studies today.

How is it that Hartmut — a geophysicist — is also a watchmaker?

"I lived in Germany the first 16 years of my life," explains Hartmut. "When I was 13

my father arranged for me to attend a 'higher school for micromechanics and watchmaking.' Students attending this school were usually 17-35 years old. Within six months — my trial period over — I was a regular student spending 20 hours a week in lectures, 25 hours a week in shop training and using my 'free' Saturdays for homework."

Hartmut's watch was his graduation piece and took four months from design to finished product. This included drawing the designs of the 140 parts, and making and assembling them. Then the watch was scrutinized by a board of examiners who also quizzed Hartmut on theory. Only then did apprentice Spetzler become a journeyman micromechanic.

What are the technical specifications of the watch?

"A watch movement has four principal assemblies," replies Hartmut. "You have the mainspring or power plant. Toothed wheel-and pinion-assemblies transmit this power. The escapement assembly releases and stops the power 18,000 times per hour, and the balance and hairspring assembly times the power release. Accuracy comes from good design and the precise adjustment of these parts with respect to each other.

"Comparatively speaking," continues Hartmut, "my watch has the precision and quality of the Omega. Individual wheels (seven of them) and their teeth are very carefully cut; all shafts are hardened steel. The balance wheel itself was balanced well enough to roll on a knife edge. Each piece is polished sufficiently with diamond paste to pass microscopic inspection. I polished the balance shaft for two weeks. And it's only one-tenth of an inch long. The watch's 17 jewels—more than 17 are useless—are set in gold reflecting dishes that are also oil cups. And to add that extra something, nearly every piece is gold plated."

Not all of the watch's parts were made by Hartmut.

"But that doesn't mean I couldn't make them," he adds. "Making pieces like the case, the face, the hands, the hairspring and every screw would be just too time consuming. That time could be spent on parts requiring greater craftsmanship. For instance, making adjustments to obtain the watch's accuracy of two seconds in 24 hours took three weeks.

How does watchmaking relate to equation-of-state studies?

"I make ultrasonic interferometry measurements," says Hartmut, "of elastic moduli under elevated pressures and temperatures. To do this successfully, a transducer is joined to a buffer rod in a bond of two flat surfaces lapped and polished to a high degree. My watchmaking background helps in the intricate work necessary to achieve this bond.

"Just in case people ask," Hartmut quickly adds, "my work in the laboratory has all the assembly challenges I can handle, and I no longer make or repair watches. In fact, I've sold my watchmaking tools."



HARTMUT SPETZLER (8311) looks critically at watch mechanism he made as a graduation piece from micromechanics school in Germany when he was 16. Dexterity acquired in watchmaking helps Hartmut do intricate work on samples during his equation-of-state studies. Every part of the pendulum clock (in background)—used as a working model to illustrate interaction of wheels and gears—was made by Hartmut when 13.



DON FIFIELD (7252) above, readies his tracking instrument just before fly-over by C-54. Don is veteran of field test operations from Salton Sea to Arctic regions.



BLOWING SNOW complicates life. At bottom of mountain Billy Neil and Fenner Jones lend a hand to Cal Cox. Snowmobile and balky horse have much in common—each goes where it (not you) wants to go.

In Field Test, Getting There Is Half The Fun, Most Of The Work

Saladon Meadow is a remote piece of mountain in northern New Mexico known chiefly to elk hunters. Nearest village is Eagle Nest with a few dozen people, a lot of dogs, and the recent distinction (in January) of being the coldest place around—minus 47°.

The Meadow lies at the top of a ridge at some ten thousand feet, and when covered with snow has characteristics of interest to

radar researcher Lloyd Melick in Electronic Development Division 2622. The Field Test people in Mobile and Remote Ranges Division 7252 under Gordo Miller were asked to provide operators and instruments at both ends of the two-mile long Meadow while the radar-equipped C-54 flew overhead. Seems simple enough and, in fact, once Gordo's people were in place and the C-54 was making its passes, the operation was routine and took only 15 or so minutes. Later this summer when the snow is gone, plans are to repeat the experiment so that a comparison of results can be made.

But getting to the Meadow *wasn't* routine, and some pretty exotic transportation was used: two 4-wheel drive power wagons (which bogged down); one doughnut-tired, articulated 4-wheel drive vehicle (see photo) which also bogged down in the snow; several snowmobiles; a pair of cross country skis; and "Big Bertha" — a sort of Gen. Sherman tank with skis that has to be the ultimate in over-the-snow transportation. Mounting a 300 hp engine, it bulls its way through the snow at 35 to 40 mph.

Gordo welcomed the opportunity to try out the skimobiles and other cold weather gear because he, his crew and this equipment, but not Big Bertha, will shortly take off for Thule, Greenland, for field testing of the Sandia Ice Penetrometer (Lab News, March 26). His conclusion re snowmobiles: take along a mechanic, and/or hire an Eskimo with dog sled (which they plan to do in Thule).



SOME guys think this work is really cool. Ed Strout (7252) wrestles with tow chain snarled around axle.



BIG BERTHA is the name of that thing to the left, a 10-passenger vehicle whose approach to snow travel is mainly one of brute force. Snowmobiles, to right, were also used, while toboggan in center carries survival gear being tested for later use in Thule, Greenland.



THE AD SAID "Goes Anywhere!" but failed to mention that help of half a dozen men was sometimes needed. Gordo Miller (7252) behind wheel, well . . . ah . . . supervises while Billy Neil (4612), next to him, urges men on. 4 x 4 in background was stuck in snowdrift.

Much Ado About Nothing?

Vacuum Society Plans Course and Symposium

The rapidly developing vacuum technology was the subject of a recent talk at Sandia by the national president of the American Vacuum Society. The Society is sponsoring a course on vacuum technology in conjunction with the local section's annual symposium.

Dr. R.F. Bunshah, Professor of Metallurgy at UCLA, spoke on March 25 on "Scope and Potential of High Vacuum, High Rate Deposition Processes." His visit included a discussion with Sandia scientists on the influence of deposition on the structure of titanium films. He also discussed problems encountered when stainless steel is heated in a vacuum.

The 18-hour course in vacuum technology includes the correct and safe operation of vacuum equipment, the selection of suitable materials and equipment for vacuum systems, the testing and maintenance of vacuum equipment, and other topics. Sessions will be held at Sheraton Western Skies Motel starting at 1 p.m. Tuesday, April 20. Additional information and registration forms may be obtained from Robert Long, 2633, tel. 264-1065.

The symposium will begin at 8:45 on Wednesday, April 21, with opening remarks by Dr. Hornbeck and Dr. Daniel Bills, national AVS president-elect. Papers presented the first day will deal with surface physics. On Thursday, the topics will be thin films, and vacuum metallurgy. The sessions



RECENT VISITOR to Sandia was Dr. R.F. Bunshah (right) of UCLA who is national president of the American Vacuum Society. Len Beavis (2613) demonstrates a low energy electron diffraction apparatus in his lab. Bob Long (2633), left, and Len are both active in the local section of AVS.

on April 23 will include presentations on general vacuum problems and new equipment. Technical papers will be presented by Sandians and by representatives of industry, universities and other research laboratories.

Officers of the New Mexico Section of AVS include Leonard Beavis (2613), chairman; Don Schreiner (5331), chairman-elect and program chairman; Ron Ewing (5235), secretary; and Robert Long (2633), education committee.

Authors

L.S. Nelson and H.S. Levine (both 5224), "The Combustion of Zirconium Droplets in Oxygen/Rare Gas Mixtures," Vol. 2, No. 4, HIGH TEMPERATURE SCIENCE.
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R.L. Park (5331), J.E. Houston (5332), and D.G. Schreiner (5331), "The LEED Instrument Response Function," Vol. 42, No. 1, REVIEW OF SCIENTIFIC INSTRUMENTS.

D.A. Northrop (5313), "Thermogravimetric Investigation of the Vaporization of Lead Telluride, Tin Telluride, and Germanium Telluride," Vol. 75, No. 1, JOURNAL OF PHYSICAL CHEMISTRY.

G.A. Samara (5132), "Pressure-Induced Phase Transitions in Solids: BaF₂," Vol. 2, No. 10, PHYSICAL REVIEW B.

R.W.P. King (Sandia consultant, Harvard University) and C.W. Harrison (2627), "Scattering by Imperfectly Conducting Spheres," March issue, IEEE TRANSACTIONS ON ANTENNAS AND PROPAGATION.

R.L. Fox and R.S. Bernard (both 9341), "A Tractable Method for Estimating Atomic and Molecular Transport Coefficients," Vol. 8, No. 11, AIAA JOURNAL.

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J.E. Schirber (5150) and J.P. Van Dyke (5151), "Pressure-Induced 'Electron Transition' in As," Vol. 26, No. 5, PHYSICAL REVIEW LETTERS.

A.J. Toepfer (5241), D.R. Smith (5242) and E.H. Beckner (5240), "Ion Heating in the Dense Plasma Focus," Vol. 14, No. 1, PHYSICS OF FLUIDS.

E.A. Igel (7212), "A Continuous Access Rotating Mirror Camera for Field Use," PROCEEDINGS OF THE NINTH INTERNATIONAL CONGRESS OF HIGH SPEED PHOTOGRAPHY.

M.J. Forrestal (7346) and D.B. Longcope (1222), "Transient Axisymmetric Bending Stress in an Infinite Cylindrical Shell at an Elastic Ring Support," February issue, AIAA JOURNAL.

R.J. Chaffin (5112), "A Proposed Circuit Model for Microstripline TRAPATT Oscillators" and "High-Power TRAPATT Oscillations from Parallel-Connected Low-Cost Diodes," Vol. MTT-18, No. 11,

IEEE TRANSACTIONS ON MICROWAVE THEORY AND TECHNIQUES.

J.B. Gerardo and M.A. Gusinow (both 5243), "Electronic Recombination of He⁺," Vol. 3, No. 1, PHYSICAL REVIEW A.

E.J. McGuire (5234), "Inelastic Scattering of Electrons and Protons by the Elements He to Na," Vol. 3, No. 1, PHYSICAL REVIEW A.

J.H. Renkin (5231), "Use of Nonlinear Sequence-to-Sequence Transformations in High-Order Perturbation Theory Calculations," Vol. 3, No. 1, PHYSICAL REVIEW A.

R.W. Rohde (5531) and C.E. Albright (2635), "The Influence of Uniaxial Tensile Stress Upon the Austenite Start Temperature of an Iron Nickel Carbon Alloy," Vol. 5, No. 2, SCRIPTA METALLURGICA.

J.E. Houston (5332) and R.L. Park (5331), "Anomalous Fine Structures in the Soft X-ray Appearance Potentials of Non-Metals," Vol. 8, No. 1, JOURNAL OF VACUUM SCIENCE AND TECHNOLOGY.

K. L. Goin (9342), "The History, Evolution, and Use of Wind Tunnels," February issue, AIAA STUDENT JOURNAL.

Irving Auerbach (N9328), "Decomposition Kinetics of a Phenolic-Carbon Composite. II. Rate Relationships," Vol. 15, No. 1, JOURNAL OF APPLIED POLYMER SCIENCE.

L.M. Barker (5161), "Velocity Interferometer Data Reduction," Vol. 42, No. 2, REVIEW OF SCIENTIFIC INSTRUMENTS.

P.E. Bolduc (5233), "Interaction of an Obliquely-Incident p-Polarized Plane Electromagnetic Wave with a Hot Plasma Half-Space," Vol. 14, No. 2, PHYSICS OF FLUIDS.

G.W. Kuswa (5242), "Sensitive Fast Response Electron Detector," Vol. 42 No. 2, REVIEW OF SCIENTIFIC INSTRUMENTS.

L.C. Bartel (5132) and Bruno Morosin (5152), "Exchange-Striction in NiO," Vol. 3, No. 3, PHYSICAL REVIEW B.

W.J. Brya (5152), "Dynamics of Bottlenecked S=1 Spin System," Vol. 3, No. 3, PHYSICAL REVIEW B.

M.J. Clauer (5114), "Stochastic Theory of Line Shape: Off-Diagonal Effects in Fine and Hyperfine Structure," Vol. 3, No. 3, PHYSICAL REVIEW B.

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FRANK SUAZO
(4515)



R.B. MIDDLETON
(2492)



JIM ROGERS
(1525)



CHARLES CRIDER
(4213)



RAYMOND POETZL
(7411)



FRANK RIDLON
(4518)



SILVERIO ARMIJO
(4614)



MURIEL DENISON
(2620)



ESTHER STEVENSON
(4131)

BROOKS
KING
(3523)



BERTHA BARNES
(7412)



CRISSIE SANDERS
(2342)

Service Awards

25 Years

J.L. Hollenbeck 4614, Otis Wright 4610, Edmund Zachewicz 4232, James Palmer 7252, and Henry Moeding 4371.

20 Years

John Ford 2321, Howard Sander 2653, Audrey Boxx 7512, Rudolph Stefoin 7512, Hal Brint 8163, Paul Goen 9221, Warren Curry 9322, Mildred Hinds 1612, John Wichelns 4314, Charles Kaspar 4552, Jerry Maloney 8274, S.A. Chemistruck 2330, Lloyd Fuller 3110, Lorenzo Duran 4513, Harry Holmes 9123, Truman Daniel 3111, Tony Lopez 4212, William Perret 9111, and Robert Dineen 2321.

15 Years

Marian Weiss 4331, P.O. Rogers 9115, Marie Syme 1750, Lucille Sanchez 3256, Frances Gross 4331.

10 Years

Everet Beckner 5240, William McAtee 5222, Donald Mattox 5332, Martin Konkel 7221, Ruth Kleindienst 3256, Marie Blakey 3256, Ralph Carden 9421, and Gary Kinemond 1752.



APPRECIATION to Sandia members of the Employees Contribution Plan was expressed at the recent awards banquet of the Salvation Army. Ken Sutton (3250), deputy ECP committee chairman, left, accepts the award from Jack Graham, Salvation Army president, as Brig. John Bawden approves. In addition to funds contributed to the Salvation Army through UCF, the organization also received \$200 from the ECP reserve fund to buy equipment for a playground in South Broadway area.

Events Calendar

April 10—Hike south of Highway 66 on Nine Mile Hill. N.M. Mountain Club, leader Bob Kyrilach, tel. 296-1725.

April 11—Easter dances at many of the Indian Pueblos.

April 14-17—Albuquerque Civic Light Opera presents "Camelot." Popejoy Hall. Matinee on April 18.

April 15-18, 22-25—Music Theatre presents "Cabaret." Manual School Auditorium.

April 22—Albuquerque Symphony Orchestra. Popejoy Hall.

April 23-24—Shrine Circus. Fairgrounds.

Take Note

Albuquerque Motor Sports Club will sponsor a rally Sunday, April 18, as part of the nationwide observance of the sixth annual rally day. Participants will compete on a national as well as local level.

The precision driving rally will cover fifty to eighty miles and is set up to attract both novices and more experienced drivers and navigators.

Bulk of the local entry fees will be donated to the Albuquerque Wildlife and Conservation Association. Further information about the rally and pre-registration forms may be obtained from Jeff Kahn (5322), tel. 255-3870, or Jack Strascina (4221), tel. 344-9536.

* * * *

Want to lose weight? The Albuquerque Dietetic Association is sponsoring another series of weight control classes beginning Thursday, April 15, at Presbyterian Hospital. Time is 7:30 p.m. in the Heritage Room. Classes are one hour per session, five sessions, cost \$1.25. Purpose is loss of weight through a well balanced diet. Call 298-4930 or 277-2336 for further information.

* * * *

An Albuquerque chapter of the National Audubon Society is being organized. The group will sponsor birdwalks and field trips, and will work for conservation and preservation of the environment.

First meeting will be held Thursday, April 15, at 7:30 p.m. in the hospitality room of First National Bank East. Interested persons are invited to attend. Further information may be obtained from Nick DeLollis (1533), tel. 299-5384.

Scouts Need Rafts

Got a rubber raft? A scout troop working with three Sandians, Bob Schuch (5223), Mike McLaughlin (2450) and Joe Meland (2652), plans a river trip in June down the Green River in Utah for some 200 miles. All the boys have completed a water safety and swimming course and are set to go, but could use a number of 4- or 6-man rubber rafts, or larger. Call Joe on 345-0603 or Mike on 255-9685 if you're willing to loan your raft.

• SHOPPING CENTER •

CLASSIFIED ADVERTISING
 Deadline: Friday noon prior to week of publication unless changed by holiday.
 A maximum of 125 ads will be accepted for each issue.

RULES

1. Limit: 20 words
2. One ad per issue per person
3. Must be submitted in writing
4. Use home telephone numbers
5. For Sandia Laboratories and AEC employees only
6. No commercial ads, please
7. Include name and organization
8. Housing listed here for rent or sale is available for occupancy without regard to race, creed, color, or national origin.

FOR SALE - MISCELLANEOUS

- AMMO LOADING bench, \$25. Freshman, 299-9263.
- HOUSETRAILER, 2-bdr., 8 x 43', 1960 Maverick, winterized, stove, refrig., table, chairs, sofa, bed, birch interior, located near Taos Ski Valley, \$1500. Stevens, 299-6086.
- NAVAJO RUG, old weave, \$60; Sunbeam hair dryer, \$8; Japanese rifle, \$22; Stevens repeating, 20 ga. shotgun, \$30. Smitha, 299-1096.
- 1000 SHARES of Computer Consultants stock. Fitzgerald, 298-8851, after 5:30.
- STRAWBERRY plants, everbearing, 5¢ each; blackberry bushes, 25¢. Sherwin, 344-1911.
- BLACK & DECKER electric hedge shears, used 1 year, \$20; electric lawn mower with grass catcher, \$25. Kavet, 299-1793.
- '64 HARLEY Davidson 74FLH, all extras, original cost \$3000; sell for \$1095. West, 298-6966.
- PA SYSTEM, two mikes, \$100; Fender jazz bass guitar, \$275; Fender solid state bassman amplifier, 100/

- 300 watts, \$300. Mikkelsen, 268-1485.
- REGISTERED German shorthaired pointer, seven weeks old, ready to train for fall hunting. Patterson, 877-3158.
- '68 MAGNAVOX portable stereo, AM-FM stereo, British made changer, two 8", two 5" speakers, cost \$215, sell for \$110. Crosley, 255-7249.
- SHOTGUN 20 ga., Stevens Model 311, dbl. 26" barrel, imp. cyl. and mod. chokes, \$75. Wallis, 255-2935.
- SCHWINN 26" girls bike; stationwagon fold-down camper, sleeps two, clamps to cartop; model race car set mounted on 4 x 8' plywood, extras. Dodd, 299-6330.
- LAWN MOWER, push type, Wards, used once since sharpening. Hale, 255-2114.
- DANISH WALNUT DR set; antiques buffet; floor buffer; crib mattress; Cosco utility table; window air conditioner; baby chair; carbed. Fisher, 299-9235.
- '68 HI-LO 16' trailer, hydraulic mechanism (electric), Atwood brakes, sleeps six, 4 jacks, 2 mirrors, complete Reese hitch, new tires, \$1400. Eagor, 298-0522.
- KITCHEN RANGE, gas, \$40; permanent home water softener, \$175; rotary lawn mower, \$10; VW cartop rack, \$10; 8:50x15 tire chains, \$7; metal cooler and water cans, \$2. Champion, 299-0163.
- PUPPIES, poodles, 8 weeks old, male and female, champagne beige, \$50. Jones, 268-2307.
- '69 HONDA CL450, \$700, Smith, 242-1405

- USED, cleaned 6x8x18 cinder blocks. You pick up in Bosque Farms or will deliver for 2 cents more per block. Mills, 636-2087.
- '59 COLDSPOT freezer, \$150. Murphy, 256-0075 after 3 p.m.
- DUNE BUGGY, less than 20,000 miles, 1969 fuel injection engine, R&H w/doors and top. Many safety features. Gabriel, 298-3353.
- BABY FURNITURE: crib, dressing table, net play pen, hamper. Jeffs, 268-3154 after 5.
- VACUUM CLEANER, Hoover upright, \$10; Hermes Featherweight typewriter, \$10; Schwinn Varsity 10-speed bicycle, \$65. Reed, 299-7425.
- MINI-BIKE, Sears, new clutch, recent carb. overhaul, safety helmet, bumper carriers, \$98. Magruder, 255-2078.
- SINGER portable electric sewing machine, \$25. Easterling, 299-7828.
- DINETTE SET, Formic top, 6 chairs, 2 extension leaves, \$60. Hill, 296-9304.
- GARAGE SALE: new Garrard SL95 turntable; old washer; dryer; built-in dishwasher; 7:00x13 snow tires and wheel; others. Gillette, 10421 Hendrix NE.
- MUNTZ 4-track tape player, and 2 large wedge speakers, \$35; Austin Healey 3000 MKIII luggage rack, \$8. Doggett, 299-7957.
- STROLLER, \$10; 20" fan on stand, 2-speed, \$14; kitchen table, seats 6, \$20; electric clock with pendulum, \$4. Long, 296-5248.

REAL ESTATE

- 7 ACRES Sangre de Cristo Mountains near El Vado Dam, Brazos

- River, tall ponderosa pines, Brazos Lodge nearby. Vetter, 255-3959.
- MANKIN 3-bdr., 1 3/4 baths, CFA, AC, carpet, drapes, oversize patio. Buy equity, assume 5 1/4 % loan. Oglesby, 344-6331.

FOR SALE - CARS AND TRUCKS

- '69 VW Sedan, 20k miles. Hill, 255-6538.
- '54 CHRYSLER New Yorker, Hemi V-8 engine, Welker, 299-1179.
- '62 CHEVROLET station wagon, 283, power steering, air conditioning, radio rear speaker, overload shocks, recent carburetor overhaul. Mills, 299-2130.
- '61 CORVAIR Monza 4-dr. sedan, \$250. Schuster, 255-5970.
- '66 MUSTANG convertible, V-8, 4-speed, snow tires, \$1195. Peralta, 282-5191 evenings.
- '62 1/2-ton truck, Studebaker, 5-speed, V-8, 36,800 miles, \$575 or best offer. Schulze, 299-0152.
- '64 SCOUT, 4-wd, hubs, hardtop, radio, dual tanks, non-slip axle, Mico brake lock, all gear overdrive, \$1095. Snyder, 268-0679.
- '66 VW Bug 1300, sunroof, \$900. Cota, 298-1137 after 6 or 842-2078 days.
- F-85 '64 OLDS, AC, AT, R&H, green, 4-dr., \$600. Lumpkin, 299-9179.

FOR RENT

- FURNISHED duplex apt. w/attached garage, 607 San Pablo SE, utilities paid, no pets, single or couple. Berger, 255-0265.
- 2-BDR furnished house, SE near Highland High, \$115 per month, \$85 deposit. Bentz, 299-3448.

WANTED

- 10-SPEED boy's bike. Peterson, 256-7514.
- TO SHARE my furnished apartment, close to Bases, working female, references, \$80. Binder, 296-9024 after 5:30.
- TO BABY-SIT 3-4 year old, week days only, \$17/week including hot lunches, walled yard, supervised care close to bases (SE area). Stuart, 265-7315.
- INEXPENSIVE canister vacuum cleaner, good condition. Peterson, 298-1235.
- BABYSITTER for 2-3 hours every Monday morning starting at 10 a.m. at my residence. Ristine, 298-8383 or 298-0562.
- TEN SPEED or multiple speed mens bike. Rakoczy, 256-0433.
- REAR SEAT for 1969 or later Ford van, preferably blue. Bowen, 255-8195.
- SMALL ELECTRIC or gas outboard motor. Massey, 298-1468.
- TO RENT: Pickup with small camper to accommodate two people for month of June 1971. Miller, 282-3189 after 6 p.m.
- CAR POOL rider from vicinity of Comanche Rd. NE between Louisiana and Wyoming. Long, 296-5248.
- NYLON back pack, Kelty or equivalent. Stromberg, 255-6131.
- HODAKA SuperRat in good condition, \$300 cash for right machine. Weber, 298-9845.

Taxpayers Bawl Set April 10

TONIGHT seafood is the buffet special at the Coronado Club at Happy Hour. The Top Three will be on the bandstand to help you relax. Special prices will be in effect until 9 p.m. The TGIF crowd gathers at 5 p.m., enjoys the buffet from 6 to 8 p.m., dances from 6 to 9 p.m. and then moves to the main lounge for a sing-along with Yolanda Adent at the piano. Tomorrow is a holiday, so you can stay out late.

* * * *

LITTLE ONES, age six and under, will be special guests at the Club's Easter Egg Party Saturday morning at 10. The hunt will be held in the patio area with prizes, refreshments, games and entertainment. Members only, please.

* * * *

HAPPY HOUR on Friday, April 16, will see wildman Bob Banks back on the bandstand behind the crazy red Yamaha electronic organ. Veal cutlets will be the buffet feature. On Friday, April 23, the Club's famous chuckwagon roast beef will be served while the Four Keys make the happy music.

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CORONADO ladies bridge will meet Thursday, April 15. Duplicate bridge meets Tuesdays at 7 p.m.

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CORONADO SKI CLUB recently elected Walt Westman (7414) to lead the group through next season as president. Dave Drummond (4116) is the new vice president. Dick Shepardson (3135) is treasurer and Peggy Burrell (3255) is secretary. The Club will not meet in April.

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SANADO WOMEN will meet Tuesday, April 13, at 1:15 for a sherry luncheon at the Coronado Club. Speaker for the meeting will be June Benefield, columnist for the *Houston Chronicle*.



PAM POPPE
(AEC)

TAXPAYERS will get a break Saturday evening, April 10, with the Taxpayers Bawl. The Jack Daniels people are going to provide free samples and Smiling Jim Noonan, Club manager, is going to build a cordon bleu dinner out of this world. Both are designed to make you forget Form 1040. The Four Keys will play a swinging sound to settle the evening into smooth relaxed groove. Taxpayers are known to be a little numb at this time of year.

* * * *

THE VAUDEVILLE NIGHTS and classic movies have proved popular with the entire family. This month the event will be held Saturday, April 17, and will feature some blockbuster talent on the stage. Ron Day and Mary Kay will present a marionette show, The Hillaries will sing folk music, Steve and Brad will do more singing and then the movie "Metropolis," the original science fiction effort, will be shown. Somewhere a couple of chapters of "The Phantom Creeps" will also be shown. Happy hour prices will be in effect all evening and super sandwiches will be available. The evening gets underway about 7 p.m. and admission is free to members and families.

Much Smoke, Little Light

The smoking thing in LAB NEWS draws to a close. Maybe this is the final word:

"To simply suggest that smoking be banned is naive and inhumane since it fails to acknowledge that many smokers are physically and/or psychologically dependent upon 'the weed'. Consequently any proposed prohibition against smoking should include provisions for medical and psychiatric treatment to aid the smokers in 'kicking the habit'. However, there remains the question of whether or not a smoker could actually be required to undergo such rehabilitation.

The best solution is to follow the current practice of forcing the taxpayer to pay for pollution, in this case by having the Corporation provide private offices and, where that is not feasible, installing adequate air purification systems (e.g., laminar flow!). This proposal would not violate the alleged rights of either the smoker or nonsmoker and would be a great boon to the local construction industry."

Richard Davis - 9425

"P.S. The LAB NEWS has exhibited a deplorable lack of editorial objectivity in reporting this issue."

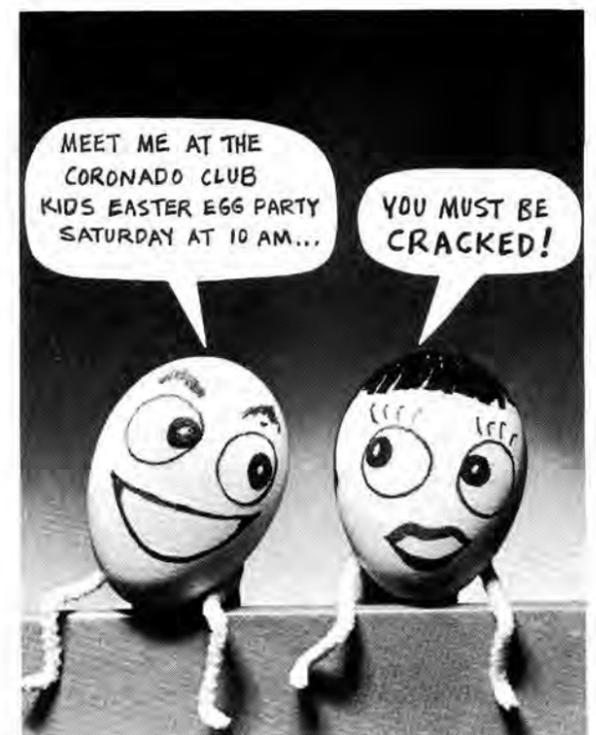
Uh huh. And we don't feel very objective about the man-eating shark either.

Sandian Edits New Crystal Growth Book

A new publication, PREPARATION AND PROPERTIES OF SOLID STATE MATERIALS, appeared in February. Volume 1, entitled *Aspects of Crystal Growth*, was edited by Robert Lefever, supervisor of Materials Division 5154.

The book was published by Marcel Dekker, Inc. of New York, and includes discussions by three authors on different aspects of crystal growth. Recent advances in the field are reviewed with emphasis on growth processes, mechanisms, and crystal perfection.

Forthcoming volumes in the series will deal with other aspects of materials preparation and properties.



APRIL
DON'T BE A FOOL
PLAY IT COOL
WITH SAFETY

