

## Adolph Holm New Attorney



Adolph S. Holm, a general attorney from Teletype Corporation, joined Sandia's legal staff Jan. 1.

He had been with the Skokie, Ill., plant for four years and is on leave of absence from Teletype Corporation.

Mr. Holm received his Bachelor's degree from Yale University in 1951 and his LLB degree in 1956. After two and half years with Northern Trust Company in Chicago, he worked six years for Stewart Warner Corporation, also in Chicago.

His military service includes a year and a half at the Merchant Marine Academy and two tours of duty (1945-47 and 1951-53) with the Army Counter Intelligence Corps in both this country and Japan.

Mr. Holm is a member of the Illinois bar.

## Five-Year Extension Of Sandia Contract Signed by AEC-WE

AEC and Sandia have signed a five-year extension of the contract for continued operation of the Laboratories and supporting facilities.

Signing the agreement were President John Hornbeck, A. P. Clow, executive vice president of WE in charge of all government business, and H. C. Donnelly, manager of AEC's Albuquerque Operations Office.

Mr. Donnelly termed the contract extension, which runs through Dec. 31, 1973, "a tribute to the past and continuing excellence of the work done for the Commission and the Nation by the management and employees of Sandia Laboratories, both in weapons and nonweapons work."

The various Sandia-operated facilities, including the Albuquerque and Livermore Laboratories, and the Tonopah Test Range in Nevada, had a total value of \$225 million in mid-1968. The 1968 payroll for its 8125 employees, including 1041 at Livermore, was \$91.6 million.

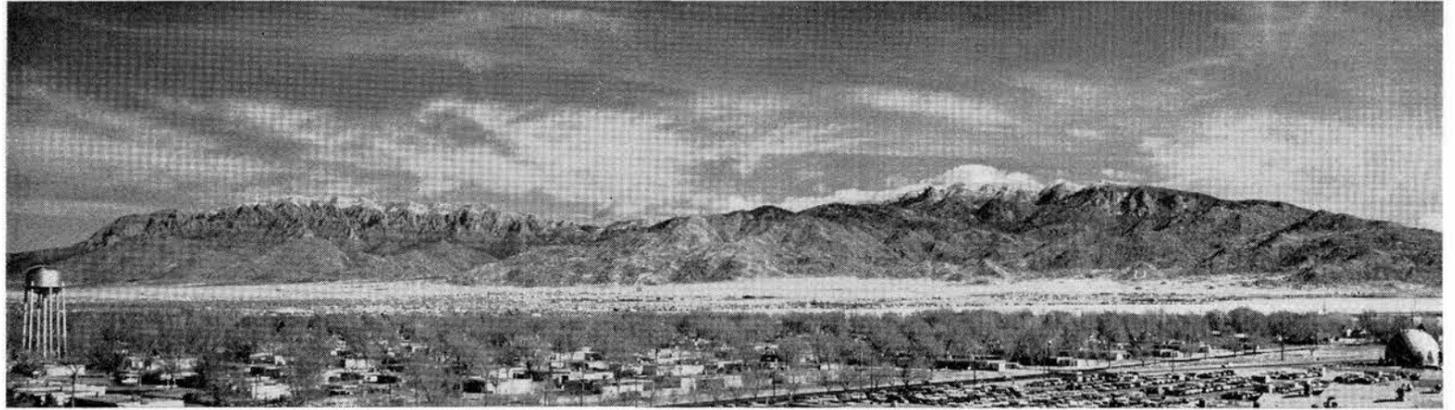
WE took over operation of Sandia in the fall of 1949 from the University of California, which had previously operated Sandia as a branch of the Los Alamos Scientific Laboratory for the AEC.

The present agreement marks the fourth extension of the original no-fee contract.



# SANDIA LAB NEWS

VOL. 21, NO. 3, JANUARY 31, 1969



THE SANDIAS AS THEY SHOULD BE: Those who remember coming to Albuquerque for the first time will recall this view of the Sandia Mountains—rising sharply with nothing intervening except clean, clear air. Although this picture was taken only a few days ago the

sight is becoming more rare as air pollution becomes more prevalent. About 576 tons of pollutants are dumped into Albuquerque air each day, mostly from automobiles. In a future issue, LAB NEWS will show a more frequent scene—haze and smog covering much of the city.

### Bye-Bye Blue Skies?

## Smog--Here Today, More Tomorrow

So you came to Albuquerque because of the climate, the sunshine and, most of all, because of the abundance of clean, fresh air. Well, you'd better think twice before you take another deep breath!

Those 180,000 cars in Bernalillo County are changing all that "clean, fresh air" into a smelly, poisonous mixture of carbon monoxide, hydrocarbons, and oxides of nitrogen that is as repugnant in its dirty grey appearance as it is hazardous to health.

In fact, that "clean, fresh air" is fast disappearing in our city, a circumstance distressingly clear to anyone gazing over the city from the foothills on an average day.

During the year 1967, an average of 576 tons of pollutants was dumped into the air of Albuquerque and Bernalillo County EACH DAY. That comes to 210,320 tons a

year, which is a lot of pollution. It amounts to a little over three pounds of pollutants per man, woman and child in Bernalillo County each day.

About 92 percent of that pollution, or 530 tons each day, comes from transportation sources. In that category, the automobile is by far the biggest offender.

In spite of this heavy, daily rain of pollutants, air pollution in Albuquerque is not considered "acute" — not yet, anyway. The city has very little industry of the sort that produces air contaminants. According to figures of the Albuquerque De-

partment of Environmental Health, only about 2.5 percent of air pollution comes from industrial sources, and the Department is engaged in a vigorous campaign of pollution control to reduce that figure. The national average for industrial air pollution is nearly 17 percent.

Somewhat less encouraging is a projection through the year 2000 given in the Department's second quarterly report for 1968. The projection concerns the carbon monoxide loading of the air from auto exhausts and, while emphasizing the neces-

(Continued on Page Two)

## Four Sandians Are Among 22 Seeking School Board Seats

Albuquerque voters will decide at a Feb. 4 election which of 22 candidates will fill two vacant seats on the Albuquerque Board of Education.

Candidates for Position 1 include Sandians David O'Keefe (2341), Amado Trujillo (9322), and Henry Willis (3130). Vincent Arroyo (4545) is a candidate for Position 2. The election is non-partisan. Terms are six years and no payment is made to office-holders.

David O'Keefe, a chemist in Explosives Division, came to Sandia four years ago from Cornell University where he had a post-doctoral fellowship. His previous employment was with DuPont in Wilmington, Del. David has a BS from Regis College (Denver) and a PhD degree from the University of Colorado. He has been active in a recently-organized group called Parents for Educational Action and Progress.

Amado Trujillo has been a test engineer with Sandia's aerothermodynamic projects organization for the past four years. Previously, he worked two and a half years for Aerojet General in Sacramento, Calif. He has both BS and MS degrees in electrical engineering from the University of New Mexico. He declares his interest in the board vacancies is solely as a "concerned citizen" — both of his sons are of pre-school age.

Henry Willis is manager of Organization and Manpower Development Department and has held supervisory positions in several organizations during nearly 20 years with Sandia. He has a BS degree in business administration from New Mexico State University. He has served as a member of the Bernalillo County School Budget Review Commission and was chairman of the Albuquerque Public Schools Finance Study Group which recently submitted its final recommendations on school financing.

Vincent Arroyo is an engineering proj-



David O'Keefe

Amado Trujillo



Henry Willis

Vincent Arroyo



AEC-WE CONTRACT extension of five years was signed Monday, Jan. 20 by AEC-ALO Manager H. C. Donnelly (seated, left), and Sandia President John Hornbeck. Observing the signing of the fourth extension agreement are (standing, from left): ALO Deputy Manager J. L. McCraw, Sandia Vice Presidents Charles Campbell (4000) and Charles Ross (6000), and AEC/SAO Manager L. W. Otoski.

ect leader in Liaison Engineering and Coordinating Division and has been at Sandia 10 years. Previously he was a basketball coach and math teacher for 10 years at Valley High School and in Bernalillo, and was principal of the Cuba Independent School for two years. He has a BS degree in electrical engineering from the University of New Mexico and has taken graduate courses in education. During last year's teachers' strike, he participated in panel discussions on the problem held by the Valley High PTA.



SENATOR JOSEPH MONTOYA (center) visited Sandia Laboratories last week for technical briefings. He is a member of the Senate Appropriations Committee. He talks with J. L. McCraw (left), deputy manager, AEC/ALO, and President John Hornbeck.



RECENT COLLOQUIUM SPEAKER on Indian cultures was Dr. Alfonso Ortiz of San Juan Pueblo who is assistant professor of Anthropology at Princeton University. Meeting with him before the talk were (l to r) Tom Robles, area director, Equal Opportunity Commission; J. Robert Garcia (3260); Ray Powell, vice president 3000; William Funk (3250), and Dr. Ortiz. Indian leaders in the state attended the colloquium and helped to answer questions from the audience.

## Continued from Page One Albuquerque Smog

sarily tentative nature of the projection, the data indicate that a sample of Albuquerque air at any time in this period will contain more of this toxic gas than equivalent samples from Chicago, Baltimore, and Houston, more even than that of the city that invented smog — Los Angeles. Among cities listed in the comparison, only Denver was projected to have a higher growth rate in carbon monoxide density.

The danger to health from air pollution is not fully documented. There are, however, known direct relationships between the level of air pollution and the incidence of chronic respiratory disorders such as pulmonary emphysema, bronchial asthma,

and chronic bronchitis. The air pollution catastrophe of London took an estimated 3500 to 4000 lives between Dec. 5 and Dec. 9, 1952. The dangers and discomforts resulting from a combination of certain meteorological conditions and high air pollution levels have also been tragically demonstrated in Donora, Pa., in 1948 and in New York City in 1953 and 1966.

In addition, trees and plants of all kinds are menaced by polluted air.

At present Albuquerque's air is not considered to be dangerous to health, according to standards set by the Federal government. However, there is little comfort to be found in future prospects.

On 1968 automobiles, anti-pollution devices were designed to control some 50 percent of the emissions; on 1973 models the proposed devices are aimed at controlling 80 percent and, on 1978 models, 95 percent of the emissions. Which sounds fine, except that the number of automobiles in Albuquerque is expected to proliferate so much that carbon monoxide levels will continue to rise — even with the more efficient anti-pollution devices. Furthermore, these percentages are based on the assumption that the anti-pollution devices will operate at maximum efficiency, an assumption not borne out by experience in California. In order to operate at maximum efficiency, the devices must be regularly serviced and the engine must be properly tuned at all times.

Solving the pollution problem in Albuquerque will take the best efforts of the individual, our city government, and governmental and private industry. Born of technological innovation, it may be that air pollution can only be overcome by technological innovation. A concerned citizenry, conveying its concern to public officials of local, state and federal government, is perhaps the best first step in meeting the problem of air pollution.

NEXT: Air pollution vs. health.

# Take Note

A photographic exhibit by Wayne Gravning (3454), now on display at Eastman House in Rochester, N.Y., was reviewed in the February issue of MODERN PHOTOGRAPHY. Included with the complimentary review was a reproduction of one of Wayne's display photographs of a New Mexico landscape.

An appearance of the famed St. Olaf Choir is scheduled at Popejoy Concert Hall at 8 p.m. Monday, Feb. 3. The 70-voice choral group will present a selection of religious music under the sponsorship of UNM's Lutheran House. Tickets are \$2 for adults, \$1 for students.

The Sandia Employees Golf Association (Ladies group) will hold its annual membership meeting Thursday, Feb. 6, at noon in Rm. 229, Bldg. 802. All Sandia Laboratories women who play golf or who are interested in the sport are invited to attend.

In the spring, league play is scheduled once a week after work and every other Saturday. In addition, tournaments are held throughout the season in Albuquerque, Socorro and Los Alamos.

Officers for the forthcoming season are Wanda Bishop (3341), president; Lillian McCuller (3341), vice president; Gloria Perrine (4152), secretary; and Bea Whitaker (4335), treasurer.

## Events Calendar

Feb. 1—Basketball, UNM vs. N.M. State, UNM Arena.

Feb. 2—Buffalo Dance, San Felipe Pueblo.

Feb. 3—Concert by St. Olaf Choir, UNM Popejoy Hall. For reservations, tel. 243-1703.

Feb. 4-5—Indian Dances, Taos Pueblo.

Feb. 7—Color film "The Bolshoi Ballet—Cinderella," UNM Popejoy Hall. For reservations tel. 277-3121.

Feb. 14—Send a Valentine.

## Congratulations

Mr. and Mrs. Al Mares (4361) a daughter, Antoinette, Jan. 12.

## Sympathy

To Gordon Hawley (7217) for the recent death of his wife.

To Jacobo Mata (4212) for the death of his daughter, Linda, Jan. 16.

R. G. Luckey, Comptroller 4100, has been re-elected to serve another year as chairman of the Accounting Advisory Committee at the University of New Mexico.

In connection with his reappointment, Mr. Luckey points out that the school is now called the School of Business and Administrative Sciences and will concentrate on teaching all facets of interpersonal relations that have to do with the management field. The courses will be broad in content and of interdisciplinary nature to aid students in acquiring knowledge applicable to all types of business—both public and private.

The degrees offered will be MBA's and BA's in administration with concentration in such subjects as accounting, marketing, finance, etc. The curriculum content will concentrate on teaching concepts and principles rather than strictly vocational information which is quickly outdated.

Sandians interested in participating in the annual postal pistol and rifle matches, co-sponsored by the National Rifle Association and the National Recreation Association, are asked to contact Dick Vivian, tel. 264-4355. Last year the 16 Sandia participants won 19 trophies in the national competition.

Jack Merillat, supervisor of Employment Division 3251, was recently elected vice president (Employer Relations) of the board of directors of the College Placement Council, Inc., a national organization of college career guidance counselors and industry personnel representatives.

## Great Decisions Program Starts Tonight on KNME-TV

Bob Colgan (3454) will moderate an eight-week series of television programs over KNME-TV entitled "Great Decisions-1969." The first program, "Czechoslovakia, Russia and Eastern Europe," will be telecast tonight at 8 p.m.

The series is part of a nationwide effort aimed at involving larger numbers of Americans in the questions of American foreign policy. It is sponsored by the Foreign Policy Association.

This will be the tenth year that Bob has moderated the panel discussion series on KNME-TV.

The half-hour programs will be shown Fridays at 8 p.m. over KNME-TV and rebroadcast on Sundays at 9:30 a.m. over KOB-TV. A number of Sandians will be guest panelists during the series.



HOME, SWEET HOME—Well, it's home anyway! Members of the cast and the director of the forthcoming Old Town Studio production of Harold Pinter's "The Homecoming" hold still briefly for the LAB NEWS camera. Four of the cast of six, as well as the director, are Sandians. They are, from left: Nigel Hey (3431), who plays the role of Joey, a hapless pugilist; Bruce Hawkinson (4112), director; John Gardner (3421) in the role of Lenny, a nefarious bum; Bill Carstens (3410) as Max, the father of them all; and Crawford MacCallum (5231) as Teddy, a doltish philosophy professor. In addition to playing a chief role, Crawford is the producer. All the Sandians in the play have previously performed in Albuquerque area productions. The production, which opens at 8 a.m., Feb. 20, will play through Feb. 23 and again from Feb. 27 through March 2.

## SANDIA LAB NEWS



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LIVERMORE, CALIFORNIA

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## Sandian Teaching at California State



Norm Wagner (8163) has accepted the appointment of visiting lecturer in the Management Science Department of California State College at Hayward. This quarter he is teaching a course in Management Information Systems.

Of particular interest to undergraduate and graduate candidates working for degrees in business administration, the course reviews current concepts in business information systems.

Norm received a BS degree in industrial engineering from San Jose State College in 1960 and a Master's degree in industrial engineering from Stanford University in 1965. He joined Sandia Laboratories Livermore in September 1965 and has been assigned to the Engineering Systems and Procedures Division 8163 since that time.

## Sympathy

To J. A. Culver (8222) for the death of his father in Tacoma, Wash., Jan. 9.

To Al (8333) and Karen Yung (8251) for the death of Karen's father in Fremont, Calif., Jan. 9.

## Take Note

Perry Lovell, supervisor of Environmental Health and Medical Services Division 8125, spoke on "Atomic Radiation—Benefits with Safety," at a conference of the Los Angeles County Federation of Labor on Jan. 25. Perry spoke at two sessions of the workshop on Industrial Uses of Atomic Energy.

\* \* \*

Les Rowe, manager of Plant Services Department 8220, and Evelyn Foote, personnel representative in Personnel, Compensation, and Labor Relations Division 8212, were recently appointed to an Advisory Committee on Vocational Education by the Board of Education of the Livermore Valley Unified School District. Term of their appointment is one year. The advisory committee has been established to study the vocational curriculum of the District and to make recommendations for the expansion or revision of the present program. Overall purpose of the committee is an improved curriculum for high school students planning to enter apprenticeship programs, trade schools, or the general labor market after graduation.

## Larry Dorety Awarded MS Degree in Applied Science



Larry Dorety received an MS degree in applied science recently from the University of California at Davis / Livermore. He received the congratulations of the Comprehensives Committee for outstanding performance on his examinations.

All of his graduate work was completed as part of the Sandia Laboratories Livermore Graduate Education Program (GEP) in which he participated under the University Part Time Plan.

Larry is an engineer in Systems Hardening Division 8174. He joined Sandia in June 1967 after receiving his BS degree in engineering physics from the University of California at Berkeley. While working on his Bachelor's degree, he participated in the Sandia Laboratories Livermore Cooperative Work-Study Program for three years — 1964-66. The Co-op Program is a plan of education whereby students alternate three six-month periods of regular employment in industry with equal periods of class attendance.

Earlier this year, Larry was elected to membership in Phi Beta Kappa.

# LIVERMORE NEWS

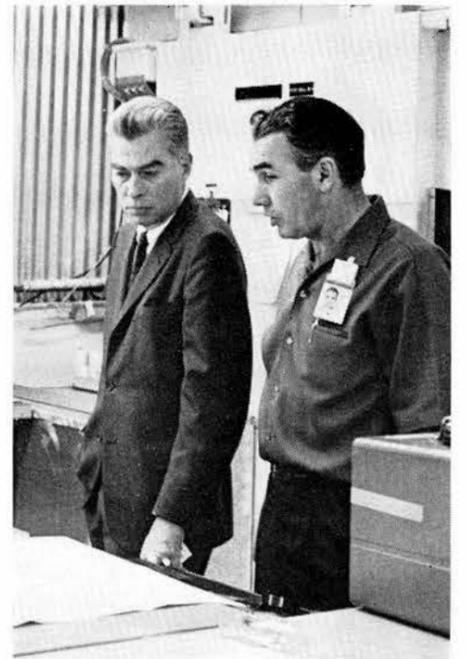
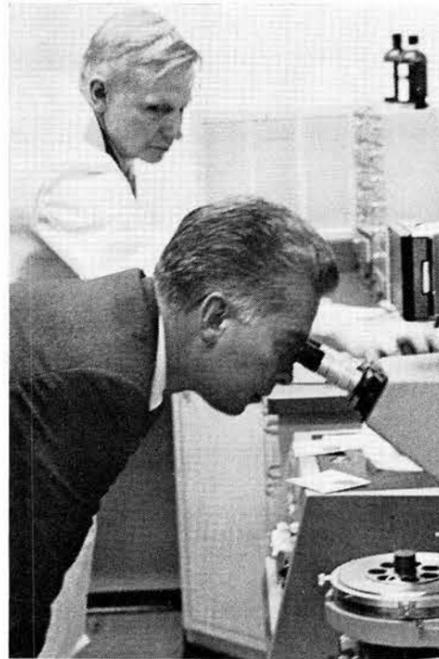
VOL. 21, NO. 3

SANDIA LAB NEWS

JANUARY 31, 1969



PRESIDENT HORNBECK AT SLL—On a recent visit to SLL, President John Hornbeck toured some of the technical areas and discussed project activities with employees. Above, he talks with Tom Cook, vice president 8000. At bottom left, he visits with Clarence Karfs (8312), and at bottom right, with Harvey Pouliot (8137).



Mt. Diablo Subsection of the San Francisco American Society of Mechanical Engineers (ASME) will hold its February meeting — "ladies night" — on the 11th at Hap's Restaurant in Pleasanton. Guest speaker at the meeting will be Dr. Edward Teller.

Social hour begins at 6 p.m. followed by dinner and the meeting at 7. For reservations or further information contact Stan Greenberg (8131), ext. 2568.

## Congratulations

Mr. and Mrs. Thomas Covert (8153), a son, Thomas Scott, Jan. 9.

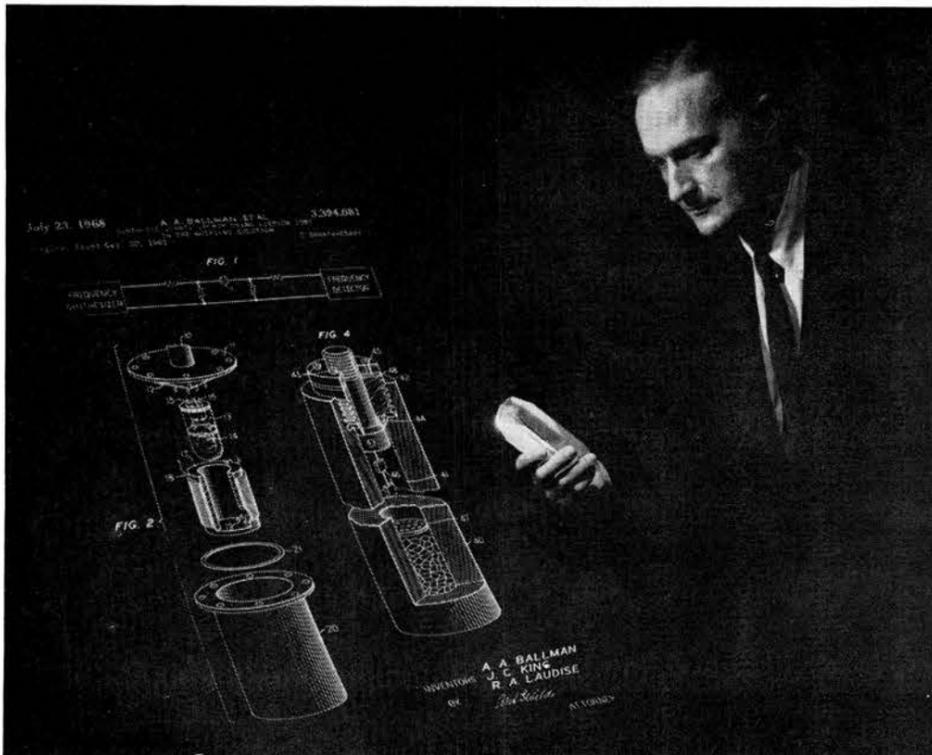
Mr. and Mrs. Ken Dolan (8334), a son, Christopher Thomas, Jan. 5.

David Fielder (8311) and Erica Lee Byers married in Palo Alto, Calif., Dec. 28.

Teresa Mata (8252) and Robert Hotovec (LRL) married in Medford, Ore., Dec. 14.

## For Bell Telephone Laboratories

# James King Co-Inventor of Crystal Growing Process



J. C. KING (8300) holds a synthetic quartz crystal grown by a hydrothermal process developed at Bell Telephone Laboratories. He is co-inventor with two of his former associates at BTL. They developed a solution doping technique which provides a ten-fold improvement in synthetic quartz resonators.

James C. King, director of Applied Research at Livermore, was co-inventor of a new process for producing synthetic quartz crystals with a high-growth rate and acoustic properties similar to natural quartz. The patent has been assigned to Bell Telephone Laboratories in the names of Messrs. King, Albert A. Ballman and Robert A. Laudise, both of BTL, Murray Hill, N.J.

By next year, more than 90 percent of Western Electric's production of quartz crystal units will be made by this new process which adds certain lithium compounds to the nutrient solution in which quartz is grown. The discovery was an outgrowth of a research program carried out at Bell Laboratories in which the effects of specific impurities on the physical properties of quartz were investigated.

For many years natural quartz has played a key role in development of the vast communications system that we enjoy today. Its primary function is to provide extremely accurate timing signals by controlling the frequency of the electric oscillators which are the heart of communication systems. Quartz crystals are also of vital importance in their use as band pass filters which permit the transmission of many closely spaced voice channels on a high frequency carrier signal and the subsequent unscrambling of the multiple voice channels at the receiving end.

The ability of quartz to perform these various tasks derives from its unique electro-mechanical properties. When an alternating electrical signal is impressed across

a quartz plate along certain specific directions in the crystal, the plate will respond mechanically and will vibrate if the impressed signal corresponds very precisely to some mechanically resonant mode of that particular quartz plate. This behavior, known as the piezoelectric effect, is exhibited by many other crystals; however, quartz is unique in that it requires very little energy to keep it vibrating. It is considered a very low acoustic loss material. In addition, quartz is outstandingly stable — its frequency of vibration is remarkably constant with time and variations in temperature.

In the early 1950's, the Bell Telephone Laboratories developed a method for synthesizing quartz at a very high growth rate. This discovery eventually led to the production of quartz at one of the Western Electric plants at a cost far below its natural counterpart. Natural quartz of electronic grade comes mainly from Brazil where it is extracted from the earth by primitive pick and shovel techniques.

Man-made quartz was restricted in its application since it exhibited more than ten times the acoustic loss of natural quartz. This could be overcome by reducing the growth rate, but this resulted in correspondingly high production costs. A technique was needed whereby quartz could be grown quickly while still retaining the desirable acoustic properties of natural quartz. The recently patented process fulfills this need.



AT THE SUMMIT of 13,102-foot South Truchas, (l to r) Bob Kyrlach, Ricky Meleski, Bill Fulcher (2344) and Don Mattox (5432) took time out for refreshments. Sandian Walt Herrmann (5160) joined them a few minutes later. High winds scour snow from exposed areas on mountain side.

## What a Way to Start the Year! South Truchas on Snowshoes

Three Sandians took part this month in what is believed to be the first winter ascent of South Truchas Peak.

South Truchas Peak, at 13,102 feet, was considered the highest point in New Mexico until recent years when a new survey disclosed that Mount Wheeler exceeded it in height by 58 feet.

The winter mountaineers included Don Mattox (5432); Walt Herrmann (5160); Bill Fulcher (2344); Bob Kyrlach, a high school teacher; Tom Ferguson, a UNM graduate student; Dick Meleski and his 14-year-old son Ricky. Dick is sponsor of the UNM Mountaineering Club and is director of photo services for the university — these are his photographs.

For several of the climbers this was their third attempt to reach the summit in winter. The latest attempt was aided by perfect weather, ideal snow conditions, and use of two snowmobiles to get to within four miles of the base camp, just below Truchas Falls at an elevation of about 11,000 feet.

The party left Albuquerque Friday afternoon, Jan. 3, and it was nearly 1 a.m. before all reached the base camp via snowshoes. Tom and Don broke trail in the deep powder snow for the others, but it was slow going with 40-pound packs.

Saturday the men snowshoed and hiked to Truchas Basin, climbed West Truchas by the west ridge, then on to South Truchas. On the descent they followed a couloir between West and Middle Truchas where a slab avalanche had occurred earlier in the day. They spent Saturday night at the base camp and started back to Albuquerque the following day.

The climbers estimate snow depth was at 2-3 feet and the only wind crust they encountered on the snow was in the couloir. The weather was cold with night temperatures down to about 5°F.



AFTER CLIMBING West Truchas (in background), the mountaineers began their ascent of South Truchas, second highest peak in New Mexico.

## Authors

R. C. Wayne (5132) and L. C. Bartel (5131), "Pressure Dependence of the Curie Temperatures of fcc Alloys of Fe with Ni, Pd and Pt," Vol. 28A, No. 3, PHYSICS LETTERS A.

S. F. Duliere (5422) and A. W. Mullendore (5415), "The Morphology and Crystallography of a Vapor Deposited Beryllium Layer," University of Utah's Fifth Annual X-Ray Seminar.

J. F. Banas (1712), "Optimal PWPA Control of Time Lag Systems," Proceedings of the Second Hawaiian International Conference on System Sciences.

N. J. DeLollis (5443), "Theory of Adhesion — Mechanism of Bond Failure and Mechanism of Bond Improvement. Part II — A Proposed Mechanism of Bond Failure," January issue, ADHESIVES AGE.



"A CHILLY GOOD MORNING," says Walt Herrmann (5160) from one of the three tents the men used.

## Charles Harrison Named IEEE Fellow



The Albuquerque Section of the Institute of Electrical and Electronics Engineers will honor Charles W. Harrison, Jr. (2625) at their February meeting on the occasion of his being named a Fellow.

Approximately 100 Fellows are elected annually from the Society's 135,000 members. The honor is reserved for those scientists and engineers who make very significant contributions in management, engineering or education.

The dinner meeting will be held Feb. 11, starting at 7:30 p.m. at the Eldorado Room of the Coronado Club. Presentation will be made by Glen Fowler (9000), and Otmar Stuetzer (1220) will discuss "Speaker Troubles." Chairman of the local section is Gene Newlin (6011).

Mr. Harrison was singled out "for numerous and fundamental contributions to antenna theory, and for the application of electrodynamic principles to nuclear weapon and missile design."

In 1966 Mr. Harrison received the regional IEEE award for Electronics Achievement, and in gaining fellowship in IEEE, he is the first New Mexican to receive both national and regional awards.

Mr. Harrison, who joined Sandia in 1957 after retiring from the Navy, holds a doctorate degree in applied physics from Harvard, and has been on the faculties of Virginia, Harvard and Princeton Universities.

He has published some 150 technical papers, and his AEC-sponsored book "Electromagnetic Radiation and Antennas" is now in press. (This volume was co-authored by Professor R. W. P. King of Harvard University, Sandia Laboratories consultant.) Mr. Harrison is a registered professional engineer in the District of Columbia, Massachusetts and Virginia. Memberships in societies and associations other than the IEEE include Sigma Xi, RESA and the International Union of Radio Scientists (Commission 6).



BRONZE MEDAL awarded to Sandia film, "Terradynamics," is displayed by (l to r) John Colp, scientific advisor; Wayne Hancock, cinematographer/editor; and Ed Reilly writer/director.

## Sandia 'Terradynamics' Film Wins Festival Award

"Terradynamics," a 22-minute color film produced by Motion Picture Production Division 3454, recently was awarded a bronze medal in the International Film and TV Festival of New York.

Division 3454 writer/director for the film was Ed Reilly. Wayne Hancock was cinematographer/editor for the project. John Colp of Terradynamics Division 9327 was scientific advisor.

Elliot Harris (3454) was assistant photographer for the film. The movie included original art by Gordon Snidow and animation by Bob Newman of Technical Art Division 3463.

The Sandia film was entered in the scientific research category and was competing against some 2500 industry-produced films in the festival.

"Terradynamics" is available for showing to local organizations. Telephone 264-1871 for arrangements.

## Speakers

G. A. Samara (5132), "Ferroelectric Properties and Their Pressure Dependence," University of Nevada seminar, Dec. 18, Reno.

C. D. Lundergan (5163), "A Program Combining the Functions of the Programs WONDY 3 and SWAP 7," Air Force Weapons Laboratory, Jan. 6, Albuquerque.

R. F. Gentzler (7253), "Remote Meteorological Stations," Surface Division and Security Group of the Naval Reserve, Jan. 23, Albuquerque.

R. L. Schwoebel (5440), "Step Motion on Crystal Surfaces," New Mexico Section of the American Chemical Society, Jan. 17, Santa Fe.

P. A. Nicovich (7612), "Y14.5 Dimensioning and Tolerancing for Engineering Drawings and Unification of Drawing Practices or: Why 14.5?" Mid-Year Meeting, Engineering Graphics Division, American Society for Engineering Education, Jan. 24, Baton Rouge, La.

C. H. Williams (5416), "Vaporization of Graphite," A. D. Little Company, Jan. 21, Cambridge, Mass.

J. L. Colp (9327), "Terradynamics — A Study of Projectile Penetration of Natural Earth Materials," Johns Hopkins University Applied Physics Lab, Jan. 31, Silver Spring, Md.

H. L. Rarrick (3312), "Weapon Effects Tests — Planned Emergencies," Mid-Year Topical Symposium of the Health Physics Society, Jan. 30, Los Angeles.

H. V. Young (7414), "Suez Canal," Jan.

5, First Presbyterian Church Single Adults Group, and Jan. 14, Sunrise Optimist Club.

T. B. Sherwin (3430), "PR ABC's for Volunteer Organizations," Jan. 8, Nazareth Sanatorium Auxiliary.

A. Goodman (1224), "Some Things the Future May Bring," Jan. 9, Los Altos Civitan Club, and Jan. 28, North Valley Optimists Club.

C. S. Johnson (7271), "Scientific Quest for ESP," Jan. 16, Los Altos Civitan Club.

H. D. Sivinski (1740), "Man in the Space Environment," Jan. 16, Evening Optimists Club.

J. Danlovic (3131), "Management and Organization Theory," Jan. 21, North Valley Optimists Club.

## Promotions

Hermenes Baca (4518) to Laborer  
Donald W. Goodrich (4233) to Technician  
George H. Lester (4511) to Maintenance Mechanic  
Frances Santillanes (3126) to Typist Clerk  
Glenda Daniels (3126) to Steno Clerk  
Darlene Keich (3126) to Steno Clerk  
Marla Mortensen (3126) to Steno Clerk  
Kenneth Ludwick (3415) to Mail Clerk  
Dixie Fambrough (3126) to Secretarial Steno  
Karen Fluckey (3126) to Secretarial Steno  
Diane S. Kopp (3126) to Secretarial Steno  
Mary H. Muth (3126) to Secretarial Steno  
Dorothy N. Ray (3126) to Secretarial Steno  
Mary E. Woods (3126) to Secretarial Steno  
David J. Asbury (9411) to Data Processing Clerk  
Margaret Key (3428) to Camera Operator  
Joe A. Sanchez, Jr. (3428) to Camera Operator  
Joseph L. Thomas (8253) to Reproduction Equipment Operator  
Melvin A. LaGasca (8333) to Technician  
Annabelle Fink (3413) to Chartist  
Kenneth Ludwick (7341) to Laboratory Assistant  
Alice Brinkley (7000) to Secretary  
Jon J. Pallitto (8245) to Stockkeeper



# Service Awards

## 20 Years



Laurence Chavez  
7636



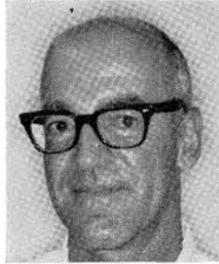
George Farwell  
7612



Arthur Jones  
3462



James Leonard  
4622



Robert Male  
7223



Einar Morterud  
4615



Felix Padilla  
4516



Bill Rosebeary  
9251



James Williams  
9237

## 15 Years



Bobby Allen  
1516



John Bodene  
1513



Jessie Hodges  
6021



Mary McClure  
3421



Jack Palmer  
4114



Earle Paxton  
8232



Henry Ward  
9252

## 10 Years

Jan. 31 - Feb. 13

Ronald Snidow 4221, Henry De Ruyver 4252, Gary West 7231, Theodore Robinson 8223, Herbert Zenger 8255, James Jacobs 9522, John Williams 1615, Frank Truby 5232.

Roy Diesing 8153, Robert Bryant 8243, David Anderson 9114, Billy Moore 9135, Gertrude Martin 8245, and Jack Puarica 9214.



CURSE YOU RED BARON—otherwise known as N2227C of the Crossroads Flying Club, Cessna Skylane flies ahead of pilot Leo Doyal (9222). Both planes are club-owned and eight Sandians are current members of the flying group.

### Birds of a Feather?

## Flying Club Offers Sandians Fun, Sun and Wide Travel

Ever yearn for a weekend at the Grand Canyon, or maybe Las Vegas, or even Mexico? Well, if you were a member of a flying club, you could travel to all three and still have time to be properly awed by the spectacle of the Colorado, lose your shirt in Vegas, and bask in the sun at San Blas—all in a single weekend.

The flying club, which is growing in popularity throughout the country, is an arrangement whereby ownership of aircraft and the cost of their maintenance is shared by a number of persons. A number of Sandians belong to such clubs.

John Johnson (9132), who is president of the Crossroads Flying Club, recently spent a week's vacation in Tennessee. By auto, the trip would involve at least two days of hard driving each way; by air, it was a mere seven-hour jaunt for John.

Dick Berg, (2326) secretary of the club, took a leisurely two-day trip to Tucson, Phoenix, and the Grand Canyon.

Francis Thompson (9213), vice president, has taken his family on several flying trips to Mexico, including a 10-day vacation last summer to Puerto Vallarta and to other places in Mexico such as Baja California, which is virtually inaccessible by auto.

Other Sandians who belong to the Crossroads Club, whose members have flown more than one and one-half million miles since the club was founded in 1952, include Leo Doyal (9222), treasurer; Jim Kenagy (4210), maintenance officer; Jim Griscom (2353); Joe Weihe (1710); and Charlie Burks (1514). Charlie, by the way, is an

avid Lobo fan and flies to many of their out-of-town football and basketball games.

Besides the routine pleasure and business trips, the club's pilots and planes have been used on various mercy missions and in air searches for downed aircraft. Club members hold pilot ratings ranging from private to commercial licenses and several have instrument ratings.

John, president of the club, says that apart from the satisfaction of flying, one of the chief advantages of such a club is that it is useful. "I often use the plane instead of an auto, and I fly as many miles as I drive, about 15,000 miles a year. The cost is roughly comparable to owning and operating an auto. Besides, I get a real thrill out of flying."

The club's two planes, 1958 and 1965 Cessna Skylanes, are fully equipped for instrument flight, including radio navigation and communications equipment. The craft are hangared at Diamond M Aviation at the Sunport.

Flight safety is promoted and has been achieved through a rigorous program of aircraft inspection and maintenance, and members are encouraged to increase their proficiency through continued training in flight skills and study of meteorology and navigation. The club sponsors films, speakers and other programs to promote safety and proficiency.

As a result of its flight safety program, the club has gained national recognition by winning the Hughes Safety Trophy for three consecutive years from among 150 competing clubs.

### 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 Corporation 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

- 19" TV, portable Airline w/stand, \$40. Newton, 255-2074.  
SIGNED, numbered autobiography of Albert Einstein, \$100. Wolfe, 268-6864.  
AUTO air conditioner A.R.A., Sear's, fits all but smallest compacts, complete for Chrysler products 318 engine. Ingram, 298-0390.  
BICYCLE, Boy's 24" wheels, standard frame, coaster brakes, fenders, chain guard, \$8. Joseph, 9713 Morrow Rd. NE.  
LARGE female dog for country place. Miller, 282-3189 after 6.  
6M BEAM & mast, \$10; buck rabbit & cage, \$5; VW weather-proof cartop carrier, \$18. Huddle, 265-6248.  
REFRIGERATOR, Whirlpool, 11 cu. ft., cross top freezer section, \$40. Duvall, 299-8744.  
GENUINE CONTOUR CHAIR, gold, \$85; 5 inner tubes, (7.10-7.80-15), \$7; 15" Jeep wheel large O, \$6. Aaron, 296-6822 evenings.  
1964 24-volume set Colliers encyclopedias, 4 year-books, 10 Junior Classics (optional), 1 book-case, \$200. Konnick, 296-3906.  
NORGE electric clothes dryer, \$35; acrylic plush-pile blue carpet, 13'x17', \$85; 2 modern upholstered chairs; Frigidaire auto air conditioner components. Chandler, 296-3323.  
LENNOX china, rose pattern, 8 place settings w/serving pieces, at 1/2 original cost, \$175. Gasser, 255-4562.

LOVE SEAT, maple, \$10. Romero, 344-0302.

MAPLE corner desk (1 drawer), or can be used as dressing table. Thompson, 298-0946.

LABRADOR RETRIEVER puppies, both yellow & black, available from champion stock. Benson, 268-9727.

STEREO COMPONENTS: Dynakits — Pas 3X pre amp, ST35 power amp, FM3 tuner; Weathers "Townsend" turntable w/Empire cartridge. Garrison, 256-7267.

SKI BOOTS, size 10, \$7. 154 Chama NE after 5 or weekends. Gallegos.

'67 SUZUKI 50cc motorcycle, \$145. Rusvold, 268-5970.

5x6x15 WW Pirelli tire, almost new, \$7.50; wheels: 15" Ford w/tire, \$3; 15" Chev., 14" Chev., \$2 ea. Stuart, 299-9190.

FREE PUPPIES: 2 females, 3 males, born Dec. 30, mother is part Boston Terrier. Bartlett, 299-4861.

MOBILE HOME, 12'x60' '67 Town & Country, 3-bdr., 1 1/2 baths, carpeted LR. Velasquez, 242-0308.

7' X 9' CABIN TENT, sewed in floor, poles, stakes, etc., \$35 or make offer. Lane, 298-3366.

ONE matching pr. table lamps; end tables; chest-of-drawers; stereo cabinet. Ezell, 842-9136.

HIDE-A-BED, hardly used, turquoise. Westman, 255-6048.

BEAGLE PUPPIES, champion-sired, AKC reg., 7 wks. old. Buckner, 296-1251.

TWO occasional chairs, brown, \$10 ea.; 3 end tables, \$10 ea., 21" console TV, \$20. Schuster, 299-1072.

GIRL'S 26" bicycle, \$20; Burro 2-sp. trail scooter, \$75. Luehring, 299-6031.

FREE PUPPIES. Puccini, 265-9294.

DINETTE SET, table w/6 slightly worn chairs, \$10; baby's folding dressing table, top needs recovering, \$5. Fisher, 298-0526.

BEDROOM SUITE: dark modern, triple dresser, twin-size bed, nite stand & lg. mirror; commode table & sofa chair, less than 1/2 cost. Browning, 299-6384.

'66 BMW R60, 8467 miles, has \$417 extra equipment, \$1150. Watkins, 299-0411.

PLAYPEN, \$6; car bed, \$6; car seat, \$1, carriers, \$1.50. Paul, 265-2185.

3-PIECE SECTIONAL, needs upholstering, make offer. Gray, 299-7035.

CHAIN SAW, 14" mono, \$50 or trade for hay; water pump w/1/2-hp electric motor, \$20. Sherwin, 344-1911.

6-yr. old spirited mare, 1/2 Arabian-1/2 quarter horse, (we think). Higgins, 898-0409.

SOLID limed oak dining room set w/6 upholstered chairs, includes 2 captain chairs, drop-leaf table has 2 leaves, \$75; storm door, 6'9"x3". Montoya, 265-9642.

BICYCLE, 20" Sears Spyder, new banana seat and sissy bar. Magnuson, 268-5955.

### CARS AND TRUCKS

'64 TRIUMPH Spitfire, 42,700 miles, motor re-conditioned at 37,000 miles, front disc brakes, new convertible top, \$685. Schmierer, 299-2352.

'64 VW sedan, white exterior, red interior, low mileage, \$1000. Sparks, 344-3606.

'64 MONZA convertible, 4-sp., new clutch, \$400. Koski, 299-0368.

'58 MGA, racing green, new clutch, engine & tires within last 3000 miles, new paint this month. Thomas, 277-2891.

'64 BUICK Riviera, many extras. Thompson, 296-3762.

'57 FORD 1/2-ton pickup, V8, 3-sp., \$375; military-type Jeep, 4-w. dr., make offer. Gonzales, 877-5693.

'65 OLDS Cutlass, blue 2-dr. HT, 8-cyl., R&H, FS, console, AT, tinted windshield, below book. Summers, 296-7185 or 344-9287.

'59 DESOTO Firestone, 2-dr., 60,000 miles, \$325. Bustamante, 296-4753.

'64 FORD pickup, 1/2-ton, 8' Styleside, V8, limited slip, 4-sp., 42,000 miles, available about March 1. Bonoso, Bruce, 299-2542.

'61 PONTIAC Bonneville convertible, R&H, no slip diff., power. Lundergan, 255-2974 after 6.

'62 RAMBLER Classic, stand. trans., air, radio. Patterson, 877-3158.

'63 FORD GALAXIE XL, 2-dr., 427 cu. in. Harmon Moody cam, 3 — 2-bbl. carb., 4-sp., Ansen scatter shield, S-W gauges, Keystone 8.858-15 mag. \$1600. Rarrick, 3428 Parsifal NE, 299-9371.

'59 FORD F100 4-w. dr. 292-V8 4-sp., extra fuel tank, long wide box, \$600. Shoemaker, 636-2775.

'60 FORD six cyl. engine, complete, \$75 or make offer. Elder, 268-7479.

'61 VAN International, \$550. Pohl, 344-8503.

'60 FORD, 4-dr., 6-cyl., std. trans., R&H, low mileage \$300. Amos 298-1095.

'58 FORD 4-dr. sedan, Cruisomatic, big V8 engine, PPS, PB, needs muffler, old but dependable, second owner \$150 or best offer. Champion, 299-5821.

'60 AUSTIN HEALY, \$3000, elec. OD. Stiegler, 299-6763.

'66 CHEVROLET BelAir, 2-dr., stick shift, R&H, new tires, \$995. Harrell, 299-2416.

'51 FORD 1/2-ton pickup, new: engine, generator, starter, vol. regulator, carb., battery cables, ignition. Sheyka, 274-2962 after 5:30.

'46 MILITARY style Jeep w/Chevy 265 V8 engine. Suchland, 298-2502 after 5.

'55 CHEVROLET, HT, AT, R&H, V-8, 283 cu. in., \$325; '59 Rambler, 10-series, 4-dr., AT, R&H, newly rebuilt engine, \$250. Breitenbach, 344-7584.

### REAL ESTATE

HOFFMANTOWN HOME, fully carpeted, 3-bdr., utility rm., carport, walled yard, assume FHA \$10,900, low down. Faro, 299-1265 after 5.

4 ACRES w/unfinished house, plumbing, electric, 2 wells, big garage, 1 mile East of Peralta. Skelley, Rt. 3, Box 423-J, Los Lunas, 636-2177.

2-BDR., den, \$350 down plus closing, approx. \$97 monthly FHA, taxes & ins. included, \$11,050 total, other terms available, 1334 Marron Cir. NE. Stark, 299-5953.

\$1900 takes over 5 1/4% loan, one owner, 3-bdr., den, fp, dbl. garage, total price under \$18,300. Watkins, 298-3667.

20 ACRES East of Sandias, Heath, 255-5418.

MOSSMAN 3-bdr., den, 1 1/4 baths, 2-car garage, carpeting, fireplace, 1480 sq. ft., shaded patio, 4 1/2% loan available, 2804 Dakota NE. LeRoy, 296-2953.

RESIDENTIAL LOT, 75' front x 125' deep, located on Horacio St. which is paved and ready for building, Loma Del Rey Addition. Dyer, 299-5324.

BRICK, 3-bdr., paneled den w/fp, carpeted, drapes, hw/floors, garage, 1 1/4 baths, landscaped, sprinklers AC, cfa, \$19,900, low equity, 5 3/4% Rodeman, 256-1889.

5 ACRES, Santa Fe County, north of Edgewood on Hwy. 344, electric power available, terms. Mick, 299-5814.

### FOR RENT

APARTMENT, brick, 2-bdr., 2-bath, den, fp, carpets, drapes, built-ins, garage, northeast available Feb. 1. Daniel, 268-8335.

3-BDR., 1 bath, garage, walled yard, near bases, Los Altos area, available Feb. 1. Patterson, 243-6219.

EXECUTIVE HOBBY SHOP: 17'x32', hot & cold water, heat, AC, work bench, lg. vise, fluorescent lights, \$40. Villella, 298-7955.

### WANTED

6" DR 9" machine lathe; bandsaw; drill press. Dourte, 344-8922.

METAL SKIS in good condition, 6', bindings not needed, standards preferred. Murfin, 268-9252.

BABYSITTING in my home, playroom & fenced yard, prefer ages 2-5 but will consider a baby, I have 2 children of my own. Sample, 9516 Elvin NE, 296-1771.

SNOWSHOES, preferably large trail type. Baxter, 344-7601.

METAL SKIS, 5'6" to 5'9". Westman, 255-6048.

CAMPING or travel trailer, up to 16 feet. Yingst, 268-2896.

GENERATOR, portable 1000 watt. Bryan, 298-3002.

PAY \$20 for 1960 SD proof set, \$4 for 1950D knitted, 10c ea. for Indian Head pennies, 60c for 1/2 dollars, etc. Flowers, 282-3458.

PORTABLE SANDERS, belt type & finishing type. Tiefs, 299-2763.

BOY'S golf club, right handed. Swain, 265-0098.

FLYING students & pilots, student, associate & shareholder memberships available in Air Travelers Associated, Cessna 150 and 172. Fox, 256-2606.

### LOST AND FOUND

LOST—Deer skin glove, red beads, keys on pull-out chain, ladies long black leather glove, pr. men's brown unlined gloves, man's yellow gold wedding band, Rx glasses w/dark brown frames in black case, oval-shaped pin w/turquoise stone in silver mounting. LOST AND FOUND, tel. 264-2757, Bldg. 610.

FOUND—Pr. ladies royal blue gloves, beige wool knit glove w/leather palm, GM key in leather case, set of 6 keys, man's gold Masonic ring, pr. men's black leather gloves, triangle-shaped wooden earring. LOST AND FOUND, tel. 264-2757, Bldg. 610.



MARY  
IVERSON  
(3111)



THE SHADOWS DO, and they don't even remember Lamont Cranston or Margo Lane of radio fame. This modern group of swinging entertainers will perform tonight at social hour, tomorrow afternoon at 2 p.m. for a teen concert, and at a dinner dance tomorrow evening at the Club.

**Coronado Club Activities**

**'The Shadows' Will Perform Tonight During Extended Club Social Hour**

They're here! Tonight! The Shadows, a famous West Coast modern entertainment group featuring three mini-skirted young ladies and five male performers in the manner of The Young Americans, will present a three-hour show from 6 to 9 p.m. tonight at the Club. Special social hour prices will prevail during most of the singing and dancing. A \$1 admission (\$1.50 for guests) will be charged.

The social hour buffet tonight will be the famous Coronado Club Mexican food at \$1.25 for adults, \$1 for kids.

Tomorrow afternoon, the Shadows will present a concert for teenagers at the Club starting at 2 p.m.

And, tomorrow night the Shadows will present another show and play for dancing for the grownups. The dinner that goes with the event includes sirloin steak and all the goodies topped with apple pie. All this goes for a \$4 per member admission charge.

**Mardi Gras**

Jambalaya, special entertainment and dancing to the Dixieland All-Stars will be part of the Coronado Club Mardi Gras on Saturday, Feb. 15. Costumes will not be necessary but the festival attitude will. The Club's annual Mardi Gras is one of the big events of the year.

**New England Seafood Dinner**

The Club has made special arrangements to fly in live Maine lobsters and cherrystone clams for an event which will combine a fabulous menu with a free wine taste. Reservations must be made by Feb. 15 for this one. Tickets cost \$6 each (remember the lobster and clam menu). The MBC Trio will play for dancing.

**Welcome . . . Newcomers**

Jan. 13 - 24

<b>Albuquerque</b>	
Gloria L. Abbott	4152
Albert L. Ayotte	3415
Richard L. Bartolucci	2341
Erminio Candelaria	4574
James D. Flemins	7226
Carlyn V. Iuzzolino	1713
*Amado Padilla	4574
Dan Perea	4574
*Ramona L. Plummer	4152
Elmer G. Smith	4574
Wilton I. Stone	4574
<b>Florida</b>	
Gary R. Schuster, Ocala	5232
Thomas I. Barger, II, Gainesville	7211
<b>Illinois</b>	
Jimmie M. McDonald, Chicago	5233
<b>Missouri</b>	
Robert E. Auer, Kansas City	5232
Valentin Lovato, Kansas City	7615
<b>New Mexico</b>	
Susan N. Stryjewski, Socorro	5431
*Rehired	

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SANDIA LAB NEWS  
JANUARY 31, 1969

**Sandia Safety Signals**

If more people would stop making excuses for not wearing safety belts, there would be more people.

What's your excuse?

**Eyes Play Tricks**

At night you can see an unexpected object only about half as far distant as you can see an expected one. Thus, you can see your own driveway much sooner than something you don't expect to see, and the unexpected could be a rock, a dog, a person. Studies show that the faster you drive at night the less far ahead you can see. Actual tests show that a driver doing 20 mph can see and identify objects 80 feet farther away than a driver going 60 mph. SLOW DOWN!

**Nuclear Energy Is New Mexico's Largest Industry**

During fiscal 1968, the Atomic Energy Commission spent nearly \$371 million in New Mexico, thus making nuclear energy projects the state's largest single industry, according to a recently released AEC 1968 financial report.

The \$371 million was the largest expenditure in any one state of those in which AEC has operations. During the fiscal year, the Commission incurred total operating costs in excess of \$2.5 billion.

The investment represented by AEC plant facilities and equipment in New Mexico amounts to \$657.3 million (including the estimated completion cost of construction underway), the sixth largest AEC investment on a state by state comparison. The New Mexico facilities are Los Alamos Scientific Laboratory, with an investment of \$346.3 million; Sandia Laboratories Albuquerque, \$231 million; Zia Company, \$72.7 million; Lovelace Foundation Laboratory, \$5.1 million, and EG&G test facilities, \$2.2 million.

The New Mexico investments represent expenditures in the areas of weapons development and fabrication; nuclear propulsion and power systems for space application; peaceful use of nuclear energy such as Plowshare; biological and medical research, and a range of physical, engineering and nuclear research.

**Supervisory Appointments**



RICHARD SCHWOEBEL to manager Materials Research & Development Department IV 5440, effective Jan. 16.

Dick has been with Sandia for six and one-half years, first as a staff member with 5122 and then, for three and one-half years, supervisor of Surface Kinetics Research Division 5273.

Formerly with the Balloons and Meteorological Research section of General Mills in Minneapolis, Dick is a graduate with a BA degree in physics at Hamline University in St. Paul. In 1963, he received his PhD degree in engineering physics at Cornell University.

He is a member of the American Physical Society and the American Vacuum Society.

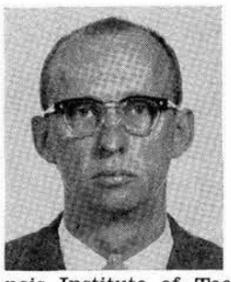


ARTHUR MULENDORE to supervisor of Composite Material Analysis Division 5415, effective Jan. 16.

Art joined Sandia in 1964 and has since worked in the electron microscopy section of Electro-Optical Analysis Division 5422. Previously he taught metallurgy for four years at the Massachusetts Institute of Technology where he was an assistant professor.

He is a graduate of the University of Wisconsin where he earned a BS degree in metallurgical engineering. He holds MS and PhD degrees from MIT.

An Air Force veteran, Art is a member of the American Institute of Mining and Metallurgical Engineering, the American Association for Advancement of Science, and the Electron Microscope Society of America.



JOHN LEDMAN to supervisor Physical Metallurgy Division II 5435, effective Jan. 16.

John has worked with the metallurgy group since joining Sandia in 1962.

A graduate with a BS degree in metallurgy from the Illinois Institute of Technology in Chicago, John also holds a PhD degree in metallurgy from the Rensselaer Polytechnic Institute at Troy, N.Y.

He is a member and past Albuquerque chapter president of the American Society for Metals.

**Social Hours**

On Friday, Feb. 7, the chicken buffet will be served while Tommy Kelly and the smiling Irishmen play for dancing.

Frank Chewiwie will hold the bandstand on Friday, Feb. 14. The seafood buffet will be served.

Social hours start at 5 p.m. on Fridays with special prices through 8 p.m. The buffet is served from 6 to 8 p.m., and the band plays for dancing from 6 until 9 p.m. Pat Reich and piano entertains in the main lounge from 9 until 12 p.m.

Don't forget the Tuesday social hours each week with special prices from 5 until 8 p.m.

**Ladies Charm Course**

A six-week ladies' self-improvement course, instructed by Rosario Ayers, will start at the Club in early February. The class will meet at 9:30 a.m. once a week to discuss posture, exercise, fashion, cosmetics, etc. More details available from the Club office, tel. 264-4561.

**Bridge**

Duplicate bridge meets Mondays at 7 p.m. Ladies bridge meets Thursday, Feb. 6, at 1 p.m. The Sandia Lab bridge group meets Thursday, Feb. 13.

**Retiring**



Evelyn Ricard, a staff assistant in Personnel Data Systems Division 3253, is retiring today. She joined Sandia in February 1953 as a clerk typist in Personnel. Since then she has worked in the Library and in the Field Test Organization in data reduction and as a math analyst. Before coming to the Laboratories, she was with the Veterans' Administration in Cleveland, Ohio.

Evelyn is taking early retirement so that she can enjoy that extra time now instead of waiting. "The great thing about retirement," she says, "is that your plans are not dependent on working time."

She bowls twice a week and is State secretary of the Women's Bowling Association, a post she has held for 14 years. "I also enjoy golf, short mountain trips, rock hounding, yard work and travel. I plan to see some of this country and parts of Canada and Mexico that I've missed in earlier trips."