



ADJUSTING 25-kilovolt X-ray generator, S. A. Ravenbyrne prepares to make an exposure of a large metal casting prepared by personnel of Sandia's Pattern and Foundry Section 4221-4.

## When Winter Storms Hit Many at Sandia Are Called into Weather Alert Activities

When a storm funnels through Tijeras Canyon with great fury, be assured that many Sandians are ready for problems which may arise.

The meteorologists of Engineering and Meteorology Section 7243-1 have fact maps coming in continually from the National Weather Center to aid them. They have information by Teletype from weather stations in San Francisco and Denver. They also receive radar coverage by the Severe Weather Warning Center in Kansas City.

In addition, the meteorologists make use of local contacts to determine road conditions likely to be encountered by Sandia Lab motorists.

Once adverse weather sets in, it becomes difficult to get in touch with the State Highway Department, so we have acquired our own local contacts," explains Cliff Olson (7243-1), one of the forecasters. "We call Twin Pines on north Highway 10, the ranger station on south 10, Comer's truck stop over toward Moriarty, Seven Springs, and the Chevron

station at Western Skies Motor Hotel."

Cliff finds out from them such things as visibility during dust storms, road conditions after heavy snowfall, and whether ice has impeded traffic flow. This information is passed along to John Timmons of Emergency Planning Section 3232-1, who is in charge of Sandia's Inclement Weather Plan. This starts a chain of calls to Security, the Base Provost Marshal, and Transportation and Services Department 4570 (for action to keep roadways and parking areas clear of snow).



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## Sandia's Radiographic Lab Scene of Search For Possible Component Imperfections

Building 860 houses a most unusual organization. It's the Industrial Radiography Inspection Laboratory in 7233-2, a part of the Environmental Testing Lab (7300). Industrial Radiography is the science of X-raying or gamma-raying opaque objects to find hidden flaws. This is done in much the same manner as a physician might X-ray a human patient. Radiography is the non-destructive examination of subsurface parts. "We find that X-rays are becoming more and more useful," says R. W. Mottern, supervisor of the section. "This is because of the increased use of encapsulation and sealing methods on the materials we test."

The X-ray equipment available in 7322-2 includes two 250 Kilovolt X-ray units; one, located in a lead-lined room in Bldg. 860, while the other is a portable unit stored in Area II for X-raying explosive items not permitted in Tech Area I. Also in Bldg. 860 is a smaller portable X-ray unit of 150 KV capability.

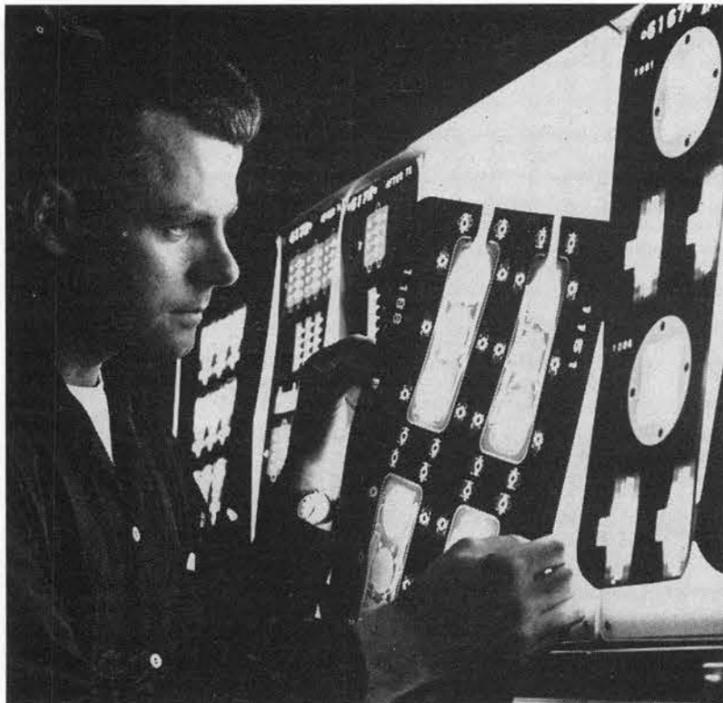
The new isotope sources are stored behind three-ft. thick concrete walls for use where greater energies or portability are required. One of the isotopes is a seven curie cobalt source with an energy of 1.3 M.E.V. The other is a 30 curie iridium 192 source with an average energy of 400 KV. Recently the iridium source was used to study repair welds of a large pipe connecting the three spheres of the Sandia wind tunnel facility.

### Potted Components

The Sandia X-ray units are mostly used to inspect potted components and castings. The section also supplies technical consultation service to many Sandia Corporation suppliers doing their own radiography.

One other piece of X-ray equipment in the laboratory is the DXT (density versus thickness) unit. This radiation micrometer is used to determine the variation in density of a piece of plastic of constant thickness.

"A beam of X-rays penetrates the plastic and the amount of radiation emerging from the other side is compared against a standard," Mr. Mottern explains. The plastic is transported smoothly through the penetrating beam and any variation in density within the piece is recorded on a



EXAMINING radiographic negative of a component, A. J. Arenholz (7233-2) uses an array of fluorescent panels as a light source.

strip chart. The DXT table was designed by S. A. Ravenbyrne of 7233-2 and built at Sandia.

Another novel use of X-rays frequently used at the lab is stereo-radiography. "This technique," explained A. J. Arenholz (7233-2), "provides a three dimensional view of an opaque object which helps determine the depth of a defect when it is impractical to get a clear lateral view." With a new viewer two people can look at a set of films at the same time.

The uses of radiography are interesting. The radiographic group was recently called upon to make X-ray exposures of a prototype component for which design drawings were not available. Engineers then used the radiographic negatives to make drawings for use in constructing a copy of the component. "In such cases as this, our exposures must be made with extreme care, so that the shape and size of each part of the component is clearly visible in the negative," Mr. Mottern explains.

### Cineradiography Work

Recently the Environmental Testing organization, 7300, ac-

quired cineradiography equipment. This equipment uses rapidly pulsing X-rays to produce a motion picture either on movie film or on a closed-circuit TV. A member of the section, J. H. Armstrong, explains, "When we have fully evaluated the system it will find wide usage in Environmental Testing. With this equipment we can study components in a new manner. We will conduct studies of components while they are being exposed to various environments, such as vibration."

Radiography is used in other Sandia Corporation organizations, too. Flash X-ray facilities are used by Instrumentation Section 1312-3 and by Radiation Effects Division 5312 for testing purposes. A complete X-ray and radiography facility operated by 8115 is maintained at Livermore Laboratory for measuring and examining materials.

"In view of the increasing use of miniaturization and encapsulation at Sandia Lab, radiography will probably continue to be one of our most useful investigative tools," Mr. Mottern concluded.

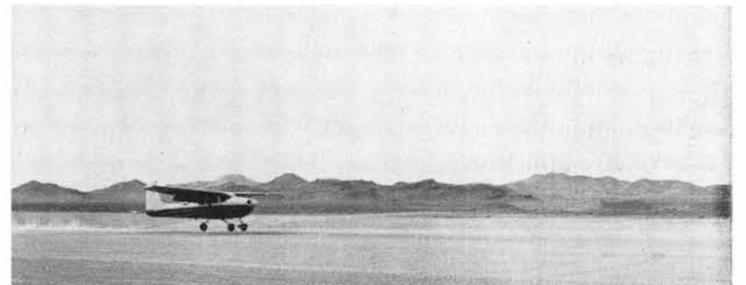
## New Tonopah Test Range Airstrip Eliminates Rough 30-Minute Ride

Tonopah Test Range in Nevada has a new airstrip, conveniently close to the Command Post. Visitors to the range in the past will never forget the uncomfortable 30-minute dusty, bumpy ride to the old airstrip, a converted bombing range 12 miles from the CP. That ride is now a thing of the past.

The first landing was on Jan. 18 by Rick Blakemore, county airport manager, who piloted a Cessna 180 in a chartered flight to pick up W. B. Pepper (7134-1) and P. R. Littell (7214-2).

The compacted earth landing strip is 5000-ft. long and 150-ft. wide. Rick calls it "real fine."

CARCO Air Service is using the new airstrip on its regular Monday through Saturday flights from Las Vegas, Nev. Flight 31 leaves Las Vegas at 7 a.m. and arrives at Tonopah Airport at 9 a.m. after stops at Mercury and Tonopah Test Range. The return flight leaves Tonopah Airport at 11:30 a.m. and arrives at Las Vegas at 1:30 p.m. with the same number of stops. Tonopah Test Range is about 42 miles from the town of Tonopah.



INITIAL LANDING on new airstrip, one mile from Tonopah Test Range command post, marked the end of uncomfortable 30-minute rides to the old airstrip. After the landing those gathered under the wing of the Cessna 180 were: (l to r) W. B. Pepper (7134-1); Rick Blakemore, county airport manager who piloted the plane; Jane Chase (7246), Lab News reporter; W. W. Spence, FSI Security Inspector at Tonopah Test Range; P. R. Littell (7214-2).

## H. E. Basey Died Jan. 21; Had Retired From Sandia Corp.

Harry E. Basey, a retired Sandia Corporation employee, died suddenly Jan. 21 in Albuquerque. He was 67.



Mr. Basey retired July 1, 1959, after nearly 11 years with Sandia Laboratory. Office Equipment and Repair Division 4516 was the organization in which he last worked.

Survivors include his widow, three children, three grandchildren, a brother, and two sisters.

## Sympathy

To Betty Brake (7183-3) for the death of her father-in-law in Albuquerque Jan. 16.

To Lewis K. Jones (1124) for the death of his mother in Stanford, Ky., Jan. 23.

To Chris Christensen (2541) for the death of his father Jan. 22.

To Paul Greenblatt (4511-2) for the death of his father in Brooklyn, N. Y., Jan. 18.

To Frank G. Armijo (4511-3) for the death of his father in Valencia, Jan. 11.

To Juan A. Sanchez (4511-3) for the death of his brother in Belen, Jan. 6.

To C. J. Lucci (4511-4) for the death of his father in Ohio, Jan. 12.

To Benjamin L. Armijo (4575-1) for the death of his mother in Albuquerque, Jan. 13.

To Ramon Metzgar (4575-2) for the death of his father in Albuquerque, Jan. 17.

To Nemesio Martinez (4575-2) for the death of his son in Valencia, Jan. 13.

To L. L. Lowe (4232) for the recent death of his sister in Pleasantridge, Mich.

To C. C. Crider (4232-1) for the recent death of his uncle in Monahan, Tex.

To Elaine Cooper (3126/1113) for the death of her father in Phoenix, Ariz., Jan. 14.

## Editorial Comment

### Who Makes Our Foreign Policy?

Today the American people are more deeply involved in the debate over foreign policy than in perhaps any previous peacetime period. Widespread interest by Sandia Laboratory employees in "Great Decisions . . . 1962" is being shown. The eight-week study and discussion program begins here next week.

As "the experts" frequently point out, the stakes and issues in American foreign policy have never been so numerous and complex. The alternatives this nation faces have never before included the possibility of national annihilation.

During crisis periods — Berlin, Congo, Laos, for example—the entire American nation seems divided and arguments are heard for many contradictory policy positions. The public-at-large, as well as the experts, is at odds on many questions: Shall we negotiate with the Russians over Berlin or stand pat? Do we support the UN in the Congo or side with secessionist Katanga province? Will we intervene in civil war-torn Laos or try to "neutralize" the nation under some agreement with the Communists?

Certain issues, according to some leaders of American opinion, ought not to be debated publicly. Many people feel this way about America's policy toward Red China or about the UN, foreign aid, negotiations with the Russians, war, disarmament, or the raising or lowering of tariffs. These matters, they say, are beyond the competence of the public to debate.

And there are a few who feel that the entire field of foreign policy should be left entirely in the hands of the experts.

No amount of public debate can "create" a new foreign policy. Only those in positions of power, with policy-making responsibilities, can create or propose new policies. It is also true that those to whom the people give such powers—including the President—remain answerable to the people.

Thus it is up to the people to grant—or withhold—their consent to whatever policies the President and other national leaders propose. The people do this when they go to the polls, when they write letters to Congressmen and editors, when they answer opinion polls, when they speak from pulpits or street corners, and when they argue and debate in barber chairs, over lunch or coffee or across the backyard fence.



DESPITE SNOWY, cold weather Ken Kerns (3428/7200) is out on the ski slopes every weekend to help junior racers. Here at Santa Fe ski basin he is giving a few tips to his daughter, Pam.



AT NEW SIERRA BLANCA area in southern New Mexico Ed Long (3232-2) is shown instructing his son, Tommy, how to make a fast break from the starting gate in downhill competition.

# Watchful Sandia Parents Take on Task of Teaching Youngsters Safe, Sane Techniques on Ski Slopes

Junior skiing in New Mexico has received a considerable boost in the past few years due to the efforts of Ken Kerns (3428/7200) and C. Ed Long (3232-2).

In addition to passing along their own knowledge of skiing techniques, the men have spent many Friday nights driving youngsters (their own and others) to New Mexico or Colorado mountain areas for week-end meets. Once there, they offer to help set the course, pack the slopes, and serve as gate keepers or timers — all of which doesn't offer them much time for actual skiing.

"I got to be a whiz at the sewing machine when my wife, Ginny, and I spent a week making flags and arm bands," Ken recalls. (The cloth pennants are placed on the end of bamboo poles to define the course the racer must take down a mountain.)

Ken started skiing in New England in 1927 when there was no such thing as a ski tow or plowed roads to resort areas.

### Daughter Learns

The Kerns moved to Albuquerque in 1950 and five years ago Ken started teaching his daughter, Pam, the fundamentals of

skiing. Two years ago Pam won her first race at Red River and became a member of the New Mexico girls' ski team which competed in the national races at Sun Valley, Ida. Other team members that year were Judy Long, daughter of Ed Long, and Barbara Orndoff of Los Alamos. Last year the team was comprised of Pam, Barbara, and Pam Wallis (whose uncle is Hup Wallis, 2331).

Last year Ken and Ed helped stage three races at La Madera ski area in the Sandias. Ken maintains that Ed knows more about setting and race officiating than almost anyone in the Southwest. That may well be true since Ed has been skiing 40 years.

"I was raised in a Norwegian neighborhood in Boston where everyone jumped," Ed recalls. "Our homemade skis were fastened on with toe straps and wide rubber bands. We used one pole and an exaggerated lean to help us turn." In 1936, while with the U. S. Forest Service, Ed was credited with bringing the first pair of modern skis into the state of Arizona. While there he helped lay out the first ski trail in Arizona Snow Bowl near Flagstaff (which

the Long's operated for one season in the late 1940's); installed the first rope tow and lighted the ski area at Jerome; and, as the first director of junior skiing in Arizona, was instrumental in gaining recognition of skiing as a minor sport by the schools in Flagstaff, Prescott, and Williams.

Ed was president of the Intermountain Ski Association (Idaho, Utah, and Arizona) before joining the 10th Mountain Division during World War II.

### Youngsters Start Early

The Long children are Tommy, 15, Judy, 13, and Maribeth, 10. All began skiing at the age of seven or eight and all race. Tommy has been on the national junior ski squad for two years and is considered one of the top skiers in his age class in New Mexico.

During the summer Ed is in charge of trails at La Madera: a job which includes maintenance and expansion of the skiing area. Many of the junior skiers do trail maintenance work under Ed's direction to earn their season ski tow tickets. The junior girls earn

their tickets by painting and doing other clean-up tasks around the lodge.

Ed spends part of each winter weekend helping young skiers to learn racing techniques. "There's nothing exclusive about us," he points out. "We want boys and girls eight, nine, and 10 years old to join us. Our junior racers are all classified by the SRMSA (Southern Rocky Mountain Ski Association) and must meet certain safety regulations, such as wearing helmets. We try to make the youngsters think first instead of taking foolish, dangerous chances."

As a result of interest by the Kerns, Longs, and other parents, informal training sessions are now held at each of the major ski areas in the state and a three- or four-day racing clinic is conducted at Taos at the start of each ski season.

## Congratulations

- To:
- Mr. and Mrs. Jim Manweller (7146) a son, Daniel, on Jan. 17.
  - Mr. and Mrs. Gordon S. Worthen (7246-1, Tonopah) a son, Gregory Smith, on Jan. 13.
  - Mr. and Mrs. Floyd H. Mathews (7325-2) a son, Paul Marshall, on Jan. 10.
  - Mr. and Mrs. J. M. Wiesen (1442) a daughter, Kathleen Helen, on Jan. 13.
  - Mr. and Mrs. S. K. Manlief (5312) a son, Michael David, on Jan. 10.
  - Mr. and Mrs. Gene Nix (7311-2) a daughter, Melanie Annette, on Jan. 17.
  - Mr. and Mrs. Adolfo Sanchez (4233-1) a son on Jan. 19.
  - Mr. and Mrs. Kermit Goettsche (1111) a son, Thomas Allen, on Jan. 12. Pat is on leave from 3125/7147.
  - Mr. and Mrs. T. E. Smart (7312-3) a baby girl (adopted), Susan Marie, born Jan. 15.

## Four Sandians Named Directors of Mountain Rescue Council

Four Sandians have been named to the board of directors of the Albuquerque Mountain Rescue Council. They are: Hank Tendall (7115), Zelma Beisinger (5426), Milo Conrad (2451), and Walt Murfin (7182).

The council was incorporated three years ago to better fulfill requests from Sheriffs' offices or the State Police to participate in searches or rescue operations.

To be classified as a "rescue member" a person must be experienced in rock climbing and have completed standard and advanced first aid courses. Equipment used in rescue work, such as ropes and litters, is provided by the council.



Dianne Cleveland (3126/7145)

## Take a Memo, Please

Don't take safety short cuts. They're too often the long—and wrong—way around.

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Telephone Sandia Base  
Alpine 6-4411  
Ext. 54241



Telephone Livermore  
Hilltop 7-5100  
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## Check Those Beneficiaries Warn Sandia Benefit People

Are you throwing your Sandia Corporation insurance benefits away?

Do you know where your insurance policies and your Group Annuity Certificate are? Would your survivors know where to look for them? Do you know exactly who your beneficiaries are, according to your individual and group life insurance policies? Do you have contingent beneficiaries listed on the policies in the event your beneficiary dies in the same accident, you do?

These are questions many Sandians would do well to ponder, according to Benefits Section 3122-1.

A number of employees are fail-

ing to keep their policies up to date, with the result that they fail to guarantee their survivors any benefit from their insurance.

There are three major reasons to change beneficiary listings. A change in marital status—either a marriage or divorce—makes necessary the consideration of a change of beneficiary. A change in the number of an employee's dependents also sometimes necessitates a change. And a change in income, or debts, or the amount or type of other insurance an employee carries often makes a change of beneficiary desirable.

Take for example the case of an employee who was single at the time he listed a beneficiary on his policies. Later, he married and had a family of several children. Upon his untimely death, his wife learned to her sorrow that he had forgotten to change his beneficiary statement, and she and the children would receive no benefit from the insurance which he had planned for them to have.

Correct beneficiary designation assures immediate funds for the beneficiary when they are most needed—funds to clear up outstanding debts and final expenses. Otherwise there might be a tremendous burden on the survivors.

The time to make necessary beneficiary changes is before an accident or other misfortune occurs. If you're not sure that beneficiaries listed on your insurance policies and your annuity certificate fit the situation of your family or dependents, pay Section 3122-1 at Sandia Lab or 8212-2 at Livermore Lab a visit. Changes take only a few moments, and they may save your survivors months of delay and in many cases even hardship.

### Noonhour Great Decisions?

Feel like discussing world events during your lunch hour? If enough interest is shown by Sandia Lab employees, Great Decision discussion groups will be formed to meet in office locations for 40 minutes during the lunch hour. Contact Max Linn (3420) at ext. 25162.

## Great Decisions Discussions Start Here Next Week

Next week hundreds of neighborhood discussion groups will begin an eight-week "Great Decisions—1962" program in Albuquerque. Max Linn (3420), Great Decisions Committee chairman for Albuquerque, reports that many of the groups are still forming and others could use additional members.

Anyone interested in participating is urged to contact Mr. Linn, ext. 25162, or T. B. Sherwin (3431), ext. 26150.

The first topic of the discussion program, "Vietnam—Win, Lose, or Draw?" was discussed yesterday on KNME-TV, channel 5, by a panel moderated by R. C. Colgan (3431-1). It will be rebroadcast by KOB-TV, channel 4, Sunday at 1:30 p.m. Mr. Linn participated in this program.

The second topic, "Red China—Third Greatest Power?" will be discussed by the panel Feb. 8 at 7:30 p.m. on KNME-TV. A. Y. Pope (7130) will be a panel member for this program.

On Feb. 15, the third Great Decisions topic, "Brazil—Which Way Half a Continent?" will be presented at 7:30 p.m. on KNME-TV. Films giving background information to the subjects will precede each of the television discussion programs.

## SNT Symposium To Be At UNM Tuesday, Feb. 13

The Albuquerque Section of the Society for Nondestructive Testing will hold its first educational clinic, a Symposium on Leak Detection Methods, Tuesday, Feb. 13.

The afternoon and evening illustrated lectures will be presented in conjunction with the University of New Mexico. Sessions will be held in the Little Theater of the UNM Student Union Bldg.

The Symposium was designed to meet the demand for up-to-date information on leak detection methods for small and large components. The discussions of basic theory and practical applications of leak detection methods are expected to be of interest to design and manufacturing engineers and of special importance to inspection, production, and quality control personnel.

Sandians participating in the program are J. G. King, supervisor of Advanced Manufacturing Development Section II, 2564-2, who will discuss "Production Testing of Large Pressure Vessels," and M. K. Laufer of Environmental Standards Section 2411-2, who will speak on "Standard Leaks and Their Calibration."

Membership in SNT is not necessary for attending the Symposium; however, a fee of \$5 will be charged non-members.

For reservations please contact either H. L. Anderson (2543), ext. 32233, or D. R. Johnson (1121), ext. 53151.

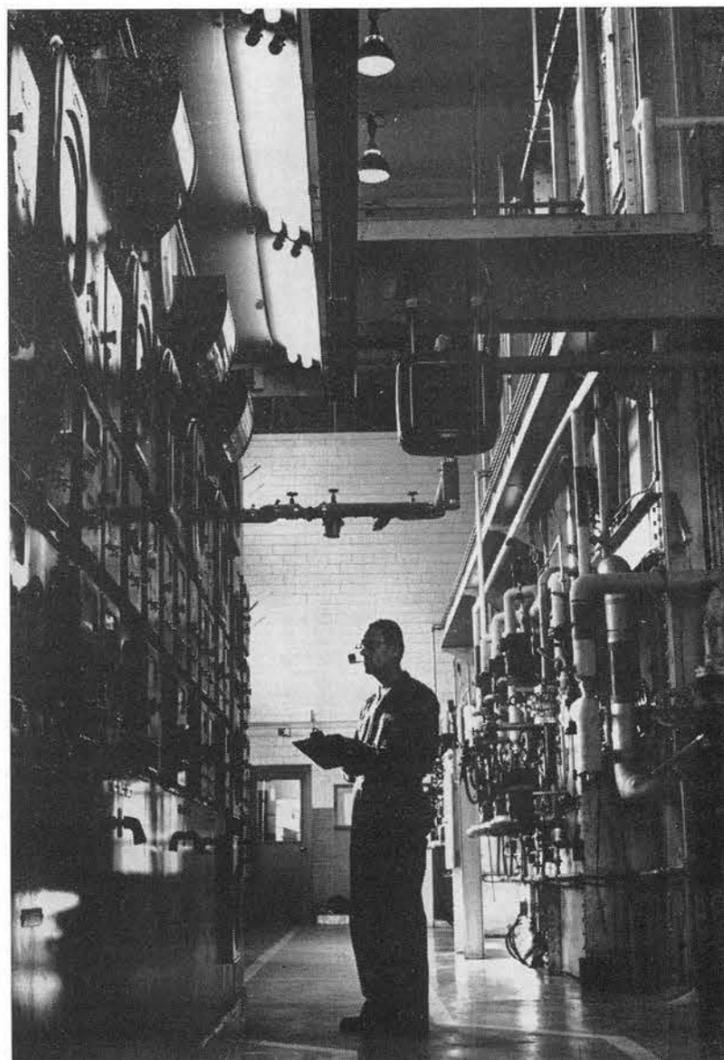
### SANDIA SERVICE AWARDS 10 Year Pins

Feb. 3-16  
Howard D. Reed 8164, Roxley E. Kent 2441, Richard F. Prokash 2311, Loren F. File 4254, Leyndal G. Wilson 7511, Albert L. Weyer 3131, Margaret V. Tanaka 3446, John F. Neuberger 8124, Sam T. Mancuso 3341, Marvin L. Barrett 4332.

Cecil W. Mewhorter 4221, Santiago Chavez, Jr. 4231, Reynel Garcia 4513, Edward C. Hirt 3444, Steve Drago 2644, M. F. Bernhard 7242, Ramon C. Garcia 4612, Peter A. Peshlakai 4212, David L. Berry 1416, Ralph E. McClure 2452.

Edward W. Shepherd 3425, L. P. Robertson, Jr. 1414, Robert A. Milby 8163, Maurice E. Grant 2644, John E. Marquis 4412, Charles T. Wormeli 4253, Nathan Knapp 2642, Ann E. McIntyre 5425, Monico Martinez 4511, Jo Ann Urevitch 2310.

Joe M. Benavidez 4513, Jose A. Armijo 4514, Robert R. Murray 1411, Anne F. Barrett 7240, Joaquin E. Chavez 2642, Lois Elsie Merriam 1320, Queento Leon Vandi 2563, Cleavord N. Giles 7312, Mary M. Catallo 4574, Emiliano O. Baca 4574.



INSTRUMENTS which tell the story of the operation of Sandia Lab's steam plant are monitored by H. M. Austin (4514-2).

### Think your fuel bill high?

## Sandia Steam Plant Gulps Fuel At Record Rate During Cold Spell

On Jan. 11 in Albuquerque, the dawn air was snapping cold. The mercury had struggled downward to rest on the minus-six-degree mark. Thousands of Sandians braved their way from house to automobile, somehow started their engines, and shuddered their way to work. Once there, their first task of the day involved getting warm. Their desires for heat were answered admirably by Pipefitting and Plant Operation Division 4514, which operates the steam plant for Sandia Laboratory. In general all areas were comfortable and prompt attention was given to trouble calls. None of the heating problems was attributable to lack of steam. During the day, the steam plant set a number of heat-producing records.

"The weather itself did some record-setting that day," C. C. Whitcomb (4543-2), Plant Engineering mechanical engineer at the plant, recalls. "The temperature reached an all-time low, and the high temperature recorded during the day never got beyond about 22 degrees above zero. Almost the only thing it didn't do that day was snow."

During the coldest winter months, December through March, the Sandia Lab plant joins forces with the Sandia Base steam plant to provide heat for Sandia Base.

#### Use Oil For Fuel

The demand for steam on Sandia Base reaches its peak during the winter months between eight and nine each morning. During that time on Jan. 11, the steam plants produced steam at a record rate of 227,500 pounds per hour.

"We used a record amount of oil to produce that much steam," Mr. Whitcomb continues. "It took 38,854 gallons of fuel oil to heat Sandia Base for 24 hours on Jan. 11. We normally operate on natural gas, but during many days in the winter months we've had to use oil in order to reduce the load otherwise placed on Albuquerque's gas lines. It would have taken about 5,800,000 cu. ft. of gas to keep things warm on Jan. 11."

Besides operating the main

plant boilers, Section 4514-2 also maintains some 60 condensate-return pumps and lines which return condensed steam water to the boilers. An extensive water-conditioning plant is maintained at the main boilers which softens water for the heating operation. Four small boilers are operated in Area II as well as an additional water-conditioning plant in Area III.

"We feed the water-conditioning systems a total of about 15 tons of salt each month," Mr. Miller comments. "Soft water, automation, and the condensate-return system all serve to cut down maintenance costs and increase efficiency."

Two years ago, the plant was able to produce 1000 pounds of steam by burning nine to 10 gallons of oil. "Now, we can produce the same amount of steam with seven to eight gallons of oil. And, by improving equipment and techniques, we're confident that we can better our efficiency even more," Mr. Miller concludes.

### Cliff Taylor Heads Golf Association for Sandia Lab Employees

A. C. "Cliff" Taylor (4254) has been elected president of the Sandia Laboratory Employees Golf Association. Andy Blain (4614) is the new vice president, and Fred Romero (3122) is permanent secretary and Employee Services representative.

Members of the board of directors are Fred Silva (7521), Jim Leonard (7147), and Jim Arnold (7322), immediate past president.

### Railroad Club Elects Sandians New Officers

Several Sandians have been elected to offices in the Railroad Club of New Mexico.

Vernon J. Glover, Jr., (7521), who has been secretary for the past year, was elected president. Ed Mahoney (AEC-ALOO) was named secretary for the new term.

Joe Calek (7524) and John Eckhart (7250) will serve on the club's Board of Directors.



HERE'S A PRETTY VALENTINE with a message. Mimi Walter (4611) reminds Sandians that February is the month of the annual Heart Fund

drive. Members of the Employees' Contribution Plan will contribute approximately \$6400 to the national health agency solicitation this year.



"CHARGING" the furnace, Damacio Sandoval watches aluminum ingots slowly sink into a white-hot gleaming mass. Giant crucible holds 900 lbs. of casting metal.



CRUCIBLE of molten aluminum is lifted out of the furnace by using overhead crane. Performing the operation are Donald Quayle, left, and Wilfred Sanchez. Sandia furnaces do not have large exhaust hoods over the furnaces that are common to most foundries, instead a steady stream of air is blown across from duct at left, sucked out by a duct on right.



SMOOTH TEAM WORK is exhibited by Foundrymen during large pour. Inside the mold will form a 1000-lb. section of Sandia's new wind tunnel facility. Constant rate of flow into the mold is maintained up to 20 minutes until pour is complete. Foundry produces extra-dense aluminum.

### Handing Molten Metal at 1500 Degree F. With Cool Efficiency . . .

the seven men of Sandia Laboratory's foundry produce some of the most difficult nonferrous castings made in the country. A major project in recent months has been casting for the various "throats" or "nozzles" of Sandia's new hypersonic wind tunnel. These large pieces of ribbed aluminum have to withstand tremendous temperatures and yet retain precise dimensions.

Foundry problems encountered in producing these pieces are typical of the work the Sandia team faces in making the castings for prototype Sandia products. Each piece is unique, has special requirements, has probably not been done before, and always has a "hurry" deadline.

As a result, Charles Riley and the foundry crew have perfected advanced methods of casting.

"Sandia probably produces the most dense aluminum in the country," A. E. Hall, supervisor of Specialties Division A, 4221, says. "We have to for a job such as the wind tunnel nozzles. Any minor imperfection in the metal would ruin the hypersonic flow of the air inside. Through a vacuum measuring technique perfected by Mr. Riley, our foundry can produce aluminum with minimum micro-porosity. We're proud of that."

#### How Much Chlorine?

As metal heats, Mr. Riley explains, combustion gases, largely hydrogen, are absorbed by the melting aluminum. These must be removed or else small "gas bubbles" will form in the metal. By injecting chlorine gas which will not mix with aluminum into the molten metal most of these gases can be collected and "boiled" out. The question is "how much chlorine to use and for how long?"

To answer this question, Mr. Riley takes a sample of the molten metal from the huge foundry melting crucibles, inserts it into a vacuum bell jar, pulls a vacuum, and analyses the sample. The analysis can tell him the condition of the metal and the probable density of the finished casting.

No small part of the foundry's efficiency is the skill of the men who pour the huge crucibles of metal into the waiting steel-encased sand molds.

During a typical "pour" the men move the overhead

cranes into position, hook the steel cables to the crucibles and lift them from the furnaces. For large pours, two crucibles are pulled from the floor furnaces and moved down the foundry area to the mold. Carefully the crucibles are positioned over the mold and, with an almost imperceptible signal from Mr. Riley, the pour begins. White hot metal streams in a smooth flow from the pots into the small "gates" in the mold.

#### No Place for Error

Each man knows his job and does it. There is no place here for a wrong move or an error.

Every casting is designed to fill from the bottom. The metal flows down the "pour sprues" at the side of the mold, enters the mold cavity at the bottom, and then slowly rises in the mold. This forces the cooler metal continually to the top of the mold and into the "riser" area. The riser will later be cut from the casting, but its function during the pour is vital.

The riser section is carefully computed as to size and shape to exert pressure on the metal in the lower part of the casting. The weight and shape of the riser will keep the mold filled and prevent shrinkage.

"All metal shrinks while cooling," Mr. Riley says, "but we confine the shrinkage to the riser."

#### Pattern Makers' Part

The pattern makers of Section 4221-4 produce the precision wooden pieces that are used to make the molds and cores for the foundry. Fine-grained, powder-like sand is filled in around the patterns, the patterns are carefully removed, a core (if needed) is positioned inside the sand mold, and the pour is scheduled.

Cores are produced in wooden core boxes made by the pattern shop also, but the sand used for cores is mixed with an oil and baked to retain its shape.

The pattern men and foundry men confer on each job that comes into the shop to determine how best to make the pour and the requirements of each pattern.

"We've developed a smoothly working system," says B. C. McKay, supervisor of 4221-4. "It's a matter of pride to produce superior work within our short time schedules."

## Hypersonic Wind Tunnel 'Throats' Cast by Sandia Lab Foundrymen



"RIDDLING" SAND, Donald Quayle shovels the special Foundry sand through a vibrating screen called a sand riddle prior to forming a new mold. Sand is continually re-used.



SMALLER PIECES for foundry casting are prepared in small "bench molds." Here Ramon Armijo smooths section of mold.



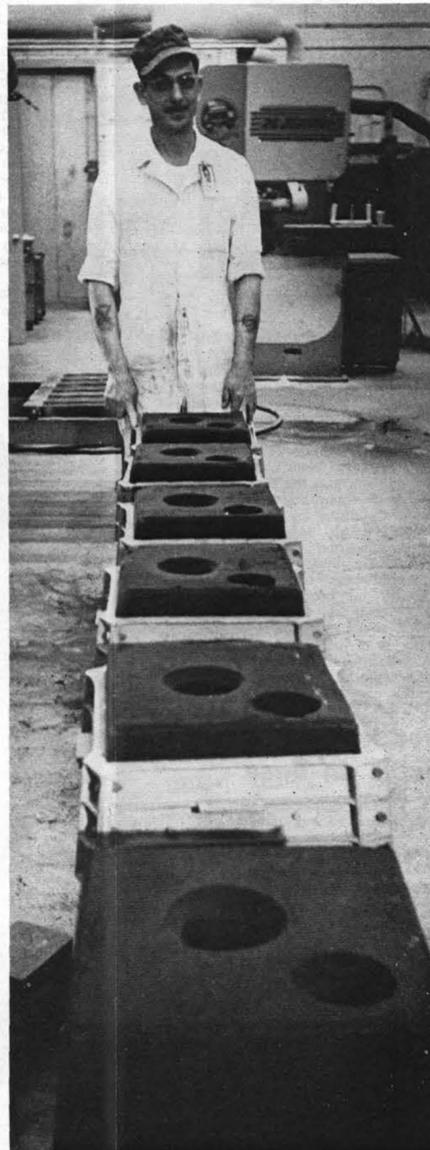
OUTSIDE CORE for a wind tunnel section is prepared by Candelario Torres. Core was made in two sections, baked and assembled. Finished piece weighed more than 1000 lbs. It will withstand tremendous temperatures and strain.



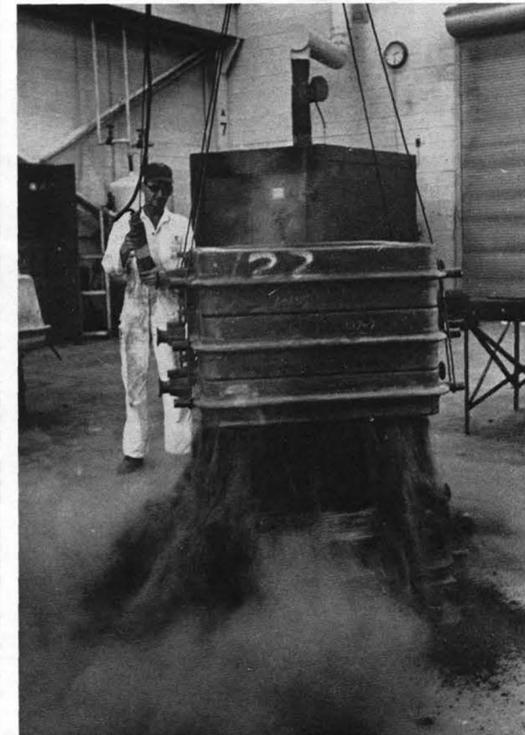
LINSEED OIL and Bentonite are added to the Foundry sand for use in forming cores. Here Manuel Martinez checks "feel" of the mixture. Nearby machinery is a sand muller which fits on top of the round sand basin. The blades revolve to thoroughly mix the sand. In background is pictured the electric core-oven.



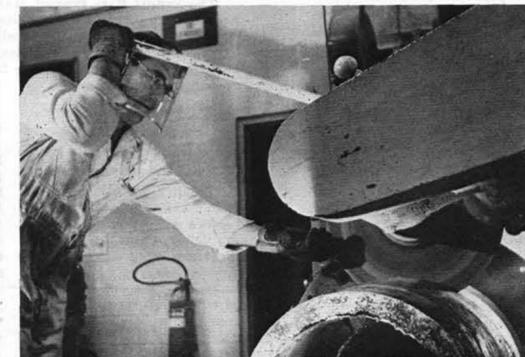
UNLOADING CORE OVEN RACK, Manuel Martinez checks a typical day's production of sand cores. Cores will be placed in molds for next day's schedule of pouring. Cores are produced from wooden patterns.



SEVERAL BENCH MOLDS are lined up by Ramon Armijo for one pouring operation. The contents of one of the 200-lb. crucibles will fill all six molds.



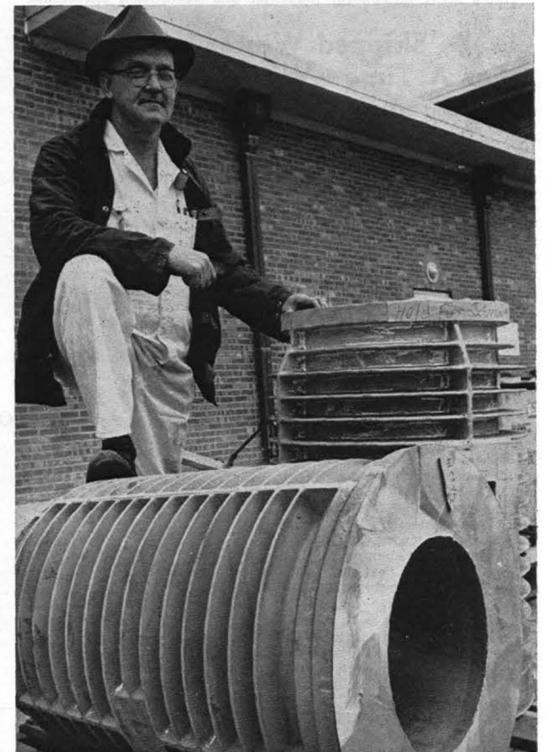
HOT SAND of the mold drops away as outside steel "flask" is pulled away by Donald Quayle. He controls crane with pushbutton.



CUT-OFF WHEEL is used by Wilfred Sanchez to cut away the "riser" from the casting. Riser area is always at top of the casting during the pour. Its weight and shape prevent shrinkage.



STILL-HOT CASTING emerges as the sand of the mold drops away. Small rod-like element sticking out of sand at left is one of the "down sprues" through which the molten metal flowed through to the "gate" in the bottom of the mold.



LAYOUT OPERATOR CHARLES RILEY stands by finished castings of new wind tunnel pieces. The units will now move into the Development Shops for final machining. Thin "ribs" on the outside of the casting represent a foundry achievement.

## Heart Month Seeks Funds to Fight Man's Greatest Killer

"Heart Month" is February. At that time the American Heart Association holds its fund raising drive. Locally the Bernalillo County Heart Association has a number of charity events scheduled, in addition to a door-to-door campaign for donations on Feb. 25.

K. A. Smith, Director of Information, Publications and Public Relations 3400, recently was elected to serve a three-year term on the Board of Directors for the county group.

Originally organized in 1924 as a professional society of outstanding cardiologists, the American Heart Association was reorganized in 1948 as a health agency supported entirely by volunteer donations. The Bernalillo County chapter and similar community groups contribute 25 per cent of their funds to the national office, which designates 60 per cent of its monies for research.

Mr. Smith pointed out: "Knowledge acquired by research is, in turn, put to work in communities to help people overcome the hand-

icaps and suffering imposed by heart and circulatory diseases."

In combating cardiovascular diseases—the largest single cause of death in the U.S.—a three-way program is followed: education to the dangers, assistance to those with the diseases, and research into causes and cures.

The Bernalillo County chapter helps support a free cardiac clinic, assists in the adjustment problems of those with cardiac conditions, and conducts annual educational sessions for physicians.

As a member of the Sandia Laboratory Employees' Contribution Plan, the Bernalillo County Heart Association will receive \$6415 during the current year.

Employees are urged to contact the chapter's executive secretary at AL 6-7335 if they or members of their family would like to assist in the door-to-door campaign in their neighborhood. Wives are also invited to a charity fashion show tea slated for 2 p.m., Feb. 21, at Four Hills Country Club. Tickets may be obtained from Mrs. Thomas Turpen, tel. 242-2401.



CHRISTMAS IN HAWAII was enjoyed last December by Mr. and Mrs. A. R. Elwell (7323-2), who toured the islands by air, and visited many agricultural, industrial, and recreational attractions.

## Elwells Skipped Winter Weather — For A Time — With Hawaii Sojourn

"If you don't like a wintery climate, and you're not especially fond of being overrun by other tourists, go to Hawaii for Christmas," advises A. R. "Al" Elwell (7323-2). Al and Mrs. Elwell made the trip this past Christmas. Like the many other Sandians who have visited the islands they returned filled with recommendations for Hawaiian vacations.

Mrs. Elwell is a teacher, so the Elwells left Albuquerque the first day of the schools' Christmas recess, Dec. 20. They made the entire trip by air.

"After a five-hour jet flight from Los Angeles, we landed at an airport on Oahu," Al recalls. "We spent the next two days soaking up the sunshine, the flowers, the new sights and sounds, and visiting the sugar-cane and pineapple-growing areas. It was a far cry from the chilly climate of the continental states."

After touring Oahu, the Elwells air-hopped from island to island, making Maui their next stop. This island is almost entirely given over to farming, with large sugar and pineapple plantations and processing plants. "It's also the location of the first capital of the ancient Hawaiian king, Kamehameha," Al explains. "The Hawaiian Islands have a history and culture as rich as any of those found in other parts of the world."

"We spent the next few days touring the islands of Hilo, Hawaii, and Kauai, and everywhere we went we were impressed by the beauty of the land, the people, and

the climate. The only place we found crowded was Honolulu; there were quite a few tourists there, and we didn't linger for long, although the city is very interesting," Al continued.

The Elwells returned with lasting impressions of some of Hawaii's most spectacular country, the Kona Coast, Waimea Canyon, and the Ioa Valley. Their travels in recent years have been extensive, including a tour of Mexico in 1957 and of Europe in 1960. They found the latest of their journeys—the Hawaiian trip—particularly stimulating.

Odelio J. Otero (4231) to Technician  
C. D. Ramirez (3453) to Service Clerk  
Allie B. Whitmore (4623) to Utility Operator  
Juan B. Ortiz (4623) to Utility Operator  
Paul Greenblatt (4511) to Electrician  
Rita M. Herrera (3126) to Typist Clerk  
Helen D. Garcia (3126) to Teletypewriter Operator  
Joyce Wiltbank (3126) to Secretarial Stenographer  
C. June Bass (3241) to Record Clerk  
Naomi E. Wynant (3446) to Service Clerk  
Stanley J. Serpa (8225) to Metal Stock Handler & Cutter  
G. H. Brockmoller (8223) to Machinist  
Clarence H. Johnson (8223) to Machinist  
Murr H. Graham (8223) to Model & Instrument Maker  
Patricia L. Mann (8212) to Secretarial Stenographer  
Hanne Brix (8212) to Secretarial Typist  
P. M. Auchampaugh (8212) to Secretarial Stenographer  
C. P. Vaubel, Jr. (4253) to Machinist  
Juan M. Sanchez (4575) to Laborer  
John Ayala (4511) to Jr. Tradesman  
Ruby A. Bell (8211) to Purchase Service Clerk  
Quirino A. Carrillo (4512) to Oiler  
Edwin E. Young, Jr. (3467) to Photographic Printer  
Geraldine S. Nerton (8232) to Communications Operator  
Benjamin Garcia, Jr. (4132) to Tabulating Equipment Operator  
Kenneth R. Smith (4424) to Tabulating Equipment Operator

## Supervisory Appointments

C. D. LUNDERGAN to supervisor of Materials Properties Test Division 1113, Materials and Process Department I.

Don has been assigned to Systems Engineering Department 7160 during his five and a half years at Sandia, serving as supervisor of Section 7161-2 the past two years.



Immediately before coming here he taught mathematics and physics for two years at Texas A&M. Don also was a teaching fellow at the University of Notre Dame for three years. During two of his three years of teaching at St. Louis University Don was acting director of the Department of Aeronautical Engineering.

He received both his Bachelor's degree in mechanical engineering and his Master's degree in physics at Notre Dame, and is a member of Pi Mu Epsilon, mathematics honorary.

During World War II Don served in the Navy.

PHILIP M. ALARID to Buyer, Electrical 4361-1, Commercial Department.

"Phil" has been an Assistant Buyer in Subcontract Department I since he came to Sandia in June 1957.

Prior to coming to Sandia he received a Bachelor's degree in business administration from the University of New Mexico. One year of his study was at the College of St. Joseph.

Phil served nearly four years in the Air Force. He was stationed most of the time at Cheyenne, Wyo., where he was an administrator at the Francis E. Warren Hospital.

FREDERICK L. VOOK to supervisor of Radiation Effects Division III—Fundamentals 5314, Radiation Effects Department.

At Sandia since September 1958, "Fred" has been working the entire time in Physical Sciences Research Department, utilizing the Van de Graaff accelerator in studying defects in semi-conductors.

He has BA and BS degrees from the University of Chicago, and Master's and PhD degrees in physics from the University of Illinois.

Two summers Fred worked at Los Alamos Scientific Laboratory in the field of shock hydrodynamics. While at Illinois he taught and did research in physics during summer months.

He is a member of Phi Beta Kappa, Sigma Xi, and the American Physical Society.



## Promotions

Stephen D. Phillips (8131) to Technical Assistant  
Robert A. Velasquez (1113) to Laboratory Assistant  
Joe G. Chavira (4624) to Packer  
Samuel M. Bragg, Jr. (2412) to Laboratory Assistant  
Gerald M. Whitlock (2563) to Data Reduction Clerk  
Maureen G. Conlon (1442) to Data Reduction Clerk  
Gloria H. Novak (2632) to Report Clerk  
Lina B. Bonney (3462) to Mimeograph Operator  
Avis U. Camp (4135) to Invoice Clerk  
Clemmie S. Gonzales (4624) to Shop Clerk  
Richard W. Gallegos (7243) to Computer Facility Operator  
James L. Davis (4614) to Service Clerk  
Gene L. Guerin (7243) to Computer Facility Operator

Supervisory Lateral Transfers  
W. V. Sawyer from 4514-3 to 4514-1  
J. W. Sims from 4111-1 to 4111-4  
R. T. Fennell from 7185-3 to 7118-3  
A. O. Butts from 4514-1 to 4514-3  
R. D. Becker from 4252-2 to 4253-2  
J. A. Hay from 4253-2 to 4252-5  
W. H. Seelbach from 4252-4 to 4252-2  
G. R. Zahm from 4252-3 to 4253-1  
W. C. Elder from 4253-1 to 4252-3  
A. J. Wiemken from 8116-3 to 8141-1  
R. C. Dougherty from 8141-1 to 8158-1  
J. F. Sladky from 8158-1 to 8121-1  
E. H. Daugs from 8121-1 to 8158-2  
V. M. Field from 8158-2 to 8116-3



RECENT PROJECT of the Albuquerque Wildlife and Conservation Association was the construction of a series of check dams along the Rio de las Vacas in the Jemez country. Charlie Hines, foreground, is president of the active, outdoor service organization.

## Sandian who serves

### Busy Public Life Being Recorded by Sandia Corporation's Charles Hines

This is another in a series of articles describing the community activities of Sandia employees.

Recently Charles L. Hines (3341-1) was elected chairman of the five-man State Board of Public Health. This board is the policy-making organization for the State Department of Public Health, an agency of more than 300 employees whose far-reaching activities promote the general health of all New Mexicans.

Charlie was appointed to the Board in May 1961 and served as a member until assuming its chairmanship this month. The Board annually reviews the Department's \$2 million budget, personnel policies, and the dispersment of federal Hill-Burton funds which are provided to match local funds for hospital construction.

In addition, the Board formulates policies for operating the Department's Public Health Laboratory in Albuquerque, branch laboratories in other cities, and the Children's Mobile Dental Units. In some areas of the state, where medical facilities do not exist, the Department provides mobile dental units and other medical care.

Licensing and inspection functions are performed by the Department as well as operation of the Bureau of Vital Statistics. A health education program is conducted through the public schools. "There's a mass of details to keep track of," Charlie says, "and a tremendous responsibility."

When not busy with Public Health business, Charlie is serving as president of the Albuquerque Wildlife and Conservation Association promoting better hunting and fishing in the state and conservation of natural resources. A recent project of the group was the construction of a series of



Charles L. Hines (3341-1)  
—State Board of Health Chairman—

"check" dams along the Rio de las Vacas in the Jemez country.

The dams, built with iron stakes, "pig wire," and rocks, tend to slow the stream and form pools. This is beneficial to fish and also helps prevent erosion.

As a former member of the State Legislature (in 1956 and 1957), Charlie is active in the Republican Party as the coordinator of legislative candidates for the coming primary election. "My job is to encourage qualified candidates to run, and see that every position has a candidate," Charlie says.

Charlie has been with Sandia since December 1950 and has worked as an administrative assistant to a technical organization, as a personnel representative in employment, and currently is a staff member in health services.

## Provost Marshal States Insurance Requirements for Drivers on Base

The Sandia Base Provost Marshal, Lt. Col. Lionel E. Scott, has released current information on motor vehicle liability insurance which applies to Sandia Corporation personnel who operate privately-owned vehicles on the Base. The Lab News publishes the following resume for the information of Sandia Corporation employees.

All military and civilian personnel who operate privately-owned motor vehicles on Sandia Base must possess the minimum motor vehicle liability insurance coverage valid on the Base.

To secure and retain driving and parking privileges on the Base, all personnel are required to present evidence, at intervals, of having minimum insurance in force with an accredited insurer.

Minimum insurance is defined as motor vehicle bodily injury and property damage liability insurance in amounts not lower than \$5,000-\$10,000 bodily injury and \$1,000 property damage.

An accredited insurer is defined as one who is licensed to write motor vehicle liability insurance in New Mexico, or who has been granted a current general policy holders rating of "good" or better by Alfred M. Best Co., Inc., New York, N. Y. The insurer may be accredited by the Sandia Base Commander in accordance with appropriate Army regulations.

Insurance regulations specify that insurance policies must provide bodily injury and property damage liability coverage for all drivers authorized by the insured to operate the vehicle, and must be valid off as well as on Sandia Base.

# Hockey Players Have Again Taken up Skates And Sticks

"Whenever one hears the word 'hockey' he thinks of winter in Canada or Michigan or Minnesota," Pete Fessia (4421) commented recently. "Many of them would be surprised to know that hockey goes great in Albuquerque, too."

Pete is treasurer of the Sandia Mountain Hockey League, a group of three teams—the PermaStone Thunderbirds, the Western Skies Eagles, and the Golden T. Falcons—comprised of Sandia Base and Sandia Corporation personnel.

Sandia employees in the league are: Werner Kuhn (2344-2), referee; Sto Bell (5422), Eagle defense; Rol Hewitt (7324), Falcon wing; Bud LaMaria (4623-3), Thunderbird wing; John Mitchell (3121-2), Thunderbird wing; and Don Rigali (7132-1), Thunderbird defense.

"Hockey caught public interest

in Albuquerque during the 1959-60 season," Pete explained. "During the 1960-61 season, things quieted down a bit. But now, largely because of the efforts of Sgt. Jack Munro (USMC) of Sandia Base, who got the team together, there's a lot of renewed interest."

"We play a game every Friday evening at 8 p.m. at the Speedway Park Arena," Pete continued. "On Saturday evening, Feb. 3, we'll tangle with the Denver All Stars, who were Senior Tournament Champs at Squaw Valley, Calif., last year. It should be an exciting game. We won't play Friday, Feb. 2, because of Saturday's engagement."

Tickets for those interested in attending the games are available at Speedway Park Arena.

## Review English Grammar Course Offered by UNM

A Review of English Grammar will be offered at the University of New Mexico on Wednesday evenings starting Feb. 21 for the convenience of secretaries and other interested persons.

Co-sponsored by UNM and the Albuquerque Chapter of the National Secretaries Association, the course will be taught by D. E. Wylder, instructor of English and American Literature at the University. The course will be conducted on a workshop basis.

Classes will meet from 7-9 p.m. Tuition for the 12-week non-credit course is \$13.50, including the text.

For further information contact Joanne Boyd (4600).

## Coronado Ski Club Leaving for Trip To Red River Area

Plans for a four-day trip to Red River in northern New Mexico will be discussed during the monthly meeting of the Coronado Ski Club on Tuesday, Feb. 6, at 8 p.m. at the Coronado Club.

"We'll have full details on the proposed Feb. 22-25 ski trip and will collect deposits for accommodations," reported Max Newsom (7164-2), who is in charge of arrangements.

Ski movies will also be shown during the meeting and members may obtain club arm patches.



**SECURITY HONOR AWARDS**—Charles C. Campbell, AEC Sandia Area Office Manager, presented 1961 Security Honor Awards to secretaries (l to r) Rita J. Hopper, Administrative Branch, Agnes

L. Koury, Quality Assurance Branch, and June Stafford, Security Branch, for their respective branches. This is the third consecutive year that all SAO Branches had no security infractions.

## NORAD Band Plays for Dance At Coronado Club Feb. 17

The internationally-known NORAD dance band (North American Air Defense Command) will play for the Coronado Club's monthly buffet on Saturday, Feb. 17. The 18-piece band, called "The Commanders," will play for dancing from 9 to 1. A female vocalist is featured with the group.

Additional entertainment will be provided by the "Show Stoppers," a local trio so named because they sing show-stopping tunes from Broadway musical comedies. The three have performed throughout the state and sang with Harry James' band during a recent Albuquerque appearance.

Buffet lines will be open from 6:30 to 8, and social hour prices will be in effect during that time. Tickets cost \$2.60 per person for members, \$3.60 for guests.

Tomorrow night's dance, Feb. 3, will feature the music of the M.B.C. Trio. The dance is from 9 to 1, with social hour prices in

effect from 8 to 9:30. Tickets are \$1 per couple for members, \$1.50 for guests.

Kenny Dark, local disc jockey, will emcee the Teenage Record Hop on Feb. 10 from 8 to 11 p.m. Parents may pick up the 25-cent tickets in advance or at the door.

There are still several openings in the beginning bridge instruction class from 9 to 11 on Tuesday nights. The 10-week course, starting Feb. 6, costs \$8 per person. The 7 to 9 p.m. class on Tuesday has reached its maximum of 20 persons.

Special entertainment by the Peggy Howell modeling studio is planned for social hour on Feb. 9. Tommy Kelly's combo will be playing from 5:30 to 8:30 p.m. Social hour lasts from 5:15 to 6:45 p.m. and the \$1.75 buffet is served from 6:30 to 8. Tonight, Leigh Sprague's group will entertain during social hour and the buffet.

## Table Tennis Players Elect Ass'n Officers

Earl Morris (7164) was re-elected president of the Table Tennis Association for 1962 at a recent meeting of the group. Vice president is Leo Cordova (4516), and Seyfred Toledo (3122) is permanent secretary and Employee Services representative.

Plans were discussed for the upcoming singles and doubles ping pong tournaments. Each general organization is now conducting its own tournaments and will report names of the winners and runners-up to Employee Services.

## Welcome Newcomers

Jan. 15-26

Albuquerque	
Rosie L. Cata	4623
Beresford B. Gilkes	3467
*Gertrude E. Hall	3126
Betty J. Thom	4624
Emilia Vasquez	3126
California	
Roy I. Couzin, Livermore	4233
Indians	
Paul W. Yunker, Howe	3231
Kansas	
*Hervey L. Hawk, Jr., Fairway	5112
* Denotes Rehired	
Returned from Leave	
Fredericka L. Weber	3126
Vadare M. Cornelison	4135

### SHOPPING CENTER

#### CLASSIFIED ADVERTISING

Deadline: Friday noon prior to week of publication unless changed by holiday.

#### 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

#### FOR SALE

- '61 INTERNATIONAL 4-dr. pickup w/Power-Loc rear axle, 4-speed, 6000 miles Turnpike Camper Body, blue and white, sleeps four; both for \$3995. Puder, AX 9-2978.
- GE REFRIGERATOR, \$50 or best offer. Hansche, AL 5-2878.
- COFFEE SERVICE, nickel silver, 4 pieces, \$9.95; Electrolux vacuum cleaner, w/ attachments, \$15.95; Hollywood bed frame, steel, on casters, \$3. Browning, AX 9-6384.
- GAS RANGE, Kenmore Maid-O-Matic, rotisserie, griddle, clock, timer, 2 yrs. old, \$80. Comiskey, AM 8-5120.
- GAS RANGE, \$45; 20" TV receiver, \$40. Kraft, AX 9-2157.
- TWO CRYPTS in Sunset Mausoleum, numbers 428 and 433 for 15% less than present selling price. Hall, AL 6-7282.
- WINCHESTER, Model 67A, bolt-action, single-shot 22, w/peep sight, hooded front sight; sling, case, meets NRA requirements for indoor range, \$25. Worden, AL 5-0557, evenings.
- '56 FORD V-8, standard transmission, new tires and battery, original owner, 55,000 miles. Delker, AX 9-0773.
- MOVIE CAMERA, projector combination, Wittnauer 8mm Cine-Twin w/screen, tripod, bar-light, and filter set, \$300 value. Karpen, AM 8-7467.

SECTIONAL; 2 end tables; coffee table, blond; 17" TV w/outside antenna, in working condition. Gabaldon, 800 San Pedro SE, AL 5-5411.

3-BDR, LR, DR, large kitchen w/all appliances, HW/floors, carpets -drapes throughout, 2-car garage, FHA appraisal \$20,800 w/\$19,600 commitment. Scott, AL 6-9708.

YOUTH CHAIR, chrome, \$7. Kohut, AX 9-9092.

ASHCRAFT resale, 1205 Espanola NE, 2 blocks south of Winrock, frame fronted w/brick veneer, 3-bdr, family room, LR, 2-car garage, sprinklers. Woolsey, AM 8-2164.

SELL OR TRADE, by owner, 3-bdr. house, 1 3/4 baths, den, double-garage, irrigation well, rental apt, one acre. Tangny, TR 7-9331 evenings.

TELESCOPE, 4 1/4" reflector type, includes tripod, equatorial mount, 2 eye-pieces, Barlow lens, spotting scope, \$50. Kubiak, AL 6-1513.

3-BDR, 1 3/4 baths, family room fire place, carpeted, double garage, a/c, large corner walled lot, GI payments, \$17,500. Peters, 3517 Mary Ellen NE, 299-8543.

MAPLE YOUTH BED, \$15; play pen, \$5; car bed, \$5. Skender, 10425 Ralph NE, 298-3224.

GENERAL ELECTRIC STOVE, \$100. West, AX 9-1878 or BU 2-3460.

WOMAN'S 6'3" SKIS, safety bindings; size 8 narrow boots \$20. May, AX 9-2624.

ONE-WHEEL LUGGAGE TRAILER, extra wheel and tire, fitted canvas cover, hitches, \$45; GE dishwasher, guaranteed, \$25. Westman, AL 5-6048.

'58 PONTIAC 2-door, straight shift. Newton, 265-1042.

SHOW HORSE, barrel racing, western, pleasure, will trade for piano, must sell or trade. Sikkel, AX 9-3966.

SURREY, factory motorized, w/fringe on top, \$75; child's portable trampoline, \$25. Abbott, AX 9-8860.

STEEL GARAGE DOOR, 8x7' w/new hardware, \$35. Foster, 268-1284.

TWO BABY CRIBS, both full panel blond 6-yr. size, one bed \$8, the other \$15. Kurth, AX 9-2580 after 6 p.m.

#### NEXT DEADLINE

FOR SHOPPING CENTER ADS  
Friday Noon, Feb. 9

'59 SCOOTER, Lambretta 150, w/buddy seat, has new transmission cables, and retined brakes. Lawwill, AX 8-2681.

'56 JEEP STATION WAGON, 6 cyl, 4-w. drive, 500 miles on rebuilt engine, power take-off accessory, \$975. Lopez, 299-4370.

WINTER WALNUT SPINET piano with bench, \$375. Smith, AX 9-6873.

'51 PONTIAC, good engine and tires, new battery and brakes, \$165. Griego, AX 9-0627.

'51 CADILLAC 4-dr., w/dual-range transmission, motor recently overhauled, black w/white top, \$295. Russell, AX 9-0159.

'52 PONTIAC 8, Silver Streak, not a "transportation" car, \$275. Floyd, AX 9-2419.

COLDSPOT REFRIGERATOR, 11.3 cu. ft., \$65; upholstered wing chair, \$20; five-drawer chest, light finish, \$15. Eder, AX 9-2129.

GASOLINE OPERATED walking garden tractor w/cultivator plow, \$100. Gonzales, DI 4-9832 after 5 p.m.

RESTORED 1934 FORD V-8 sedan, 2-dr., heater, upholstered, new paint and engine, see at 528 Cardenas SE. Tillman, 265-0352.

BUNK BEDS, springs, mattress, \$30; crib, spring and mattress, \$18; car bed, \$4; chest of drawers, \$10. Goodman, AX 8-2287.

'55 OLDS, 4-dr., Holiday 88, hydromatic, R&H, one owner. Garcia, AL 6-6609.

2-BDR DUPLEX, unfurnished, stove and refrigerator, garage, \$85, 1912 Lead SE. Miller, 265-0029.

'51 BUICK 4-dr., R&H, \$195; .22 rifle Remington, bolt action, repeater, w/ case; tape recorder. Villella AX 9-9044 after 6 p.m.

EICO ST70 stereo amplifier, 70 watts output, completed, used 3 months, at kit price, \$100, Hurley, 256-0746.

MOVIE CAMERA, Keystone K-32 f1.9 variable focus lens, variable speed. Carter, DI 4-6563.

'53 OLDSMOBILE-88, R&H, new battery, \$100. Meyer, 298-4825.

GARAGE DOOR w/all hardware and mounting brackets; steel sash window w/glass; screen door; gas range; and electrical supplies. Edwards, 8905 Shoshone Rd. NE, AX 9-1618.

AIR FORCE BLUES, jackets 37L, trousers 31-32, overcoat 37L; bird cage w/stand, \$6. Kent, AX 9-8821.

UNIVERSAL ENCYCLOPEDIA, 20 volumes, ideal for junior high students, will trade for used typewriter. Koone, AL 6-6217.

HIDE-A-BED SOFA, green, 3/4 size, \$15 Hesselbarth, AL 6-1720.

3 BDR BRICK home, den, FHA & GI appraised, reasonable down, 7400 Euclid NE; '59 Buick, a/c, reasonable. Dolahon, AX 9-8107.

#### FOR RENT

1 BDR APT, furnished, near Base, water and garbage paid, \$60. Burnett, AL 5-9270.

2 BDR APT, stove and refrigerator, washer rough-in, storage space, 528 Cardenas SE. Tillman, AL 5-6292.

4 BDR HOUSE, w/w carpet, unfurnished, 8019 San Juan Rd. NE. Lopez, AL 6-1203.

2-BDR HOUSE near Sandia Base, \$80 per mo. Pope, AL 5-6702.

RENT WITH OPTION TO BUY, part of rent applying to down payment, 2-bdr, attached garage, patio, large lot. Knight, 9417 Arvilla NE, AX 9-3783.

ROOM, 10208 Candelaria NE. West, AX 9-1878 or BU 2-3460.

DUPLEX APT, garbage and water paid, \$55/mo. 417 1/2 Rhode Island, SE. Saavedra, 268-6945.

DRAFTING SET and board; power plant, 4 1/2 HP 110V; Leeco-Neville alternator, 12V; oscilloscope; 2 dynamometers; amplifiers; 24" jigsaw and motor. Buchanan, 298-2262.

NEW 2-BDR unfurnished apt. with electric kitchen. 210 Charleston NE, Matson, 256-4814 after 6 p.m.

STAUFFER SOFA, \$150. Pope, AL 5-6702.

#### WANTED

RIDE FROM 3900 Hilton NE to Bldg. 880. Candelaria, 345-0844.

TO TRADE Busch Pressman camera, 2 1/4x3 1/4, complete w/case, holders, flash for movie outfit or small sleeper/camper trailer. Clenny, UN 4-8394.

RIDE or join car pool to Bldg. 892 from vicinity of 2806 Valencia NE. Westman, AL 5-6048.

RIDE from Menaul and Second St. to gate 6, prefer car pool. Kiefer, CH 3-6940.

TO JOIN car pool Snow Heights #1 vicinity Hendola and Hannett NE to gate 2, 4, or 5. Taylor, AX 9-2281.

BEGINNER'S CORNET. Houghton, 1413 Guaymas Place NE, AX 9-3386.

TO TRADE back issues of Rifleman and Alaskan Sportsman for Popular Electronics or like issues; also want old TV set with channel one. Pritchard, AM 8-6430.

RIDE to Bldg. 800-802 parking lot. Shaffer, 3922 Avalon Rd., NW, CH 2-6507.

MEMBER FOR CAR POOL, corner of Constitution and Girard to gates 6 or 8. Marmon, AL 5-4515.

TO TRADE girl's 24" bicycle for boy's 26", bicycle in good order. Roberts, AL 5-9527.

SHOP MANUAL. Jaguar XK-140. Zownir, AL 6-3717 after 5:30 p.m. and weekends.

SPINET or studio upright piano, used but in good condition; car pool from SE Heights adjacent to west gate with parking in lots north of Tech Area. Ricker, AL 6-2678.

#### LOST AND FOUND

LOST—Diamond engagement ring, Bonifacio Lopez's Certificate of Eligibility in plain envelope, beige pigskin gloves, green sunglasses w/brown frames, brown leather glove. LOST AND FOUND, ext. 26149.

FOUND—Red earmuffs, tan crocheted gloves. LOST AND FOUND, ext. 26149.

## Veteran of Nuclear Submarine Nautilus Now Does Safety Work at Sandia Laboratory's Reactor Site

"It's a long way to water from here," Frank Statzula says, "and that's one of the reasons I like New Mexico." Frank was one of the original crew members of the nuclear-powered submarine Nautilus. He now works in Health Physics Section 3311-2.

"It's the same kind of work," Frank says, "but here there's space, lots of air, and that beautiful sunshine."

Frank handles radiation safety duties at the SPRF and SERF reactor sites. "Our job is to help people work safely with radiation," Frank says. "We determine the type and amount of radiation present and, based on this, we determine allowable working times. We designate what type of protective clothing or equipment is needed, if any. We take dosimeter readings and check film badges as well as monitor personnel in the area, operating procedures, and equipment."

Frank retired from the Navy last year and came to Sandia Lab-



Frank Statzula (3311-2)  
—Radiation safety on Nautilus—

oratory in August. He had been serving as Radiation Safety Officer on submarines since 1954 and

### Group of Paintings By Terrence Clark Will Be Shown

Special Services Library on Sandia Base will feature a collection of paintings by Terrence Clark (3463) during the month of February.

Included in the exhibit will be colored pencil portraits, and landscapes and still lifes executed in oils and water colors.

Mr. Clark has been drawing as long as he can remember. He studied art at the University of Oklahoma, then spent six years traveling throughout the West sketching portraits, his specialty.

A technical illustrator for 19 years, he has worked for 11 of those years at Sandia Laboratory.

He has exhibited at the State Fair, Lobo Arts Theater, Coronado Club, and numerous other places in Albuquerque.

The library is located south of the Sandia Base Hospital on First Street. Hours for viewing the exhibit are Monday through Friday, 11 a.m. to 9 p.m., Saturday, Sunday and holidays, 1 to 5 p.m.

in the Submarine Service since 1947. He spent more than a year in specialized training for his hitch on the Nautilus. He attended the Naval Medical Center in Bethesda, Md., studying X-rays and radioisotope therapy and then several more months at nuclear engineering school.

"Every man on the Nautilus had to be familiar with every other man's job, the equipment, and the procedures," Frank says. "When we left port on our first cruise under nuclear power, we were a well-trained crew of more than 100 men. That was seven years ago this month. There's been a lot of progress in nuclear subs since that time. I like to think that our tests and our work made some of it possible."

Frank's crew set submarine records in the early days aboard the Nautilus — 265 hours submerged, speed records, and depth records. He was not on board when the ship later traveled under the North Pole or stayed submerged for 60 days.

"These feats are routine for nuclear subs nowadays," Frank says. He served as an instructor at the Navy's Nuclear Submarine School and helped train the new crews which set these records.

Frank still keeps up with the news of nuclear submarines but admits, "I'm happier on dry land."



CADETS from the United States Air Force Academy at Colorado Springs study a Sandia Sphere of Science exhibit with interest. They were part of a group of 10 cadets and an officer who visited the Sphere Jan. 12 during a tour of Sandia Lab facilities which included a visit to Area III and a showing of "The Sandia Story."

### Frances A. Childress Died January 28



Frances A. Childress, a Corporation employee for nearly five years, died Jan. 28. She was 40.

Mrs. Childress was a release clerk in Development Drawing Release Section 4423-1.

Survivors include her 15-year-old son and her father, who lives in Arkansas.

**No job is so important and no service is so urgent that we cannot take time to perform our work safely.**

### 'Masers in Science, Technology' by G. C. Dacey in 'Science' Magazine

An article by G. C. Dacey, Vice President, Research, entitled "Optical Masers in Science and Technology," appeared in the Jan. 12 issue of *Science*. The magazine is published by the American Association for the Advancement of Science. He also spoke on this topic to the Los Alamos Scientific Laboratory Colloquium Jan. 16.

Mr. Dacey notes that the invention of the optical maser added a new dimension to the science of optics.

The maser (an acronym for Microwave Amplification by the Stimulated Emission of Radiation) is a device which produces a beam of light. The beam is highly directional, coherent, intense, and relatively monochromatic. The maser enables control of light waves in much the same way that it has previously been possible to control electromagnetic radiation at lower frequencies in the radio or microwave part of the spectrum.

In the article Mr. Dacey discusses the history of control of

light waves, principle of operation and status of the optical maser, and applications to communication and other scientific and technical fields.

A solid-state optical maser that could control the optical part of the electromagnetic spectrum was demonstrated last year by scientists of Bell Telephone Laboratories in Murray Hill, N. J.

Before coming to Sandia Corporation last October, Mr. Dacey was Director of the Solid-State Electronics Research Laboratory at Bell Telephone Laboratories in Murray Hill, N. J. During his nine years on the Bell Telephone Laboratories technical staff, he worked both on transistor device feasibility studies and on development of silicon transistors and crosspoints.

Mr. Dacey holds a BS degree in electrical engineering from the University of Illinois and a PhD degree in physics from California Institute of Technology.

### Killer's Gun Conversation Piece In Ken Finders' Firearm Collection

"This gun killed a man," said Ken Finders (8221-2), pulling a Frontier model Colt .45 from its holster. "It originally belonged to an early California gold prospector who killed at least one claim jumper with it; and later, his son used it to shoot a prowler. The front gun sight still has the gold nugget the old prospector hammered into it."

Ken heard about the gun's history from an old timer who was in the gun dealer's shop when he bought the pistol. The last owner, the prospector's son, had traded it in on a rifle.

The single action Frontier Colt is one of the 48 guns Ken has in his collection, which he values at \$3500. He still has the gun that started his collection, an 1890 .32 calibre pistol given to him by a friend when he was eight years old. His most valuable piece is an 1860 Colt .44 cap and ball revolver, worth \$150.

"Gun collecting is a lot like collecting stamps and antiques," said Ken. "The earlier the gun and the better the condition, the more valuable it is. A worn, battered old gun isn't worth nearly as much as one in new condition."

"Things like whether the gun still has original blueing on it and a low serial number figure a lot in its value."

Many gun collectors limit their collections to just one category, such as pistols, shotguns, rifles, accessories or cartridges. Ken, however, collects all types, but his chief interest is Civil War cap and ball handguns like his 1860 Colt .44.

"I buy guns from all sources, individuals and gun dealers alike," said Ken. "If I see a gun I like and have the money to spare, I'll buy it."

Included in Ken's collection is a set of three 1885 lever action rifles of the Colt "lightning" series, a .22 calibre, a 38-40 calibre, and a 45-85-285 calibre.

"These Colt rifles aren't as famous as the Winchesters, but they're a good weapon and quite scarce now," Ken said. He also has a complete series of Winchester lever action rifles, from one of the first brass frame models manufactured in 1886 down to the modern types of today. "My Model 1894 Winchester has serial number 1312, an early model when you consider that the

company recently manufactured its 2,500,000th Model '94."

Prize shotguns in Ken's collection include a double-barreled, muzzle-loading Greener, circa 1850, and an early English Purdy manufactured in 1880. Featured pistols include a six-shot derringer with six revolving barrels, a type used by riverboat gamblers, and some early Colt and Remington revolvers. He also has a modern .44 Magnum revolver, "the most powerful commercial handgun yet made," according to Ken. "It can blow a hole through a car's engine block."

Ken makes most of his own ammunition, and he has fired all of his guns at least once.

"Most of my old guns are in pretty good shape," said Ken. "At least, none of them have blown up on me yet."



GUN COLLECTOR Ken Finders (8221-2) displays part of his arsenal of 48 old and modern firearms. He holds a Frontier Colt .45.

## Sandia's Safety Record

**Sandia  
Laboratory  
HAS WORKED  
140,000 MAN HOURS  
OR 4 DAYS  
WITHOUT A  
DISABLING INJURY**

**Livermore  
Laboratory  
HAS WORKED  
355,000 MAN HOURS  
OR 69 DAYS  
WITHOUT A  
DISABLING INJURY**