Solar Furnace Made of Old Searchlight ‘Burns’ Metals

The giant silver eye of a new Sandia Corporation test device is using the bright rays of New Mexico’s sun to produce temperatures ranging to many thousand degrees. Following is a photograph taken by Roy Dunlap of Sandia’s Photo Lab. Actual size of flame is very small, is distorted by curved shape of mirror. Carroll Coover, 5221, is the operator.

Reliability, Quality Symposium Attended By Sandia Engineers

Five persons from Sandia Corporation were among scientific administrators and engineers throughout the nation who attended the National Conference on Reliability and Quality Control in Electronics in Washington, D. C., Jan. 9 and 10.

An automatic photocell tracking mechanism, the unit developed unit was constructed from an Army surplus anti-aircraft searchlight. It is used here to test thermal characteristics of materials, and to calibrate instruments.

Follows Sun

The searchlight, some five feet in diameter, follows the sun with the aid of an automatic photocell tracking system. Its great silver mirror focuses the sun’s rays into a tight circle less than .25 inches wide and one foot long. It focuses the sun’s rays to a point where temperatures higher than can be attained by gas torches or electrical currents, according to Carroll Coover, 5221, who was instrumental in developing the new device.

Coover says the sun’s reflective surface is “always” there if no earth-related defect is present, and the specimen can be kept in the sun’s rays longer than could have been previously possible.

Concentrates Rays

Rays of the sun are concentrated by the searchlight mirror at a point 25.38 inches above the mirror’s surface. The mirror is a highly-polished cast brass slab, plated with rhodium in a concave or spheroidal shape on the side opposite to the searchlight shell. The mirror has a high reflective capacity and more than 97 per cent of the sun’s rays falling on its surface are reflected.

In operation, Coover explains, a test specimen is placed into jaws of an automatic holder which sends fast currents into the searchlight unit. Then a manually-controlled shutter which protects the specimen prior to testing is pulled aside to permit radiant energy to pour onto and through the material.

Coover says that anything will “burn” when struck by the concentrated heat of the sun. Even those metals and elements customarily considered impervious to flames—tungsten, tantalum, 4130 steel—burn brightly, and emit a luminous ball of gas which can be seen at the center of the furnace.

Net Energy Machine

The mirror Beall, Coover explains, is not a solar energy machine. The mirror can only reflect and concentrate the small solar "bursts" of photons shot by the sun across 90,000,000 miles of space; it concentrates their energy at the searchlight’s focal point.

Temperatures attained depend upon the reflectivity, chemical composition, physical shape and other physical properties of the material tested, Coover says.

Patents Awarded Twelve Sandians During Past Year

Twelve Sandians were awarded patents during 1955, according to records in the office of Donald MacKee, patent manager.

Conrad Rosenfield, 5431, who was awarded two patents, invented an automatic control system and indicator system. Eugene Aas, 5433, received a patent awarded for a Thermos Trigiger Circuit, and Thomas Mark, 5431, received a patent for a Voltage Stabilizer.

Invention of a Pressure Accumulator Means was a patent awarded to Carroll Osborne, 5333, Three Sandians, James Neib, 5228, James Valentin, 5437, and W. G. Grass, since terminated, invented a patentable Method and Apparatus for Discriminating Frequency Modulated Records.

Walter Jorrell, 1241, and James Kane, 1443, patented a Switch Mechanism.

George P. Kraker

Renamed SFO Deputy Manager

George P. Kraker, veteran administrator in the Atomic Energy Commission’s weapons organization, has been named Deputy Manager of Sandia Operations. Mr. Kraker returns to his staff position after serving as Assistant Manager of SFO Inspection and Storage Operations. His prior service as Deputy Manager of SFO Operations was from 1951 to 1954.

A native of Gallup, N. Mex., he is a graduate of the U.S. Naval Academy at Annapolis, majored in engineering and served with the Navy in overseas combat areas during World War II. He joined the Bureau of Ordnance.

Mr. Kraker retired with the rank of Rear Admiral in June, 1948, to accept appointment as Manager of Sandia Field Office of AEC.

Mr. Kraker, 62, and Mrs. Kraker reside at Sandia Base. They are the parents of two children and four grandchildren.

Pollard Speaks On Transistors to AIEE

A meeting of the Northern New Mexico section of the American Institute of Electrical Engineers will be held Jan. 17 at 7:30 p.m. at the Electrical Engineering building on the University campus.

Keith Pollard, 5413, will speak on "Transistors."

Engineers Meet

The New Mexico Society of Professional Engineers will meet Jan. 25 in Room 101 of the University of New Mexico Chemistry building on the campus.

After a dinner in the women’s dormitory dining hall at 6:30 p.m., members will convene in the Chemistry Building for election of officers and other business.

Credit Union Completes Biggest Year In History; Members to Meet Jan. 24

Members of the Sandia Laboratory Federal Credit Union will meet at 7:30 p.m. Jan. 24 in the Coronado Club for their annual business meeting.

Agenda for the meeting includes: Reports, committee reports, election of district managers and elections.

Reports will be heard from the board of directors, supervisory committee, credit committee and treasurer.

Members will also vote on a dividend to be paid from earnings of the past year.

Four directors will be elected for two-year terms. Two members of the credit committee will be elected to serve for two years. Two members will be elected to serve on the supervisory committee, one for one year.

The Credit Union chalked up its biggest year during 1955 and members are urged to attend this meeting and help make future plans.

SILVERY "EYE" of Sandia’s solar furnace gathers brilliant rays of New Mexico sun, turns them into vast amounts of heat. Here Carroll Coover, left, engineer on the project, checks movement of mirror which tracks sun across the sky. At right are Hattan Leander, and John Richart, both of 5222.
How About a Honeymooners Sandwich Week?

Read the calendar listing special days, weeks and months of the year for 1956 — it will make your head spin.

In January there is National Anniversary of the Tea Bag. There will also be National Crochet Week, Large Size Week and Odd-les Decorations Week.

February will have the well-known Ground Hog Day, the not-so-well-known National Knit and Frankfurter Week.

March provides Mardi Gras (Shrove) Tuesday, Texas Independence Day, National Peanut Week and Irish Linen Week.

April is the month of Maryland Day, Wildlife Week, Laugh Week, and National Daughters Day.

The year runs pretty much the same with each month scheduled for January and February.

In January there is "What's in it for Eileen" column, and a "Honeymooners Sandwich Week." Maybe it would appeal to more than the newly weds. What's a honeymoon sandwich? Just "lettuce alone." All of us!

SANDIANOTES

Catches Big Yellowtail

"Cap" Connolly, 2223, and his wife, Ethel, spent the Christmas holidays at Guaymas, Mex. Cap went out on several fishing trips with friends of the family, Dr. and Mrs. George V. Wel- ney, Sr., of Albuquerque, who are spending the winter in Guaymas. After a well-deserving fishing trip, Cap produced this photograph of a 21-pound yellow tail.

New Year's Eve Wedding

On New Year's Eve, Clarence M. Coats, 2553, and Isabel Ateno, of Albuquerque, were married in El Paso. They now reside at 412 94th St.

2500 Party

The 2500 Christmas Party last month netted a profit of $1423, which will be donated to the March of Dimes.

Just Under the Wire

Arriving 14 minutes before the stroke of midnight, Dec. 31, were Sally Rae Burke, daughter of Mr. and Mrs. Charles L. Burke. The father of this new '55 income tax deduction works in 1325 Carmel Manso, J132, and his wife, Beatrice, also became parents the last day of the year. Their daughter, Cecilia Anne, was born at 3:45 a.m.

SALTON SEA TEST BASE

Christmas - 1955

HOLIDAY FESTIVITIES — Santa Claus was a much anticipated "oh" follow this Christmas at Salton Sea Test Base and a party at San Felipe Lodge greeted the occasion.

The program was under the direction of Mrs. Harry Schneider. The Nativity Scene was re-created in a beautiful set complete with Shepherds, Wise Men, Joseph and Mary and the Star. Narrations were done by Ida Neil of San Felipe Lodge and A. L. Pearson, 248-I. Ted Spinich, 249, was master of ceremonies and youngsters of the Sandia Corporation and Fred B. Prophet Company employees were the entertained audience.
Sandianotes

A&M Alumni Gather
Alumni of Colorado A&M College will hold a dinner get-together at Leonard's on Jan. 19 at 7:30 p.m. Sandians graduates of A&M and their guests are invited.

Members of the Colorado A&M University of Colorado football games and sides of the new campus building program will be shown.

Reservations may be obtained by calling Rod Clarkston, 2-3342.

Welcome Home
Salton Sea Steak are happy to have back home Mrs. Ted A. Sprick who has been in New York and Floyd Allaston, 27.21, their daughter, Darlene.

Getting Well
A happy report comes from Salton Sea Steak that the son of Tony Comas, 2483, is back home from the hospital after an attack of polio. He is progressing vigorously.

South to Christmas
Eugene W. Pierce, 3126, and his family vacationed in Mexico over the holiday season. They drove 300 miles and stayed in their trailer every night of their Friday vacation but one. According to Gene they had some "experiences" but no hives.

Salton Sea Steak
Congratulations to Chester Corral, Lawrence Craft, and George Northcutt, all 2883, Salton Sea, who recently became fathers.

Professional R Group E Activities

ANTENNAS-MICROWAVE
The IEEE professional group on antennas and propagation, and microwave theory and techniques will meet jointly at the home of George Ohsten, 1800 Parson Yard, Jan. 25 at 8 p.m. m.

A lecture by H. C. Nelson of the Polytechnic Research and Development Co., Brooklyn, N. Y., will be presented. Subject of the lecture is "Microwave Techniques and Equipment Used in Impactor Power and Frequency Measurements."

Circuit Theory
Julian E. Gross, 5413, will address members of the IEEE professional group on circuit theory Jan. 25 at 8 p.m., in "Circuits for Computer Use." The meeting will be held in Room 208, Mitchell Hall, on the University campus.

Valparaiso Alumni
Alumni and guests of the Valparaiso Technical Institute Alumni association will tour the technical institute on the next weekend. Further information may be obtained from Frazee at ext. 40122.

HOLIDAY POTLUCK—Members of Division 1482 observed the holiday season with a potluck dinner at the home of Bill and Pat Barth in Colador.

Jan. 13 - 28

Antique Collector Speaks to Club
Guests are invited to bring any books representing early Americas. On display will be some early American clocks from Mr. Deter's collection. Colored slides will be used to illustrate the talk.

Grand-dad Stood Guard, Had Fatigue Duty During Civil War Like Today's GI

"February 16, 1866,—Left home for the Army..."

"January 10th, 1866,... This day at 12 M I was discharged from the U. S. Service once more free."

Between these dates, Benjamin F. Sheaffer, grandfather of William F. Sheaffer, 5225, wrote to his Grandson, the States — as he saw it.

Table of War
Written in a neat script on yellowing pages of a leather bound book is the simple account of the wonder, thrill, drama, and pain of war.

The book came into William's hands a year ago through a relative in California. For over 40 years prior to that it had been in a bank safety deposit box. Still in a good state of preservation, the book is a prized possession today in the Sheaffer household.

Benjamin Sheaffer's talk of the war year easy passages as these: "The light was desperate and I listed all day."

"This day I helped bury our dead who bravely fought and fell on the battlefield." We had a very good dinner of cabbage and potatoes."

"The salve of 200 guns has been fired for the surrender of Lee and his whole army — today I fell in the east of Appinian Creek."

"During the day we received bad news by telegraph that Lincoln was assassinated."

"I Had Guard"
But after all, for long weeks his only comments on activities were to the effect that "he had the usual fatigue duty." A good illustration. Soldier Sheaffer wrote down in the book in the account of the money sent home. He recorded his debts and the money owed him. He made a note of his pension check that he had received. Some of his experiences are not recorded in words. After reports of a battle his handwriting appeared unsteady. An ardent follower of the weather conditions, he commented on rain frequently and some of these pages bear water marks. And like many veterans of later wars, after the fighting was over Grandfather Sheaffer locked his diary against all affairs for new opportunities. In a pocket inside the back cover of the book is a pamphlet addressed to members of the Grand Army of the Republic.

"Free lands in the west," it promised, and told how 160 acres near Lamo, Co., was to be had for $40, lived in Pennsylvania.

But ex-soldier Sheaffer didn't go west right away. He settled down in Pennsylvania and became a successful farmer. But after some years the call of the west proved to be too great to ignore.

In 1880 Benjamin and his eight children climbed aboard a primitive schooner and headed for Kansas where they homesteaded. On that farm William Sheaffer was born. The farm still remains in the Sheaffer family and for many years a trunk in the farm house contained the precious diary. Another son of Benjamin stored it safely in a Fireproof bank for four decades and now it's in William's hands.

"When I'm through with it," Will, but says, "I hope it will stay in the hands of another Sheaffer, then another and another."

Winter Bridge Tournament

Sat., Jan. 13 CHESS TOURNAMENT

Wash., Jan. 16 Open

Mon., Jan. 18 BINGO

Mon., Jan. 16 Open

Fri., Jan. 20 REGULAR DANCE

Jan., Jan. 13 SANDIA SQUARE DANCE

Fri., Jan. 16 WOODCHUCK BRANDY BRIDGE

Sat., Jan. 18 DANCE NIGHT

Sat., Jan. 21 REGULAR DANCE

10:00-10:45 a.m.

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10:00-10:45 p.m.
Jerry Bass Rescues Neighbor From Smoke-Filled Home New Year's Eve

As the Old Year turned into 1956, Jerry Bass of 2353 returned to his duplex, where smoke, moments later called an unconfirmed neighbor to safety from the smoke-filled house and then began to check the area.

Jerry, a receiving clerk with the Sandia Corporation since 1949, says the house was located in a second floor and bed fell asleep. Shuddering in the bedroom, the neighbor was taken to a hospital where he was treated and released. Albuquerque police reported that Jerry’s quick action probably saved the owner’s life.

Jerry Bass and his wife, Minnie, live at 4642 Del Norte Drive SW.

Two of Jerry’s sons-in-law also work for the Corporation: Cichl M. Drawe Jr., and Harvey Lange, 1941.

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Making a Check on incoming shipments at a Sandia warehouse is Jerry Bass, 2353, who entered a breaking argument to save a woman’s life.

J. R. Townsend to Do Special Study for Government

The office of Defense Mobilization has announced that John R. Townsend, former director of Materials and Standards Engineering, will do a special study on the short-term plans of the Dionne Quintuplets.

Arthur S. Fleming, ODM Director, says that the study will put the quintuplets in the proper position for the metal and the implications of their having on the civilization economy.

Nickel has been scarce for civilian purposes for many years, and the Dionne Quintuplets, born on May 28, 1934, are in the public eye. The study will analyze all government activities relating to nickel, including its uses in the current expansion programs, as well as the set-asides for military and atomic uses. The ODM has pointed out, is a vital material in jet planes, automobiles, and many other military applications.

Mr. Townsend is Chairman of the Materials Advisory Board of the New York Institute of Technology, and has served as consultant to the Office of Defense Mobilization.

He is being considered as a primary source of energy for un- derstanding the future of nickel, and he is expected to do a good job. Mr. Townsend is a consultant in the defense field and has a great deal of experience. He is expected to do a great job. He is well known for his expertise in the field of nickel and will be a valuable resource for the government.

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Organization of Corporation Has Changed Recently

With the appointment of three new vice-presidents and a general reorganization of several technical organizations, Sandia Corporation organization took on a new appearance Jan. 1.

To guide employees unfamiliar with the new organization, a new organization chart is published on this page.

The chart shows changes for the former organizational setup:

- Glenn A. Fowler is now Vice-President of Operations, succeeding Walter A. MacNair, who has retired to Bell Laboratories.
- Fred J. Given is also a new Vice-President, heading the new organization, R&D (Research and Development Services, 706).
- Reporting to him are four subdivisions: Military Liaison Service (formerly 1200), Staff Services, 720 (formerly 1900), Surveys and Operations, 1090 (formerly 5060). A new vice-presidency, Engineering, 1470, will be established when Fred Given is transferred to L. A. Hopkins who now heads Division 1490, Director of Component Development, 1490.

With the exception of the Electronic Test Equipment Department, 1480 (near 1490) whose system was transferred to the El A. Laboratory, and 1230, formerly reporting to Mr. Hopkins, have been transferred to the 1200 organization headed by W. R. Henderson.

Sanidn Will Teach Engineering Drawing

George W. Randol, a mechanical engineer with the Institute for Advanced Engineering at the University of New Mexico, will teach a course in Engineering Drawing at the evening school at St. Joseph's College for the spring semester.

Mr. Randol is a registered professional engineer in the state of New Mexico. He holds BS degrees in mechanical and electrical engineering from the University of New Mexico and the massachusetts Institute of Technology from the University of Oklahoma.

The class will teach the use of drawing instruments, lettering, principles of orthographic projections, and project the course from the University of Oklahoma.

The class will meet every Monday and Thursday. Interested applicants are urged to contact the Registrar, St. Joseph's College, for further information.

Promotions

- ROBERT S. LEMM, to manager of the newly-created Electronics and Standards Department, 2130. Previously, Bob was manager of the Inspection Division, 2132. He came to Sandia Corporation in October, 1959, from Los Angeles, Calif., where he was self-employed as a manufacturer of medical electronic equipment.

- Bob studied mining engineering at Michigan College of Mining and Technology, Houghton, Michigan, mechanical engineering at Ohio Mechanics Institute, Cincinnati, and metallurgy at California Institute of Technology, Pasadena.

- A member of the National Society of Professional Engineers, the Society of American Military Engineers, and the American Society of Metals.

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In a city where the patio walls are almost as much a part of a house as the roof, Sandia's Ken Reynolds, a Mason in the Grounds Maintenance Division, #241, offers a short course in block wall laying, exclusive for Sandia Lab News readers.

Ken Reynolds has been putting up block and stone walls for a dozen years, and he maintains that it's one of the easiest jobs in the world, "If you can stand up and walk, you can lay a block wall." He adds that the man almost as much a part of a house as John James Cole.

"If you can stand up and walk, you can lay a block wall." He adds that the man he maintains that it's one of the easiest jobs in the world.

Local labor, which is the digging and leveling of footings, can give sufficient instruc-tions for operation of the instrument. Ken says you can build a patio wall with any one of a hundred possible combinations: adobe, baked brick, tile, or concrete blocks. In Albuquerque, concrete blocks have proved most popular because they lay up quickly, are comparatively cheap, and easy to handle. Ken insists on the standard concrete block, eight inches wide, eight inches high, in blocks long. He feels the eight-inch block is best, because there's more of a bearing surface to transfer the strain to the wall. Upon occasion, he has used six-inch blocks, but he feels that anything less than six inches blocks because the wall loses strength on long spans.

"For an overall estimate on the quantity of materials you will need," Ken says, "you can figure on 100 square blocks for 100 square feet of wall surface." Once the footing has been poured, then scraped and cleaned, a cinder block of lift is laid upon the new footing, and the proposed joints marked on the footing in crayon. This will lessen waste during the actual laying of the blocks. Ken adds, "and will give us an idea of where to place your pilasters, the double-thick, supporting columns necessary to block walls to withstand Albuquerque's winds." Pilasters also tend to absorb the stresses of drying and shrinking.

If you can stand up and walk, you can lay a block wall. He adds that the man almost as much a part of a house as John James Cole.

Use of Transit

"With a transit you can sight in your grade stakes, put up batter boards, and square your corners." He adds that the man who rents you the transit can give sufficient instruc-tions for operation of the instrument.
Kibitzers Find Kriegspiel Ideal For
Energetic Spectator Participation

The outcomes of kibitzers and the frame of a reference's voice are distinguishing characteristics of a new game called Kriegspiel being played currently during noon hours in the east wing of Bldg. 4012.

Kriegspiel's antecedents, according to Mike Norris, 112, are just supposed to watch the game in a quiet, dignified way. But these chess fans in 100 often decide a player's strategy, pass comments, and are permitted to do anything bar execute an actual chess move. "This makes the game exciting," says Norris, "longtime Kriegspiel fan.

Kriegspiel, invented in the early 19th Century by soldiers in a German military academy, is a form of "blind chess," in which both players are kept unaware of their opponent's moves by an interposing barricade set up between them.

Each player uses a chess board and two sets of men; a separate chess set is supervised by the third participant, the referee, who monitors all moves, arranges checkmates, captures, declares each move legal or illegal. The referee makes declarations as to validity of each move and explains the rules.

Although the boards of the opponents are visible to the referee, the players cannot see the referee's board. They can make moves—and gain information—only by placing in a piece blindly, before the blur will be legible.

Kriegspiel demands a few moves, good reasoning, and a well-developed grammatical sense, according to Norris. Even so, Norris explains, Kriegspiel often deteriorates into a series of unrecorded moves in the latter stages, until a cluckhammer results, or both players resign under increasing pressure of kibitzers who scan their turns at the chess boards.

Sandia's Kriegspiel fans began their games about two years ago. They found the games, at first, too much for non-chess play. Later, the conventional chess rules were modified by a Sandian rule that pawns could not capture unless the move occurred immediately after an adjacent piece had been removed.

Players in the 150th organization, stronghold of Kriegspiel competition, include Ronald W. Shephard, Michael Norris, Woodrow Bledsoe, and Darrel Lines. Norris claims the "blind" Kriegspiel chess counters less time than the routine game, and is more exciting in its challenge to memory and reason. "Most Kriegspiel games last less than 45 minutes," he says, "kibitzers don't let them go on much longer.

STORNE MAP of Albuquerque Rocks Club is displayed here by Merrill Murphy, 2441, president. Each state is cut with diamond saws, then glued to the big tile. Public big tile had to be supplied.

240 Players Taking Part in Basketball League Competition

Twenty-four teams of 16 members each are participating in an 18-game basketball league with a double-round format. A total of 240 players will be scheduled for 10 games each week, interest in the new league is tremendous.

Teams to watch include the 1900 aggerators of the well-balanced club which employs the fast-break to good effect. The 1900 aggerators always score well, having height, speed, shooting accuracy, and the type of team that neverowntover 6 feet 4 inches. The 1900 aggerators are the League is Lee, 11412, who has made game scores of 28 and 19 for the 1900 aggerators.

AAU Boxing Planned At Club Feb. 17

Twenty-four rounds of AAU sanctioned boxing will be presented at the General Club Feb. 17.

The Club Board of Directors has arranged with local fight promoter James Cherry to schedule eight bouts. Tickets will be sold 30 cents for members, 35 cents for guests.

LEAGUE STANDINGS

Sandia Corporation Employees

<table>
<thead>
<tr>
<th>Team</th>
<th>Wins</th>
<th>Losses</th>
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<td>3</td>
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<td>2.</td>
<td>9</td>
<td>3</td>
<td>AEC 1</td>
</tr>
<tr>
<td>3.</td>
<td>8</td>
<td>4</td>
<td>AEC 2</td>
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SCHEDULE

Sandia Corporation Employees Boxing

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First Aid Class

Members of the Amateur Radio Caravan Club will assemble on the air Jan. 25 at 7:30 p.m. for a first aid class to be held in the Lovelace Clinic Therapy building on Gibson Blvd.