

SANDIA BULLETIN

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Questions -- An Apparently Endless Series -- Are Faced By Sandia's Field Testing Men at Nevada Proving Ground

Probably millions of words have been written about the awesome power of atomic energy. The blinding flash, the mushroom cloud, the deafening roar, the destruction, the after effects—all have been chronicled by the nation's journalists.

Magazines, newspapers, radio and television have kept Americans informed on many of our more spectacular activities in the field of nuclear development.

Security measures have limited what could be told and these restrictions will continue to limit release of information to the reading American public.

Trials and Tribulations

In all these many words which have been written about our efforts in the field of nuclear research there has been only a little said about the many men and women working on the program. Their trials, tribulations and accomplishments will have to go largely untold until the day arrives when we are no longer restricted by the security rules so necessary today.

Some of the names of the pioneers in the field are well known to all of us. Fermi, Compton, Dirac, Einstein, Bethe, and Teller are now recognized as important men in the country's atomic energy program.

It is of the other thousands we write, and to tell the tale of these many people we bring you the story of some of the work of the men and women of Sandia Corporation Field Testing Organization.

There are some things that can be told, some work which is outside security limitations. It is only a small segment of the Sandia folks involved in the Nevada tests about whom we write. Here is their story.

When Sandia Corporation Field Testing Organization moves into the field to do its work for the Atomic Energy Commission a complicated, highly technical, yet ever-so-human organization, is in action.

Heading up Sandia's field testing operations is Glenn A. Fowler, superintendent of Organization 5200. Mr. Fowler reports to Walter A. MacNair, Vice-President Research, of Sandia Corporation.



PROVING GROUND DEPARTMENT MANAGER, Harlan E. Lenander, heads on-the-site activities of Sandia Laboratory at the Nevada Proving Ground.

In charge of the Proving Ground Department at Sandia is Harlan E. Lenander. It is to Department 5230 that all Sandians working at the Nevada Proving Ground (NPG) are attached.

NPG Organization

From this basic organization spreads a "chain of command" to supervise performance of the Sandia units at NPG. Let us take a look at some of these organizations.

Dr. John M. Harding, 5234, heads the Nevada Proving Grounds Division under Mr. Lenander and it is through him that the activities of Sandians at the test site are coordinated.

Working with the varied and widely scattered projects of Sandia Field Testing Organization in Nevada is his task. Coordinating the work of other Sandia Laboratory groups which are attached to the Field Testing Department finds Dr. Harding working closely with Mr. Lenander.

Blast Effects

Dr. E. F. Cox, Sandia's department manager of 5110, has originated a program which calls for intricate

instrumentation to make pressure measurements following both nuclear and non-nuclear detonations.

The program set up by Dr. Cox, who is assisted by Byron F. Murphy, 5111, supervisor of the Effects Studies Division, and also by Carter Broyles, who operates liaison with the blast program, has opened a new field of experimentation which gives rise to the questions: What will be the blast effects of a nuclear detonation?

To put it in more simple terms—5110 asks that certain information be secured and graphically recorded to a certain degree of precision. Coming through 5111 this "request for knowledge" is relayed to Division 5234 and they do the instrumentation to secure the facts.

Work Is Complicated

Today Sandians are deeply involved in this microbarograph research and Dr. Harding heads the men seeking the desired information.

Perhaps all this sounds complicated. It is complicated; the job which confronts our men in atomic

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SANDIA LABORATORY'S JOB at Nevada is depicted in part with this illustration of instrumentation men installing gauges which help make pressure measurements of Proving Ground nuclear detonations. In the background is the tower atop which the nuclear device is exploded. Men of the Proving Ground Department pictured here are, Trevor C. Looney, left, and Arnold D. Thornbrough.

H. G. Mehlhouse, M. L. Merritt Will Talk to Engineering Education Men

Harvey G. Mehlhouse, 2500, and Dr. Melvin L. Merritt, 5112, will be speakers at a meeting of the American Society for Engineering Education, Southwest Section. The Society will

telephone switching apparatus and equipment. He was superintendent of Manufacturing Engineering at the Western Electric Co. Hawthorne plant in Chicago.

Dr. Merritt joined the Corporation in 1950 immediately after receiving his Ph. D. from California Institute of Technology. For three years before he started working on his Ph.D., Dr. Merritt was a test engineer with General Electric Corp. His undergraduate work in physics was also completed at Cal. Tech.



H. G. Mehlhouse M. L. Merritt

conduct an afternoon meeting Friday, April 3, at the University of New Mexico from 3:30 to 4 p. m.

Mr. Mehlhouse will speak on "What Industry Expects of the Engineering Graduate." Dr. Merritt's topic will be "Blast Resistant Structures."

A veteran of 23 years service with the Bell Telephone System, Mr. Mehlhouse came to Sandia last October. Most of his career has been in manufacturing engineering connected with

More Pictures

Pictures of many of the men and women who are carrying out the activities of Sandia Laboratory at Nevada Proving Grounds will be carried by the BULLETIN in subsequent issues.

IT'S H-HOUR AT THE AEC'S NEVADA PROVING GROUND

The public address system blares, "10 seconds."

In the Control Point 10 people who have been crowded into Sandia Laboratory's Office are ready. It is almost time for the first nuclear "shot" of 1953 at Nevada Proving Ground.

The Sandians, who have been working for weeks with other organizations connected with the program, pause in their jobs. Long hours of work are about to come to a climax in this first in the Spring series of nuclear detonations.

"NINE SECONDS"

Microbarograph teams are scattered throughout the surrounding country. Carl Sinnjinni, Hans Hansen and Francis E. Thompson are in Las Vegas; Price Hampson and Trevor C. Looney are in Cedar City, Utah; Pete Church and Jim Valentine are in Caliente.

With members of other teams located in Goldfield, Pasadena, Indian Springs and Mercury, Nevada, and St. George, Utah, they have supplied information which has brought about

the decision to fire as scheduled. Now these teams are awaiting the signal from the detonation of the atomic device which will be graphically recorded by their sensitive equipment.

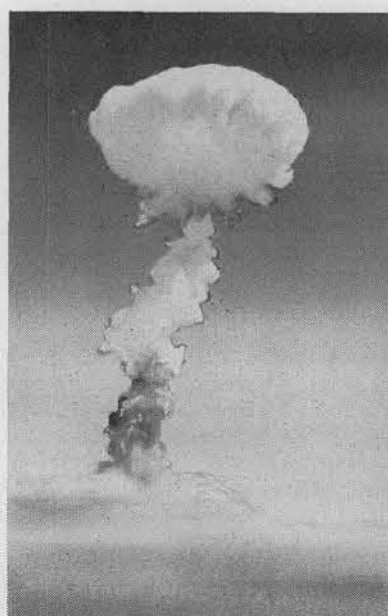
"EIGHT SECONDS"

No one sleeps in Mercury at this moment. Few are asleep in Las Vegas and surrounding communities. Several hundred newspapermen at News Nob at the site are hidden behind dark eye shields. Civil Defense representatives, hundreds of them, are waiting to view the test.

At the Control Point, brain center of the Operation, the men who execute the nuclear experiments are ready. Radios are silent, nothing is said, tired faces are again alert and expectant. One Sandian mans the Sandia Laboratory CP room, the others are now outside to see the "show." The climax of a long night of work has been reached.

Harlan A. Lenander, the bill of his baseball cap turned up, brown shirt open at the neck and booted feet firmly planted under him turns

his eyes toward ground zero. E. F. Cox, the founding father of the Microbarograph Program, is celebrating this St. Patrick's Day event with a green shirt and sox. He too



peers through 4.2 density glasses in a northerly direction.

"SEVEN SECONDS"

Others at the CP feel the tension grow to a climax. Norm Bolinger is in the office operating the pressure gauges recording equipment. The others are outside. Don Larson has temporarily left his job of furnishing technical reports to the microbarograph stations. "Gus" Gustafson has been handling radio control. John Harding has been working telephone control. Albert T. Marrs and Robert A. MacArthur have completed their weather computations. Hazel Williams and Clara Koebke, two tired girls after a hard night of recording communications, are also waiting for the big show.

These folks have received 47 long distance calls in three hours, in addition to a near-steady series of radio calls. They are weary, but their work isn't done.

"SIX SECONDS"

Atop the 300-foot tower, about 8 miles distant, is the device about to release energy equivalent to an

explosion of about 15,000 tons of TNT. It has been "dedicated" to Dorothy Harvey by her co-workers Joe Heaston, Jim Mesnard, Calvin S. Cox, William E. Holder and Ira "Jesse" Ward. In fact, they have told Dorothy her name is on the device. It's too late to find out now.

Throughout Yucca Flat instruments which are the brain children of the nation's finest scientists wait to record the coming event. Sandia engineers and technicians who have installed some of these intricate mechanisms are also awaiting the blinding flash which heralds the detonation.

Bob Bunker, Dale Showalter, Emory L. Whitlow, John Minck and others stand by at their trailer-laboratory, eyes shielded, breath bated, expectant.

John Parker has set up a news camera in the hope of using the world's biggest flash bulb for light. The sun has not yet risen.

"FIVE SECONDS"

Pete Church and Jim Valentine are manning the microbarograph sta-

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SANDIA BULLETIN

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Telephone Ext. 25253



SANDIANS may now take advantage of the new postal box in front of the Administration Building. Emily Wilderman, 5241 (4222), drops the first letters in the newly installed mail box.

The Way We Heard It

A Star Is Awarded

According to reports received from Washington by friends here, Kenner Hertford has regained his World War II status of brigadier general. He was well known among Sandians for his work with AFSWP and with AEC Test Operations before accepting a special appointment in Washington last year.

Who's on Third?

Speaking of rank, Harold Sharp, 3100, is taking some good natured ribbing from friends after an incident recently when a military official on the Base called him on the phone and reported to him a strictly military matter. It was several minutes before the caller and Mr. Sharp realized that the information was intended for the Base Judge Advocate, Colonel Sharp. Mr. Sharp says he holds the record for misdirected calls in the company.

The Ire of the Irish

The unkindest cut of all was unintentionally administered by this column last issue when we told of the excited Britisher who hollered "tally-ho" at bingo. It has been brought to our attention that the gentleman is a son of the old sod, as Irish as Paddy's pig. Well, it couldn't have happened to a nicer guy. He's Bart Coveney, 2452. Shades of St. Patrick's Day!

Entertaining his parents from Medicine Lodge, Kans., recently was Wayne Davis, 5133. The family celebrated the first birthday of Wayne's small son, Bobby.

Lost, Strayed or Stolen

Bill Jenkins, 3125, has some advice for anyone whose car gets stolen: ask the police if they took it. Bill's car rolled down the street sans driver on a nocturnal excursion that ended up on a neighbor's lawn. The police towed it away to storage and didn't notify Bill, nor did they reveal the whereabouts of the vehicle the following day when he reported it stolen. The invaded neighbor, who saw an item about the "stolen" car in the newspaper told Bill what had happened, and he went down and claimed his wandering auto.

Little Known Facts

There's a card file of previously released (unclassified) information about the Atomic Energy Program in the Document Division, 2461. If you are wondering what has been said officially about any subject relating to the program it's a simple matter to locate the cards on a cross indexed list in Martin Lucero's office.

The Technical Library card file index is now complete and it's now much easier to find the volume you are seeking.

Come-back of the Week

Boss: You look wonderful . . . having a baby really did something for you.

Returned Sec'y: Yes, it made a mother of me.

Leaving this week for the hills of Oregon is Verona Cooper, 1641-5 (5143-1), who will include on her vacation a stay at the beach in Santa Cruz, Calif.

AROUND THE DEPARTMENTS

Friends of Patti L. Evans, 4222, are happy to hear that she is enjoying a prescribed rest at the home of her parents near San Angelo, Texas. Patti, who is on leave of absence from 1633, is a BULLETIN reporter, and while she is away Judy Kemp is substituting for her.

Oysters on the half-shell and baked Maine lobsters were served recently when the Gene Gardners, 1631-1, entertained at dinner. Included among the guests were Mr. and Mrs. P. J. Krogdahl, 2531-1, Mr. and Mrs. J. E. Baylor, 1631-1, Mr. and Mrs. W. W. Parker, 1631-1, and Dr. and Mrs. R. C. Powell, 3162.

Planning to move into their new home at 1405 Hendola Ave. NE are Eugene J. Meyer, 5143, and his family. They will occupy the new house shortly after April 1.

Another new home owner is Milton W. Davis, 5142, who moved recently to his place on Princess Jeanne Street.

Donald B. Webb, 1211, is back this week from a vacation to Los Angeles and Lancaster, Calif., where he visited relatives and friends.

The waters of Mexico have lured Maurice V. Gowdey, 1713, F. C. Alexander, 4231, and John Gray, 4140, into a 14-foot steel boat at Kino, Mexico, where they will try their luck with the fish. They plan to stop a day or two in the picturesque town of Hermosillo and visit the primitive natives on Tiburon Island.

St. Patrick's Day was chosen by the girls in 2231 to give their co-worker, Mary Lou Keenan, a grand big housewarming.

Orval Raymer, 2231, spent a week end recently in Nevada.

Carl Bonilla, 2232, entertained his brother, who was on his way to an air base in Tennessee, last week by showing him around Albuquerque.

Add to the homeowner ranks Phyllis Harris, 2232, who moved into her new place last week.

Vacationing at home is J. P. Sanchez, 2232, who is spending his time getting caught up on the odd jobs.

Santiago Chavez, 2231, is the proud new owner of a Chevrolet pick-up truck.

Spending a one-week vacation in Texas this month was 2234's Carleton Marchbanks.

His friends in 2234 wish a speedy recovery to Warren Buck, who is in Veterans Hospital. Warren expects to be recuperating at home soon.

Visitors from Pittsburgh, Pa., at the home of Joe Teresi, 1521-2, are his mother and sister.

Friends of "Happy" Criss, 1524, wish her a speedy recovery from her recent operation.

Welcomed back to 1522 after her emergency appendectomy recently was Adelina Sanchez.

Marion Fogg, 1524, left last week for a month's vacation with her family in New York. Before she departed her co-workers entertained her at a dinner party.

Another new home owner is Janice McSwain, 2471, and her husband who moved recently into their new house in Hoffmantown.

Harold Myers, 2352-1, spent four days vacationing in San Diego recently.

A new car owner in 2351 is "Onie" Perea who is sporting a Plymouth Belvidere.



SNAPPED AT THE St. Patrick's Day dance at the Coronado Club were Luciano Archuleta, 2452, and Mrs. Archuleta.

A newcomer to the Hoffmantown addition is Charles Phelps, 2334, who moved recently to a new home.

Visiting last week at the home of Leonard Lind, 3151, was his sister from Sioux City, Iowa, and his uncle and aunt from Long Beach, Calif.

Evelyn Ricard's parents from Toledo, Ohio, spent several weeks recently visiting her. Evelyn works in 3154.

P. E. Jockle, 1281, visited his brother in Denver over a recent week end. His brother plays with the Quantico Marine Basketball team in A.A.U. meets, and was in Denver for a game.

Eleanor McPhate, 4131, is spending this week in Pasadena, Calif., where she is visiting her mother.

Fishing at Elephant Butte was an enjoyable week end recently for Phoebe Boyd, 4131, and her husband.

Phyllis Hoyt, 4131, left March 6 for up-state New York where she will help her father celebrate his 68th birthday. Phyllis was accompanied by Agnes Williams, formerly of 2462.

All of 4131 welcomed Clara Whiteaker back to work this month. She recently recuperated from a serious illness.

Sally Kinne, 4131, had confidence despite the day, Friday the 13th, and took her poodle to El Paso to enter a dog show.

Being an ex-basketball player, Morris Chavez, 4131-2, takes a faithful interest in attending all the seasonal games. He recently attended all of the tournament games here and in Las Vegas, N.M., where the finals were played.

Olav Nerhus, 1281, hears frequently from his son, Raymond, who is in England where he is resident engineer for Bell and Howell Company of Chicago. Ray writes that he is seeing much of the coronation plans in the making since his work involves motion picture equipment. Ray and his family attended a symphony concert recently at which Queen Elizabeth and members of the royal family were present. The concert was a benefit for the Hollanders distressed by floods.

Chet Washburn, 2463, and his family will move soon to their new home at 8006 Princess Jeanne NE in the Snow Addition.

A speedy recovery is wished for Virginia Haley's 9-year-old son, Michael, who was accidentally shot in the knee recently. Michael's misfortune occurred when a neighborhood chum toyed with a .22 rifle. Virginia, 4222, is assigned to 1921-2.

Alan Y. Pope, 5142, returned recently from Wichita, Kans., where he gave an illustrated lecture to the Wichita Chapter of the Institute of Aeronautical Sciences on the "Practical Aspects of High Speed Wind Tunnel Testing."

3224 Ortiz Drive is the new address for Dolores Kaspar, 4222, and her husband, Charley Kaspar, 3153-2. They'll move to the new residence in about a week.

Softball games and picnicking were the order of the day for members of 3154 and their guests who took an outing last Sunday in the Manzano Mountains.

Week end trips were enjoyed recently by 3152's Betty Sexton who went to Flagstaff, Ariz., and Lucille Graham, who visited her home in Corona, Tex.

Howard Stump, 3151, moved this month into a new home at 1503 Wyoming Blvd. NE.

Taking a vacation last week from 3152-2 was Noble Johnson, who entertained his parents from Duluth, Minn.

Dan McCarthy, 3152-2, is on a "farmer's holiday" this week. He is planting crops of chili, beans, corn, alfalfa, etc., at his new acreage in the valley.

George N. Corbitt, 2471, and his wife, "Curly", 2461-3, spent a week's vacation in Oklahoma where they visited relatives and friends. The Corbitts returned to the Duke City with a new Mercury.



CELEBRATING his first birthday Feb. 25 was Stephen Raymond Gomez, son of David Gomez, 2522. Little Stephen's grandmothers and his parents gathered to make the day a big success, complete with birthday cake. Stephen poses in the doorway of his home with his father.

Back on the job after a two-week vacation (vacation?), D. R. King, AEC, tells his co-workers that he got pretty well acquainted with the new baby in the King household. Connie, it seems, preferred to get acquainted with her father at odd hours during the night.

A. E. Uehlinger, AEC, was called to Montana recently at the serious illness of his mother. His friends at Sandia wish her a fast recovery.

A new Ford owner in AEC is C. R. Crawford with a "beige buggy."

Norma D. Tilley, AEC, returned this week from a vacation spent at home in Albuquerque.

Also vacationing at home this month is Harvey Richards, 4153.

Eddy and Gerean Walker just returned from a brief vacation in Oklahoma and Arkansas seeing friends and relatives. Eddy is in 1511, Gerry in 4151.

Driving a handsome new blue Buick is Nick Tarnawsky, 2452.

IT'S H-HOUR AT NPG

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tion in Caliente, Nev. But it is only through their determination that the station is functioning. A flat tire in a generator trailer, a double load on a pick-up truck, 230 miles of driving, and other unavoidable delays kept them from getting set until 20 minutes before the moment of firing.

The roads have been crowded from Mercury to the site where official observers from Sandia are located. After a briefing the previous night the technical observers from Albuquerque have a clear picture of what lies ahead of them in the Nevada desert.

A group of Sandians whose work begins after the nuclear detonation shivers on a hill-top. It isn't as cold as Nevada dawns can be, but it is easy to shiver this morning. Antha Keyt, Dorothy Harvey, Elvina Strance and Evelyn Wallace have huddled atop a piece of plywood, under a blanket to await the big moment.

"FOUR SECONDS"

The light above the doomed tower blinks in the night and thousands of eyes are trained in its direction. Several Sandians again caution about protecting your eyes. Jim Brown, viewing his first test, shifts off a rock, the blast shock will arrive about 30 seconds after the detonation — better have a good footing.

Soon after the shot, when the area is deemed sufficiently safe for men in protective clothing, several Sandians will go forward to retrieve instruments and devices which they so tenderly placed during the past weeks.

In this squad are Bob Bunker, Emory Whitlow, "Sid" Swartzbaugh, Dean List and Dean Thornbrough. Their protective clothing is nearby, their eyes are glued to the area of ground zero.

"THREE SECONDS"

In far-off St. George, Utah, Robert Pritchett and Robert Thompson bend over their radio and microbarograph. But it will be about 12 minutes after firing before their instruments record any pressures.

Infantry troops huddle in trenches nearer to ground zero than troops have ever been before. Several Sandians who have been soldiers pay quiet homage to these men who are miles closer to the mighty explosion which will occur shortly.

In the control point an intricate array of instruments has placed into action a complex operation which will coordinate all measuring devices at the time of detonation.

Tom Long, Alonzo Trammel and Al Boles at the aircraft control panel are wearing dark goggles which can shut out nearly all sunlight on a bright day. Test Directors in the Control Point do not show the load of responsibility on their shoulders. Officials in charge of operations at the Nevada Proving Ground have gone ahead with their work with the air of men of confidence

based on experience and knowledge.

"TWO SECONDS"

This is the first atomic experiment witnessed by many Sandians, but for others it is the second, third, fourth; for Bill Padilla the 12th and for Dr. Cox the 21st. But none of them finds any routine in the operation. So awesome a spectacle cannot become commonplace.

Henry B. Lauerson, atop a ledge on a rocky knoll has adjusted his footing and leans forward in anticipation. He is thinking beyond the flash, fire ball and dust and smoke. He is thinking of some measuring devices he has placed. He is thinking of results.

Jesse Ward, the high explosives expert of Sandia Laboratory, stands with his eyes hidden behind density glasses—he has remarked that the coming spectacle dwarfs the 4800 pounds of TNT he placed in two holes for pre-test firing.

"ONE SECOND"

There's little time to think. Hope your dark goggles are tight. There's no talk, only hushed expectation.

You wonder if you have time for another breath, better not shift your eyes from the north. It's one second before H-hour.

"FIRE"

It's H-hour at Nevada Proving Grounds!

Of the burst of a nuclear explosion little can be said that has not already been written by the country's finest newsmen. Their graphic descriptions of the thrilling, terrible, tremendous detonations well described to the world the sight before your eyes.

To non-technical people it is a near-mystic operation which can unleash the power of the atom. It is a story of uranium, U-235, fission, neutrons, protons and other words so familiar to us.

But there is another story of the atom which is just as interesting. It is this story of people who have made nuclear tests possible. These people, and we mention only a small handful from one laboratory, make the nuclear sciences a spectacularly human venture.



DOROTHY HARVEY is secretary to the men from 5232 who are at Nevada Proving Ground for the 1953 Spring test series. While at Sandia Base she is secretary for Harvey S. North.



CAMP MERCURY office for Sandia has Antha Keyt tending the office. She is shown here with Pete Church.



THE WORLD'S BIGGEST FLASH BULB provided illumination for this photograph. Atop "Charlie" trailer men from Sandia Laboratory watch the detonation of a nuclear device. The explosion which provided this light was equal to that of 15,000 tons of TNT. Dark goggles were protecting the eyes of the men at the moment this picture was made. Several moments later they heard the report and felt the shock.

Endless Questions

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research is a maze of complexities, unanswered questions and riddles.

This individual complex problem, being studied by men who are proving themselves capable of dealing with a formidable task, is only one phase of the work being done by Sandia's men of field test.

Many Varied Jobs

Here are a few more tasks being undertaken by Sandians at NPG:

Highly classified work performed by some of the men from Sandia Laboratory cannot be described. Security regulations designed for protection of our country's vital scientific secrets which abound at NPG will not permit their description.

For example, the work of men in 5212 involves certain procedures with weapons and devices used in Nevada experiments and to describe their work would be to disclose classified information.

Harvey S. North heads this work. With him are Joe R. Heaston, Ed Jenkins, James M. Mesnard, Edward S. Ames, George W. Duffield, William E. Holder, Ira B. Ward and Calvin S. Cox, all of 5212

Question Is "Why?"

"Why?" could well be the watchword of the NPG researchers. Daily, perhaps a thousand times it is "Why, why, why?" And helping search for the answers to some of these questions is a group of men in 5234, headed by Robert Bunker, a NPG project engineer in instrumentation.

Bob and his crew install instruments which graphically record phenomena which result from both nuclear and non-nuclear explosions.

Precisely what happens at given points when there is an explosion of considerable force is a much sought after answer. This time the "why?" is also a "what?" And these men have a job involving more than examination of flattened yucca, shattered buildings, scorched landscape and general devastation.

Instrumentation

The answers to their questions can only come from delicate instruments and it is the placing, servicing, calibrating and care of these devices which fall upon the shoulders of Bob Bunker and his co-workers.

Instrumentation men working on the crew include John A. Beyeler, Norman C. Bolinger, Edward H. Hansen, Dean B. List, Norman A. Littrell, John L. Minck, Trevor C. Looney, Dale A. Showalter, Robert H. Thompson, Arnold D. Thornbrough, John E. Parker, Emory L. Whitlow and others.

And now back for another look at the microbarograph program — still in search of more answers.

Shock Waves Jump

It has been known for many years that shock waves from an explosion act much like a pogo stick in action. Detonation of explosives at Point "A" send out air-borne waves which "bounce" across the surface of the earth.

At a point of perhaps one mile from the explosion there may be no



CONTROL POINT office for Sandia's part of the tests at Nevada Proving Ground was staffed by Hazel Williams, left, and Clara Koebke.

serious shock arrive via air, but two miles away men may be knocked flat, a house may be collapsed and damage generally serious.

That is one reason why the men at NPG who are firing nuclear "shots" want to know what will happen when they release that staggering amount of energy. The answers are sought through Sandia's microbarograph program.

Dr. Cox, as a member of the NPG advisory committee, helps make recommendations as to the advisability of carrying out a scheduled nuclear detonation. This time he is the one who asks the question. To predict prior to the nuclear detonation the eccentricities of shock waves, charges of 2400 pounds of TNT are fired two hours and one hour ahead of Zero hour.

These explosives, consisting of four 600-pound Navy depth charges, are placed by Ira B. Ward, 5212, an old hand with high explosives, assisted by Sgt. Donadieu Sonnier, who is assigned to duty with Sandia Laboratory.

Study Results

The TNT is fired and sensitive instruments placed at selected locations in the populated areas surrounding NPG record the results. Microbarograph stations to do this measuring are located at Boulder City, Caliente, Goldfield, Indian Springs and Las Vegas in Nevada and Cedar City and St. George, Utah.

A mobile unit services Beatty, Henderson or Tonopah in Nevada and several stations are spotted about NPG.

With time at a premium, at Zero hour minus two results from each station are relayed to the heart of NPG operations at test time—the Control Point. A highly efficient radio system is employed to do this job.

The information is studied by the Advisory Committee, possible dangers are sought out, the information

is weighed with reports from the U. S. Air Force Weather Service and a decision is made.

Make Decision

This procedure is carried out again at Zero minus one and the decision is made to go ahead with the test or postpone it until weather conditions, which control the behavior of the blast, are more favorable.

William A. Gustafson is field supervisor of Sandia's microbarograph operation. Working with Gus is Don Larson checking and inspecting microbarograph equipment to assure that it is ready for the field and Carl Csinnjinni who does microbarograph maintenance and repairs.

Radio, which plays such a vital part in the program is under the watchful eye of Greg Abeyta, project engineer in charge of communications. He is assisted by Clem L. Rawlins, Alonzo K. Trammel, Thomas Long, Al Bolles, and Earl Shannon.

When the scheduled day arrives all hands have turned out to operate the stations. Two-man teams scatter to the predetermined locations and wait Zero hour minus two and minus one.

Other Studies

During the days when plans are being laid for these programs there are other plans in operations — more searching for answers to "why?" and "what?"

George Reis heads a group doing experimental studies of diagnostic measurements to improve instruments used in making certain measurements. Working with George are Pete Church, Jim Valentine and George Baker.

Project engineer Carroll B. McCampbell, 5222, and his co-workers are also deep in a project during this time. These men are doing complicated and highly classified studies for Los Alamos Scientific Laboratory. Again, the search for

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Endless Questions

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answers to endless questions goes on. Working with Carroll are George C. Curry, Robert J. Scussel, Jesse C. Rehberg, Raymond F. Wulfe and Clarence Ingersoll.

Logistic Problems

A special project concerning certain types of experiments to be held at NPG this spring is handled by Robert C. Spence, 5221.

As is the case in every big undertaking in the field far from home base of supply, logistics are a major problem. And the problem further increases in complexity, for the men and organizations to be serviced are usually widely scattered about NPG which is spacious even when compared to the West's wide open spaces.

To provide the necessary help, a field services division provides manpower. Known as Sandia's Organization 1932, and headed by Charles B. O'Keefe, this unit mans offices, warehouses and generally supplies the needs of a group of men engaged in highly technical work.

Among the men working in this field services group have been K. R. Edwards, William G. Padilla, LeRoy Paulson, David Miller, John Wnuk, Nick Perea and Norman Ollman. Others come to NPG and relieve those who have been in the field for some time.

Much Special Work

Still others provide their help which is so necessary in striving for the goal which has been set. James T. Brown, 5234, is responsible for planning and operations. E. P. Hampson is project engineer in charge of field construction and is assisted by Howard S. Swartzbaugh in liaison with construction contractors and Robert E. Pritchett, liaison with electrical contractors.

Working in the NPG motor pool for Sandia Laboratory is Henry A. Moculeski maintaining all mobile equipment including generators and trailers.

Women Work Too

Denim slacks, sweaters and heavy shoes of the women's design are seen more and more in NPG's offices. Assisting in efficient operation of Sandia's Nevada offices are secretaries from 4222 who are assigned to field testing.

Among the proud owners of sun-burned faces and windblown hair have been Gertrude Theiler, Elvina Strance, Dorothy Harvey, Clara Koebke, Antha Keyt, and Hazel Williams from 4222, Mary Vcella from 1932, and Evelyn Wallace, 5110. Others will take their places as they return to their desks back on Sandia Base.

It develops into a vast picture as one visualizes the Sandia support organizations working with those on the site. Managing other Sandia Laboratory field testing departments working closely with the Proving Ground Department are W. T. Mofat, 5210, D. B. Shuster, 5220, and W. C. Scrivner, 5240.

Big Organization

The entire research organization with Stuart C. Hight as director weaves into the over-all picture as reports return to the Laboratory from the field. Each bit of knowledge, each new factor, each recorded report fits into a pattern which steadily brings answers to existing questions and perhaps gives birth to new and more complicated queries.

So, as a series of 1953 experiments gets underway at NPG, the men and women of the Proving Ground Department find themselves in the vast open spaces of one of Uncle Sam's newest laboratories. Long, hard days are the standard fare.

Cold winds, dust, and later on heat, are their opponents. Dirt matted hair, wind burned faces, calloused hands, and often a stubbly black beard are a trade mark of those in the field as much as the blue jeans, heavy jackets and boots they wear.

As long as "what?" and "why?" continue to face our scientists we will find field test men searching out the answers — answers which become more important every day.

Distant Effects of A-Bomb Blast Can Be Predicted E. F. Cox Tells in Article

In the April issue of Scientific American is an article by Everett F. Cox, 5110, entitled "A-Bomb Blast Damage in Nevada."

Dr. Cox writes that walls and ceilings of buildings may crack and windows may smash 100 miles away from the test of an atomic weapon, but with the accurate information provided by the microbarograph program (manned by Sandia Laboratory employees) far distant blast effects may be foretold.

His article, accompanied by illustrations, tells of the eccentricities of shock waves and the way the weather controls work on them. Only three fission detonations have caused indisputable damage to property in the Nevada Proving Grounds vicinity and no one has been hurt by the blasts either directly or indirectly.

The damage from the three shots came in February, 1951, during Operation Ranger and in November, 1951, in Operation Buster-Jangle. These damaging shock waves were brought to earth by certain conditions in air temperature and wind, the article relates. These conditions can now be quite accurately predicted, thanks to the ingenious microbarographs, writes Dr. Cox.

Dr. Cox reports in his article that blast damage claims paid in Nevada and Utah for 20 fission-weapon experiments have amounted to a little less than \$43,000.

Congratulations!

BORN TO:

Mr. and Mrs. E. M. Hodges, a daughter March 10—weight 6 pounds 8 ounces—name Barbara Sue.

Mr. and Mrs. N. L. Richardson, a daughter March 9—weight 9 pounds 13 1/4 ounces—name Linda.

Mr. and Mrs. William Kimball, 2541, a daughter March 7—weight 5 pounds 12 ounces—name Diane Marie.

Mr. and Mrs. Seyfred Toledo, 2234, a son March 17—weight 7 pounds 2 ounces.

Mr. and Mrs. Vivian Montoya, 2452, a son March 16—weight 6 pounds 3 ounces—name Vivian Montoya, Jr.

Promotions

BETTY C. CORDOVA to section supervisor of 4222-6. Betty joined the Laboratory in 1948 after a year as secretary with Ward Hicks Advertising Co. in Albuquerque. Before that she was group leader of the stenographic pool at Lockheed Aircraft Corp., Burbank, Calif., for three years.

Betty attended a business college in Albuquerque for a year prior to her employment at Lockheed.

WILLIAM E. BOSTWICK to division supervisor of 1652. Bill came to the Laboratory in 1948 following 23 years with the Pennsylvania Railroad Co. He worked for Wisconsin Public Service Corp. for two years as an electrical engineer before joining the railroad.

While with Pennsylvania Railroad Co. he was an electrical engineer testing equipment purchased by the company. His work involved testing operations at 164 manufacturers plants. Bill is a veteran of three years service in the Navy. He is a graduate of Milwaukee School of Engineering with a B.S. degree in electrical engineering.

Lee Deeter First In Toastmasters Speech Contest

Competing against the four top speakers in the Albuquerque area, Lee Deeter, 5430, was voted the winner of the Toastmasters Area Speech Contest recently.

More than 165 people attended the contest in the Coronado Club where winning speakers from five Toastmasters Clubs, including the host Sandia group, vied for the area championship.

Lee, who won his club contest a few weeks ago, was winner at the Area contest with his speech "Speed Up—You're Next," a unique approach to the automobile accident danger.

He will compete again when the District Speech Contest is held at the Hilton Hotel in Albuquerque on May 2. Here he will face two other area champions from the New Mexico and El Paso Areas.

The District contest winner will then travel to Oklahoma City in June for the Zone Speech Contest and that in turn leads to the final International Speech Contest at Denver in September.

Area Governor Virg Harris, 5251, acted as toastmaster for the evening while host club president Max Weber, 5132, presided. Entertainment for the event was provided by J. J. Michnovicz, 2462, who performed on the accordion.

Other Sandians taking part in the contest were Eugene Gardner, 1631, and Bill Bramlett, 2451, who were judges, and Earl Craven, 2443, and Carl Carlberg, 2312, acting as timers.

New Employees

A welcome is extended to the following newcomers who joined Sandia Corporation between March 5th and March 18th:

Donald D. Morison	1242
William J. Schultheis	1312
Louis K. Stam, Jr.	1312
Richard E. Brian	1311
Kenney E. Loughlin	1311
John P. Briggs	1321
Herbert A. Peterson	1554
Richard A. McLeod	1613
E. Anthony Ryan	1613
Ben Carroll	1521
Alfred H. Colbert	1641
Burton K. Ferris	1641
Gene A. Daniels	1643
Dolores E. Osbourne	1921
Merlin M. Garner	1924
James L. Talley	1932
Pete C. Morris	2122
John A. Price	2122
Arthur S. Kraft	2126
Janet R. Otte	2221
Katherine A. Driggers	2224
Verna A. Clark	2231
Barbara J. Gillis	2334
Johnston B. Jordan	2334
Ethel D. Morris	2352
Edward E. Chavez	2452
Samy Rodocovich	2452
Sara K. Baumgartner	2461
Robert A. Kesterson	2461
Miriam C. Vail	2461
Basil K. Laskar	2462
Lewis R. Moseley	2462
Vincent J. Newman	2462
Dorothy J. Sherrill	2471
Anthony N. Chavez	2472
Harold F. Maciolek	2532
Raymond P. Lewis, Jr.	2545
James B. Miles	3171
Robert J. Watterson	4133
Dorothy S. Carmichael	4222
S. Mildred Caywood	4222
Margaret T. Chavez	4222
Betty J. Cohen	4222
Caira M. Cook	4222
Frances C. Meek	4222
Helen A. Neubauer	4222
Elmer G. Borbely	4233
Mary H. Talbot	4233
Ira F. Grissom	5242
Oliver C. Brygley	5431
Norman W. Berg	5432
Gene C. Newlin	6010

Sandaliers Will Present Programs To Several Groups

The Sandialiers, men's chorus, will entertain April 6 at the Veterans Hospital with Jacques Quinn featured in solo numbers. Jacques will also join the Sandialiers when they entertain for members of the New Mexico Chiropractic Association April 11 at the Fez Club. Terry Riggan, director of the chorus, is lining up a varied program for presentation next month when the Sandialiers will highlight the Sunday Evening Musicales Series at the Coronado Club.



COVER ARTIST Darrell Burchfield, 2463, poses with his paintings which will appear in the April issue of New Mexico Sun Trails magazine. He is holding the cover picture. The original is on the right and a painting which will appear inside the magazine is on the left. The painting on the left shows Albuquerque's Old Town Square. The cover painting was done with a number of photographs of the airport and an Indian family as the basis.

New Ideas on Coronado Club April Program

The April Coronado Club calendar is designed to appeal to all tastes. The new entertainment chairman, Ed Janssen, 1284, has come up with some ideas guaranteed to please. For instance there's the Amateur Photog's Frolic on the 27th which will feature some novel entertainment for shutterbugs.

Another of Ed's ideas is a Dixieland Jazz Record Concert to be held on the 13th. Here fans will listen to rarities from the \$2,000 collection of Guy Woodruff, 1222. Many of these old-time masterpieces can't be found anywhere except in collections like Guy's. Oh yes, there's free beer and pretzels, too.

Sunday Musicales

The Sunday Evening Musicales attraction in April will be a concert by the Sandialiers, the men's glee club. These highly trained singers under the direction of Terry Riggan are sure to present a stirring performance. It's on the 26th. Don't miss it.

Tomorrow night Don Lesman and his orchestra will play at an informal dance from 9 to 1 and on April 11 the Lesman aggregation will return to perform at another dance.

Buffet-Dance

The Kirtland Air Force 17-piece dance band is scheduled at the Club on the 25th for the month's second orchestra informal dance.

In addition a Square Dance is slated for the 17th, the buffet-dance with Charlie Beisel on the 19th, and juke box dances are planned for the 4th and 18th, making a total of six free dances for the month, four of them with live orchestras.

Bingo is on the first, 15th and 29th. Duplicate bridge every Thursday of the month and Arthur Murray dance instruction on the 7th and 21st.

Corporation Will Sell Typewriters By Sealed Bid

Sandia Corporation is offering for sale, on sealed bids, 10 used typewriters.

Employees may see the typewriters and obtain bid forms between 12 noon and 1 p.m. week days at the Salvage Yard southeast of the Tech Area. Bids must be received by the Reclamation Department prior to 2 p.m. April 6.

More Stories for Children Saturday

Mrs. Philip D. Wesson will present another in a series of story hours for children tomorrow at 10 a.m. in the Sandia Base Library. She has chosen these tales for presentation: "The Tiger, The Brahmin and The Jackal," "Bunny the Brave" and "The Stolen Turnips." The library will be open at 9:30 a.m. to admit youngsters.

Weekly Lectures By J. R. Wilson Being Scheduled

Weekly 2-hour evening lectures on "Wiener's Theory of Stationary Time Series" are being presented by James R. Wilson, 5131, in Room B-1, Building 802, to members of 5130. Others who are interested in attending the lectures may contact Jim for information on future dates and hours as the days will vary from week to week.

Norbert Wiener is a professor at Massachusetts Institute of Technology and author of a book, "Extrapolation, Interpolation and Smoothing of Stationary Time Series," on which Jim's lectures are based. The book states results and Jim's lectures enlarge upon these results with material from his own research. The lectures have particular appeal to persons working in communications.

Engagements

Announcement was made recently by Mr. and Mrs. J. R. Ruark of Del Norte, Colo., of the engagement of their daughter, Betty, to James M. Ortega of Albuquerque. Betty, 1521-4, joined the Corporation in September, 1950, after completing two years at Adams State Teachers College in Alamosa, Colo. Her fiance is now studying at the University of New Mexico and will graduate next January. A date has not yet been set for the wedding.

Mr. and Mrs. Walter A. MacNair announced the engagement and approaching marriage of their daughter, Carrie-Mae, to Robert J. Blount, 1925, son of Mr. and Mrs. C. L. Blount of Artesia, N.M. Miss MacNair was graduated in 1950 from Goucher College, Baltimore, with a B.A. degree in economics. She has been employed in Newark, N.J., where she directed training for Hahne's Department Store; currently she is visiting her parents while on leave of absence. Bob has been with Sandia Corporation since his graduation from the University of New Mexico. He holds a degree in business administration and was a member of Alpha Kappa Psi, Phi Sigma Iota, Phi Kappa Phi and Beta Alpha, professional and honorary fraternities. Mr. MacNair is Vice-President Research for Sandia Corporation.

Dave Middelton Helps Search for Young Radio Ham

A. David Middelton, 5415, as regional director of the American Radio Relay League, is assisting in a search to find the most outstanding young radio amateur in the Southwest.

The radio hams are searching for an operator under 21 years of age who will be named "1953 junior amateur of the West Gulf Division" and will receive an expense-paid trip to the league's national convention in Houston, Tex., in July.

Dave reports that civic groups, as well as individual amateurs, from Texas, Oklahoma and New Mexico have been asked to submit names.

Safety Award of Honor Again Earned



NATIONAL SAFETY COUNCIL
425 NORTH MICHIGAN AVENUE
CHICAGO 11, ILLINOIS

March 5, 1953

Mr. Donald A. Quarles
President
Sandia Corporation
Sandia Base
Albuquerque, New Mexico

Dear Mr. Quarles:

One year ago it was my pleasure to write you that Sandia Corporation was one of the first organizations to qualify for the National Safety Council's Award of Honor -- the Council's top award for industrial safety achievement.

I am indeed happy to inform you that the outstanding safety performance of your people during the year 1952 has met the high requirements and qualified Sandia Corporation for its second consecutive Award of Honor.

Such a record is striking evidence of the determination of management and employees to make their plant a safe place in which to work. Only that determination and the unceasing hard work of the follow-through can bring such results -- an accomplishment of which you have every reason to be proud.

On behalf of the National Safety Council, its directors and its staff, I extend to you and to all of your people our heartiest congratulations for a job well done.

Sincerely yours,

Ned H. Dearborn
Ned H. Dearborn
President



NATIONAL SAFETY COUNCIL
425 NORTH MICHIGAN AVENUE
CHICAGO 11, ILLINOIS

March 6, 1953

Mr. Donald A. Quarles
President
Sandia Corporation
Sandia Base
Albuquerque, N.M.

Dear Mr. Quarles:

President Dearborn has kindly shown me the copy of his March 5 letter to you advising that Sandia Corporation has again qualified for the National Safety Council's top Award of Honor for your outstanding safety performance during 1952.

You may recall my brief call at your office during my visit to Sandia, as Consultant to the Atomic Energy Commission, several months ago. At that time I was greatly impressed not only by your excellent record but by the general conditions prevailing throughout the plant. Clearly, it is one of the very best among all the many diverse AEC operations.

It is therefore doubly gratifying to me to know that you are again receiving this recognition. My personal congratulations to you, to Burton Metzger and to all your associates who have cooperated to make this fine showing.

Sincerely yours,

Sidney J. Williams
Sidney J. Williams
Assistant to the President

SJW:GP

CONGRATULATIONS are extended in the above letters to Sandia Corporation for its 1952 safety record. Labeled as "one of the very best among . . . AEC operations" the achievement is a commendation to all employees who helped reach the mark.



THE PANEL leads discussion on "Non-destructive Testing—Its Advantages and Techniques" at a recent Coronado Club dinner meeting of the Society for Non-destructive Testing. L to R: Dr. Gerald Tenney of Los Alamos, John R. Townsend 1600, Moderator Douglas Ballard 1513-6, Arvin F. Cone 1510 and James W. Dutli of Los Alamos. Many Sandia engineers attended the panel discussion.

Francis Scott to Enter GPA Liars 1953 Competition

The search for the state's most fluent liar continues this year at the annual banquet and liars contest of the New Mexico Game Protective Association which will be at the El Fidel Hotel March 27.

Serving as master of ceremonies will be Dr. Frank C. Hibbin of the University of New Mexico. Dinner will be served at 6:30 p.m.

Winner of the prevarication competition last year was Francis Scott, 2412, the second win for the Sandian. Winning this year will give him permanent possession of the trophy.

The GPA is a group of sportsmen dedicated to the maintenance of adequate levels of game, fish and wild fowl resources in the state.



SERVICE award pin is awarded to Fred Deiber by Jerry Durrie at ASTE meeting.

Dr. Hickman, Sandia Consultant and Noted Scientist, Retires End of March

Dr. C. N. Hickman, who has been a consultant here since 1950, will be returning to retirement the end of this month. Dr. Hickman retired from the Bell Telephone Laboratories in 1950. He will go back to his home at Jackson Heights, N.Y., to indulge in



Dr. C. N. Hickman

his hobbies of archery, magic, fishing, photography and archeology.

"I'll have enough to do until I'm 150," he says.

Dr. Hickman has been guest of honor at a number of events here since his retirement was announced. A banquet was held in his honor at the Coronado Club recently and the New Mexico Field Archers Association conducted a "Hickman Day" archery tournament for him. Tonight the Albuquerque Magicians Club will hold a party in his honor at the home of Al Spengeman, 4150.

Rocket Work

During World War II Dr. Hickman was loaned by Bell Telephone Laboratories to the National Defense Research Committee to develop rockets for war purposes.

He worked at the rocket research laboratory at Indian Head, Md., and later at the Alleghany Ballistics Laboratory, Cumberland, Md. From 1942 to 1945 he served as consultant to the Army in their research on rockets at the Aberdeen Proving Ground.

He also did special technical work on evaluation of the German long range rocket development as reported by intelligence agents.

In the summer of 1944 Dr. Hickman was sent to France on a confidential mission by the U. S. Army. He was given the temporary rank of colonel for this trip.

Helped Design Bazooka

In addition to the administrative work connected with the U. S. rocket developments, Dr. Hickman was responsible for the technical design of many rockets, including the Bazooka Target Rocket and airplane rockets.

He was also responsible for the design of recoilless guns and launchers for certain bombs. It was necessary for him to develop measuring techniques for the study of the internal and external ballistics of rockets and in connection with this he developed the ribbon frame camera which was of inestimable value in the study of rockets.

Dr. Hickman's rocket experience goes back to 1918 when he worked with Dr. H. H. Goddard on the development of rockets for World War I. He demonstrated rockets at the Aberdeen Proving Ground in November, 1918.

Received Ph.D. Degree

In 1919 he worked in the Inductance and Capacitance Laboratory at the National Bureau of Standards, Washington, D.C., and also worked on ballistics problems for the U. S. Navy.

On a scholarship he studied mathematics and physics at Clark University and was director in an Industrial Research Laboratory there. He received his Ph.D. degree from Clark University in 1922. He'd received his M. A. degree from Clark University in 1918 and his A. B. degree from Winona College in 1914.

In 1922 Dr. Hickman took a position with the Naval Ordnance Laboratory working on development of submarine mines. Two years later he moved to the research laboratory of the American Piano Co. and in 1930 he joined the technical staff of the Bell Telephone Laboratories.

He was assigned by the Laboratories in 1935 to be in charge of vibration measurement on the S. S. Normandie for the French Government.

Many Honors

Dr. Hickman's honors include the Certificate of Appreciation from the War Department for outstanding services rendered to the Rocket Development Program of the Ordnance Department; honorary degree of Doctor of Science from Clark University; Presidential Award of the Medal of Merit for rocket development services; honorary member of the Life Member Club, Telephone Pioneers of America; and the Maurice Thompson Medal of Honor, National Archery Association.

In the archery field his work led to increasing the efficiency of bows from 60 to 90 per cent.

Holds 125 Patents

Dr. Hickman belongs to the American Physical Society; Acoustical Society of America; Society of Motion Picture Engineers, Institute of Radio Engineers, National Geographic Society, and the Society of American Magicians.

He has a total of 125 patents for rockets, telephone applications, archery, pianos and reproducing pianos, and submarine mines.

Mr. and Mrs. Hickman have a daughter, Mary Lee Kettler, and a 6-year-old grandson.

Fred Deiber Awarded Pin for Service to ASTE Chapter Here

The Service Award pin of the American Society of Tool Engineers was awarded to Fred Deiber, 1954, recently in recognition of his "outstanding service to the Chapter during the past year." Outgoing chairman Jerome Durrie, 1951, presented the award.

Fred was also installed as the Society's 2nd Vice-Chairman at the meeting.

A discussion of low melting point alloys will be given by O. J. Seeds of the Cerro de Pasco Copper Corp. when the group meets Tuesday, April 14, at the Fez Club in town.

Dinner will be served at 7 p.m. and the meeting will start at 8 p.m. Reservations are available from Red Hanen, 2536, at ext. 26141.

P. G. Fredrickson Heads Dept. 2550

Paul G. Fredrickson, formerly with Western Electric Company's Hawthorne Plant in Chicago, has been appointed Department Manager of 2550 at Sandia Corporation.

Starting with Western Electric in 1918 as a draftsman, Mr. Fredrickson entered manufacturing engineering in 1924 and worked on sound picture transmission apparatus and plant apparatus. In 1930 he became department chief.

Subsequent work done by Mr. Fredrickson was with miscellaneous central office apparatus and meters and test sets, "U" and "Y" type relays and wire spring relays.

Mr. Fredrickson and his wife Seena have three sons. Paul, who saw service in Korea, is now a medical officer in Manila. Richard, who worked for Sandia Corporation briefly, is now in the Army, and Robert is a student at the University of New Mexico.

Sympathy

Our sympathy is extended to the family of Oscar Muench, 1524, who died March 11 in Albuquerque. He is survived by his wife of 317 Amherst Drive NE, and two sons, one of whom is Joseph Muench, 1263. Immediately prior to his employment with the Corporation, Mr. Muench had been head of the Chemistry Department at Highlands University, Las Vegas, N.M. Death followed an illness of several weeks.

His fellow workers extend their sympathy to William McClurkin, 2141, whose mother died recently after a lengthy illness.

Sympathy is extended to Bob Kindley, 1284, whose father-in-law died March 10 in Fort Jennings, Ohio.

Our sympathy is extended to Vincent A. O'Hern, 2452, whose mother died last week in Oklahoma.

