

MODEL ROCKET underwent stability tests at Mach 7.5 in Sandia's new hypersonic wind tunnel last month marking the beginning of regular testing in the new facility. Cecil Tolbert adjusts balance mount.

Mach 7.5 Wind Tunnel Test Climaxes Year of Preparation

Sandia Laboratory's hypersonic wind tunnel is now in operation. The first stability test of a model rocket at Mach 7.5 was successfully completed last month.

The test was a climax of nearly a year of checking the operation of tunnel components and calibration of the "nozzle" test section of the tunnel. The test was completely successful, according to Kenneth L. Goin, supervisor of Hypersonic Wind Tunnel Section 7132-3.

For the test of the model rocket, the hypersonic tunnel worked this way:

Air was pumped out of the three 10,000-cu.-ft. tanks on the south side of Bldg. 865. Compressors at the north end of the building compressed to 300 psi some 5200 cu. ft. of air in two other tanks.

Inside the building, a gas heater—8 ft. in diameter and 16 ft. tall—heated aluminum oxide "pebbles" to 1600°F.

To start the test, a valve opens between the compressed air and the empty tanks.

The air passes through the heater and flows through a 16-in. diameter tube to the nozzle section.

The nozzle is shaped to bring the air stream through a 1 5/16-in. diameter opening to a precisely shaped flare section. This sudden expansion of the air stream creates the Mach 7.5 air flow.

The test lasts one minute.

As the air stream empties into the vacuum tanks, it passes through a mass of tin cans which absorb heat quickly.

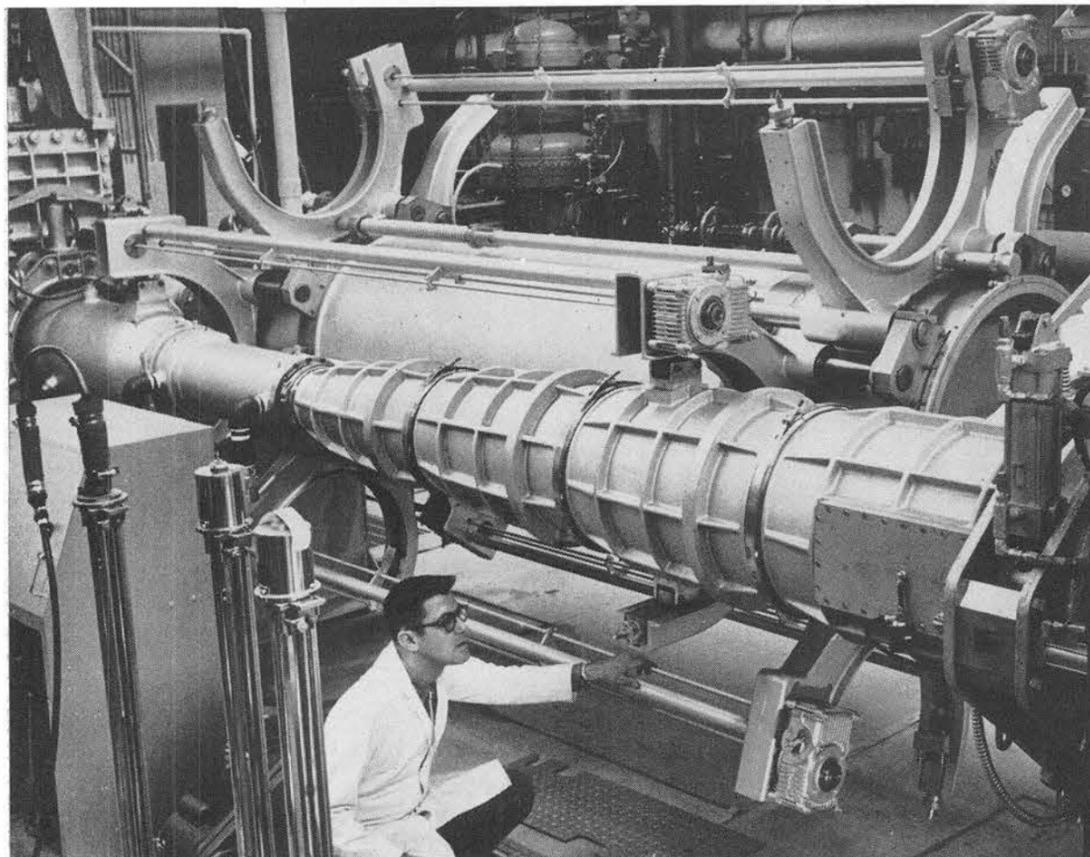
Inside the 30-in.-long test section of the tunnel the model rocket is subjected to all the loads of actual flight. Its delicate balance mount consists of strain gage sensing elements on a steel rod. These and other instrumentation give test engineers flight characteristics of the aerodynamic design.

The 7.5 nozzle is the only one operational at the present time. A Mach 5 nozzle for the test tunnel is being built in the Development Shops now. Aero Design Division 7133 has a Mach 11 nozzle in the final stages of design and two more stages—Mach 4 and Mach 9—are planned. These will be mounted on a revolving section of the tunnel.

This unique mounting system will allow for quick Mach number changes of the tunnel for different tests.

"This interchangeability feature and quick locking clamps permit operation of the tunnel with only three men," Mr. Goin says. "This is unusual in a facility this large and complex.

"We are now ready to use the hypersonic tunnel for regular testing," Mr. Goin says. "After additional tests with the rocket we now have, we will start another series on a different design in November."



REVOLVING TEST SECTIONS are a unique design feature of the new hypersonic wind tunnel. The Mach 7.5 nozzle is in place. E. N. Villella indicates where a second nozzle fits. Mach 4, 5, 9, and 11 are also planned.

'62 ECP Drive Totals \$173,883; Campaign is 95% Complete

Total Sandia Laboratory contributions during the 1962 Employees' Contribution Plan drive have reached \$173,883 with 95 per cent of the campaign completed. ECP Committee members are urging employees to return any contribution cards they may have for tallying.

The Sandia Laboratory Federal Credit Union reports 100 per cent participation by payroll deduction in the drive, with the contribution from each employee greater than one hour's pay per month.

The 1962 total has already exceeded the \$157,584 contributed by employees last year. Last year's total was passed this year during the first week of tallying by volunteer workers at ECP headquarters.

Of approximately 1968 employees who were not previously giving by payroll deduction, 67 per cent of those reported have contributed. Of these, 24 per cent have joined ECP by payroll deduction with an average pledge of \$23.34. Another 13 per cent have joined ECP by cash contribution of \$12

or more, with an average contribution of \$29.32. An additional 30 per cent made contributions to specific agencies or to ECP in amounts less than \$12.

Employees who were already members by payroll deduction have responded with an increase in the average deduction from \$27.35 to \$30.39.

As a result of the drive, there are now 440 new payroll deductions for ECP and 1287 employees have increased their ECP deductions.

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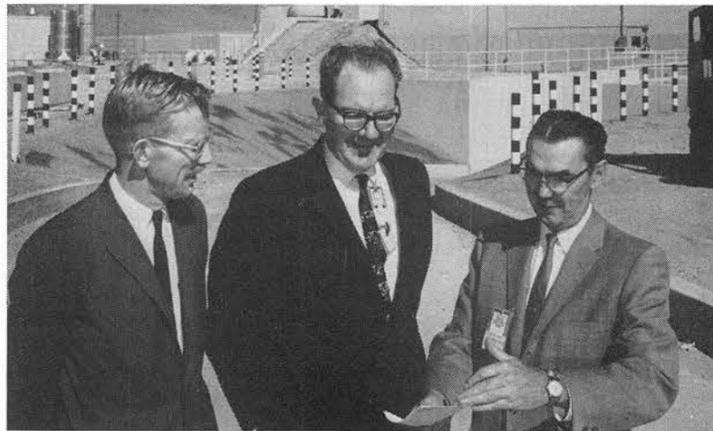
Advanced Technology Symposium To Be Held At UNM November 2-3

An Advanced Technology Symposium, co-sponsored by the University of New Mexico and the Air Force Special Weapons Center, will be presented by the New Mexico Society of Mechanical Engineers, Nov. 2 and 3. Meetings will be held at the UNM Student Union and at Sandia Laboratory.

The symposium will be comprised of seven sessions: four on Friday, Nov. 2, and three on Saturday, Nov. 3. A tour of Sandia's reactor facilities, and numerically controlled machinery at ACF will be made by symposium members during Session VII, Saturday afternoon.

E. H. Draper, Vice President, Development, Sandia Corporation and Vice President, Region VIII, ASME, will be chairman of Session I on Friday. Chairman of Session V on Saturday will be G. C. Dacey, Sandia Corporation's Vice President, Research. Sandia's Director of Radiation Physics 5300, J. W. Easley, will be chairman of Session VII.

Western Electric Company's Director of Systems Development,



DISCUSSING program for forthcoming ASME Symposium on Advanced Technology, Nov. 2 and 3, are (l to r) J. W. Easley, Director of Radiation Physics 5300; G. C. Dacey, Vice President, Research; and C. E. Runyan, Manager of Specialties Department 4220. Program will include a tour of Sandia Lab's reactor facilities during afternoon session, Nov. 3.

John M. Brown, will discuss "Management of Advanced Technology" at Session I, Friday. "The Optical Maser" will be discussed by C. G. B. Garrett of Bell Telephone Laboratory's Solid State Research Laboratory, Murray Hill, N. J., at Session V, Saturday morning.

"Radiation Effects on Non-Metallic Materials" will be the topic of a lecture by G. W. Arnold, Radiation Physics Division 5311,

during Session VI, Saturday morning.

Members of the symposium committee from Sandia Lab include J. D. Cyrus (1332), general chairman; C. E. Runyan (4220), program chairman; W. A. Sebrell (7182), publicity chairman; J. A. Engelland (7184), publicity co-chairman; James Jacobs (7112), finance chairman; and H. W. Schmitt (1432), finance co-chairman.

Non-Credit Review Being Offered Engineers Preparing for Examination

Persons interested in taking the Engineer-In-Training examination, a prerequisite to the New Mexico Professional Engineers examination, are being offered a non-credit review of mathematics and the fundamentals of engineering.

The review is sponsored by the Albuquerque Chapter, New Mexico Society of Professional Engineers, in cooperation with the University of New Mexico.

The 32 class meetings will be Monday and Wednesday evenings from 7-9 p.m., beginning Nov. 3, in room 103 of the UNM Civil Engineering Building. Registration will be held immediately prior to the first meeting. The class is limited to 35 persons.

The review will include engineering physics, statics, strength of materials, dynamics, thermodynamics, fluid mechanics, engineering economics, electricity, and

chemistry. Instruction will be given by UNM Professors of Engineering and by Professional Engineers from private industry.

For registration forms or further information call M. H. McMichael, Assistant Director, Division of Extension, UNM, tel. 247-0391, ext. 208.

Noble Johnson Helps Present AMA Seminar

Noble Johnson (3122) will be co-chairman of an American Management Association workshop seminar on "Modernizing the Pension Plan" to be held Nov. 14-16 in Los Angeles.

The seminars are limited to 15 executives plus leaders. The other chairman will be W. T. Ryan, Manager, Compensation and Benefits, Kaiser Services, Oakland, Calif.

Editorial Comment

The UN—Its Purposes

October 24, 1945, saw the ratification of the United Nations Charter by China, France, the U.S.S.R., the United Kingdom, and the United States, and also by a majority of the other 46 nations participating. On that day the United Nations came into existence.

The "United Nations" was a name devised by the late President Franklin D. Roosevelt. It was first used in the Declaration by United Nations of Jan. 1, 1942, when representatives of 26 nations pledged their Governments to continue fighting together against the Axis.

The Charter was drawn up by the representatives of 51 countries at the United Nations Conference on International Organization, which met in San Francisco from April 25 to June 26, 1945. The representatives worked on the basis of proposals worked out by representatives of China, the U.S.S.R., the United Kingdom, and the United States at Dumbarton Oaks during the months of August, September, and October of 1944.

The determination of these founders is expressed in the preamble they composed. The words reflect the intense desire for peace the world felt at the close of six years of war. They still reflect the goal of the United Nations—Peace.

* * *

"We the peoples of the United Nations determined

TO SAVE succeeding generations from the scourge of war, which twice in our lifetime has brought untold sorrow to mankind, and TO REAFFIRM faith in fundamental human rights, in the dignity and worth of the human person, in the equal rights of men and women and of nations large and small, and

TO ESTABLISH conditions under which justice and respect for the obligations arising from treaties and other sources of international law can be maintained, and TO PROMOTE social progress and better standards of life in larger freedom,

And for these ends

TO PRACTICE tolerance and live together in peace with one another as good neighbors, and TO UNITE our strength to maintain international peace and security, and TO ENSURE, by the acceptance of principles and the institution of methods, that armed force shall not be used, save in the common interest, and TO EMPLOY international machinery for the promotion of the economic and social advancement of all peoples,

Have resolved to combine our efforts to accomplish these aims.

Accordingly, our respective Governments, through representatives assembled in the city of San Francisco, who have exhibited their full powers found to be in good and due form, have agreed to the present Charter of the United Nations and do hereby establish an international organization to be known as the United Nations."

Don't Give A Lift

Kindly motorists frequently are victims of robbery and violence, or worse. An automobile club recently issued the following words of warning to motorists who are tempted to pick up strangers.

"Hitchhiking is inherently dangerous to both the hiker himself and the motorist. The hiker is in constant danger of being run down along the highway, and the motorist can be in danger of losing his life to a bandit posing as a tired hitchhiker.

"The bars against hitchhiking have been let down by many motorists to give rides to young men in uniform and to college students going home for vacations. The motive is commendable, of course, but this unselfish act can and, all too often, has been turned against the Good Samaritan with horrifying results. It is an unfortunate truism that although the vast majority of hitchhikers along the road are honest and deserving of a 'lift,' there are many who thumb rides with the intent to rob their benefactors.

"Recent news stories of such outrages serve again to point up frequent warnings by police and safety officials against picking up anyone along the highway. This is especially true at night, of course, when it is even advisable to lock the car doors from the inside to prevent thugs or other criminals from climbing into the vehicle when it has been stopped for a traffic light.

"The best and safest rule to follow is to give a 'lift' only to persons you know and recognize during daytime driving, and never, under any circumstances, pick up a rider after dark on a deserted road."

Congratulations

Born to:

Mr. and Mrs. J. J. Michnovicz (3465) a son, Mathew, on Oct. 9. Mr. and Mrs. Roque Feliciano (4632-2) a son, Dale Alan, on Oct. 13.

Mr. and Mrs. Alan L. Winkeljohn (7118-2) a son, Michael Anthony, on Oct. 13.

Mr. and Mrs. D. S. Pitts (2543) a son, Michael Stewart, on Oct. 11. Mr. and Mrs. Leonard Flesner (7532-2) a son, Raymond, on Oct. 12.

Sympathy

To Clifford L. Shaw (4251-1) for the death of his father in Kansas, Oct. 9.

Sabino Luna Died At Home Oct. 13

Sabino Luna, a retired Corporation employee, died suddenly at his home Oct. 13. He was 73.



Mr. Luna had been at Sandia Laboratory five years at the time of his retirement, Sept. 30, 1957.

Survivors include his widow, three sons residing in California, two step-sons, 30 grandchildren, and 15 great-grandchildren.

Burial was at Mount Calvary cemetery.



YEARBOOKS for special Washington, D. C., school for Congressional Pages help David Salas, Jr. (7242-3) recall days in the U. S. Senate.

Dave Salas' Career As Senate Page Gave Him Early Political Experience

When it comes to politics, Dave Salas learned about it when he was in knee breeches. The knickers were required garb for Pages in the U. S. Senate.

David E. Salas, Jr. is an operator for the Control Data Corporation 1604 computer. He has been with Sandia Corporation six years, assigned for the past two years to Scientific Computer Section 7242-3.

Back in 1944, when Dave was 14, math was just another subject in school. It was summer, and for some time he had been looking forward to attending St. Mary's school. One day his father asked, "How would you like to go to Washington?" Dave thought he meant Washington Junior High School in Albuquerque. The father and son argued for some time. Then came the light! As Dave recalls, "I was very embarrassed when I found Dad was talking about Washington, D.C." David Salas, Sr., has been a close associate of Senator Dennis Chavez for many years. The latter had appointed Dave to be a Page in the Senate.

But there were still more unusual events to come. Several days before Dave was slated to arrive in Washington, several boys had ransacked the Chavez capitol home. One boy later repented the deed and said, by telephone, that he would appear in person before the Senator from New Mexico.

Dave arrived in Washington, D.C., four hours ahead of schedule. There was no one at the depot to meet him, so he left his luggage at the station and took a taxi to the Senator's home. An aide, who answered the door, said, "Are you one of the fellows?" Dave thought perhaps other Pages were expected and answered, "Yes."

Eighteen years later Dave recalls, "I was taken into the library and questioned: 'What did you do with the loot? Why did you break in?' Finally Mrs. Chavez came into the room and recognized me."

Dave lived in a dormitory with the other Pages: about 20 assigned to the Senate, seven assigned to the U. S. Supreme Court, and anywhere from 30 to 50 working in the House of Representatives. Their day began with

classes from 6 to 10 a.m. in the Capitol Pages' School. Sometimes there would be classes after the houses adjourned, and always there was homework. At least a "B" average had to be maintained.

The Pages were paid \$150 a month, from which they purchased their own clothes, paid \$15 for schooling, and \$50 for board and room. "It was traditional that the boys tried to live within this income without sending home for money," Dave said. "I hope this tradition remains."

During the first six months Dave was "assigned" to Sen. Robert A. Taft of Ohio. His job included running errands and bringing the Senator documents and bills pertaining to matters being discussed currently on the floor. He was later transferred to the Senate Document Room, where the Pages are responsible for filing all bills and resolutions introduced in the Senate.

Dave attended two of the traditional White House dinners for Pages; one was hosted by President Roosevelt, the other by President Truman. "I sat right next to President Truman," Dave said. "He asked the Pages if any were left-handed. I was apparently the only one. The President said he also was left-handed and wanted me to sit beside him so he wouldn't jostle elbows with the person on his left."

When he reached the age limit for Pages, Dave returned to Albuquerque where he graduated from St. Mary's, attended the University of New Mexico, and served three and a half years in the Marine Corps, including 14 months with the First Marine Division in Korea.

Some of the early political training "rubbed off." Dave is Democratic vice chairman of Precinct 43, which is one of the largest in the state, and for the past year has been active in the Committee on Political Education, a bi-partisan AFL-CIO group.

Service Awards

15 Year Pins



Edward A. Salazar 1112 Nov. 3, 1947

Charles L. Becker 4224 Nov. 4, 1947



Walter R. Drake 7254 Nov. 7, 1947

Luciano Gurule 3462 Nov. 4, 1947

10 Year Pins

Nov. 1-10

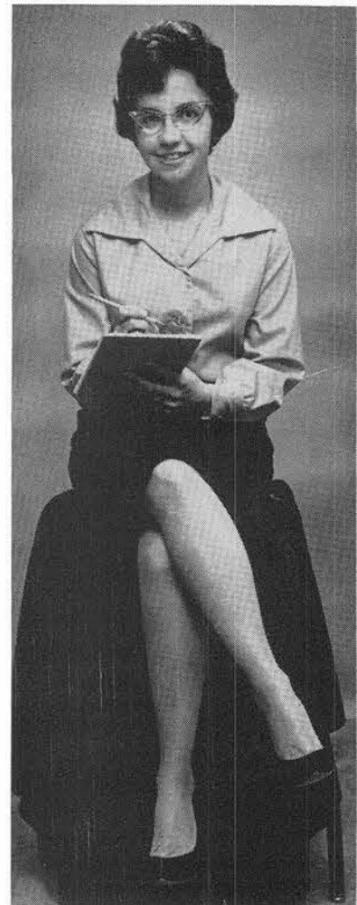
Nena Brannon 2321, John H. Brengle 8151, Everett M. Gieseke 2631, Robert M. Lacey 1113, Clarence S. Lane 2341, Lillian M. Lis-kovec 3'26, Deluvina S. Montoya 3421, Ted B. Baldonado 3444, Darrel R. Brown 3121, Robert J. Kindley 7184, Willella Golden 7532, Emily Makal 4131, and H. T. Schneemann 7212.

For Men Only

The Albuquerque Civic Chorus is in need of men who like to sing, especially tenors, according to a recent announcement by Mrs. R. W. Crain (her husband is supervisor of Section 1423-1).

The Chorus meets on Tuesday evenings, 7:30 to 8:45 p.m., at Albuquerque High School. They've made plans for some Christmas caroling in several Albuquerque residential areas this season.

If you're interested, and would like further information, call AL 6-3751.



Joanne Branyan (5331)

Take a Memo, Please

One of the penalties of forgetfulness can be an accident not easily forgotten.



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WE Director Systems Development To Speak at Technology Symposium

Western Electric Company's Director of Systems Development in the Engineering Division, Dr. John M. Brown, will speak on "Management of Advanced Technology" during the first session of the Advanced Technology Symposium at the University of New Mexico, Nov. 2 and 3.

Included in Dr. Brown's talk will be comments on the theme and purpose of the symposium: the importance of technical people properly evaluating the speed with which technology is advancing, and availing themselves of adequate means to keep abreast in their chosen technical fields.

During his visit to Albuquerque, Dr. Brown will visit Sandia Laboratory for orientation in the Laboratory's operation.

He began his career with Western Electric Company in 1946 as an assistant engineer at the Kearny, N. J., Works. In 1957, he was assigned as a superintendent to WE's Princeton Engineering Research Center. In June 1961, he was appointed director of research consultation, and later that year, assumed his present position.

Dr. Brown received a Bachelor of Science degree in electrical engineering from Purdue University in 1946. He received a Master of Science degree in engineering from



Dr. John M. Brown

Stevens Institute of Technology in 1950, and a doctorate from New York University in 1955.

He is a member of the Institute of Radio Engineers, the American Statistical Association, the Institute of Management Sciences, and the American Society of Mechanical Engineers, for which he has served on several national committees.

Solid State Sciences Advisory Panel To Convene at Sandia Lab. Oct. 31

The Solid State Sciences Advisory Panel, which is comprised of leading scientists in the field, will meet at Sandia Laboratory, Wednesday, Oct. 31. The group will visit Los Alamos Scientific Laboratory on Nov. 1.

The panel meets twice a year to review the progress in solid state sciences at two laboratories. This is the first time it has visited Sandia and Los Alamos. Richard S. Claassen, Director of Physical Research, issued the invitation to the Panel Chairman, Harvey Brooks, Dean, Division of Engineering and Applied Physics, Harvard University.

Panel members include professors from 14 universities, and representatives from industry, national laboratories, and government agencies.

While here, they will hear presentations of work at Sandia Corporation in solid state sciences and will receive a brief look at laboratory facilities in Bldg. 805, 806, and 808. The technical sessions will be held in the confer-

ence room of Bldg. 806.

Sandia's giving technical talks at the session are: F. W. Neilson (5130), "Dynamic Pressures in Quartz"; O. E. Jones (5133), "Stress Relaxation"; C. D. Lundergan (1113), "Negative Equation of State"; G. A. Samara (5132), "Effect of Static Pressure on Ferroelectricity"; G. H. Haertling (5132), "Hot Pressing Electrical Ceramics"; R. H. Dungan (1124), "Properties of Ceramic Solid Solutions Based Upon the Antiferroelectrics $PbZrO_3$, $PbHfO_3$, and NbO_3 "; F. M. Smits (5310), "Radiation Effects"; F. L. Vook (5311), "Lattice Strain of Isolated Defects in Elemental Compound Semiconductors"; H. L. Davis (5152), "Spin Wave Interaction in Antiferromagnetic Spin Systems"; D. C. Wallace (5152), "Anharmonic Lattice Dynamics"; R. C. Heckman (1124), "The Cerium Hexagon System"; A. Narath (5151), "Nuclear Resonance in Magnetic Crystals"; and D. H. Anderson (5132), "Magnetic Properties of $\alpha\text{-Fe}_2\text{O}_3$."



VISITING SANDIA LABORATORY last week for a briefing of company activities was Gen. Bernard A. Schriever, Commander, Air Force Systems Command. He is shown third from left above. From left are Gen. H. C. Donnelly, Commander, Field Command, Defense Atomic

Support Agency; G. C. Dacey, Vice President, Research 5000; Gen. Schriever; K. F. Herford, Manager, Albuquerque Operations Office, Atomic Energy Commission; E. H. Draper, Vice President, Development 1000; and Gen. John W. White, Commander, AFSWC.



J. P. MOLNAR, former Sandia Corporation President and now a member of the Sandia Board of Directors, returned to the Laboratory last week for technical brief-

ings. From left are E. H. Draper (1000), D. R. Cotter (9100), Mr. Molnar, and G. C. Dacey (5000). Mr. Molnar is Executive Vice President, Bell Telephone Laboratories.

Fire Prevention Week

Fire Fighting Information Passed On to Family Pays Off Handsomely

Two weeks ago, during a weekly safety meeting, T. A. Rosenwald of Sandia's Fire Inspection Section 4542-1, talked with a group of Sandia carpenters about fire prevention. That evening, R. G. Carlisle, a carpenter in Carpentry and Cabinet Section 4513-2, took the topic home and discussed it with his family at the dinner table.

They talked about numerous ways of preventing and fighting fire. It was an interesting topic, and the family finished their meal feeling that they had accomplished something really worthwhile by their discussion.

The following week, on Sunday, the Carlisle family went for a visit. Their 13-year-old son, Ricky, stayed home. Before leaving, Mr. Carlisle set the automatic timer on the gas oven in the kitchen. While the family was gone, the oven would cook Sunday dinner. The timer was set to go on shortly after the family left.

Something went wrong. The pilot light failed and when the gas came on the burner did not light. Ricky investigated and the gas exploded, knocking him backwards and giving him first-degree burns on his face and hands. It also fired lint underneath the oven and ignited a plywood panel on the wall behind it.

Mr. Carlisle returned home to find the fire chief's car parked in the drive. "I expected the worst," he commented. "But the chief told me that the boy's burns weren't taken, and that a neighbor had called him to the hospital. Then he told me that Ricky had fought

the fire until the fire engines had arrived."

Ricky's burns were treated and soon he was returned home. "We were very thankful he wasn't hurt more seriously, and of course, we're proud of his courage in fighting the fire," Mr. Carlisle said. "But we were amazed that the fire started in a way we least expected. Our dinner-table discussion didn't cover the possibility of a fire from a faulty appliance."

Fire department and gas company representatives checked the stove and found that the pilot may have been set too low, or could have become clogged with residue over the years. "They inspected all our appliances, and pointed out some things that are worth passing on," Mr. Carlisle said. "Pilot lights should burn about an inch high, so that they can't be blown out easily. Also, natural gas contains an odorant, added to the gas to make it more easily detectable. Whenever you smell that characteristic odor, check to see where it's coming from. Don't strike a match while the odor remains."

It's also a good idea to have vents to gas appliances checked yearly to see that they aren't clogged, prohibiting the free escape of poisonous carbon monoxide. And while you're at it, have a serviceman check over gas valves, lines, and connections for possible leaks. Winter's on the way, and you'll be using your gas appliances more frequently. The time for taking precautions is now, before dangerous situations develop without your being aware of them.

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



NEW STORAGE BUILDING at Livermore Laboratory nears completion as Ken Finders (8221-1) checks blue-prints. The 1290-sq.-ft. temperature-controlled building, built under a \$30,920

contract, is expected to be completed this month. It will be used by Environmental Health Section 8242-2 for storage of limited quantities of laboratory radioactive and toxic materials used in laboratory programs.

No needle here . . .

Second Sabin Oral Sunday Provides Vaccine for Different Polio Strain

Sunday, Oct. 28 and Nov. 4 will be Sabin Oral Sunday in 23 New Mexico counties for the second dose of the vaccine. This dose gives protection against a different strain of polio than was provided in the first dose.

Clinics will again be held in all sixteen Albuquerque junior high schools, Rio Grande High School and Valley High School, as well as A. Montoya School in Tijeras and Laguna Community Center in Laguna. Clinics will be open from 11:00 a.m. to 6:00 p.m.

All Sandia employees are urged to get the vaccine from the clinics on Sunday, Oct. 28 and Nov. 4. Sandians who received the vaccine during the week following Sept. 30 are reminded that they must wait until Nov. 4 to get their second dose.

After the first dose a special Sandia Laboratory clinic was held to bring employees into the program so that they might get all doses. There are no plans to have special clinics after the second dose.

County medical authorities cautioned today against public lethargy and complacency among those who have received only their first dose of Sabin Vaccine. Dr. William F. Blank, co-chairman of the County S.O.S. Steering Committee, explained that each dose of vaccine protects against a separate and distinct type of polio, each of which is equally serious.

Even those who have completed their first dose of the Salk injections should receive the Sabin oral

vaccine, taken by mouth in the form of three drops on a lump of sugar. The Sabin vaccine eliminates "carrier condition" whereby the polio virus can be passed on to someone else. The vaccine does not require boosters.

"More than 66 per cent of the population in the 23 counties giving the first dose participated in the initial phase of the program," Dr. H. B. Woodward, chairman of the public health committee of the New Mexico Medical Society, commented recently.

"We're depending on them to follow through with the second dose, and to bring their friends or members of their family—regardless of age—who failed to receive the first dose," he concluded.

Sandia Speakers

Following is a list of speakers, titles, and places of presentation for recent talks presented by members of Sandia Corporation.

E. L. Deeter (2440), "Sandia Corporation's Progress in Quality Evaluation System Testing," Naval Ordnance Laboratory, Baltimore, Md., Oct. 19.

George H. Roth (7520), "Quality Assurance Stockpile Testing," Naval Ordnance Laboratory, Baltimore, Md., Oct. 19.

R. C. Maydew (7132), "Operational Experience in Hypersonic Tunnel Shakedown," 18th Supersonic Tunnel Association Meeting, Seattle, Wash., Oct. 4-5.



Tuesday, November 6

The Day Voters Call The Shots

Tuesday, Nov. 6, is election day and if history is any indication many voters will stay away from the polls.

There is an abundance of decisions to be made in the voting this year. Candidates have taken stands on these issues and are asking you to vote for them on the basis of their position.

A look at the voting record indicates that, as the pattern remains the same as past off-year elections, these decisions are again going to be made by a minority of the voters.

Here's the percentage of civilians of voting age who cast a ballot during recent elections in years when a president was not elected:

| | |
|------|---------------|
| 1942 | 33.9 per cent |
| 1946 | 37.4 per cent |
| 1950 | 41.7 per cent |

| | |
|------|---------------|
| 1954 | 42.5 per cent |
| 1958 | 43.6 per cent |

Now compare these with turnout figures for recent elections in countries such as Austria with 95 per cent, West Germany with 86 per cent, and England with 78.7 per cent.

This may be called an off-year election, but it's no small potatoes. Thirty-six states will elect U.S. senators; all 50 states will elect U.S. representatives; 35 states will elect governors; most state legislatures have upper and lower house members to vote on; and hundreds of mayors and thousands of other public officials at the local level are up for election.

Of particular interest to Sandia employees are these facts:

New Mexico will elect two men to the U.S. House of Representatives and also a full slate of state officials including the governor. California will elect a senator and

38 members of the U.S. House of Representatives, a governor, and full slate of state officers. Nevada will elect a U.S. representative, a senator, a governor, and all state officers.

The men elected to Congress will be considering legislation on defense and security, domestic and foreign economic policy, taxation, care for the aged, schools, and agriculture, to name only a few measures coming before them. The 87th Congress considered more than 12,000 bills in one session alone. The 88th will probably have no fewer placed before it.

Election day is just about upon us. Now that we are registered, it is time to be sure we know where and how to vote. We should know the candidates and know for whom to vote, and urge others to do likewise.

There is just one more thing to do after that—Vote!

Carbon Monoxide Danger Greater In Fall Season; Heaters, Cars, Furnaces, All May Present Hazards

By S. P. BLISS, M.D.
Sandia Corporation Medical Director

With the arrival of cold weather, furnaces which have been idle for several months are being started and more cars are driven with all the windows closed. Consequently, more cases of acute poisoning from carbon monoxide will occur.

CO, or carbon monoxide, is a colorless, tasteless, and odorless gas. It is especially dangerous because of these factors, since one has no warning of its presence until illness develops.

The initial symptoms are mild, and simulate other medical conditions. The severity of symptoms and the amount of CO inhaled are dependent upon several factors such as activity, age, concentration of the gas, and degree, if any, of ventilation. The active person, especially children, and the small person are severely affected. Old and infirm people find it particularly difficult to recover from the effects.

Remember, it takes a combination of two causes to bring about CO poisoning:

1. Improper burning of fuel
2. Insufficient ventilation

When one happens without the other you may "get by." When both happen at the same time you can't escape poisoning.

CO poisoning may happen, and often does, when someone:

1. Starts a car in a closed garage and lingers there while the motor warms.
2. Lights a heater, stove, or furnace after a long period of disuse without checking to see if it is in good operating condition and that the flue, or chimney is unobstructed.
3. Uses a space heater in a small unventilated room.
4. Uses the kitchen oven of a gas stove for heating purposes.

Carbon monoxide sickens and kills because it cuts off the oxygen supply from the tissues of the body. Ordinarily, the oxygen you breathe is carried from your lungs by the red cells of your blood to all parts of your body. Unfortunately, CO combines with the red cells 200 times as easily as can oxygen. So when oxygen and sizeable amounts of CO are breathed in together, the CO displaces the oxygen. Then you become ill, and, if oxygen is completely cut off, you may even die.

The initial symptoms of poisoning are headache, dizziness, nausea, slight blurring of vision, a feeling of tiredness and sleepiness—so sleepy it is almost impossible to hold back yawns—difficult to

concentrate or focus your attention on your tasks. As toxicity increases, one lapses into unconsciousness.

How to Prevent CO Accidents

In the home—

Make sure all furnaces, stoves, and heaters are connected by proper-sized flue pipes to chimneys or other approved outlets to the outside air (except in cases where the equipment meets approved National Standards without such connections).

Use only approved, rigid-metal piping (or flexible-metal tubing, if approved by local authorities) to connect room heaters, cookstoves, refrigerators, clothes dryers, and similar gas-burning equipment to gas supply lines. Never

use rubber hose for such connections!

Keep all fuel-burning equipment, flue pipes, and chimneys in good condition.

Do not substitute one type of gas for another in any gas-burning appliance unless a qualified serviceman has made the necessary changes in the parts affected, and has tested the operation and made necessary adjustments.

Never try to change or interfere with the way an appliance was designed to be used:

Keep all vents open. Do not block or cover vents of water heaters, range ovens, or space heaters in any way.

Don't try to patch gas pipes or tubing with tape, gum, or other

weak and temporary materials.

Never operate furnaces, fireplaces, space heaters, or water heaters without providing some dependable means of supplying fresh air continuously to make up for the supply exhausted by burning.

Never tune up your power lawn mower in an enclosed space, such as a closed garage; always start it out-of-doors.

In the car—

Check automobile exhaust system regularly, especially for blown-out gaskets, loose manifolds, leaking exhaust pipe connections, and holes in mufflers.

Be sure the doors are open in the garage or space where an automobile motor is running. Do not allow the engine to run more than a few minutes, even with the garage door open.

Shut the engine off when sitting in a parked car for more than a few minutes, unless the windows are open.

In slow-moving, closely-spaced traffic, or while traveling through tunnels, keep air-intakes of car closed to be sure that CO from the exhaust pipes of the cars in front of you will not collect in large amounts in your own car.

In motels—

When stopping overnight at motels, auto courts, tourist homes, and the like, where oil- or gas-burning heaters are located in bedrooms, ask how such appliances operate, and make sure that there are flue connections to such appliances before you use them. Open windows when heaters are in use, or make sure there is some other means of providing enough ventilation.

Wherever you are—

Be alert to signs of mild CO poisoning and investigate to determine the cause. Keep in mind that the first symptoms—headaches, nausea, and dizziness—resemble other illnesses.

Remember these . . .

First Aid Tips For CO Poisoning

Prevention is always the best way to deal with accidents, but sometimes they happen despite our best efforts to foresee all possibilities. When they do occur, knowing what to do and acting quickly can save a life. This is especially true in cases of acute CO poisoning where time is of the utmost importance. These are the steps to take:

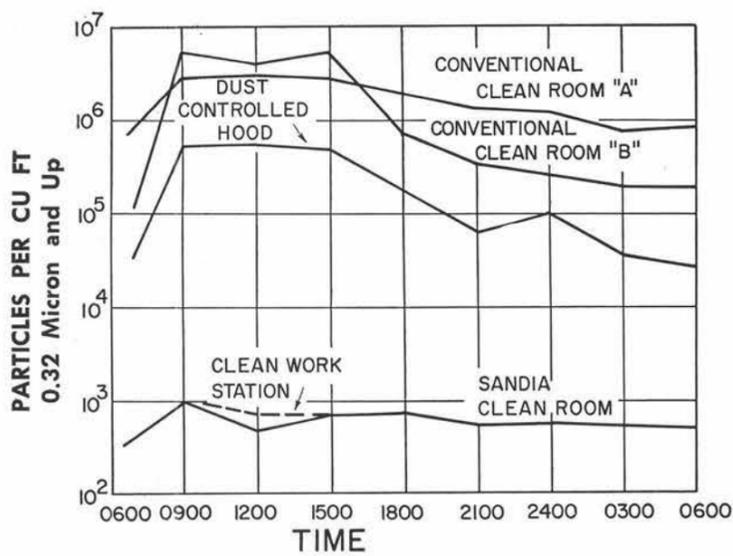
1. Remove the victim to fresh air immediately. If he is not breathing, or is breathing irregularly, begin artificial respiration at once!
2. Call, or have someone else call a doctor immediately. Also, send for an ambulance service or rescue squad, fire or police department for special equipment to help revive the victim. However,

do not wait for this help to arrive; start your first aid without delay.

3. Continue artificial respiration when the emergency equipment arrives, providing both kinds of treatment at the same time until natural breathing returns, unless otherwise directed by a physician. Continue artificial respiration for two hours or more, if natural breathing is not restored.
4. Keep the victim warm with blankets or other covering. If hot water bottles, brick, or metal are used to warm him, wrap them to make sure they do not come in contact with his body, for they will burn.
5. Meanwhile, if poisoning occurred in the house, have someone check the heating equipment, shut off the fuel supply, and ventilate the premises.

6. Continue application of oxygen as provided through the emergency equipment for 15 to 30 minutes after natural breathing returns. This will assist in quickly ridding the blood of carbon monoxide.
7. After the victim begins to breathe again, keep him still, warm, and quiet to stave off any danger of shock.
8. Avoid use of stimulants such as coffee or tea, since these may strain the heart.
9. Aid circulation by rubbing the arms and legs. The sooner proper circulation is restored, the sooner the patient will recover.
10. See that the patient has rest and time to recover slowly in order to avoid any strain on the heart.

Sandia's Ultra-Clean Room Passes All Stringent Tests



EFFECTIVENESS of clean room and workbench using the Whitfield ultra-clean principle is graphically shown in this comparison with conventional clean rooms. Downward air flow helps make this possible. Amount of dust in the work areas was measured over a 24-hour period.

Further developments, based on the principle of the Sandia Ultra-Clean Room, have resulted in environmental working conditions "beyond our fondest dreams," in the opinion of designer Willis J. Whitfield (2564-2).

There have been literally hundreds of inquiries about the original portable clean room model, designed to provide a work area free of microscopic dust particles inside an existing building (see Lab News, Jan. 5, 1962). In addition, in recent months a unit designed for outdoor use and a portable ultra-clean workbench have passed their tests with flying colors and are now in use.

Existing conventional clean rooms—needed, for example, in the assembly of complex, miniaturized components—use filtered air, and require employees to wear lint-free clothing and to take other special precautions.

Mr. Whitfield approached the problem of eliminating dust particles as a physicist might: by studying the nature of particulate matter and then utilizing the gravitational pull on microscopic matter, with a little man-made assistance. A constant flow of air through absolute filters, running the length of the working area and as high as the ceiling, forces any foreign matter downward, where a second filter below the floor grating traps the larger particles.

Indoor, Outdoor Models

Both outdoor and indoor models use the above principle and have these additional features: 1) the room can be shut down or brought into operation by merely throwing a power switch—the low levels of dust contamination are obtained almost immediately; 2) ordinary clothing and shoes may be worn; 3) vacuum cleaning is sharply curtailed. Of most importance: contamination averages less than 750 particles one-third of a micron or larger per cubic ft. of air (a micron equals 40 millionths of an inch). In fact, existing particle counters are at the extreme lower end of their capability to make this measurement.

The all-weather model has maintained its cleanliness at a New Mexico mesa location under

sand-carrying winds of up to 45 mph with three men moving normally into and out of the unit as their work required. "We're sure it can be operated any place as a field unit where available power exists," Mr. Whitfield said. (The unit uses a 1½ hp blower and 2-ton air conditioner for air circulation, and a small electric heater for warmth in the winter.)

This particular ultra-clean room was originally designed with an air shower in the anteroom. After a number of tests, the shower facility was removed and the space converted to a fresh air make-up unit. The anteroom, which is a separate section, could be removed entirely, but it does provide a thermal insulation seal and storage space for equipment and tools to protect them from weather extremes.

The all-weather model is built of galvanized iron coated with flat latex paint. "This construction has proved to be as satisfactory as the more expensive stainless steel," Mr. Whitfield said.

The unit is essentially a rigid metal box, which can be moved by forklift onto a truck and transported to desired locations.

Ultra-Clean Workbench

The ultra-clean workbench prototype was a six-ft. enclosure mounted on an ordinary workbench by J. C. Mashburn, W. E. Neitzel (both of 2564-2), and Longinos Trujillo (on loan from 4234). The handmade model was constructed from already available equipment.

With older-type clean benches it was necessary for the worker to perform often intricate operations through small openings in the glass enclosure. The new model has an open front and can be used satisfactorily in an uncontrolled room if normal precautions are taken. Microscopes and other equipment can be set on the bench provided they don't obstruct a large area of the absolute filter. Contamination on workers' hands and arms and on all material carried in and out of the bench section must be controlled by other means. The clean bench controls air-borne contamination only.

The workbench operates on the same principle as the two clean rooms. The air flow (approximately one mile per hour) is about the same as that felt walking slowly through a still room.

A modified workbench model is being used at Sandia Lab as a clean air hood over water of high purity used for washing certain parts. The water remains free of air-borne contamination and the part being cleaned will remain clean as it dries.

Air-borne Bacteria

Members of the medical profession have expressed interest in utilizing the clean room techniques for experimenting on controlling air-borne bacteria. According to J. Gordon King, supervisor of Advanced Manufacturing Development Section 2564-2, several hospitals have expressed an interest in applying this principle in operating rooms to control air-borne bacteria. This has a potential of reducing post-operative infections and general spread of infections.

This "revolutionary break-through" in clean room technology (as it has been termed in several publications) has received wide publicity in technical journals and national magazines. The stack of letters received by Mr. Whitfield is astounding, but of even more interest is the wide variety of uses for which the rooms and benches have been proposed. The potential uses range everywhere from packaging sterile pharmaceuticals, to aircraft instrument overhaul (in Formosa), to aiding in a study of wind-blown dusts in Antarctic snows. The sterile rooms conceivably could be used to eliminate bacteria during assembly of space craft or to serve as air-borne portable operating rooms.

Dr. Benjamin Lax To Be Speaker at IRE Meeting Nov. 2

The Albuquerque-Los Alamos Section of the Institute of Radio Engineers will meet Friday, Nov. 2, at 8:15 p.m. at the Lodge in Los Alamos. Speaker for the dinner meeting will be Dr. Benjamin Lax, Director of the Solid State Division of the Lincoln Laboratory, Massachusetts Institute of Technology.

Dr. Lax will discuss "High Magnetic Field Research." He has worked in the fields of radar, microwave discharges and ferrites, plasma physics, semiconductors, and high magnetic fields. He is a past editor of the *Journal of Applied Physics* and currently holds a similar position on the staff of the *Microwave Journal*.

A special bus to attend the meeting has been arranged. Reservations for both bus transportation and for dinner should be made through Charles Schmidt, tel. AL 6-0898, by Oct. 31. Tickets to the dinner are \$3 each. Wives and guests are invited.

Sandia Laboratory ECP Payments Total \$110,824

At the end of September, Sandia Laboratory employees had paid \$110,824 into the Employees' Contribution Plan since the first of December 1961. The funds are distributed to the 25 local agencies of the United Community Fund and nine health and welfare agencies.

As the September checks were mailed, the following distribution had been made:

| | September Distribution | Total To Date |
|--|------------------------|---------------|
| United Community Fund | \$8,502 | \$85,164 |
| American Cancer Society | 649 | 6,458 |
| Bernalillo County Heart Association | 503 | 5,041 |
| Arthritis and Rheumatism Foundation | 190 | 1,804 |
| Albuquerque Association for Mental Health | 112 | 1,120 |
| N. Mex. Society for Crippled Children and Adults | 481 | 4,817 |
| National Multiple Sclerosis Society | 78 | 782 |
| Albuquerque Association for Retarded Children | 179 | 1,791 |
| Cerebral Palsy Association of Bernalillo County | 268 | 2,587 |
| Muscular Dystrophy Association of America | 112 | 1,120 |

Sandians Helping Present Program Of QC Conference

A number of Sandians are actively participating in the 17th Midwest Quality Control Conference being held in Denver Oct. 25-27.

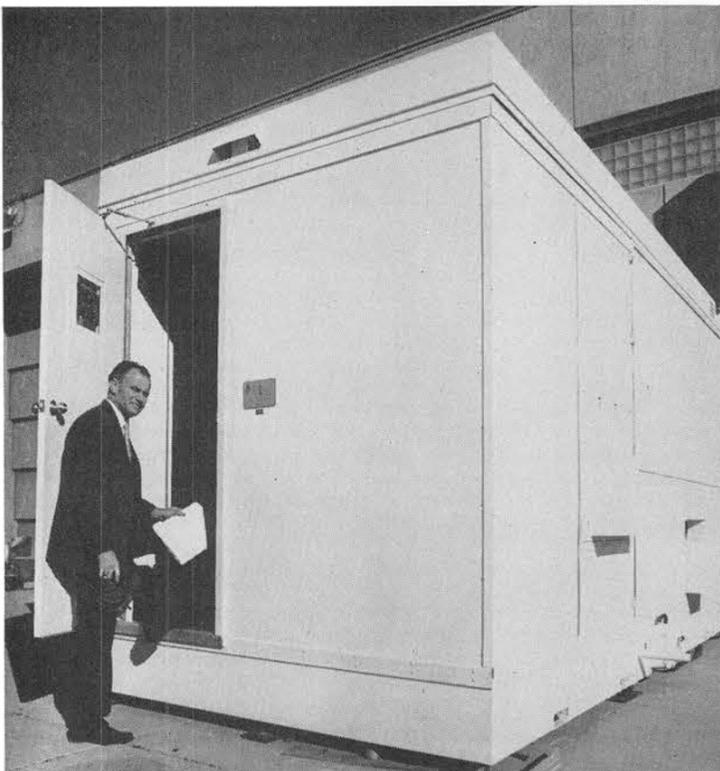
H. C. Biggs (2410) is serving as moderator for a three-day training session on Measurements.

Technical talks are being given by: J. R. Sublett (2560), "Quality Control in Development Testing"; Joseph Moody (2411), "Autocollimation As A Source of Precision Measurement"; S. H. Peres (3133), "Case Studies in Factor Analysis"; E. S. Roth (2564), "Communication of Design Intent"; and A. F. Cone (7510), "Evaluating Supplier Quality Control Systems."

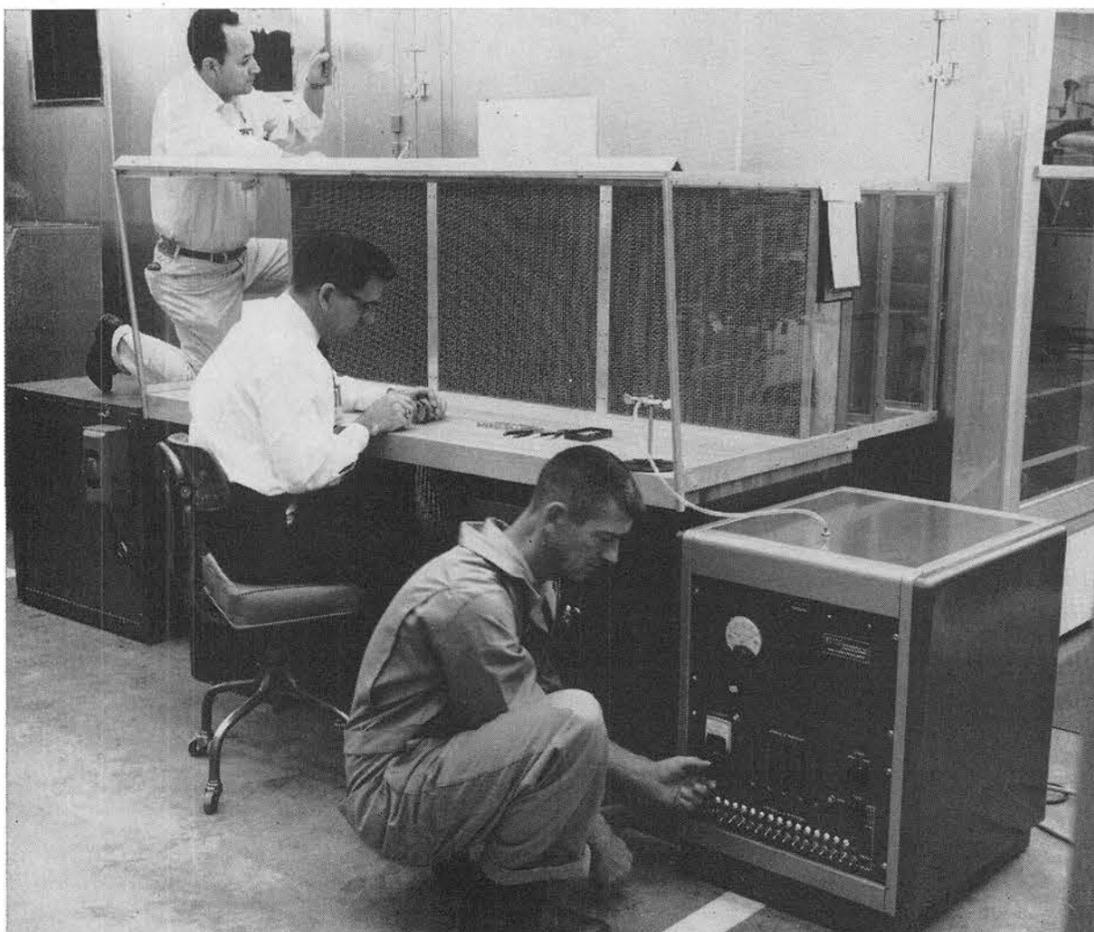
Welcome Newcomers

Oct. 8-19

| | | |
|-----------------------------------|-------|------|
| Albuquerque | | |
| Arthur H. Andazola | ..... | 3444 |
| Jerry G. Campas | ..... | 4231 |
| Melba J. Clark | ..... | 4135 |
| Glen W. Goodloe | ..... | 3231 |
| Virginia M. Hamblett | ..... | 3126 |
| Barbara R. Hammond | ..... | 4341 |
| Cosme Lovato | ..... | 4574 |
| Patricia M. Mann | ..... | 3446 |
| William C. Purcharz | ..... | 4361 |
| Berenice M. Schwarz | ..... | 4416 |
| M. Angelina Silva | ..... | 4613 |
| Sonya S. Smart | ..... | 4333 |
| Evelyn M. Wallace | ..... | 4413 |
| Guy H. Welsh, Jr. | ..... | 4330 |
| Connecticut | | |
| Charles B. Berglund, Uncasville | ..... | 3311 |
| Georgia | | |
| Bobby G. Haynes, Morrow | ..... | 2544 |
| Joseph S. Jordan, Atlanta | ..... | 2544 |
| Illinois | | |
| Bias R. Steele, Marion | ..... | 2542 |
| Indiana | | |
| Richard A. Swanigan, Rushville | ..... | 7524 |
| Kansas | | |
| Jerry G. Wallace, Ft. Leavenworth | ..... | 3423 |
| Michigan | | |
| Charles A. Trauth, Jr., Flint | ..... | 5422 |
| New York | | |
| James Lang, Little Fall | ..... | 7535 |
| Ohio | | |
| John Matsko, Cleveland | ..... | 5132 |
| Returned from Leave | | |
| Patricia J. Lee | ..... | 4423 |
| Amy A. Miyaki | ..... | 3126 |



ALL-WEATHER MODEL of the Sandia Ultra-Clean Room is pictured with designer Willis J. Whitfield (2564-2). Even in New Mexico sand storms, the unique air flow and absolute filter features have provided a work area free of microscopic dust particles. Room is easily moved.



PROTOTYPE OF ULTRA-CLEAN workbench was constructed of already available equipment by (l to r) Longinos Trujillo (4234), J. C. Mashburn, and W. E. Neitzel (both 2564-2). Air is forced through filter.

Economics

-- Better Be Acquainted It's a Very Personal Thing

The following article was suggested by and adapted to material originally published by Haig Babian, Director of the Institute of Economic Affairs, New York University, in Pittsburgh People, publication of Pittsburgh Plate Glass Company.

This business of understanding economics is difficult—but need not be completely baffling if we understand the meaning of words used in talking economics. Many economic terms stand for something quite simple, but when the experts start using them we are

left somewhere down the road. Actually, the word isn't so important; it's the idea it stands for that counts.

Why worry about economics? We study economics to learn how to make a living. Work is how we make the living, and the result is our success as self-providers. We either do well or we do poorly.

What is economics? The dictionary says it is the science that deals with the production, distribution and consumption of wealth, and with the various re-

lated problems of labor, finance, taxation, etc. There is really nothing wrong with defining economics as the study of how to get more. Of course, more of what and by what means are something else. This matter of how to get more is a problem which occupies the attention of all of us—it is the economics of day-to-day living.

So that we may all know a bit more about what economists are saying, here are some definitions of words frequently used in discussions of economics.



Inventory

Families who picnic frequently find their youngsters taking inventory—of the picnic basket. It's good to have adequate stock on hand so that it may be drawn on when needed. This is true in business as well as picnics. In industry the term refers to stored quantities of raw materials, goods in process of production, or finished goods. Like the inventory in the basket, industry keeps a supply of finished goods on hand to be able to fill orders with reasonable speed. The eternal question is, how much? Too much money is tied up when an inventory is too big. A low inventory may mean loss of customers. The right balance takes good management.



Profit

The family paycheck is usually happily received and quickly put to work. It pays the costs of maintaining a family. When all bills are paid, the remaining cash is put to work, strengthening family finances, improving the home, or is invested in some equipment to make housekeeping easier. This amount left for investment in savings or improvements is a sort of personal profit. Profits for business such as your youngster expects from selling papers are much the same—they are that money left after all bills are paid. Part of a company's profits is used in the same way—for reinvestment in the business. The analogy ends there. Most businesses exist because thousands of people invested their money in them. Dividends must also come out of the companys' profits.



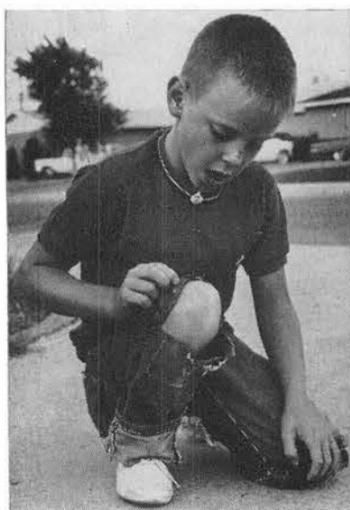
Capital Investment

It sounds pretty important, and it is. Capital investment refers to the practice of spending money for goods, tools and equipment in the hope that it will help yield more profitable returns on the investment. At home it may be a sewing machine for a woman or a set of power tools for a man—money spent in the hope of more economically securing clothing and furniture. Or it could be garden tools which will help bring food to the family. Business does the same thing with a share of profits. Machinery, plants, materials are bought so that the business may continue to operate. Money to increase a business' capital investment comes from other sources: profits from operation, money invested in the business through purchase of stock, sale of bonds, borrowing, etc.



Cost Reduction

There comes a time when bills overtake paycheck. Something has to be done. We have two choices—either increase the income or cut expenses. If income can't go up quickly and significantly, that leaves the matter of spending less money. It's simple economics: we must reduce the cost of living. Business is equally subject to the fact of life that outgo cannot exceed income. Business finds that in times of intense competition and low prices, ways must be found to reduce cost of operation so that prices of products are competitive. Cost reduction will keep them in the running—as it will the family.



Depreciation

There goes another depreciated pair of levis. This youngster's problem is the same as a company's. Equipment does wear out through use—it has to be replaced. Machinery, buildings, trucks, and typewriters—to name only a few items—simply wear out through use. That most-comfortable pair of shoes eventually gives in. Carpets, furniture, appliances, and family cars wear out—sometimes before they go out of style. This is depreciation of capital investment. So the individual (and hopefully the company) sets aside money each year to pay for new equipment when the old wears out.



Buyer's Market

Whenever a shopper goes into a store he has at his command a power that is nothing short of awesome. The buyer's preferences can make a profit—and if he has enough company in his dislikes he can break an entire business enterprise. The buyer is king when the supply exceeds the demand. Those companies that ignore the buyer cannot last. They are courting disaster in neglecting the person who has the money to buy their products. In a buyer's market the customer is catered to in styling, quality, service, price.



Productivity

Anyone who has owned a female cat has a knowledge of productivity, but not in the same sense that we use the word in business. Business has the resources of skilled men and women, machines and tools, and raw materials. Productivity is the result of the efficiency with which these resources are employed to produce the goods that the company sells. Productivity rises when a greater amount of goods is turned out with the same effort or at the same cost. Greater productivity improves living standards.



Capitalism

If your son has ever sold cold drinks on the sidewalk in front of your house, he was undertaking a capitalistic venture. He invested money (perhaps it was yours) in the hope that this money, combined with his initiative and enterprise, would make a profit. The economic system known as capitalism assures us of the right to own property and risk our money in the hope of making a profit. This capitalistic system fosters competition which is a benefit to the consumer. Capitalism, despite false impressions to the contrary, does not mean only big business. Of America's 4,700,000 businesses, 96 per cent have fewer than 20 employees.



Obsolescence

A search through your storage room will probably produce some classic examples of obsolescence. In business the term refers to equipment which has become outdated but is not yet worn out. A new milling machine may become obsolete next year when a numerically controlled milling machine is purchased. This is in spite of the fact that the older machine is in perfect working condition. If a competitor gets the new machine and our company doesn't, the other fellow has a big competitive edge. Obsolescence is difficult to predict. It is an ever-present problem for industry.



SECURITY BRANCH, Sandia Area Office, AEC, recently passed 2000 days without a security infraction. W. Lee Hancock, Manager, AEC/SAO, presented a certificate of recognition of the achievement to (l to r) Evelyn Hopkins, Celsa Rodriguez, June Stafford, and Ima Jean Ryan. These four, who form the secretarial force in the Security Branch, are given much of the credit for the accomplishment of this security feat.

Bids Received for Building Addition To Building 809

Bradbury and Stamm Construction Company of Albuquerque is the apparent low bidder for an addition to Bldg. 809, according to an announcement by the AEC. The firm's bid was \$26,887.

Branch Shop Section 4252-1 will occupy the new addition. The addition will contain about 1728 sq. ft. Construction will be structural steel and concrete block complete with heating, cooling, and electrical systems.

Work is to be completed within 75 days after the contractor receives notice to proceed from the AEC. John C. Snowden (4543-3) is the Plant Engineering Department project engineer.

Ruth Vogt Decided Nothing Would Interfere With Her Leisure Time

Ruth Vogt is the volunteer Lab News reporter for Administrative and Traffic Department 4330. She is a report clerk in Office Service Division and has worked in that organization for nearly six years.

Ruth and her husband might be described as a couple with strong convictions. When care for a large home interfered with their leisure activities, they sold the house and bought a 60-ft. trailer. It has been completely decorated in Early American style. The trailer requires only a few hours a week for "housework" and Ruth adds, "We have a nice gravel lawn."

With their new-found time, the Vogts spend week-ends fishing at their cabin near Vallecitos, Colo. During the winter they bowl.



Reporter Vogt

Friday Night Buffet Dinners Returning to Club

Friday night buffets return to the Coronado Club on Nov. 2, with dancing from 8-12 p.m. as an added attraction. Buffet prices are \$1.95 for adults and \$1.25 for children.

The program for Saturday, Nov. 3 will feature the Roaring '20's Revue. Price for members is \$2 per couple, for non-members, \$3 per couple.

The NORAD dance band will return to the Club on Nov. 22. They recently appeared on the Dinah Shore television program. Guest fees have been waived for their appearance.

The Club's bridge program is going full-swing. Bridge information is available from G. A. Arnot, tel. 36245, and from Mrs. R. J. Gossett, (ladies' bridge) AX 8-0750.

coronado club

Oct. 26 - Nov. 10

| Sunday 28 | Monday 29 | Tuesday 30 | Wednesday 31 | Thursday 1 | Friday 26 | Saturday 27 |
|--|---|---|-------------------------------------|---|--|--|
| Square Dance 6:00-9:00 p.m. Bob Page | S. C. Team of 4 Bridge 7 p.m. Invest. Coun. 7:30 p.m. | Dance Instruction 7 p.m. Basic 8:30 Advanced | Bridge Master Point 7:30 p.m. | Social Hour Frank Chewiwe Buffet 6:30-9:00 p.m. MBC Trio 8:00-12:00 p.m. | Social Hour 4:45-6:15 Sol Chavez Supper Club Tom Kelly | Beatnik Costume Hall'wn Ball— Tom Kelly Monthly Buffet Members: \$2.60 Guests: \$3.60 |
| | Bridge SC Team of 4 7 p.m. Invest. Coun. 7:30 p.m. | Dance Instruction 7 p.m. Basic 8:30 p.m. Adv. | Game Night 8 p.m. | Bridge 7:30 p.m. | Social Hour Tom Kelly Buffet 6:30-9 p.m. and Margot Engler 8-12 p.m. | Dance 9:00-1:00 a.m. Roaring '20's Revue \$2.00-couple |
| | | | | | | Supper Club Margot Engler |

EVENTS

SHOPPING CENTER ● SHOPPING CENTER ● SHOPPING CENTER ● SHOPPING CENTER ● 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
 NEW Montgomery Ward recap mud & snow tires, \$7 each; 1-wheel luggage trailer w/aluminum cover, \$55. Hayes, AM 8-1596.
 RIFLES: Model 70 Featherweight Winchester, cal. 308, B&L Balvar scope and mount, \$225; Magnum Mauser, cal. 375, H & H, custom stock by Nate Bishop, \$250. McNeely, AL 6-2553.
 '49 OLDS 2-dr., R&H, needs valve job. Kane, 299-0382.
 2" OSCILLOSCOPE; ARC-5 two meter transmitter; parakeet, cage and stand. Niper, AX 9-6290.
 DELUXE Kenmore ironer. Melo, AL 6-2655.
 THREE men's suits, size 38, blue, grey, brown. Taylor, 1727 Blume, NE., AX 9-2281 after 5:30 p.m.
 EXHAUST FAN, ceiling type, complete w/round duct and grill, \$8. Nix, 2813 Virginia NE., 298-4282.
 COMPLETE table tennis set, \$30. Fields, 299-6242.
 3-ROOM HOUSE, \$1500, Rt. #3, Box 303. Mann, ext. 24239.
 '60 BSA Scrambler motorcycle, \$425; Winchester model 71, .348 cal., \$90; 2 7:60x15 w/w tires, tubes, wheels for Chevrolet. Wilson, AX 8-0049.
 50" NORELCO Jumbo Vue TV, 30"x40" screen, cabinet 92"x45"x32", 10-watt audio amplifier, 12" speaker, remote control tuner, \$95. Phaklides, 243-1994 after 5.
 SKI SAFETY BINDINGS (Cubco), incl. boot accessories, mounted on 6 3/4" laminated Hickory Skis, total \$15. Burns, CH 2-2407 after 5:30 p.m.
 BELL & HOWELL slide projector and trays, \$35. McReynolds, AL 5-2615.
 36" WHITE GAS RANGE, \$25. Longfellow, AL 6-4326.
 WESTINGHOUSE portable indoor electric greenhouse, never used, in carton, \$27.50 value for \$15. Wagner, AX 9-2347.
 LAMINATED WOODEN (w/safety bindings) skis, 6 1/2", poles, boots, size 5 1/2 B, \$60 or best offer. Wetzel, AL 5-3003 after 5 p.m.
 TWO 70' lots at corner James and Altez, zoned R-1, \$1800 each, terms. Flowers, AL 6-1656.

CANNON BARREL model of Napoleon twelve pounder, will shoot beer cans if you're short of cannon balls. Roberts, 344-7857.
 FIREWOOD, you haul; tar paper, \$1/roll; wall section 20' long, \$30 delivered; old Ford parts. Villella, CH 7-0246, or 299-6261.
 WASHER DRYER combination, General Electric, needs some work, \$40. Busby, 3200 Blume, NE, 299-6450.
 '58 RAMBLER station wagon, R&H, air conditioned, new motor and tires, \$950 or best offer. Lucero, 298-3656.
 17" ADMIRAL TV, \$30; Dietzgen drawing set, \$13; '57 Frigidaire washer, \$30. Kane, AX 8-1717.
 CARPET PADDING, 20 sq. yd. best available quality of foam rubber, \$30. Gehegan, AX 9-7394.
 KELVINATOR electric dryer, \$60. Sonnier, CH 2-8229.
 2 HIGH CHAIRS, 1 playpen. Laws, AM 8-0297.
 BOOKCASE BED, box spring, mattress, \$35. Schultheis, CH 7-2812.
 '59 FORD GALAXIE, PS, PB, auto trans., must sell, \$1295. Sheldon, 1312 Rhode Island, NE. AX 9-1186.
 MANKIN 3-BDR, completely furnished if desired, sprinklers, wire fence, lawn, 13301 Chico, NE, possession 30 days. Swartz, 298-3359.
 LIMED OAK drop leaf table and chairs; limed oak bed complete w/night stand; 2 ea. limed oak step end tables. Bell, AX 9-4064.
 HEAD SKIS, 7 1/2", Cubco bindings, factory refinished, not used since; Henke Speed-fit boots, 12 1/2 M, boot rack, pr. poles, \$125. Coburn, 268-6844 after 6 p.m.
 '62 CORVETTE, fuel-injection, 4-speed, posi-traction, soft top, no trade. Witt, 298-0880.
 FISH AQUARIUMS, 30-, 15-, 7-, 5-, and 3-gal. all with Miracle filters; 30-gal is complete w/fish and pump. Newman, AX 9-2729 after 6 p.m.
 CUSHMAN SCOOTER, \$60; 30-40 mc FM tuner w/speaker, can be used in car. Pritchard AM 8-6430.
 14' ALUM. VIKING Deluxe decked run-about, 7.5 Elgin, canopy cover, trailer converts to utility flatbed. Ravenbyrne, AM 8-2943.
 FLEXSTEEL SOFA, loose foam cushions, brown tweed w/one yard extra fabric, \$30. Norvill, AL 5-2787.
 '60 CHEV 4-dr., R&H, auto., PS, air, posi-tractions, seat belts, \$1700 or best offer. Benson, 268-5597.
 CULLIGAN water softener, Mark 2, used about 9 months, original cost about \$375, selling for \$225. Ahern, AX 8-0956.
 FREE PUPPIES, cute and cuddly. Davis, 299-2227.
 CROSLY ENGINE and transmission, \$15. Myers, AX 9-8727 after 5 p.m.
 KENMORE washing machine as is \$15; '51 Oldsmobile 4-dr., Model 98, \$165; HRO-50T-1 ham receiver plus assorted ham radio gear, \$195. Rudolph, 298-0941.
 BABY BATHINETTE, \$6; James 99 cc motorcycle, runs, '62 plates, \$40. Campbell, AX 9-9195.
 SEARS cigarette rolling machine, rolls filter tips; Sears push-type lawn mower, \$5. Netz, AX 9-7036.

NEXT DEADLINE FOR SHOPPING CENTER ADS Friday Noon, Nov. 2

8' GARAGE DOOR, 1-piece metal overhead type, springs and all hardware, \$45. Chavez, CH 3-4714.
 '47 UNIVERSAL WILLYS JEEP, 4-wheel drive, extra rugged tow bar, bumpers, and roll bars. Wright, 10213 Alder Dr., NW, 898-2298 after 6 p.m.
 DUO-BED, metal frames, mattress. Polito, AL 6-2443 after 5 p.m.
 '54 DODGE 4-dr., R&H, auto. trans., best offer, engine needs little work. Lopez, AX 9-0941 after 5 p.m.
 USED 36" Screen door and pair of clothes-line poles free. Holloway, AL 5-6938.
 PUPPIES, Boxer and Pit Bull cross, good watch dogs, good with children, \$10. McLachlan, 298-0409.
 12 GAUGE ITHACA Featherlite pump gun, \$65; illuminated gun cabinet w/storage area, \$25. Ives, AX 9-7003.
 ALASKAN MALEMUTE PUPS, wonderful disposition, females \$50, males \$75. Fink, 247-2806 after 4 p.m.
 SPRINGS and mattress, double size, with legs, \$25. Neubauer, 898-2289.
 POOL TABLE, 4'x8", complete w/2 cues, balls, chalk, etc., \$45. Miller, AM 8-1939.
 '55 JAGUAR XK 140M roadster. Zownir, AL 6-3717.
 CHAIRS, living room from \$2.50 to \$35; couch, makes into bed, \$20. Brummell, 324 Manzano NE, AL 6-4206.
 MOTORSCOOTER, Allstate, recent overhaul, \$50. Bureta, 429 Montclair SE, AL 6-1833.
 ELECTRIC STOVE, full size w/push-button control, \$75; upright piano, completely rebuilt by Simpson, \$225. Packwood, 256-6335.
 5-MONTH-OLD registered half Arabian filly by pure bred stallion, \$275. Hoffheins, ext. 32149.
 '56 PLYMOUTH 2-dr. sedan, one owner, \$495 or best offer. Miera, CH 3-1826.
 BY OWNER, 3-bdr house, attached garage, landscaped, 11410 Rosemont NE. Rychnovsky, AX 9-2850.
 '57 RENAULT DAUPHINE, \$285. Fife, BU 2-3206 Monday or Wednesday evening.
 RECONDITIONED electric clothes dryer, \$25; limed oak corner table, \$25; limed oak Bass reflex enclosure w/12" Triox speaker, \$50. Goen, ext. 5-1172.
 4-BDR, 1 3/4 baths, fireplace, elec. kitchen, AC, landscaped, many extras, in Paradise Hills, double garage, closed patio. Duvall, 898-2295.
 1 SET MAPLE BUNK BEDS w/springs and mattresses; child's jump chair, come see and make offer. Cockrill, AM 8-5502.
 ANTIQUE NAVAJO 5x8 rug, \$35; framed cartridge board, \$65; trade for old gun or knives. Smitha, 8607 Menaul NE, AX 9-1096.

HI-FI equipment, Dynakit MK3, Eico amplifier, Heath pre-amp, tape recorder: RJ enclosure, 10 meter mobile rig. Laskar, AX 9-1024.
 BOOKCASE HEADBOARD ranch oak twin bedstead; portable baby swing; youth swivel desk chair; 2-burner hot plate; hi-fi equipment. Bortniak, 298-5093.
 '59 TR3, cloth top and tonneau cover, w/w, wire wheels, new tires, \$1300. Davis, 2607 Stevens Dr. NE.
 BASSINET w/hood liner and folding legs, \$8; Maternity clothes, size 14. Coon, 6931 Edwina, NE, AX 8-0845.
 6-YEAR Storkline crib, \$10. Gossett, AX 8-0750.
 NATURAL RANCH MINK COAT, unusual buy for cash. Campbell, AL 5-4271 or AL 6-1946 after 5 p.m.
 RIDING MARE, sell or trade for hay, old Spanish furniture, or suitable horse for young children; Yearling Quarter horse colt. Gardner, DI 4-2547.
 NATIONAL NC 98 receiver, recently aligned and calibrated, matching speaker; Heath AT-1 transmitter, antenna coupler. Moore, 256-6065.
 8" TABLE SAW w/table extensions, guard, Rip-fence, mitre-gauge, on stand w/heavy duty motor. \$40. Allen, DI 4-7540.
 '59 HARLEY DAVIDSON Sportster XLH, white saddlebags, windshield, etc., \$750. Glauner, AX 9-0277.
 MULTI-ELMAC mobile ham equipment, AF-68, PMR-7, M-1071, \$295. Lathrop, AL 5-1901.
 16'x16' HEAVY CANVAS TENT, \$65; two room evaporative coolers, \$15 and \$10. Breitenbach, 268-7900.
 2-WHEEL HAULING TRAILER, w/bumper hitch, \$60. Barber, 299-4287.
 WINCHESTER RIFLE, .22 cal. Model 62A, pump, S. L. and LR, \$35. Pace, AX 9-5036.
 FREE—cuddly puppies, brown, black or tan, medium sized mixture, 7 weeks old. Summers, AX 9-4674.
 WHITE ENAMEL single basin sink, 18"x24", faucets and rim, \$10. Hall, AL 6-7822.
 GIRL SCOUT uniform, size 12; New Englander hide-a-bed w/innerspring mattress. Houghton, AX 9-3386.
 ABC washing machine w/spinner type wringer, \$15. Hill, CH 3-3493.
 DISHWASHER, GE under-the-counter top-loading type. Wiesch, AL 6-7236 after 4 p.m.
 STOCK in Cowles Corp., which owns and operates Mountain View Guest Ranch, at par value. Vivian, AX 9-1785.
 CHICAGO semi-prec. shoe skates, ladies size 5B. Bridgegam, 268-1973.
 30" FRIGIDAIRE electric stove, \$40; Hide-a-bed sofa, \$20. Johnson, AX 9-6912.
 3-BDR, dining room, 2 fireplaces, attached unit w/3/4 bath, detached studio-library, near University. Ortega, 256-6662.
 SNOW, 3-bdr, separate den w/fireplace, 1 3/4 baths, large kitchen, walled corner lot, AC, sell at FHA appraisal, \$15,500. Ray, 11017 Phoenix NE, 298-0408.
 KNIGHT oscilloscope, 5" CRT, 600 kc sweep, 5 mc vertical bandwidth, connections for external, triggered sweep, best offer. McDonald, 299-9269.

'53 CHEVROLET BEL-AIR, \$150. Chavez, 1731 Towner, NW.
 SKI BOOTS, size 5-men, \$15; skis, 64" w/steel edges and cable bindings, used, \$9. Willey, AL 5-1469.

FOR RENT
 MODERN furnished insulated Sandia Mt. cottage, suitable for 1 or 2, 25 min. from Base, water and heat paid, \$45/mo. McMillin, BU 2-3226.

WANTED
 RIDE from 1006 Alcazar NE to bldg. 880. Melo, AL 6-2655.
 RIDE vicinity of Pennsylvania and Menaul to bldg. 880. Garcia, 298-3924.
 CAR POOL participants from general vicinity of Constitution and California. Knott, AL 6-3197.
 6.50 x 16 6-ply tire casing suitable for recapping. Baxter, DI 4-7601.
 GOOD HOMES for long-haired kittens, 3 yellow tigers, 2 black and gray tigers. Pfarner, 298-3206.
 TRICYCLE for 3-year-old, must be in good condition. Qualle, AM 8-2827.
 SWAP 20", 3HP rotary mower for reel type power mower or buy good mower, bad motor. Carter, DI 4-6563.
 SMALL MARIMBA. Goss, 299-3093.
 RIDE between bldg. 880 and Bridge and Goff, SW vicinity. Crocker, 242-6862.
 NEED MEN for mixed chorus who enjoy singing for fun. We meet Monday evenings for practice. Reed, AX 9-7425; Scott, CH 2-6830.
 KG-4 MERCURY OUTBOARD engine or any 15 cubic inch outboard engine regardless of condition. Lopez, 299-7461.
 RIDE from the corner of Robin and Hendola NE, to vicinity of bldg. 832. Ream, AX 9-2076.
 RIDE from 7th and Coal SW to bldg. 802. Sandoval, 243-2411.
 AQUARIUMS and equipment for school classrooms. Becker, AX 9-2539.
 RIDE from 2800 block of Charleston NE to 880 parking lot. Burgess, 299-7939.
 TO TRADE—golf clubs, 7 irons, a Putter, 3 woods, w/bag and cart for a E Flat Alto saxophone, must be in perfect condition. Fisher, 265-0626.
 USED BUGLE. Houghton, AX 9-3386.
 TENDER LOVING CARE for kittens, four 6-week-old kittens, 2 black, 1 tiger, and 1 calico. Colgan, CH 3-9882.
 CHILDREN'S sled. Arning, AL 6-9229.

LOST AND FOUND
 LOST—Texas A&M class ring of 1959, Lady's clear plastic raincoat, chili pepper earring, clip-on sunglasses, brown and orange zipper cosmetic bag, keys on ring w/GI can opener, jade earring. LOST AND FOUND, ext. 29157.
 FOUND—Black leather snap type glass case, silver and black cigarette lighter w/dice in lighter fluid, 4 keys on ring w/knife and nail nipper. LOST AND FOUND, ext 29157.



ADOBE CHURCH at Seama on the Laguna Indian reservation is one of the churches Larry Null (1121-2), center, serves on weekends. He has been a lay preacher for the National Missions Committee of the Rio Grande Presbytery serving remote areas for more than five years.

Sandian who serves . . .

Sandia Employee Devotes Sundays to Services in Remote Area Churches

For a little more than five years, Lawrence E. Null (1121-2) has been spending weekends in service to the Presbyterian Church. He conducts church services on Indian reservations and in the sparsely settled areas in the south central part of the state.

He first served the little community of Willard when the pastor of Albuquerque's La Mesa Church

IRE Group on Electron Devices To Meet Nov. 5

Dan McNeill, research physicist for Martin Co., Orlando, Fla., will discuss "Research on the Thin Film Triode" at a meeting of the IRE Professional Group on Electron Devices. The meeting is scheduled Monday, Nov. 5, at 8 p.m. in the hospitality room of the Albuquerque Federal Savings and Loan, 8321 Menaul Blvd. NE.

Mr. McNeill is responsible for research programs at Martin Co. to develop a thin film active device compatible with passive thin film components and techniques. He established research programs in thin film microelectronics at Radiation Inc., Orlando, Fla., prior to his employment at Martin.

For additional information, call either R. J. Gossett (7223), ext. 28169, or R. P. McCann (7223), ext. 28270.

urged him to take on the job. Larry did so, reluctantly. Since that time he has missed only a few Sundays. His assignments come from the National Missions Committee of the Rio Grande Presbytery.

Larry sometimes conducts as many as three services in a single Sunday. At the Laguna Indian reservation, for example, Larry and his family will arrive at Paguate around 8 a.m. (after getting up at 5:30 to make the 60-mile drive). He conducts the first service and drives to Casa Blanca for another service by 10:30. Another drive to Seama and another service over by 12:30, then the long drive home.

"I don't preach," Larry says. "I leave that to the ordained ministers. I just talk." Larry's "talk" is concerned with knowing yourself.

"I get much more out of this activity than the people who came to listen," Larry says. "I benefit personally in many ways. So does my family. Service is the only real satisfaction you can get out of living."

Larry's service extends into other areas, also. He is currently helping the Laguna Indians with plans for a vocational training school for the reservation.

He sees no end to the work. Already he has made plans for retirement to a small cattle ranch and more service to the small ranching communities.



WINNERS of recent Sandia Laboratory Tennis Association Tourney are (l to r) Dave Wood, AEC, singles winner; and Ed Hamilton, AEC, and Charlie Chavez (2642), doubles winners. Play was completed Oct. 7.

Sandia's Safety Record

**Sandia
Laboratory
HAS WORKED**

**840,000 MAN HOURS
OR 24 DAYS
WITHOUT A
DISABLING INJURY**

**Livermore
Laboratory
HAS WORKED**

**277,500 MAN HOURS
OR 54 DAYS
WITHOUT A
DISABLING INJURY**

Supervisory Appointments

CARL A. ANDERSON, JR., to supervisor of SERF Operations Division 5331, Reactor Department.



Carl has been at Sandia since September 1961 as supervisor of SERF Operations Section 5331-2. He came here direct from Massachusetts Institute of Technology where he received his MS degree in mechanical engineering and his PhD in nuclear engineering. His Bachelor's degree in ME was awarded at Stevens Institute of Technology.

While at MIT, Carl was a recipient of the Whitney Fellowship 1956-57, National Science Foundation-MIT Cooperative Fellowship 1959-60, and U.S. Atomic Energy Commission Fellowship 1960-61. He was a teaching assistant in Nuclear Reactor Theory and Nuclear Reactor Engineering one school year, and, as a research assistant, participated in startup and operation of the MIT Reactor.

During summer months his work included: metallurgical laboratory assistant at Columbia University, Stevens Institute and the W. Kidde Company; designing and testing power plant control systems at the American Electric Power Co.; work on submarine control systems at the Sperry Gyroscope Co.; designing and building a sampling system for the Liquid Metal Fueled Reactor Experiment at Brookhaven National Laboratory while employed by Babcock and Wilcox Co.; and core design of the N.S. Savannah and other reactors while with the Physics and Mathematics Group of Babcock and Wilcox Co.

Carl is a member of the American Society of Mechanical Engineers, American Nuclear Society, Tau Beta Pi and Sigma Xi, honorary societies.

ARLYN N. BLACKWELL to supervisor of Thermodynamics and Dynamics Section 8118-2, Applied Mechanics Division, Livermore Laboratory.



Arlyn joined Sandia at Livermore in September 1959. Since then, he has worked in structural analysis organization, concentrating on heat transfer studies.

A graduate of the University of California at Berkeley, Arlyn received his BS degree in mechanical engineering in 1958. He was awarded his MS from the same university in 1960, majoring in heat transfer.

During the summer of 1958 he worked with a weapon engineering group at the Lawrence Radiation Laboratory, Livermore.

Arlyn served from 1953 to 1955 in the Army Corps of Engineers, stationed in San Francisco and Alaska.

He is a registered professional engineer in California, and is a member of the American Society of Mechanical Engineers, Tau Beta Pi, engineering honorary society, and Pi Tau Sigma, mechanical engineering honorary society.

Singles, Doubles Winners Announced

The Sandia Laboratory Tennis Association has announced winners of singles play, held Sept. 29 and 30; and doubles play, held Oct. 6 and 7.

Winner of singles play is Dave Wood, AEC. Charlie Chavez (2642) is singles runner-up.

Doubles winners are Charlie Chavez (2642) and Ed Hamilton, AEC. Runners-up for doubles play include Bob Clark and Bob Neeld (both 1323).

WALDO S. HUNTER II to supervisor of Film Laboratory Engineering and Processing Services Section 3465-2, Industrial Photographic Division.



Waldo came to Sandia Laboratory a year ago from Ansoco Film Company, for whom he worked 15 years as a technical representative in Los Angeles, New York City, and Hollywood. Since June 1955 he had been in charge of Ansoco's government service department on the West Coast.

During World War II, Waldo served four years in the Navy, and was recalled for two years during the Korean conflict.

He received a BS degree in chemical engineering from the University of Southern California in 1945.

Waldo is a member of the Society of Photographic Scientists and Engineers, Society of Motion Picture and Television Engineers, and Society of Photographic Instrumentation Engineers.

WILLIAM D. ZINKE to supervisor of Structural Analysis Section 8118-1, Applied Mechanics Division, Livermore Laboratory.



Bill was hired at Sandia Laboratory in October 1957, and has worked in structural analysis throughout his career at Sandia. He transferred to Livermore Laboratory in June 1958.

Before coming to Sandia, Bill was employed in structural analysis for two and a half years at the Transport Division of Boeing Aircraft Corp., Renton, Wash.

Bill was graduated from the University of North Dakota in June 1955, with a BS degree in civil engineering. He has done graduate work in civil engineering at the University of North Dakota, and taken courses in math and civil engineering under Sandia's educational aids program at San Jose State College and the University of California at Berkeley.

An Army veteran of two and a half years, he served in the medical and transportation corps in Fort Lewis, Wash., and Korea.

He is a member of Sigma Tau, engineering honorary society, and Sigma Xi, scientific honorary society.

PAUL D. O'BRIEN to supervisor of SPRF Operations, Facilities and Equipment Division 5332, Reactor Department.



Paul has been associated with Sandia's pulsed reactor facility since he came here in 1959. He was promoted to supervisor of SPRF Operations Section in

June 1961.

Previously he was with Los Alamos Scientific Laboratory for seven years, working on the Omega West reactor.

Paul also was with Buick in Flint, Mich., for a year as a student engineer.

He has a Bachelor's degree in mechanical engineering from the University of Dayton, a Master's degree in nuclear engineering from the University of New Mexico, where he is continuing work for a doctorate.

He is a member of the American Nuclear Society.

During World War II, Paul was in the Army Air Corps for five years, serving in the Pacific.

FLORENTINO G. GABALDON to supervisor of Janitor Service Section 4574-3, Transportation and Services Department.



"Floren" has been at Sandia Laboratory nearly 15 years. In recent years his work has been mainly as a mechanic and automotive and diesel technician for the Motor Pool.

Prior to coming here, he worked a year and a half as a civilian for the Marine Base at Barstow, Calif., as an automotive mechanic leadman.

Floren served from 1943-46 in the Marine Corps, much of the time in the Pacific.

He attended West Coast Automotive Training School in Los Angeles and has taken a number of night courses at the University of New Mexico.

Two Sandia Golfers Among Winners of 'U' Golf Tourney

Winners in the recent Men's University Golfer Association of Albuquerque tournament included two Sandians.

Wendell Nelson (4152) was winner of the consolation flight of the Championship Flight.

R. W. Foster (4352) was winner of the Fourth Flight.

Promotions

- C. E. Robertson (7244) to Staff Member-Technical
- Albert B. Harrison (8222) to Serviceman
- Daphne J. McPeters (3126) to Typist Clerk
- Calixto Sifre Soto (3444) to Messenger
- Floyd Lee Mastin (4631) to Staff Assistant-Technical
- Robert W. Galbraith (7323) to Staff Assistant-Technical
- Charles F. Newman (3453) to Staff Assistant-Administrative
- Richard E. Burken (4613) to Staff Assistant-Administrative
- Mary D. Walker (3453) to Staff Assistant-Administrative
- Sherrill O. Woodall (3442) to Staff Member-Administrative
- Charles E. Roehrig (3453) to Staff Member-Administrative
- Frank James Conrad (1122) to Staff Associate-Technical
- Robert M. Bleakney (2452) to Staff Associate-Technical
- Loren B. Converse (8123) to Staff Associate-Technical
- Teddy Chavez (4221) to Painter
- Michael P. Ryanczak (4511) to Electrician
- Norma J. Woellhart (3126) to Stenographer-Clerk
- Louis C. Nogaes (3444) to Messenger
- Marion P. Apodaca (3444) to Messenger
- Michael T. Hamilton (3444) to Messenger
- Stephen H. Vigil (3444) to Messenger
- Shirley J. Smith (3126) to Record Clerk
- Betty J. Winkler (3126) to Secretarial Typist
- Patsy J. Cates (3126) to Secretarial Typist
- Naomi M. Funk (3126) to Secretarial Stenographer
- Betty J. Collier (3126) to Secretarial Stenographer
- Jose L. Pecos (4135) to Invoice Clerk
- Bobby D. Kindsvater (3441) to Senior Clerk
- John D. Seuser (8225) to Technician
- Leopold F. Daniel (8225) to Technician
- J. T. Montellano (8213) to Record Clerk
- Mavis R. Wackerly (8233) to Library Assistant
- David A. Rice (7323) to Laboratory Assistant
- Wilbur D. Walters (3446) to Document Clerk
- J. M. Van Jelgerhuis (4332) to Stenographer Clerk
- Lawrence Metoyer (4575) to Laborer
- Domingo B. Martinez (4575) to Laborer
- Dorothy M. Gray (3446) to Document Clerk
- Dennis R. Johnson (8222) to Utility Operator
- Dolores L. Elliott (8232) to Production Release Clerk
- Phyllis E. Earthman (8233) to Service Clerk
- James V. Williams (7131) to Staff Assistant-Technical
- John T. Lindman (7246) to Staff Assistant-Technical
- Frank Garcia, Jr. (4233) to Plate Maker
- Billie L. Palmer (4221) to Sprayer
- Smiles Zepeda, Jr. (4233) to Apprentice Electronics Technician
- Marlin C. Klemm (3444) Messenger
- V. Lilit Baker (3441) to Message Center Equipment Operator
- Evangeline H. Duran (4152) to Accounting Clerk
- Alice K. Winchell (4423) to Typist
- Luther J. Otero (6021) to Paymaster
- Harry W. Lindquist (2642) to Order Analyst
- Supervisory Lateral Transfers**
- W. R. Hoagland from temporary assignment in 8132 to 7163-1
- M. J. Lesicka from 4576-1 to 3242 section supervisory assignment
- D. P. Fifield from 4576 to temporary assignment in 4540
- D. R. Wheaton from 8234-4 to 8234-3
- P. M. Hennan from 8234-3 to 8234-4
- J. E. Postlethwaite from section supervisory assignment in 7112 to 7125-3
- B. H. Van Domelen from 1121-1 to 1124-1
- L. K. Jones from 1124-1 to 1121-1
- J. G. Hawley from 7252-1 to 7221-1
- W. O. McCord from 1430 to 7310
- J. W. Pearce from 7310 to 7330
- C. S. Williams, Jr. from 1424-1 to 1425-1
- C. R. Blain from 1424-2 to 1425-2
- G. W. Krause from 2541-1 to 1321-3
- E. H. Copeland from 7321 to 7331
- R. S. Hooper from 7321-5 to 7331-1
- B. Johnson from 7321-3 to 7331-2
- W. E. Bosken from 7311-4 to 7331-3
- M. L. Shannon from 7321-1 to 7332-1
- M. A. Richter from 7321-2 to 7332-2
- G. P. Barnett from 7321-4 to 7332-3
- T. E. Smart from 7312-3 to 7333-1