



VISITING SANDIA LABORATORY last week was Rear Admiral John W. Gannon, Deputy Chief, Defense Atomic Support Agency, Washington, D. C. The admiral (right) is shown with R. W. Henderson, Vice President, Weapon Programs, during a briefing.

New Cobalt-60 Source to Aid Radiation Chemistry Research

A 10,000 curie cobalt-60 source was installed in Bldg. 803 last month to supplement the Van de Graaff accelerator for certain studies in radiation chemistry.

The radioactive source will at present be used in two programs of electron spin resonance studies made of certain organic materials, in which the chemical bonds have been effected by the gamma ray bombardment.

Frank Truby (5151) initiated and designed the project, Sig Thunborg (5134) served as engineer for the facility, Larry

Larson (5134) helped in the construction, George Harwood (3311-2) was responsible for radiation safety factors, and Irving Auerbach (5134) conducted dosimetry studies.

The facility is a modification of an original design at the University of Notre Dame. There are two similar installations of different radiation levels at Oak Ridge National Laboratory. Sandia Laboratory also has three other cobalt-60 sources (of 70, 1000, and 2750 curie intensities) in lead-shielded containers of different design.

The cobalt-60 element is contained in a pit 12 ft. deep, shielded by two and a half ft. of concrete and 800 lbs. of lead shot. There is free access to eight holes around the outside of the 12 source tubes and one central hole in which 8-ft. long sample tubes may be lowered by cable.

Low Cost

The advantage of this design over types using lead shielding are the relatively low cost (about \$6000 for construction plus cost of the radioactive element), and safe and trouble-free operation.

The design is such that there has been no perceptible increase in the radiation level of the 8 ft. x 10 ft. room in which the pit is located. Preliminary readings show that the maximum radiation level in the center sample tube is 15 mega-rads per hour—about 1,000,000,000 times the radiation reading in the room. In fact a few yards away only background radiation readings can be picked up

by a sensitive counter.

The cobalt-60 source, the artificially-produced radioactive isotope of the metallic element cobalt, was shipped to Sandia by commercial truck line from Oak Ridge National Laboratory in a 3600-lb. lead casket enclosed in a stainless steel jacket. The shipping container is specially constructed so the radio-isotope capsules may be loaded directly into the new test chamber without additional handling, eliminating danger of radiation exposure to personnel. The container is aligned over predetermined lines on the holes and the cobalt-60 capsules are pushed down into the source tubes, one by one. Millwrights from Section 4512-1 erected an A-frame in the small room to assist them in lifting the heavily concentrated weight into position.

"In transfer everything worked exactly as planned," said Sig Thunborg. "The 12 holes in the cover of the 'pig' (the shipping container) fitted our design exactly."

Stainless Steel Rods

The high-intensity gamma source is contained in a bundle of 12-in. long stainless steel rods, dropped down to the 8½-ft. level. Each rod contains seven 1 cm. x 1 cm. slugs of cobalt-60 (ranging from 84-146 curies each) arranged so that the lower activity slugs are in the middle and the higher are on the outer edge. This arrangement makes possible experimentation with larger samples and a more uniform flux.

There are several temperature controls that can be introduced. Temperature around the source tubes can be maintained at about 60° C. through use of a water cooling jacket and air can be blown up the tubes to further lower the temperature.

When extra cooling is required (down to -196° C.), the sample can be irradiated in any of the source holes inside a 6-ft. long Dewar vessel containing liquid nitrogen. These thermos-bottle type vessels were fashioned by Sandia's Scientific Glass Section 4224-5 from a Bell Telephone Laboratories design.

Sandia Corporation LAB NEWS

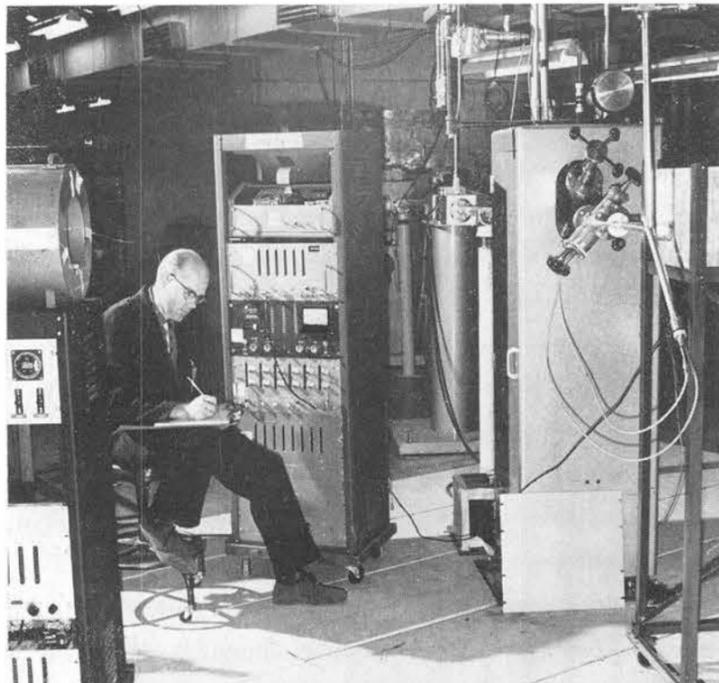
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Dept. 2410 Operates Primary Standards Lab for AEC Nuclear Weapon Complex



ROSS BIRDSALL of Nuclear Standards Section 2411-3 is performing preliminary measurements in the Cockcroft-Walton Accelerator target area in preparation for calibration of high energy neutron detectors. One of the detectors, a silver activation detector, is mounted on stand at right of accelerator target tube.

A nuclear weapon is one of the most complex pieces of apparatus built by man. In addition, it is designed and produced with an overwhelming responsibility: survival of the United States.

At the core of this responsibility is the Albuquerque Operations Office Primary Standards Laboratory. This agency maintains the standards for measurements used throughout the Atomic Energy Commission's complex of prime contractors and supplying agencies.

The ALO Primary Standards Laboratory is operated by Physical and Electrical Standards Department 2410 headed by H. C. Biggs. He directs an activity that is involved in every detail of nuclear weapons research, development, and production, and is concerned with magnitudes of accuracy and precision that continually push known limits.

"It is a fundamental concept," Mr. Biggs says, "that precision manufacture of interchangeable parts, fabricated to highest possible tolerances, is the only way to guarantee reliability in a product. Our Standards Lab is the custodian of the standards that help achieve a dependable product. We also try to anticipate the needs and techniques of an advancing technology."

Myriad Measurements

Measurements that are made in the nuclear weapon business are myriad—every conceivable machine tool and machining measurement; electrical measurements ranging from the output of a tiny radioactive cell to the signal strength of radar return or the voltage of a giant condenser bank. In new experimental areas, such as radioactivity, measurements must be made—as well as measurements as old as the Egyptian pyramids—angles, weight, mass, length, flatness, etc.

To keep and use the standards for these measurements requires the most modern of laboratories and the latest in scientific instruments.

Headquarters for the Primary Standards Laboratory are in Bldg. 861 with various functions housed in the temperature and humidity controlled labs of this building and in Bldg. 860. The organization also uses the Cockcroft-Walton accelerator facility in Bldg. 884 and a lab in Bldg. 857.

Works With NBS

The Primary Standards Lab works closely with the National Bureau of Standards in Washington. (Continued on Page 4)

Winter Hours Start Oct. 30

Sandia Laboratory employees can sleep half an hour later on Monday, Oct. 30, when winter hours begin. Working hours for Sandia and AEC-SAO are 8 a.m. to 5 p.m., with lunchtime from 12 to 1.

Standard rest periods revert to the winter schedule of 10 to 10:15 a.m. and 3 to 3:10 p.m.

At Livermore Laboratory, working hours are 7:30 a.m. to 4:30 p.m., Pacific Standard Time.



COBALT-60 SOURCE in Bldg. 802 is contained in concrete-shielded pit. Sample tubes, including six ft. Dewar tube held by Frank Truby (5151), may be inserted in center hole or in any of eight large circle areas in lower right corner of picture.

ECP Drive Nearing Close; Urge Quick Return of Pledge Cards

Final tallies are being made on results of the 1961 Employees' Contribution Plan drive held Oct. 2, 3, and 4. ECP committee members are urging employees to return their cards as soon as possible.

Since the opening of the drive \$118,000 in contributions have been counted. The figure represents approximately 83 per cent of the total estimated return for the drive. Final count on the total amount

As the LAB NEWS went to press Wednesday, the total employee contributions had reached a total of \$127,934 with 90 per cent of the cards returned. Of the total, \$9095 was by cash contributions.

received from the drive will be completed today. Comparative organizational statistics will be compiled and published in the next issue of the Lab News.

According to the current tally, about 57 per cent of Sandia employees who did not belong to the

ECP before the drive have joined the Plan; 18 per cent by the payroll deduction method and 11 per cent by cash contribution of \$12 or more. Of the remaining non-member employees, approximately 28 per cent have made a cash contribution of under \$12 to the ECP or a contribution to a specific agency. Employees who were already members of ECP by payroll deduction have increased their average deduction from \$22.98 to \$27.35.

The Sandia Laboratory Federal Credit Union reports that 100 per cent of its personnel are members of the ECP, with the lowest contribution equaling one hour's pay per month.

The ECP committee has expressed gratitude to the employee response to the ECP drive.

This year, 76 per cent of the total ECP funds will be distributed among the 25 member agencies of the United Community Fund. The remainder of the funds will be allocated to nine other health and welfare organizations.

Editorial Comment

What We May Lose

It is ironic that the destiny of the United Nations hangs in balance as we prepare to observe United Nations Week, Oct. 22-28. The death of the UN is a prime objective of the Soviet. If Communist nations succeed in doing away with this organization the hopes that were so high in 1945 are all but smashed. Today it is not a case of the UN weathering isolated setbacks to international order. Now it is a question of survival of the organization which was to maintain international peace and security and develop friendly relations among nations.

So that we may comprehend what we perhaps may lose we repeat here words from the preamble of the United Nations Charter:

* * *

We the people 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 life 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 enjoy international machinery for the promotion of the economic and social advances 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.



PHOTO OIL COLORING has been a hobby of J. E. Fesler (4152) for about 10 years. His favorite subject is his daughter Karen, as evidenced by two photos above. Jim does his own photography work.

Cotton Swab Painting Brings Soft Colors to Black-White Photography

Jim Fesler (4152-1) takes regular black and white pictures and changes them into lovely oil color portraits.

He has a ready and able model in his 16-year-old daughter Karen. After he takes Karen's picture he develops the film, selects the best pose from the proofs, and makes a black and white enlargement.

The amateur artist then uses a sepia toner to give the picture a soft brown effect. He surfaces the picture with transparent oil before he starts the actual coloring. Jim rubs the oil colors on with cotton swabs, thereby creating a very soft, delicate painting. It takes about 10 days for the oils to dry.

"If I don't like a particular color in a picture, I can always use an artist's prerogative and change it," he says.

Jim has been dabbling in photo oil portraits for about 10 years. Now he wants to do some scenery shots and has been looking for a

scene with a windmill and fleecy clouds in it. He says he particularly wants to paint a windmill because he feels "the windmill is the weapon that really won the West."

Wins Tennis Singles

Don Skinrood (8123) won the first place singles in the Sandia-LRL Tennis Tournament which began in March and ended Sept. 30. Second place singles winner was Mort Sorenson (8123-3); third place went to A. C. Haussmann, LRL.

First place doubles was won by Don Skinrood and his brother Al (8155-1); second place went to A. C. Haussmann and W. C. Grayson, LRL; third place went to Mort Sorenson and D. H. Davis, LRL.

Sympathy

To Ben Russo (3431-2) for the death of his father in Bryn Mawr, Pa., Sept. 30.

Thunderbird Travel Trailer Club Holds Annual Roundup; Sandians Enjoy Luau

Many Sandians who are enthusiastic campers belong to the Thunderbird Travel Trailer Club, an organization of people who have trailers or truck campers and who like the outdoor life.

The TTT Club held its Annual Roundup last month at a campground in the Manzano Mountains. Trail Chief John Zimmerman (7162-2) counted 87 adults and 52 children present for the evening Luau feast prepared by Einar Forsman (1323-1) and his wife, Mary Lou. Children's games were organized and refereed by Jay C. Wardlow (7124-2).

The club holds a monthly meeting and a monthly campout. One of the trips each year is designated as the Annual Roundup and is held close to Albuquerque so as many members as possible can get out for at least part of the activities.

Group Campouts

Other organized campouts this year have been held in the Jemez Mountains, Red River, Bluewater Lake, Santa Barbara, Storrie Lake, White Sands, and Manzano Mountains. However, club members often arrange to meet at favorite fishing holes or campgrounds on other weekends.

On campouts, the evening campfire and potluck seem to be the campers' favorite activity. During the day, everyone is on his own except the trail chief who keeps the coffee pot ready. The fishermen fish if there is water, the hikers hike, the sitters sit, and some play cards or just sleep.

The TTT club has approximately 43 trailer or truck camper owners as members. Normally, eight to 20 trailers go on each campout. Outings are held every month except December when a Christmas party is scheduled.

The Luau feast prepared by the Forsmans is not a regular function on campouts, but was a club treat for the Annual Roundup this year. If you're curious as to what a Luau feast is, here's how it works.

Luau Feast

Dig a pit two-and-one-half ft. deep and large enough to line the sides and bottom with flat rocks. Burn a fire in the pit to get the rocks piping hot, and while this is being done, season the roasts and wrap them individually in foil and then newspapers. Potatoes should also be prepared in this way. Then, place the food in gunny sacks, and soak the entire bundles in water.

Remove most of the hot coals

Winter Sports Fans To Get Break in Club Hobby Group

The Coronado Club is organizing a winter sports group at no charge to members. First meeting will be held Tuesday, Oct. 17, at 7:30 p.m. in the club ballroom.

Advantages of joining the winter sports group include skiing at reduced rates, buying clothes and equipment at a discount, and traveling at group rates to different areas in the state.

Election of officers will be held on the first meeting night. Representatives from several of the ski areas in New Mexico will discuss their facilities and answer questions, movies will be shown, and literature on winter sports will be available. Following the meeting a cheese fondue dip and hot Gluehwein will be served.

For further information contact Hap Holliday, Club manager, ext. 37276.

ECP Solicitors

Solicitors for the 1961 ECP drive not reported in the previous issue of the Lab News include W. O. McCord, Jr., Captain of 1400; R. T. McRae (4411-1); Joan Jackson (4411-3); R. W. Ewing (4412-4); V. D. Melillo (4421-1); Beverly Strauch (4413-3); J. F. Campbell (4413-2); Anne McCullough (4423-2); and M. B. Rushing (4422-1).



TRAILERS AND TRUCK campers extended for several miles during the recent Annual Roundup of the Thunderbird Travel Trailer Club in the Manzano Mountains. Activities included recreation, a Luau feast, all kinds of games, and camping out.

and lay the food on the steaming rocks, making sure that all food packages touch the rocks. Cover the food with the hot coals and the rocks lining the top part of the pit sides. Cover with 2 feet of dirt and sit back and wait. In about six hours, you'll have a very tasty dinner.

Officers of the TTT Club are Virgil Taylor, Barnhart-Dwyer Engineering Co., president; John Zimmerman, first vice president; A. H. Mayginnis, Jr. (AEC), second vice president; Betty Cordova (wife of Art Cordova, 4233-3), secretary; and Betty Zimmerman, treasurer.

Sandia and AEC members and their families who attended the Annual Roundup were Roland Cleveland (4412), Arthur Cordova (4233-3), John Erni (1423-2), Walter Kurlfink (4252-1), Guy

Robinson (7124-3), Everett (4573-3), and Rose Mary (AEC) Smith, Jay C. Wardlow (7124-2), John Zimmerman (7162-2), Einar Forsman (1323-1), William Kerstetter (4135-2), Bernard Peterson (AEC), George Tobey (AEC), and Mary Mayginnis (4253).

Sandia guests were Frank Goss (1312), Don Dubbins (4411-6), and John Piri (4232-2).

Congratulations

Born to:

Mr. and Mrs. Michael O'Neal (3441-2) a son, Michael Shawn, on Sept. 19.

Mr. and Mrs. G. H. Haertling (5132) a daughter, Barbara Ann, on Sept. 25.

Mr. and Mrs. Max Linn (3420) a daughter, Patricia Rae, on Sept. 24.

Mr. and Mrs. Bruce L. Barth (7133-3) a son, Keith David, on Aug. 29.

Mr. and Mrs. Donald R. MacKenzie (7132-1) a daughter, Deborah Ann, on Sept. 23.

Mr. and Mrs. Raymond A. Ledogar (6030) a daughter, Leslie, on Sept. 28.

Mr. and Mrs. John Sisneros (4151-3) a son, Andrew Charles, on Sept. 24.

Mr. and Mrs. Dean Davis (4152-2) a daughter, Sharon Kay, on Sept. 25.

Mr. and Mrs. W. C. Garcia (3232-2) a son, John Damien, on Sept. 24.

Mr. and Mrs. C. D. Hall (2341-5, St. Louis, Mo.) a son, Jeffrey Scott, on Sept. 18.

Mr. and Mrs. C. A. Morterud (2544) a daughter on Sept. 21.

Mr. and Mrs. Arthur Kellom (8124-2) a son, Torrence Wallace, on Sept. 29.

Mr. and Mrs. Doyle Baker (8125-2) a daughter, Carol Ann, on Sept. 22.

Mr. and Mrs. O. J. Rose (8221-2) a daughter, Carol Ann, on Sept. 22.

Mr. and Mrs. Tom Lane (8116-1) a son, Benjamin Downs, on Sept. 29.

Mr. and Mrs. John Hager (4233) a son, Mark Ivan, on Oct. 1.

Mr. and Mrs. R. G. Fleming (4231-2) a daughter, Lisa Roxanne, on Sept. 28.

Mr. and Mrs. Dean V. Milburn (3451) twin sons, James Leslie and John Dean, on Sept. 24.



Roberta Wellborn (3126/2564)

Take a Memo, Please

Inspect all electrical appliances frequently and remove defective equipment from use until properly repaired or replaced.

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Tech Library Will Open Doors Oct. 25 in Newly Remodeled Bldg. 804 Location

Sandia Laboratory's technical library (Division 3421) will be open for business Oct. 25 at its new location in Bldg. 804, offering employees a much improved place to use its many reference books, periodicals, documents, and special services.

Present library facilities will be closed on Friday, Oct. 20, to allow for moving. The library will reopen on Monday, Oct. 23.

On Tuesday, Oct. 24, members of Sandia's large staff and AEC officials will tour the facilities in the morning. In the afternoon from 1 to 4:30 p.m., employees who are regular users of the library may preview the new premises. In the evening, head librarians and library administrators in the Albuquerque area and special guests will tour the library.

Members of the library staff will be available during the day to answer questions and escort visitors.

Mezzanine Floor

A mezzanine has been added in the east end of the building. On the ground floor unclassified reports and periodicals will be stacked on the 2700 linear ft. of shelving. Upstairs, most of the technical library's extensive collection of some 40,000 books will be found on 2300 ft. of shelves. A book lift can be operated between the two levels.

In the present first floor Bldg. 802 location the shelves have long since been jammed tight with books and other publications. An additional 500 ft. of shelving would have been required to accommodate the books now stored on window sills, in file cabinets and even stacked on the floor. This despite the fact that many books and periodicals are in circulation, according to Lee Parman, supervisor of Technical Library Division 3421. It's customary in libraries to leave one-third of a shelf empty to provide handling space for users and growth space for future acquisitions, he said.

An important feature of the new quarters is the added space for employee-readers. Where the Bldg. 802 location could accommodate a scant two dozen readers, the new building has seating space for 75. In the main stack room are 28 study carrels and several tables. There are also five small study rooms which employees working on lengthy research studies may reserve for several days if necessary. Each of these rooms has individual telephones and doors that can be locked.

Pleasant Color Scheme

The color scheme of frost blue and off white with melon highlights is carried out through the entire building, even into the area which houses the "behind-the-scenes" library employees who handle the important jobs of ordering, cataloging, circulation, and translation.

The layout includes space for microfilm readers and microcard



ARTIST'S SKETCH of new technical library location, Building 804, is displayed by Sue Conlon (3421-1).

readers (many unclassified reports are reduced to film for convenient storage and use). In addition, the library has on order a 914 Xerox copier so that employees can readily obtain copies of desired information in bound periodicals. The volume would then be off the library shelf for only short periods of time and thus be available to more persons.

The small branch libraries will remain in their present locations: Commercial Catalog and Specifications Library, Bldg. 838; Materials and Standards Library, Bldg. 861; Environmental Testing Library, Bldg. 860; and the Bldg. 880 Branch.

Blood Needed

Blood donations are needed by Gerald R. Tilley (7325).

Gerald was transferred to Sandia Laboratory's Area III a few months ago after working five years at Salton Sea Test Base. Because the Tilleys are newcomers, they aren't well-acquainted here.

Gerald's wife, Heene, must undergo heart surgery this month. A minimum of 24 pints will be needed. Any blood donations that can be made at the Southwest Blood Bank of Albuquerque, 318 Elm SE, in her name by Oct. 28 will be greatly appreciated.

Harry E. Kinney Completes Armed Forces Course

Harry E. Kinney of Sandia Laboratory Weapon Compatibility and Applications Division 7183 has successfully completed the correspondence course of the Industrial College of the Armed Forces.

The one-year course, entitled "The Economics of National Security," is based on the curriculum of the resident course conducted for senior military officers and government officials at Fort Lesley J. McNair in Washington, D. C. The correspondence course is open to qualified civilians in business, industry, and the professions as well as to military officers. Mr. Kinney is a Lt. Commander in the Naval Reserve and is presently serving as a County Commissioner of Bernalillo County.

The Industrial College devotes study to economic and industrial aspects of national security in context of both national and world affairs. It is concerned with interrelated military, logistical, administrative, scientific, technological, political, and social factors affecting national security.

Supervisory Appointments

CHARLES E. JACKSON to supervisor of Test Section 7117-2, Strategic Systems Project Department.



Charlie has been assigned to the same project division since he came to Sandia nearly six years ago. Previously he worked four and a half years for Westinghouse Electric Co. in the small motors plant at Lima, O. His job was designing electric motors for aircraft.

Charlie received his BS degree in electrical engineering at Colorado State University and has done some graduate study through the University of Pittsburgh.

He served two years in the Navy.

He is a member of Sigma Tau, engineering honorary society, and is a registered professional engineer in New Mexico.

DONALD A. EMRICK to supervisor of Maintenance and Calibration Section 2322-1, Military Publications Division I.



Don began working for Sandia Corporation in June 1951 as a production control analyst. In December 1955 he joined the Military Publications Department as a technical writer.

He left Sandia in 1955 to do layout and art work for a tentative tourist magazine, but returned to the Corporation six months later.

He received his BA degree from Butler University in Indianapolis, Ind., and has done graduate study at the University of New Mexico. Don's major was languages, with a minor in political science.

During World War II he served three years with an anti-aircraft unit and was stationed in both Guatemala and Panama.

He is member of the Society of Technical Writers and Publishers.

M. M. NEWSOM to supervisor of Section 7164-2 in Warhead Electrical Systems Division.

Max has worked in Systems Engineering Department 7160 and Missile Systems Project Department 7140 since he was hired by the Corporation in June 1956.



Immediately prior to coming here he attended Texas A. & M. where he received his BS and MS degrees in electrical engineering. Max has completed some course work at the University of New Mexico toward his doctorate.

During three school years Max worked for the Texas A. & M. research foundation on the Texas tornado radar warning network.

He served in the Navy from 1951-53, then was employed a year at the special weapons depot at Kelly AFB.

Max is a member of Tau Beta Pi and Eta Kappa Nu, engineering honorary societies, the Institute of Radio Engineers, the Texas Society of Professional Engineers, and the National Society of Professional Engineers.

Trail Cycles Organize

Owners of "trail cycles," low horsepower, small wheel scooter-type vehicles, will meet Tuesday, Oct. 17, at 7:30 p.m. at the Heights YMCA building to organize a club. Main interest of the group will be in planning special trips and activities.

Prospective members will meet in room "A." Further information is available from D. M. Bruce (7182), AX 9-2542, or F. H. Hannah (3131-1), AM 8-1932.



PERIODICALS ARE ALREADY being received in Bldg. 804. Barbara Vandenberg is checking the periodical posting record. File in center contains pre-printed routing slips which are attached to publications as they are received. Hugh Howe is pulling a particular magazine issue from the stacks. Both women work in 3421-1.



PLENTY OF BOOKS but no place to put them is the problem of Jackie Cramblitt (3421-1). Workmen are still installing shelving in the new technical library location in Bldg. 804. Main part of the move from Bldg. 802 will take place Oct. 20-24.



READING THERMOMETERS with a telescope, Irwin C. Filsinger (2411-2) calibrates the thermometers inside the vertical chamber. Accuracy achieved is within .02 of a degree.



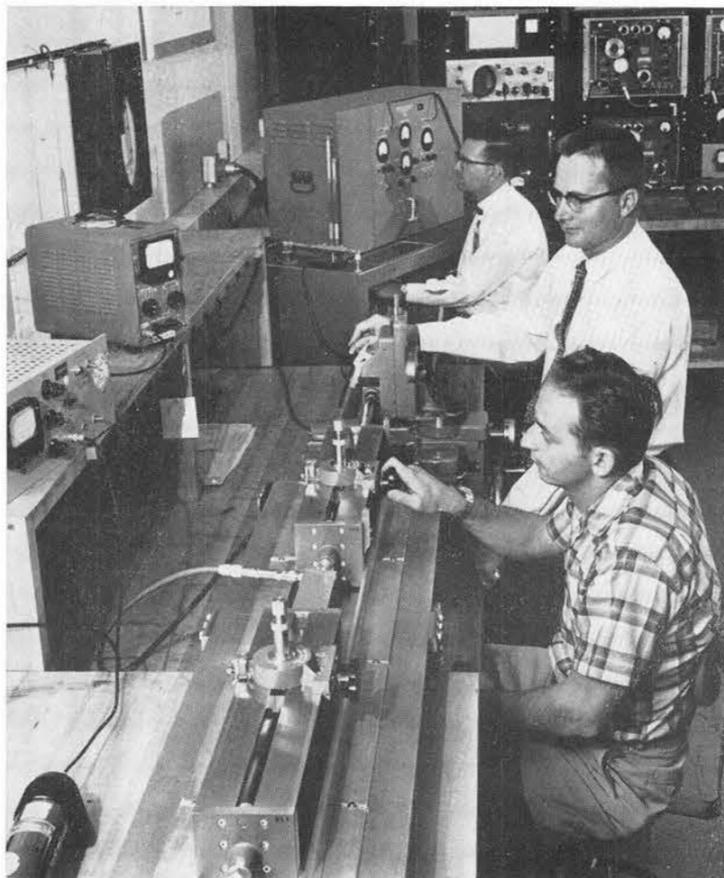
DICK McKNIGHT of AC and RF Standards Section 2412-1 checks a termination (a high frequency resistor) for frequency response over a wide frequency band. At left is Stan Booker, also of Section 2412-1.



INSIDE white chamber above is a glass leak standard. The instrument, a standard leak calibrator, operated here by A. B. Lawrence (2411-2), determines the amount of helium gas escaping from the glass cylinder. Accuracy is within two microns.



FREQUENCY STANDARDS BANK in Bldg. 861 is operated by Howard Burgess (2412-1). Five oscillators produce 100 kilocycle signals which are inter-compared plus a daily comparison made with the standard frequency broadcast by the National Bureau of Standards. Accuracy is five parts in 10^{10} .



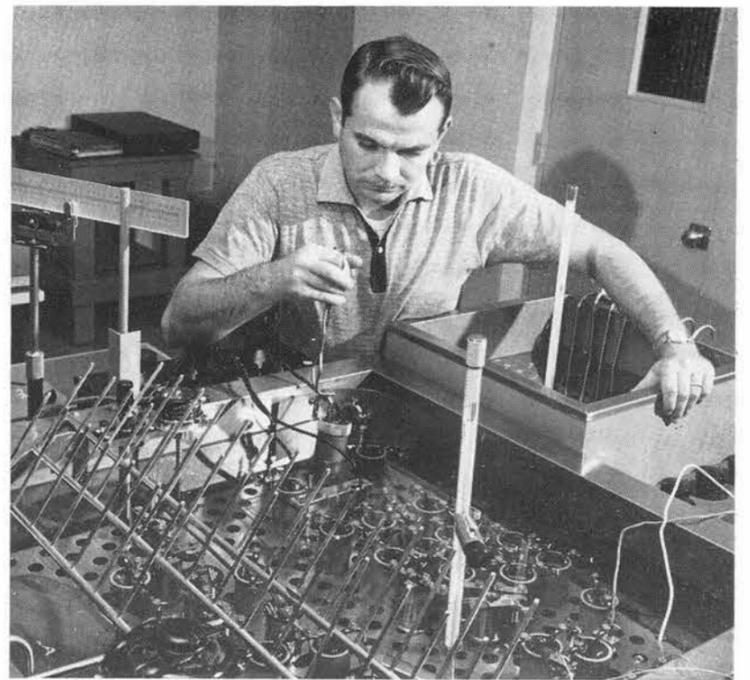
USING A REFLECTOMETER SYSTEM, men of Section 2412-2 measure unknown voltage standing wave ratios of small magnitudes. Microwave reflection coefficients as small as .002 can be measured with this system. From front are Robert L. Kasparek, Ned A. Lindsay, and Paul E. Livingston, who operate instrument.



MONITORING temperature of oil bath in background which contains the Primary Lab's standard cells, Neile L. Hensinger (2412-3) prepares to certify standard cells used by secondary labs. The temperature is maintained at 28° within plus or minus .001 of a degree. In the foreground is a standard potentiometer which is used in intercomparing standard cells with primary references.



LENGTH AND MASS measurements laboratory is housed in a humidity and temperature controlled room in Bldg. 860. The section personnel perform standards measurements of mass, length, angles, circular, profile, roundness, straightness, flatness, squareness, surface finish, screw threads, and gears. From left, above, are Oran May, Joe Moody, Frank Anderson, Errol Gay (all of 2411-1).



COMPARING an "unknown" standard resistor against the working standards of the Primary Lab, Don Eilar (2412-3) certifies the unknown and assigns it a value. This resistor is in turn used by a secondary lab as its reference standard. The resistors are maintained in an oil bath at 25° C. within plus or minus .02 of a degree.

Continued from Page One . . .

Department 2410 Operates Primary Standards Lab

ton, D. C., and Boulder, Colo. It is a working "closed loop" arrangement. This means that every Dept. 2410 standard (a standard is a physical embodiment of a unit such as a 1-in. gage block), is certified by the NBS. In turn the Primary Lab certifies secondary standards of the AEC contractors and agencies.

In all certifications of standards or standards equipment, the element of time is specified. Periodically the Primary Lab submits its standards to NBS and in turn, standards of the secondary AEC laboratories are certified on a set schedule depending on the type of standard, instrumentation, and uses involved.

"Certification of secondary standards involves very precise comparisons with the primary standards," Mr. Biggs says, "and the degree of certified accuracy must be known. We have to say, for instance, that a potentiometer is accurate within a certain value when used in a particular environment of temperature and humidity. This is true in all certifications of secondary standards. Some

standards must be specified accurate to a few parts in a million."

Magnitudes of Accuracy

To certify to this kind of accuracy requires the Dept. 2410 standards be practically equal to the NBS standards, for in standards work it is desirable that the measuring tool be 10 times more accurate than the specified tolerance of the part being checked.

Work of the Primary Standards Laboratory is divided between two Divisions — Physical Standards Division 2411, headed by K. G. Overbury, and Electrical Standards Division 2412, headed by J. S. Maxon. In each of the six sections of the two organizations various specialties in the standards job are practiced. Pictures on this page show some of the advanced equipment used.

Electrical standards section maintain AC and RF standards, Microwave standards, EMF and Resistance standards plus the sections certify and calibrate standards and measurement instruments of the secondary labs. In addition, men of the sections work constantly to improve comparison techniques and serve as consultants on electrical measurement problems.

Push State of the Art

The same is true of the physical standards sections. "Serving a research and development organization such as Sandia Corporation continually pushes the state of the art," Mr. Biggs says. "The Nuclear Radiation Standards Section, for instance, works in several areas where National Standards have yet to be set. In these cases, arbitrary Standards are created by working with the Los Alamos Scientific Laboratory."

The Primary Standards Lab is charged by the AEC with overall responsibility for the operation of the AEC Standards system. This not only includes maintaining standards, but overall system planning and reporting to the AEC. Periodic inspections of secondary standards laboratories must be made as well as keeping records of all inspections, certifications, and calibrations of equipment.

On ISA Committee

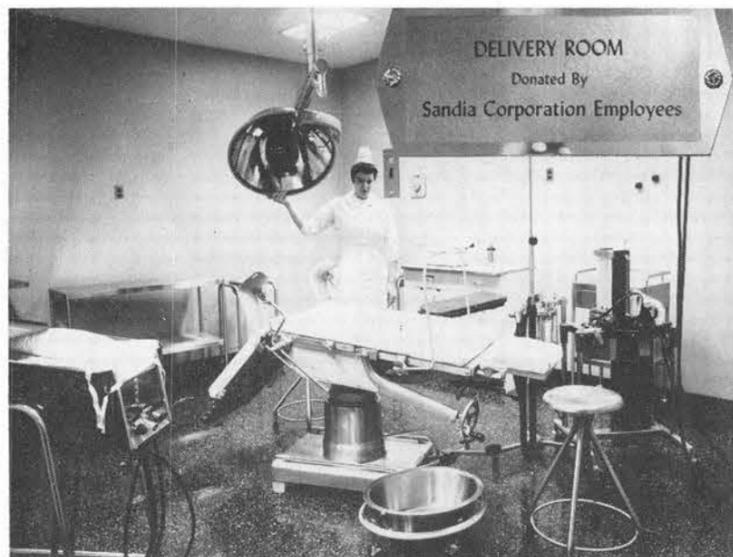
Ralph Morrison (8126-2) has been named to the Shock and Vibration Committee of the Instrument Society of America. The committee will select technical papers on shock and vibration for presentation at the September 1962 meeting of the ISA in New York City.

Livermore Valley Memorial Hospital Opens --- New Facilities Welcomed



STRIKING FACADE of the newly-completed Livermore Valley Memorial Hospital reveals modern design found throughout the

46-bed facility. Sandia Corporation employees donated \$75,000 toward the construction completion of the \$1,700,000 structure.



ANTICIPATING BUSINESS, this nurse surveys equipment in the new hospital's delivery room, another complete facility donated by Sandia Corporation employees at Livermore Laboratory.



SPOTLESS INTERIOR of the Valley Memorial Hospital's emergency room shows some of the many facilities available. Plaque (inset) is displayed at the entrance to the emergency room.



AND THE FIRST BABY born in the new delivery room before the hospital had completed its first day in operation was Thomas Wesley Baker, seven-pound son of Doyle Baker (8125-2), left, and Lenore Baker. Young Tom is their third child and third son.

Symposium in Livermore to Be Feature of UN Week Observance

Livermore Laboratory will observe United Nations Week Oct. 22 through Oct. 28 with a display of posters and information on bulletin boards.

A series of films, entitled "International Zone," which has been shown during the noon hour each Thursday in Bldg. 911, Room 200, helped set the stage for the annual observance.

The UN Week observance in Livermore has been dedicated to the memory of Dag Hammarskjöld, the late Secretary General of the United Nations. The theme chosen for this year's observance is "People Behind the United Nations."

Highlighting the week-long program of events will be a special symposium at the Livermore High School auditorium Oct. 23 on the subject, "Problems Facing the UN."

Participating in a panel discussion will be Dr. Mohammad Mehdi, Director of the Arab Information Center in San Francisco; Dr. Melville Homfeld, Superintendent of the Livermore Elementary School District and member of the United Nations Speakers Bureau; Dr. Judith Ahlem, Livermore Sanitarium; Lowell Miller, attorney; Dr. Clifford H. Plopper, minister; and Dr. John Shirley, Livermore



FIRE EXTINGUISHER DISPLAY was one of several large Fire Prevention displays shown throughout the Tech Area as Sandia Laboratory observed Fire Prevention Week. At left, above, is Joe H. Goodman, Sandia Base Assistant Fire Chief, with Walt L. Smith (4542-1).

'Y' Offering Hunter Conditioning Course

Each year when hunting season opens, many hunters exercise strenuously without proper preparation. As a result they often fatigue themselves so severely that organic disturbances — some of them severe — are the result.

The Central Branch of the Albuquerque YMCA will offer a short pre-hunting-season conditioning course for "Y" members and non-members at 6 p.m. on Tuesday and Thursday evenings through Oct. 26. Men interested in the course may obtain more detailed information by calling the Central Branch YMCA, CH 3-5631.

Micro-Midgets Reorganize

A recently reorganized Albuquerque Micro-Midget Racing Club is seeking new members, according to Vern Christy (3211), club safety steward. Members are sponsoring a day of micro-midget racing Oct. 21 at Tingley Coliseum. Anyone interested in building one of the small cars or assisting in activities of the club is invited to contact Vern, ext. 24174.

Safety Council Gives Award of Honor to Sandia Corporation

Employees of Sandia Corporation have again received the National Safety Council's Award of Honor for having worked 3,687,260 man-hours with no disabling injuries. The award is given for the period from Apr. 11-Aug. 1, 1961.

Sandia employees have won 11 consecutive National Safety Council awards. The latest recognizes an all-time high in the number of man-hours worked at Sandia Laboratory without disabling injuries during a four-month period. Previous awards have been presented on a yearly basis.

The Award of Honor is the highest of four awards presented by the Council for good industrial safety records. A plaque commemorating the award is on display near Gate 2 in Bldg. 800.

vice mayor who will act as moderator.

The program, open to the public, will begin promptly at 7:55 p.m. It will be broadcast beginning at 8 p.m. on radio station KKIS (990).



NATIONAL SAFETY COUNCIL'S latest Award of Honor to Sandia Corporation employees is displayed by O. W. Graham of Safety Engineering

Section 3211-1. The award was made on the basis of 3,687,260 man-hours worked at Sandia with no disabling injuries from Apr. 11 to Aug. 1, 1961.

Space Story . . .

No Storage Problem With Microfilming

Sandia Corporation observes its 12th anniversary on Nov. 1. As the Corporation grows older, the problem of record keeping and storage space becomes greater.

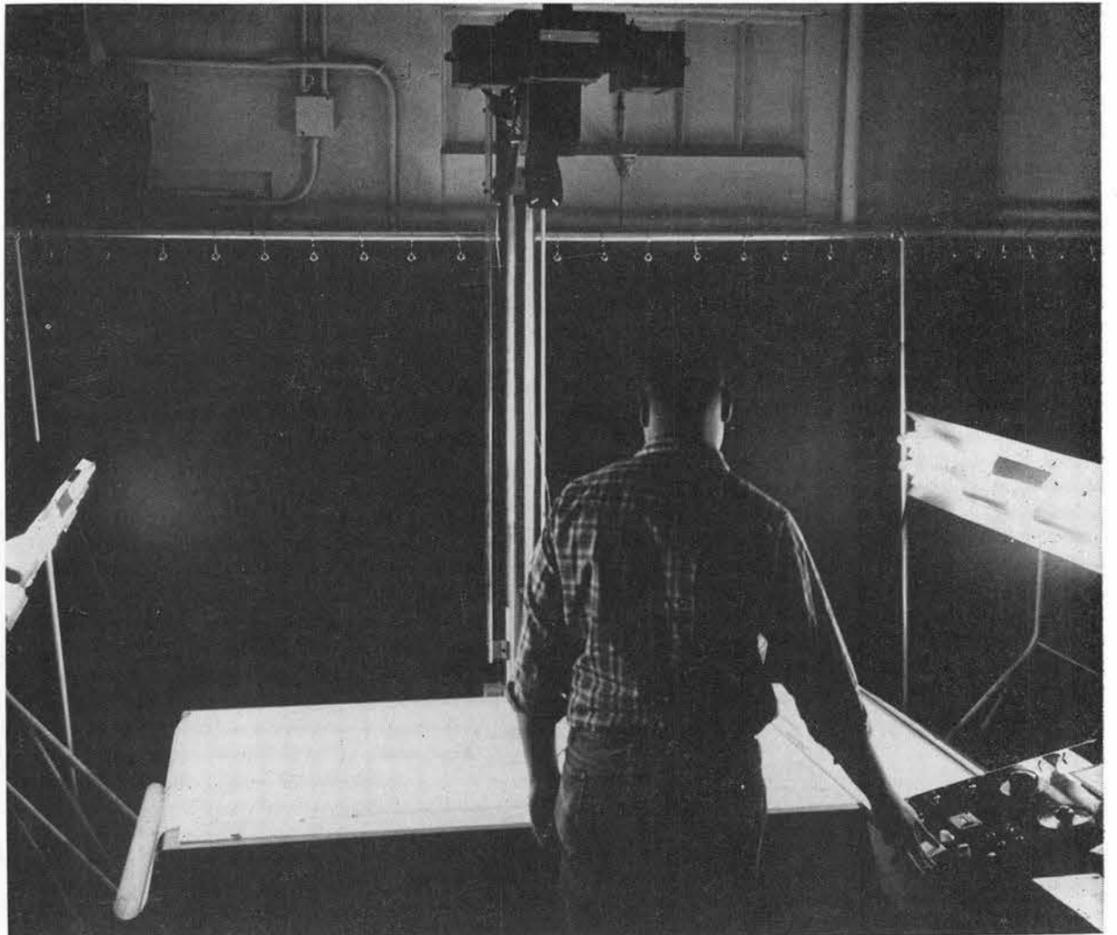
One of the solutions to this problem has been to put engineering drawings, personnel records, vital documents in Archives, and manuals from the Technical Library on microfilm. Micro Reproduction Section 3444, headed by E. C. Hirt, does this job at Sandia Laboratory.



MICROFILMING PROCESS BEGINS for engineering drawings when William Lewis, foreground, and Ralph Lovvorn check in tracings and sort them numerically by size. Approximately 380 tracings are logged in each day for processing by the Section.



SECTION SUPERVISOR Edward G. Hirt shows how much storage space is saved by microfilming. The pile of documents on the left was all recorded on one roll of 16mm film. Ed holds a 5x7" acetate card containing all information from an employee's personnel file.

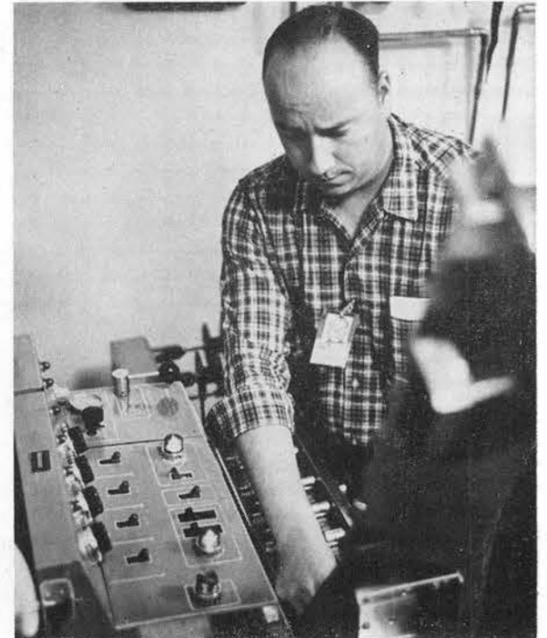


NEW PHOTO DEVICE CAMERA, operated by Don Fulton, has improved quality of prints. About 1600 exposures are taken daily on this camera. Drawings are reduced on 35mm film 16 to 30 times de-

pending on the size of the drawing. Prints which will be sent to suppliers are made from the 35mm negative mounted on an IBM card by Diazo Reproduction Section 3462-2 on a Copy Flow machine.



PERSONNEL RECORDS, vital documents, and Technical Library manuals are photographed on 16mm film by this Recordak camera operated by Bonnie Smith. Special feature is the complete film unit which attaches to the camera. An average of 2300 shots is taken on 16mm reels each day.



EXPOSED FILM is processed automatically after Don Fulton sets it up. A 100-ft. roll of 550 pictures is developed and printed in an hour and a half, with a foot and a half of film going through each minute. Because of the increased work volume in the Section, a new film processor has been ordered which will handle 50 ft. per minute.



AFTER THE FILM is processed, random checks are made on density and resolution of the negatives by Jack Choate. If more than one shot has been taken of the same material, Jack runs the film strip through an editing machine and uses a microscope to select the best negative and then proceeds to delete all others.



IN FINAL STEP, William Lewis gets 35mm IBM window cards ready to go to Copy Flow. The IBM cards will also be sent to microfilm banks located throughout Sandia Laboratory. At these locations, employees use printer-reader machines which magnify negative 15 times. Quick copies can be made of this size on printer-reader.

Sandia Service Awards

15 Years



Samuel L. Johnson
4542
Oct. 18, 1946



Timothy L. Regan
2641
Oct. 21, 1946



William H. Everhart
7212
Oct. 22, 1946



Burl T. Alsop
4573
Oct. 23, 1946



Vernon E. Baker
7244
Oct. 23, 1946



Robert D. Jones
7321
Oct. 24, 1946

20 Years
Bell Telephone
Laboratories



G. W. DeSato
4411
Oct. 20, 1941

10 Years

Oct. 13-27

Richard C. Oboyle 7322, Vernon Arnold 1124, Robert G. Higley 4211, Karl O. McGinnis 4221, Wesley F. Hodges, Jr. 3241, Morris R. Goebel 7521, Beno L. Baerwald 4573, Juan A. Sanchez 4511, Daryl W. Orth 4224, Robert J. Burton 7254.

Thomas J. Chiado, Jr. 3242, Tomas Apodaca 4612, Matthew J. Connors 8213, Ralph Spencer Fox 2533, Abel S. Lucero 4613, James N. Demas 7523, Dennis L. Veath 7523, Cappi L. Lynn 3466, James F. Reed 7132, James G. Lareau 5431.

F. B. Baldonado 4573, Brian H. Finley 3111, Augustine Apodaca 4513, Dorothy R. Nolasco 3462, Gerald W. Vandundy 2634, J. A. Allensworth 7242, George L. Pacheco 4573, Elfidis Salazar 4333, Gabriel M. Baca 4622.

Grady E. Raybon, Jr. 1113, Allen S. Buchanan 4424, Price M. Hennen, Jr. 8234, Roman Garcia 3241, Henry L. Sellers 4251, John A. Fackelman 4511.



GO KART enthusiasts line up for a few laps around the new Livermore track. From left are Carol Hardy, Pat Wilson (8142), Joan Acker (8151), and Pat's flag-waving husband Fred. One Go Kart has already been clocked at 65.8 miles per hour on the one-third-mile asphalt paved track.

Go-Karters at Livermore Laboratory Now Happy—They Constructed Their Own Track

Pat Wilson (8142) and her husband have successfully placed the "Kart" before the horse. They recently converted five acres of pasture land near Livermore into a speedy raceway for Go-Kart enthusiasts.

"We began thinking about a track for Livermore when we became interested in Go-Karting about a year ago," Pat said. "The closest track then was 60 miles away. When we discovered there was enthusiastic support for a track in Livermore we decided to go into partnership with four other

Go-Karters and build one ourselves."

The one-third-mile asphalt paved track, located in the rolling hills behind the Livermore Rod and Gun Club just outside the city, is surrounded by a protective wire fence. It took three months to complete.

The track, known as Kart Raceways, is open during daylight hours for practice sessions on Tuesdays, Thursdays, and Saturdays, and for organized racing on Sundays. Spectators are welcome free-of-charge for the weekday practice sessions, but an admission charge

will be made for the Sunday races.

The speedy little Go-Karts, which have a spectacular rise in popularity within the past two years, cost from \$200 to \$500, depending on the maneuverability and speed desired. Many can travel up to 90 mph. The Livermore track record so far is 65.8 mph, according to Pat.

Sandia Go-Kart owners and enthusiasts include Martelle Read (8232-1), Barbara Netherton (8126), Bob Schultz (8124-1), Bert Folks (8161-3), Don Baumann (8114-3), Jim Kimberling (8114-3), and Joan Acker (8151).

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

DEER RIFLES: 30-06 model 721 Remington, \$80; 7 mm Mauser, custom stock, sling, recoil pad, low scope mounts, \$65. Millsap, AX 8-0678.

PICKUPS: 1948 Dodge, \$85; 1950 Studebaker, \$60. Universal vacuum, \$7; oil stoves, make offer. Penn, BU 2-3997.

'56 CHEVROLET station wagon, 6 cyl. Arborel NE or call Hall, AX 9-3594.

MANS SUIT, inter gray flannel, worn two times, 4 months old, size 36, \$18. Newman, AX 9-2729.

'49 PLYMOUTH, 4-dr., \$110. Treon, AX 8-1066.

BUG GO-CART, Clinton 490 engine, \$70. Bowland, AL 6-1861.

PORTABLE TYPEWRITER, briefcase size, Hermes Rocket, \$25. Ewing, DI 4-8826.

REFRIGERATOR, Frigidaire, 17", needs repair, \$10. Alden, ext. 36234.

WINCHESTER, mod. 61, WRF .22 cal., hip-power special 16 shot pump, with case, 100 rds. ammo, \$45. Scott, AX 9-3412.

AUTOMATIC WASHER, Kenmore, 3 water temps and two levels, \$25. Hinde, AX 9-3214.

ACCORDIAN with case, 120 bass, \$150. Heath, AL 5-5418.

THREE CARB manifold for Ford '55-'57 with carbs, cleaners, linkage, fuel lines. Palmer, AX 6-3164.

'55 BUICK Special, hardtop, 2-dr., automatic transmission, R&H, whitewalls, \$595. Gardia, DI 4-1263 after 5 p.m.

RIFLE, model 760, BDL Remington Select Grade .270 caliber, fired 10 rounds. Price substantially reduced. Blackmon, AX 8-2095.

SW VALLEY, new location, 3 bdr., den, woodburning fireplace, 100x120' lot, \$16,000. No down payment. G. Benton, TR 7-0873.

GOLF CART, "Playday," folding model, two dozen, \$10. Jesse, AM 8-3014.

SEWING MACHINE, Singer featherweight, zigzag attachment, \$70. Sharp, AX 9-3745.

MOUTON COAT, full length, dark brown. Hunter, AX 9-3679.

SEWING MACHINE, \$25; typewriter, \$20; 9 ft. refrigerator, \$75; baby bed, mattress, \$6.50; .22 gun, \$30; 1958 Chevrolet. Montano, 829 San Andres NW, DI 4-3797.

ROBERSON 3 bdr., on 1/4 acre lot, 1 year old, near Eubank & Candelaria, carpeted, drapes, AC, \$15,900. Rosenberg, AX 8-2764.

'59 J-BE motorcycle, cheap transportation, \$195. Kull, AM 8-3171.

LADIES DIAMOND engagement ring, 25 points, \$98. Walston, AM 5-1211, ext. 222 before 5 p.m.

GAS RANGE, Roper, 40" 1960 model, griddle, rotisserie, timer, oven window, \$235. Longnecker, AX 9-6446.

STORKLINE CRIB, birch, w/new Kantwet mattress, \$15; towelbar for jeep, \$10; 1/2" to 2" pipecutter, \$3; screen doors, \$3 each. Pliner, 6210 Bellamah NE, AL 6-1907.

REMINGTON RIFLE, Model 721, 30-06, with food scout telescope, \$60. Henry, 1828 Florida NE, 256-2467.

BY OWNER, Mossman 3 bdr., fireplace, carpeting, drapes, AC, water, softener, dishwasher, 4 1/2 GI, \$17,900. Bustamante, 2823 Dakota NE, AM 8-3125.

DINING ROOM table with built-in leaf, 5 chairs, 1 hostess chair, blond wood, green seats, \$45. Voth, AX 9-1448.

LAMINATED SKIS, 6'2", plastic bottoms, "Ski-Free" bindings, aluminum poles, \$25; skis w/standard equipment, \$15; boy's ski pants and boots, \$10. Sherwin, AL 5-8866.

STORKLINE CRIB, 6 year, new innerspring mattress, \$25; Taylortot stroller, \$2; Handscraft car bottle warmer, 12 volt, \$2. Champe, AX 9-0066.

36" RANGE, \$35 or make offer. Newman, 298-2323.

FOUR-WHEEL DRIVE PICKUP, converted from 1942 Dodge Command car, good motor, tires, and bed. Elliott, 256-1969.

STURDY WOOD extension table and four chairs. Carl, AM 8-5109.

'58 LAMBRETTA SCOOTER, 125 id, w/ speedometer, buddy seat, spare tire, \$150. Lucero, DI 4-0480.

DUTCH RABBITS, 1 black, 3 blue, nice pets, \$3 each, ready Oct. 21. West, BU 2-3460.

2 ELECTRIC MOTORS, 110/115 vac., 1 ea., \$10; 2 pair crutches, \$2/pair. Pitti, AL 6-1629.

TV revolving table, \$3. Martinez, 9537 Claremont NE, AX 9-1918.

'55 BUICK conv., all power. LaRoque, 255-3574.

MARBERRY HOUSE, 3 years old, 3 bdr., 1 1/2 baths, forced air heat, wall, near schools and shopping. Gauthier, 10113 Matthew NE, AX 9-1373.

'55 CHEVROLET, 4-door, priced reasonable. Norton, DI 4-4973 after 5:30.

FREE KITTENS, long hair, assorted colors. Merritt, AX 9-6630.

21" PHILCO TV console, \$100. Speakman, AX 9-0241.

OUTBOARD MOTOR, Johnson, 25 hp, \$150; jig saw, 24" throat, cast iron, \$55. Grymkoski, AX 9-4053.

BABY CRIB, mattress, crib sheets, \$30; chair and divan, \$30; movie camera, \$15; deep fat fryer, \$5. Moery, AX 9-3630.

ACREAGE on Frost Road and 217, \$35 a month, no down payment, 2 1/2 or 5 acre tracts. Carpenter, AX 9-4312.

ENGLISH SADDLE, almost new, made by Miller, greatly reduced. Haley, DI 4-3919.

KENMORE 30" gas range, 1960 model w/griddle, wide oven, timer. Amos, 298-4470.

NEXT DEADLINE FOR SHOPPING CENTER ADS Friday Noon, Oct. 20

SWING SET, new in packing case, \$16.50; Silhouette reducing w/timer, \$175. Welker, AX 9-1179, 8510 Flower Pl. NE.

'56 OLDSMOBILE 88, Hydramatic, 4-door, R&H, \$750. Benton, 435 Lafayette Place NE, AL 5-4466.

SPORTSLINER CAMPER for 1/2 ton pickup, cost new \$235, will take \$40. Weimer, AL 6-0327.

MINI BIKE, chain drive, with new Clinton 2-cycle motor, \$50. Runyan, AL 5-6719.

CONTAFLUX SUPER w/accessories, \$150 or best offer. Mull, AX 9-3640.

AEC TRANSFER to Las Vegas, must sell 2150 sq. ft. custom home w/swim pool, \$1100 to new \$16,800 full loan. Vermillion, AL 6-6249.

'52 STUDEBAKER, 1/2 ton pickup, R&H, new tires, \$325. Kerley, AX 9-0281.

'56 PONTIAC 4-door sedan, 50,000 miles; 17" Admiral table model TV, working condition, \$25. Gutscher, AX 9-9398.

RCA STEREO phono-radio, FM & AM; also tape recorder. Quinlan, AM 8-5665.

44 ACRES in Manzano Mountains, two miles west of Torreon, deer country, title insurance, \$75 acre, terms. McKinley, AM 8-4779.

ROPER GAS RANGE, tempetro burner, \$90; see at 6810 Summer NE. Mortensen, AM 8-3626.

WILL SELL or rent 3 brm home, furnished, \$80 month, 1218 Lomas NW; one bedroom house w/rugs, drapes, range and refrigerator, \$55 month. Brown, DI 4-6831.

WROUGHT IRON high riser trundle beds (linksprings), no mattresses, \$20. Romero, AX 9-4564.

4 BRM HOME, 1 1/2 baths, private patio, walled play yard, sprinklers, corner fireplace, w-to-w carpeting, 1505 Elizabeth NE. Martin, AX 9-6785.

WOODEN PLAYPEN w/floor, folding, \$7. Hann, AM 8-5475.

UPRIGHT FREEZER, Admiral, \$145; tape recorders, VM Hi-Fi stereo, \$120; Wollensak Monoral, \$95; rollaway bed, innerspring mattress, \$18. Atkinson, AX 9-3250.

'50 MERCURY coupe, baby stroller, high chair. Wilson, 298-0049.

3 BRM HOME, SE Heights, paneled den w/fireplace, double garage, less than one year old. Brinkley, AL 5-2783.

21" RCA TV, thinline blond 1961 table model, purchased Sept. 20, 1961, paid \$266.77 w/tax, asking \$199, will trade. Chandler, AX 8-1976.

ELECTRIC RANGE, Kelvinator, five years old, best offer. Humphreys, DI 4-0538.

PART BEAGLE and part poodle dog, all black, 12 weeks old. Nimmer, 299-8567.

'56 PLYMOUTH Belvedere sedan, 1867 hp, R&H, power brakes, two tone grey, NADA wholesale, \$500. Shock, TR 7-3728.

WEAVER K3 Scope w/top mounts, \$28; 30-06 Pacific Rewinding dies, 3 die set, \$9; Wilson 30-06 case gage, \$4. Carnicom, AX 9-9262.

HALLCRAFTERS SSB/AM/CW receiver, Mod. SX111 w/100 KC calibration. Vandenberg, AX 8-1537.

POODLE PUPPIES, blacks, standard, 6 weeks old, show quality, also make ideal family pets; terms. Hankins, 3115 Manzano NE, 344-8946.

30-30 Winchester Model 94. Schuette, AL 6-4071.

LIONEL "O" GAUGE Santa Fe freight layout on 84"x98" board, many extras, switches, \$225 worth for \$85. Rayner, AM 8-1705.

DEN FURNITURE, bed-davenport, chair w/ ottoman, coffee table, lamp table, \$100; O'Keefe and Merritt gas stove, \$50. Humes, AX 9-0500.

3 BRM HOME, 1 1/2 baths, hardwood floors, carpeting, AC, sprinklers, patio barbeque pit, four blocks west gate, \$15,500, GI loan. Smith, AM 8-1349, 1029 Florida SE.

MAPLE BUNK BEDS, set includes 2 frames, 2 mattresses, 2 springs, guard rail and ladder, \$59. Hoke, AX 8-2384.

'56 VOLKSWAGEN, deluxe interior, w/w. harmony electric guitar. Trumble, AX 8-3397.

BABY CRIB, \$8; baby buggy, \$6; couch and chair, need covers, \$15; charcoal grill, spit and motor, \$7. Wilkinson, DI 4-9610.

'61 PONTIAC, station wagon, 4-door, automatic transmission, R&H. Dean, AM 8-9331 after 5.

MAPLE CHEST, 3 drawers, w/mirror. Breslin, AX 9-6625.

ARMY JEEP, clean, w/top, new battery, \$495. Brockway, 243-1019.

'57 CADILLAC, 4-door hardtop, all power equipment including front and rear factory air conditioners, \$1995. Shew, AL 5-0263.

MODEL 41 Smith & Wesson .22 cal. match automatic; 7-inch portable power saw w/case. Hanson, AX 9-6421.

COLEMAN FLOOR FURNACE, 35,000 B.T.U.'s, \$15. Deeter, AL 5-5789.

10" SINE PLATE precision grinder vice, 10" B&S height gauge, many other tools. Rickert, AL 5-6879.

NEW MOSSMAN, all brick, 3 bedrooms, 1 1/2 baths, fully carpeted, fireplace, air conditioned, landscaped, leaving town, sacrifice. Dudley, AX 8-1648, 7125 Edwina NE.

DUCK AND GEE decoys; cartop carrier. Bascom, AX 9-1662.

DRAFTING SET, 18 piece German Silver professional quality, make Frederick Post, \$20. TAF, AL 6-4013.

POLAROID CAMERA, model 80A, complete w/Wink Lite, \$45. Crumley, CH 2-1207.

AUTOMATIC WASHER, Kenmore, w/ retractable dolly, \$25; Zenith Transoceanic portable radio, short wave, AM, make offer, Honer accordion, make offer. Arthur, AX 9-7044.

GAS RANGE, Roper, automatic top burner, timer, \$60. Allen, DI 4-7540.

2 BDR HOUSE, utility room, attached garage, nicely landscaped, see to appreciate. New FHA appraisal. Pfeffer, 533 Arizona SE, AL 6-3200.

MATCHLESS MOTORCYCLE, 1960, best offer buys. Foderaro, AL 5-3677.

30" GAS RANGE, ideal for rental unit or mountain cabin, \$45. Gasser, AL 5-4562.

'55 DODGE station wagon, 2,000 miles on new motor, \$620; 1957 Renault Dauphine, best offer over \$400. Bode, AM 8-2157.

REFRIGERATOR, adjusted for natural gas but adaptable for butane or kerosene, \$15; youngster's western chaps, all leather, \$15. Galbreath, DI 4-4306.

WANTED

BICYCLE, boys' 24", good operating condition. Floyd, AX 9-2419.

RIDERS from vicinity of Wyoming and Candelaria to Bldg. 892 or 802. Harper, AX 8-0146.

RELIABLE WOMAN living near vicinity Bandelier School, to care for first grade boy when illness keeps him home. McDowell, AM 8-5014.

IRONING, sewing, baby-sitting by adult, also reliable teenage babysitter and mother's helper desires work evenings and weekends. DeRuyter, 298-3284.

HOME FOR KITTENS, free delivery. Tatum, TR 7-0997.

USED BUTANE TANK, 150 or 250 gallon capacity, in good condition. Martin, AX 9-6785.

TO BUY, 3 to 5 year old Chevrolet convertible. S. Bell, AL 6-3340.

RIDE FROM vicinity of Snow Heights Blvd., Muriel, Indian School Road and Juan Tabo to Bldg. 880. Lee, ext. 27249.

CHILD CARE for working parents in SE home. Jones, 608 Richmond SE, 255-3390.

BARREL for Remington 12 ga. Model "58" bored modified, or will trade barrel, bored improved cylinder for above. Shead, 268-3448.

RIDER WANTED from SE section east of Girard and Garfield. Jones, AL 5-3390 after 5.

RIDE FROM vicinity of Maxine and Indian School to Bldg. 610. Goodwin, 299-6706.

FOR RENT

ROOM for rent in private home, male preferred. Shead, AL 5-1584.

ONE BRM APT., stove and refrigerator, near bases, \$70, water paid. Kollman, AL 6-6761.

HOUSE ideal for small business across the street from supermarket, 1207 San Mateo SE. Orendorff, AM 8-9753.

LOST AND FOUND

LOST—Black and silver Eversharp pencil, wallet w/ID of H. M. Jones, turquoise and silver ring, tan windbreaker jacket, black cardigan sweater, brown frame glasses, 2-tone frame glasses, safety glasses, lunch bucket left in 301 class room, binocular glasses. LOST AND FOUND, ext. 26149.

FOUND—Aluminum Viking pipe, metal glasses, key on paper clip, GM key on clip from holder, rifle tie clip, Cool-Ray sunglasses, grey frame glasses in Newton Optical case, keys on holder w/topaz danglers, ins. membership card of McComas. LOST AND FOUND, ext. 26149.

FOR SALE AT LIVERMORE

JEEP with top, tow bar and hubs. LeLancho, HI 7-2307.

3 BDR HOUSE, 2 baths, landscaping, fence, patio, insulated, soft water, garbage disposal, custom draperies, assume GI loan. Hunt, HI 7-0191.

3 BDR HOUSE, 2 baths, family room, fireplace, electric kitchen, insulated, carpeting, patio, landscaped, fenced, assume GI loan. Pappas, HI 7-5391.

C. J. McGarr Will Present Work Measurement Paper in Washington

Sandia Corporation's Director of Service Operations, C. J. McGarr, will journey to Washington, D. C., Oct. 19 and 20 to present a paper on "Work Measurement: Its Theory and Application." Mr. McGarr will present the paper to a group of management analysis experts from the Department of Defense and the Atomic Energy Commission on Oct. 19 and to the Inter-agency Records Administration Conference on Oct. 20.

"Work Measurement: Its Theory and Application" begins with a discussion of the work ratio system and measurement theory, and ends with a statistical presenta-

tion of measurements made at Sandia Laboratory during the 12-month period from May 1960 to April 1961. The paper is an outgrowth of an earlier study by Mr. McGarr, "The Work Ratio System," which was presented to the Materials Management Workshop at Los Alamos in September 1960.

The Inter-agency Records Administration Conference, to which Mr. McGarr will speak, is held each year to study topics which are important to the development and operation of paperwork management programs in the federal government.

Livermore Lab Christmas Party Set For Berkeley's Claremont Hotel

The Garden Room in Berkeley's Claremont Hotel has been chosen by the Livermore Laboratory Dance Committee as the site for the 1961 Livermore Laboratory Christmas Dance.

Tickets, at \$5 each, will go on sale Nov. 1. The dance is planned for Friday night, Dec. 15.

Included in the cost of admission will be a buffet spread, featuring cold dishes as well as hot roast beef, fried chicken, and three hot casserole dishes. The Claremont's famous French pastries will top off the meal.

From 9 to 1, Sandians will be entertained by the dance music of

Del Courtney and his orchestra.

Round trip bus service from Livermore and neighboring areas will be available to the Claremont at an additional charge of approximately \$1.30 a person.

A weekend for two at the Claremont or at its sister hotel, the Whitcomb, in San Francisco, a magnum of champagne, and two buffet tickets will be offered as door prizes.

Tickets will be sold by the dance committee. Employees wishing additional information may contact the committee members: Dorothy Wiemken (8212-3), Shirley Mosley (8225-1), Evelyn Bachman (8233-3), Marilyn Lorensen (8212-2), Max Schell (8141-4), Dick Dickson (8233-1), Mike Ferrario (8114-5), Whitey Sorensen (8125-2), and Dave Dickie (8125-1).

Classified Chords Elect Officers

Dick Ballard (8212-2) was elected president of the Livermore Lab choral group, the Classified Chords, at its first meeting of the 1961-62 season. Also elected were Lew Ellis (8126-2), vice president; Virginia Mohr (8212-1), secretary; and Gary Ogle (8126-2), treasurer.

Plans were made for the Christmas and spring concerts, which will feature new choral arrangements and music provided by Employee Services, 8212-2.

Interested employees may join the group by contacting choir director Ellen Cunningham (8233-2) or by attending one of the practice sessions held each Monday, from 12:15 to 12:55 p.m., in room 249, Bldg. 912. "At the moment, we're especially in need of sopranos and altos," said Ellen.

Unloading Accident Fells Safety Record

Sandia Laboratory's safety record fell recently when an employee injured his left arm while unloading equipment from a truck. He was treated at Sandia's Medical Department 3330 and at a local hospital. He has recovered and is now back on the job.

At the time of the accident, the safety record was 735,000 employee-hours or 21 days worked without a disabling injury.



KICK-OFF of Livermore Laboratory United Fund meeting of all squad leaders. The drive, which began Oct. 2, is aimed to achieve a \$12,000 goal.

Refresher Course Offered by UNM To Those Seeking Engineer License

The Engineer-in-Training Review, a refresher course for those who plan to apply for a Professional Engineer license in New Mexico, will be offered at the University of New Mexico starting Oct. 30.

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

An Engineer-in-Training examination must be successfully passed before the Professional Engineer's examination is taken.

The refresher class will meet

each Monday and Wednesday from 7-9 p.m. in room 2 of the UNM Mechanical Engineering Bldg. The 32 sessions will include reviews of mathematics, engineering physics, statics, dynamics, strength of materials, thermodynamics, fluid mechanics, engineering economics, electrical engineering, and chemical engineering.

Tuition for the course is \$45 which includes sample examination and solutions in book form.

The faculty will be drawn from the regular University staff, and from local industry.

Further information may be obtained from Dr. H. M. McMichael, assistant director of extension at the University, CH 7-9301, ext. 208, or from Arthur Hill (3131-2), Sandia ext. 45157.

E. L. Paine Died Oct. 6; Worked at Livermore Laboratory

E. L. Paine (8164-2) died suddenly Oct. 6.

Mr. Paine, section supervisor in Project Engineering Division



E. L. Paine

8164, joined Sandia Corporation at Livermore in February 1957. Before then he worked 13 years for Western Electric Company as a field engineer in key locations on the East and West Coasts as well as in Japan and Hawaii.

Survivors include his widow, Beverly, a son, John, a brother, Lawrence F., and his parents, Mr. and Mrs. E. O. Paine.

No Chances Taken Here—Chamber Tests Respirators for Tight Fit

A respirator, to prevent the inhaling of harmful substances, is no better than its fit. To make possible the best fit, a respirator fitting chamber has been set up in the southwest corner of Bldg. 868.

Several hundred respirators are in use at Sandia Laboratory, according to W. H. Kingsley, supervisor of Environmental Health Division 3311.

They are used in areas where there may be high lead fume concentrations, where there is a danger of beryllium being introduced into the air, or where organic vapors are present.

The fitting chamber was originated at Sandia Laboratory because of the growing interest in radioactive particulates, which require employees to wear respira-

tors, among other precautions. "Most commercial respirators and their filters are good. However, some commercial types fit certain facial contours better than others," Mr. Kingsley said.

The respirator fitting chamber helps determine which type to use for any individual. The employee is fitted with a comfortable respirator, the chamber door is closed, and a low concentration (200 parts per million) of isoamylacetate is introduced. This has a harmless penetrating odor and the employee can immediately tell whether or not his respirator fits tightly.

Mr. Kingsley is helping edit parts of a publication on inexpensive fitting chambers for industry and Sandia's facility will probably be cited as an example.



BULL'S-EYE BOUND are these arrows held in the hands of expert archers Miles Nelson (8163-1), left, and John Lenz (8114-2). Miles won the first place trophy and John captured third place at a recent state-wide archery meet held at Oakdale, California.

Sandia's Safety Record

Sandia Laboratory HAS WORKED 645,000 MAN HOURS OR 18 DAYS WITHOUT A DISABLING INJURY

Livermore Laboratory HAS WORKED 375,500 MAN HOURS OR 67 DAYS WITHOUT A DISABLING INJURY



FIT OF RESPIRATOR is checked by Thomas O. Taylor (3311) as he goes through several simple exercises. Roy O. Mills (3311) is introducing into

the fitting chamber a low concentration of isoamylacetate. From its penetrating odor Tom will be able to detect immediately how well respirator fits.