Sandia Corporation
LAB NEWS
ALBUQUERQUE, N. MEX. • LIVERMORE, CALIF.

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R. D. Jones Earns Doctor of Science Degree from U. of New Mexico

At June commencement exercises at the University of New Mexico Richard D. Jones (5131) will be awarded a Doctor of Science degree, marking the end of five years of study.

Most of his study has been under Sandia's Educational Aids Program which assists with tuition payment and provides time off-the-job for courses not available during off-work hours.

Mr. Jones already has BS and MS degrees in mathematics from Washington and Jefferson College in Pennsylvania, and an MA degree in physics from Rice University. He has been working at Sandia Laboratory in the Physical Research organization since 1950.

From 1957-58 he was on leave of absence from Sandia to fulfill his residence requirement at the University: one year spent in full-time academic pursuit. In the fall of 1958 Mr. Jones began work on his thesis, which is in the field of plasma accelerators and is closely connected with his Sandia responsibilities.

At the University his thesis and research activities were directed by Professors Wayne W. Grannemann, Ahmed Erteza and Donald Skabelund.

R. D. Jones

H. C. Biggs Speaks Before Two Groups

H. C. Biggs (2410) spoke before two technical groups last week on "The Association of Standards Laboratories."

His first talk was given in Albuquerque on May 2 to members of the Instrument Society of America, and the following night he was in Los Angeles at a meeting of the Precision Measurements Association.

Sandia Corporation Assists Military in Armed Forces Day

Sandia Corporation will support military units on Sandia Base with six exhibits for the Armed Forces Day show at Kirtland Air Force Base Saturday, May 20.

For the first time this year, Sandia Base and Kirtland Air Force Base are combining efforts to produce one show. The exhibits will be grouped by theme, rather than having separate displays by each service.

Sandia Corporation items include a full-sized Mercury capsule, Mercury capsule movie, Nike-Cajun rocket, rocket sled, Jupiter nose cone, and Vanguard satellite. In addition, the Corporation has made arrangements to use the state fair train on the Kirtland ramp to provide transportation for visitors.

AEC Issues Call for Bids on Two Sandia Lab Construction Projects

The AEC called for bids last week on two construction projects for Sandia Laboratory.

An addition to the Acoustic Test Facility in Area III is one of the projects. A masonry and reinforced concrete addition of about 983 sq. ft. is to be constructed. The project also includes construction of a prefabricated metal building of approximately 576 sq. ft., installation of a 350-hp government-furnished air compressor with related mechanical, electrical, and control equipment plus miscellaneous utility and site improvements.

Bids will be opened about June 13. Work is to be completed within 150 days after the contractor receives notice to proceed from the AEC.

Second project is extensive modifications to Bldg. 610 to convert the structure to offices for Services and Benefits Division 3122, Employee Publications Division 3432, and Community Relations Section 3431-2.

The project includes modifications to heating and air conditioning, floor repair, installing asphalt tile, partitioning and painting. Work is to be completed within 38 days after the contractor receives notice to proceed.

R. G. Piper (4543-3) is Plant Engineering Department project engineer for both jobs.

JOE WALKER, X-15 rocket plane test pilot, is met by Sandians as he arrives in Albuquerque to speak at a recent meeting of the New Mexico Section of the Institute of the Aerospace Sciences. From left are Mr. Walker, Roger Tate (7134), Ken Cordes (7134), and Bill Caudle (7131). Mr. Walker and Mr. Cordes served in the Air Corps together during WW II as P-38 pilots stationed in Italy.

Summer Staff Coming to Sandia Lab From 40 Schools

Students and faculty members from 40 colleges or universities will begin arriving at Sandia Laboratory in June to participate in the seventh Staff Summer Program.

During the summer months the men will work on specific assignments in science or engineering.

This year for the first time the recruiting effort was concentrated on students who have completed their undergraduate work. All except one of the students already have at least a Bachelor's degree.

Among the schools represented this year, the University of California, University of Illinois, Harvard University, Princeton University, and Purdue University have the largest number of students represented—four each.

Of the 59 students reporting, 24 have previously worked at Sandia Laboratory during the summer months. Michael K. Sain and Ira H. Gilbert are returning for their fourth summer and James E. Mann, Jr., Neal R. Vanstrom, Terry D. Herther, and Paul E. Phipps will spend their third summer here.

Two of the students will be studying abroad in the fall. William M. Hartmann will be attending Oxford University in England as a Rhodes Scholar, and J. A. Rupf, Jr., has been granted a Fulbright Scholarship to study at the University of London.

The recruiting effort at Kansas State University was particularly effective this year: on roll this summer will be the top men in the graduating mechanical engineering, physics, and electrical engineering classes.

Among the college students who were summer staff hires in 1960, seven have already returned to Sandia on a permanent basis and

(Continued on Page Five)

L. J. Vortman Speaker At Las Vegas Conference

Delegates to the 1961 Southwest Mineral Industry Conference heard L. J. Vortman (5112) speak on "Explosive Cratering Experiments." The meeting was recently held in Las Vegas, Nev.

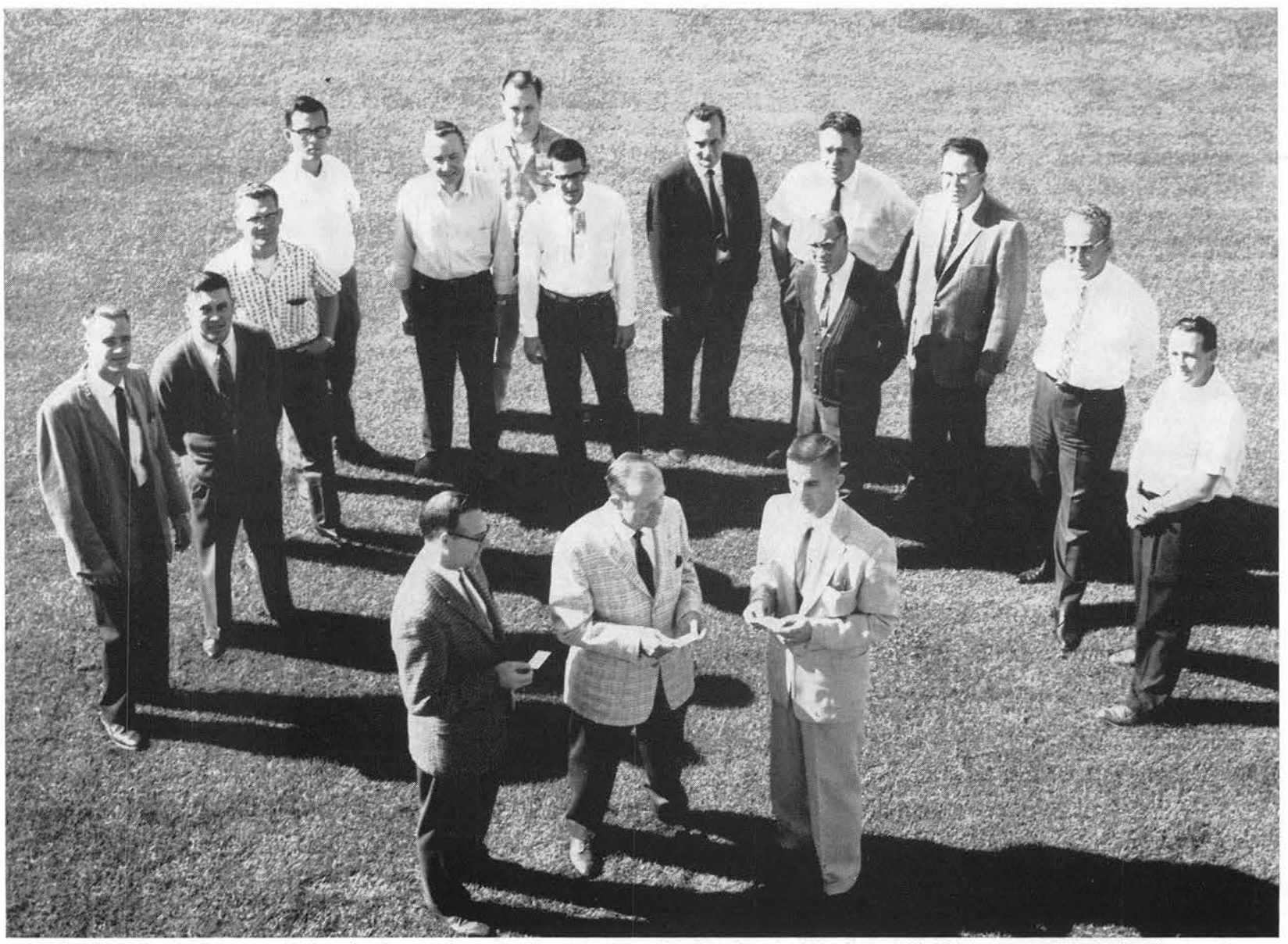
First Livermore Group Completes Electronic Course

Fourteen Livermore Laboratory employees have been awarded certificates for successful completion of a basic electronics course offered under the Laboratory's evening school program.

Receiving certificates were R. W. Finn, J. M. Kimberling, R. B. Clement, H. O. Faulkner, J. W. Lenz, W. S. Dawson, J. F. Trantham, E. J. Simpson, D. A. Baumann, and R. R. Craig (all of 8114), D. O. Cook (8142-1), P. F. Sites (8151-1), W. Carter (8114-4), and C. M. Shanabarger (8151-1).

The course included electrical nature of matter, potential-electromotive force, conductors and insulators, electrical units and laws, static and current electricity, power in DC circuits, and circuit applications.

Teaching the course, which met two nights a week for sixteen weeks, were Bob Tockey (8142-2) and Bob Dougherty (8141-1). Bob Tockey was in charge of the lecture program and Bob Dougherty instructed the laboratory sessions.



GRADUATES of Livermore Laboratory's evening school course in Electronics gather to receive their certificates from C. H. DeSelm (center, front), Director of Staff Services, 8200. With him are instructors Bob Dougherty (8141-1), left, and Bob Tockey (8142-2).

Editorial Comment

A.T.&T. President Speaks of W. E.

F. R. Kappel, President of American Telephone and Telegraph Company, commented on the Western Electric Company recently. He was speaking to shareholders of A. T. & T. who were gathered in Chicago for the annual meeting of the Company.

The message is of interest to Sandia Corporation employees as Sandia is a subsidiary of the Western Electric Company.

"Western Electric," Mr. Kappel said, "is the manufacturing and supply unit of the system (A. T. & T.). It has been a part of the system since 1882. The A. T. & T. Company owns 99.82 per cent of Western Electric's stock, and A. T. & T. and Western each own 50 per cent of the Bell Telephone Laboratories, our research organization."

Following are the rest of Mr. Kappel's words regarding Western Electric Company:

Bell Laboratories develops the finest communication equipment in the world and Western Electric makes it — for the Bell Telephone companies. The Telephone companies, the Laboratories, and Western work together in intimate day-to-day cooperation, and they work toward the same service goals. In my judgment, this three-way teamwork is the main reason why this country has the best communication service in the world, and is the absolutely essential foundation for the Bell System's success as a business.

In recent years, however, we have heard talk the gist of which is something like this:

Western Electric, it is said, is tops in the field of electronics. So its potentialities as an independent electronics manufacturer are tremendous. Therefore, wouldn't it be a good idea — and wouldn't the possibilities for profit be great indeed if the Bell System were to spin off Western Electric.

Along with this talk, there has been considerable buying and selling of the very small number of Western Electric shares that are publicly held, and a steep rise in price of these shares.

If this activity in the stock is in any degree based on the notion that we might consider separating Western from the Bell System, then it is necessary to correct such a misunderstanding.

I wish to say on behalf of your Board of Directors, and with all possible emphasis, that the A. T. & T. Company has no intention of spinning off Western Electric either now, in the near future, in the distant future, or anytime whatsoever. The reason for this statement is overwhelming. Western Electric is vital to the Bell System. To separate it from the system would not be a mere spin off — it would be the dismemberment of this business and a major misfortune to our share owners as well as to our customers.

Furthermore, the truth is that Western's position in electronics manufacture stems directly from its ties with Bell Telephone Laboratories and the Bell Telephone Companies. It is the whole Bell System's drive for research that generates our technical progress, and the research gets done in the Laboratories, not in the Manufacturing Company. This is how and wherefore of our advanced position in the new electronic arts. And it is Western Electric's intimate affiliation with the Laboratories and its membership in the Bell System, that makes it tops in its field.

Sandians Elected to AOA Officer Posts

The Albuquerque chapter of the American Ordnance Association elected new officers last month with two Sandians slated to serve during the coming term.

R. J. Hansen, Director of Development Shops 4200, will be first vice president and T. D. Harrison (2561) was elected third vice president.

The president is Col. James Bain (ret.).

Weddings

Helen Longbrake (3121) was married April 29 to John F. R. Seitz, Jr., of Albuquerque. The couple is living at 304 Spruce NE, Apt. 2.

Helen has been with the Corporation since March 1959.

Judy Griffith (8212-5) was married to Jack Crider on April 21 at a ceremony held in her parents' home at Fremont, Calif. Judy has been with Livermore Laboratory since December 1960.

They spent a brief honeymoon in Carmel, and are now living at 16929 Meekland Ave., Hayward.

Sympathy

To Lydia Francis Waldorf (3462-3) for the death of her husband April 28.

To Carmen Hillebrand (3423-4) for the death of her mother at Berkeley, Calif., April 26.

To R. A. Matthews (3465-1) for the death of his father in Pagosa Springs, Colo., April 30.

To Rita Hodgden (3311) for the death of her granddaughter in Africa on April 13. The baby was buried in Houston, Tex.

To H. M. Roberson (4513) for the death of his father-in-law recently.

Writes Article

"Establishing Dimensions and Tolerances for Gaging" is the title of an article by Paul L. Stewart (8114-4) appearing in the May issue of Tool and Manufacturing Engineer magazine. Paul is a member of the Golden Gate chapter of the American Society of Tool and Manufacturing Engineers.

Suzanne Shelden (1422)

Take a Memo, Please

SHORTCUTS are never time-savers when they are unsafe.

Coronado Club Pools Opening Saturday May 27

The Coronado Club twin pools are all set for the first big splash of the season. The pools open at 10 a.m. Saturday, May 27.

Tickets are now on sale at the club office.

Season tickets for adult members cost $5. Tickets for members' dependent children (under 16) are $2.50 for the season. Children under six are admitted free. For those not desiring season tickets, daily admission cost for adults will be 50 cents. Children will be admitted Monday through Friday for 35 cents, 50 cents on weekends and holidays.

Pool hours will be from 10 a.m. until 6:30 p.m.

Five swim classes will be offered for children. Beginning, intermediate, and advanced swimming will be offered plus diving and life saving instruction. Cost will be $2 per course. Classes will meet for three half hour sessions per week for four weeks.

Members may utilize the club's pool and patio facilities for private parties after 6:30 p.m.

GETTING FED with an eye dropper is this wounded bird, which was found after a high wind storm next to the tech area fence near Bldg. 814. Helping him to recovery is Mina Carnicom (3311-2).

Anti-U.S. Riots in Mexico Cut Short Eggerts' South-of-Border Vacation

Open antagonism to citizens of the United States was encountered by Gilbert Eggert (1121) on his April trip to Mexico, which was interrupted by pro-Castro riots in Morelia, west of Mexico City.

Gilbert and his wife left Albuquerque April 1 and returned the 25th—a week earlier than they had planned. The Sandian has made seven or eight extensive trips to the interior or southern part of the country during the past 20 years and speaks Spanish well.

"The change in attitude this trip was so marked I'm not sure I ever want to return," he said.

At San Luis Potosi old friends were edgy in their presence, Mexican shopkeepers gave them a chilly reception. In Queretero a traffic policeman, in reply to a request for directions, told them "Go, go home!" In Mexico City Gilbert's wallet was stolen by a teenage student while both were on a bus. As Gilbert tried to give chase the bus driver closed the door in his face.

"Hooray for Fidel"

A daily newspaper in Oaxaca, a favorite city for many retired Americans, openly declared "Hooray for Fidel" and the national magazine "Siempre" noted that "Northern aggressors are planning the invasion of Castro's revolution-blessed land."

The Eggerts arrived in Morelia, the capital of the state of Michoacan, the afternoon of the day Havana was bombed. At 6 p.m. a demonstration by university students and laborers started. The orators haranguing the mob through loud speakers could be heard even on the hillside overlooking the town where the Eggert's motel was located. As the crowd became more agitated a "self-styled American civil defense man" appeared at the motel and warned, "Pack up, we're being attacked!"

The Eggerts and others sought refuge in a monastery over the crest of the hill. "We watched the Fathers baking bread until 2 a.m. when the all clear signal was given," Gilbert recalled.

Institute Burned

Meanwhile in the town's plaza, the mob had set afire and completely destroyed the American Institute, a school of languages and culture; Uncle Sam and President Kennedy were burned in effigy; and two cars bearing American license plates were overturned and severely damaged. American guests at a hotel facing the plaza barricaded themselves at the rear of the top floor and the management furnished them with weapons.

As the mob progressed slowly toward the hill, where the Eggert's motel was located, Federal troops were called out and arrived in time to disperse the mob.

The next morning "Viva Cuba" posters were plastered throughout the town. Gilbert was refused service in several cafes "and even the dozens of shoe shine boys milling around the plaza refused to shine my shoes," he said.

By then the Eggerts were more than ready to come home.

Congratulations

Born to:

Mr. and Mrs. Louis Erne (3462-5) a son, Daniel Potter, on April 26.

Mr. and Mrs. Shawkeet Hindi (3462) a daughter, Susan Renee, on April 28.

Mr. and Mrs. Donald K. Holck (1111-2) a son, Eric Warren, on April 21.

Mr. and Mrs. S. C. Bowie (8122-2) a daughter, Nancy Lynn, on March 25.

Mr. and Mrs. P. D. Gildea (8155-1) a son, David, on April 24.

Mr. and Mrs. J. A. Manrow (8223-1) a son, Brandon Anders, on April 27. Britt Marie is on leave from 8123-2.

Mr. and Mrs. Ed Bradley (8141-1) a daughter, Carol, on May 3.

Mr. and Mrs. Jerry Hood (1431) a son, Jeffrey Dale, on April 11.

Mr. and Mrs. Bruce Johnson (1431) a son, Paul Douglas, on May 3.

Sandians Helping Bring Pro Tennis Players to City

Numerous Sandians, as members of the Tennis Club of Albuquerque, are helping to gain support for the Kramer Pro Tennis Playoff, scheduled for May 18 at 8 p.m. at the Civic Auditorium.

The proceeds of the popular event will go toward providing tennis instruction for juniors, helping send talented junior players to tournaments, and supporting Little League Tennis.

This year the 25-match playoff series will be between top-favored Pancho Gonzales, Andres Gimeno of Barcelona, Frank Sedgman, one of Australia's best players, and Barry MacKay, Davis Cup man from Dayton, Ohio.

At Sandia tickets may be obtained from Charley Chavez (2642), ext. 49173, or Hup Wallis (2331), ext. 34149.

BILLIE BECKMAN (3566-1) on Moclas during the New Mexico Crippled Children's Benefit Horse Show, held in Tingley Coliseum April 21-23, 1961.

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FOUR of the seven who originally moved into Bldg. 804 12 years ago this month, gather to say goodbye to the building as A. B. Machen (2300), right, vacated the building last week. The Military Liaison organization is now headquartered in Bldg. 892. From left are Ivan Moore (2310), R. A. Knapp (2330), G. C. Hollowwa (2320), and Mr. Machen. Sandia Technical Library will occupy Bldg. 804.

ISA Sponsoring Instrumentation Seminar at University May 18

A workshop-type instrumentation seminar will be sponsored by the Albuquerque Section of the Instrument Society of America May 18 at the New Mexico Union Building on the UNM campus.

A paper, "Instrumentation for Radiation Effects Testing" will be presented by Robert W. Healy and A. D. Kantz (both of 5434), and will cover areas of definition, effects, environments, complications, and required instruments.

"Instrumentation for Shock and Vibration Testing" will be presented by T. E. Smart (7311) and will encompass reasons, type of data, random vibrations, and status of present and anticipated instrumentation.

The formal presentations will be followed by a question and answer period, and a discussion of related problems.

The seminar will be held in room 253 from 1 to 5 p.m. Users, sellers, maintenance people, and other interested persons are invited to attend—and there is no admission charge. John Patrick (7311) and Mr. Healy are in charge of arrangements.

The Albuquerque Section of ISA recently elected its officers for the 1961-62 season. They are: John Patrick (7311), president; James McCutcheon (1322), vice president; Dave Dimick (Minneapolis - Honeywell), treasurer; Robert W. Healy (5434), secretary; and Robert P. Baker (2442), delegate.

Speakers for the last meeting were H. C. Biggs (2410), who described the new Organization of Standards Lab—its formation and problems, and A. P. Gruer (7530), who discussed programming for the 1963 International Telemetering Conference to be held in London. Roy Horton, ISA District vice president from Tulsa, Okla., was a guest and reported on current ISA activities.

'Roaring 20's' To Be Relived by Coronado Club Members Next Week

A "Roaring 20's" buffet dinner dance and a patio steak fry highlight the Coronado Club's social calendar for the next two weeks.

The Wampus Cats, well-known local Dixieland group, will be featured at the buffet dinner dance on Saturday, May 20. They will entertain at 8:30 and again at 10:30.

The buffet is from 6 to 8, followed by dancing from 9 til 1 to the music of the M. B. C. Trio. Tickets cost $2.60 for members and $3.60 for guests, and should be picked up at the club office by May 17.

Steaks cooked to order will be served to club members and their guests on Saturday, May 27, from 6 to 8 p.m. Choice of cuts includes 12-oz. New York, 14-oz. T-Bone, or 8-oz. Filet. Also available on a self-service basis will be baked potatoes, salads, and coffee or iced tea.

Eddie Chavez' orchestra will play for dancing from 9 to 1. Cost for the evening's entertainment is $3.95 for members, $4.95 for guests.

Social hour tonight and next Friday will be held from 4:45 to 6:15, and the $1.75 buffet lines will be open from 6 to 7:30. Tommy Kelly's combo will play from 5 to 8 tonight, and next week Max Apodaca will provide live music for dancing and listening.

Students from Two High Schools Will Visit Sandia Lab

Students from the science club at Farmington High School and the mathematics club at Gallup High School will visit Sandia Laboratory tomorrow.

The group from Farmington will see the Van de Graaff accelerator and chemistry facilities in Bldg. 803. Main interest of the mathematics students will be the IBM 7090 computer in Bldg. 880.

The entire group will meet at the Sphere of Science to see the exhibits and "The Sandia Story" before separating for the interest tours.

Community Relations Section 3431-2 handles arrangements for the tours.

Welcome Newcomers

April 24-May 5

Albuquerque
- Violet A. Donaldson 3126
- Miriam J. Fidler 3126
- Thelma Foster 4325
- *Dolores M. Martin 3126
- Patricia R. Serna 3126
- Laurel M. Sisson 3126
- Betty M. Sterling 2341
- William J. Stokes 3466
- William E. Young, Jr. 4412

California
- Orval E. Jones, Pasadena 5133
- John C. Krimmel, Stanford 7311

Illinois
- Larry L. O'Connor, Chicago 1332
- Roy C. Rentzsch, Villa Park 7118

New Jersey
- John A. Baldwin, Jr., Murray Hill 5430

Virginia
- James E. Morgan, Blacksburg 7311

* Denotes rehired

Returned from Leave
- James E. McCreight 2542

Military Liaison Group Moves To New Quarters in Bldg. 892

This week Military Liaison 2300 completes its move from Bldg. 804 to new quarters in Bldg. 892. Plant Engineering Department 4540 is proceeding with plans to convert the vacated building into a consolidated Sandia Technical Library.

The first completed permanent building at Sandia Laboratory, Bldg. 804 was occupied in May 1949. Since its construction, the building has served as headquarters for Military Liaison activities.

A. B. Machen, Director of Military Liaison 2300, recalls that at first seven people occupied the building. "Plenty of space to conduct orientations, teach classes, write manuals, and house weapon displays," he says. "But as Sandia grew, our activities expanded. We reorganized the space many times to make room for offices for Field Engineering, Military Publications, and Weaponry Training Departments. Eventually our activities expanded into Bldgs. 807 and 808."

Visiting officials received orientations or held conferences in the Bldg. 804 display area. Secretaries of Defense, Army, Navy, and Air Force, Joint Chiefs of Staff, Senators, Representatives, and hundreds of top-ranking military and civilian officials have been through the building in the course of conducting business with Sandia Corporation.

Since the first class convened in Bldg. 804 in 1949, more than 190,000 student hours of weapon training have been conducted for approximately 45,000 military, Corporation, and Atomic Energy Commission personnel.

Bldg. 804 was also the setting for the first weapon training films produced by Sandia Corporation. The activity was later moved to Bldg. 808 where Technical Training Division 2313 has produced 72 movies since the program began in 1953.

Bldg. 804 was headquarters, too, for the men of Sandia's Field Force Department, trouble-shooters in field use of nuclear weapons.

Military Publications Department 2320 will remain in Bldg. 807. Weaponry Training Department 2310 and Field Force Department 2330 are located in Bldg. 892.

"We left Bldg. 804 reluctantly," Mr. Machen says, "It was 'home' for a long time. But our new quarters are more suited to our needs. We'll be back, of course, to use the new Tech Library."

Livermore Lab Bowlers Take Top Honors in 'Sweeper' Tournament

The First Annual Sandia "Sweeper" Bowling Tournament was held in Livermore recently with Frank Milatzo (8225-2) taking first place in the men's division and Lorraine George (8211-4) heading the women's division. In the three-game series, Frank bowled a gross score of 704 and Lorraine tallied a 655 gross.

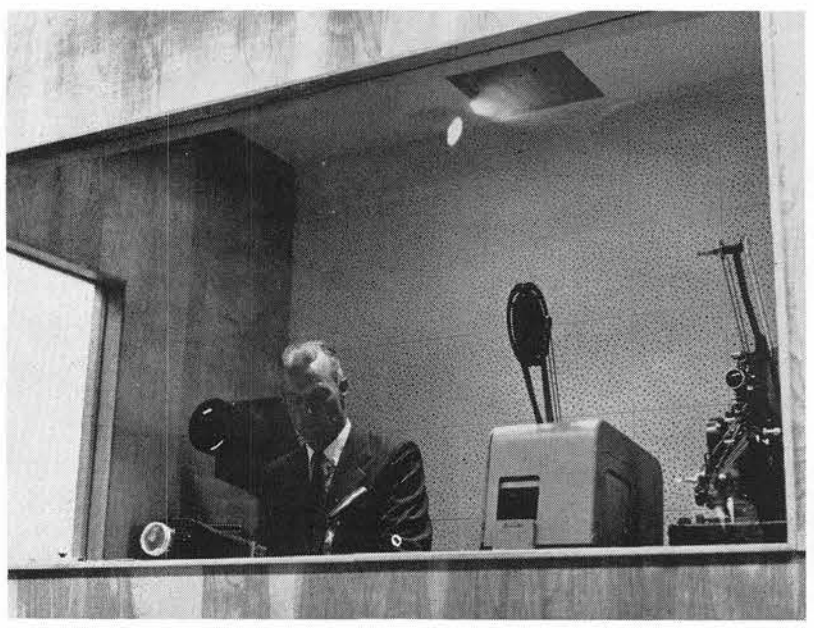
Forty-one Sandians entered the men's division and 26 were in the women's division.

High scorers in the men's division included Ubbie Hammer (8232-5), with a gross score of 666; Ted Petersen (8114-2), 661; Jack Workman (8125-2), 654; Millard Taylor (8232-5), 650; Chad Shanabarger (8151-1), 648; and Don Knaple (8232-3), 639. Don recently bowled a scratch score of 784, the second highest series reported in all of Alameda county.

In the women's division, high scorers were Ruth Powers (8212-5), with a gross score of 642; Evelyn Bachman (8232-5), 634; Margie Shanabarger (wife of Chad Shanabarger, 8151-1), 630; Marilyn Lorenson (8212-2), 629; and Pat Brin (wife of Ray Brin, 8160), 609.

F. E. Thompson Speaks At Chicago Conference

F. E. Thompson (7232-2) will speak before a National Telemetering Conference in Chicago on May 23. His topic is "Logic Modules for Signal Conditioning in Space Radiation Experiments."



PROJECTION BOOTH at rear of large 2300 classroom in Bldg. 892 contains several movie and slide projectors, sound system and light control panel. Oren Worden, above, operates the controls.

NEW MILITARY LIAISON classroom in Bldg. 892 is scene of weaponry training. Large room has classified display area (not shown) and much visual aid equipment for use by Division 2313 instructors such as C. W. Allen, who teaches class above to both military and civilian personnel.

White Water Boat Race Attracts Local Rivermen to Rio Grande Event

Among local rivermen the "fun event" of the year is the Rio Grande Amateur White Water Boat Race, to be held for the fourth time on Sunday, May 14, starting at 1 p.m. (MST).

The 4.4 mile race begins near Pilar, some 23 miles south of Taos, and those who finish the rugged course will beach their boats and rafts at the Taos-Rio Arriba County line.

The event will be held a week earlier than last year in the hope that the river waters will still be high from snow run-off.

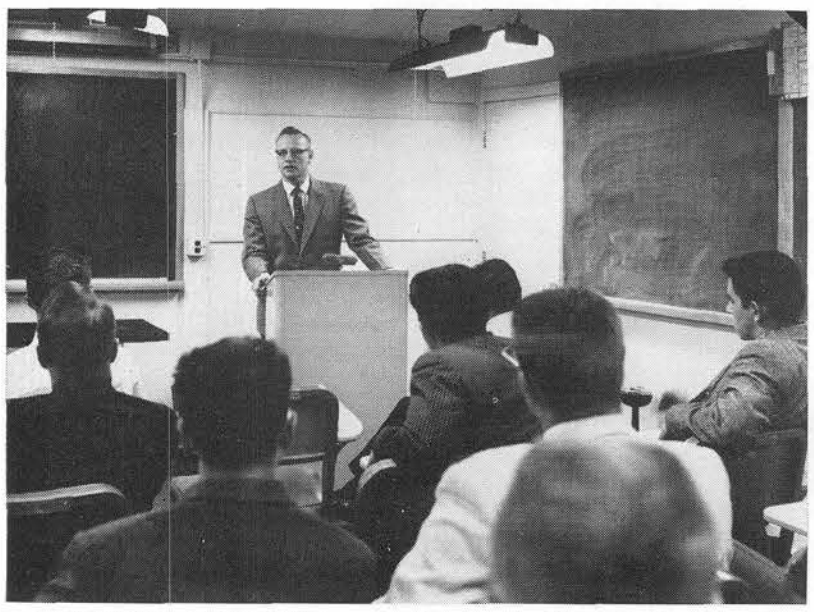
Awards will be given top winners in the kayak-canoe class and in the rubber raft class. In 1960 H. H. Patterson (7110) finished highest among the Sandia entries —sixth.

Since the entire race is visible from U.S. Highway 64 about 1000 spectators lined the banks last year.

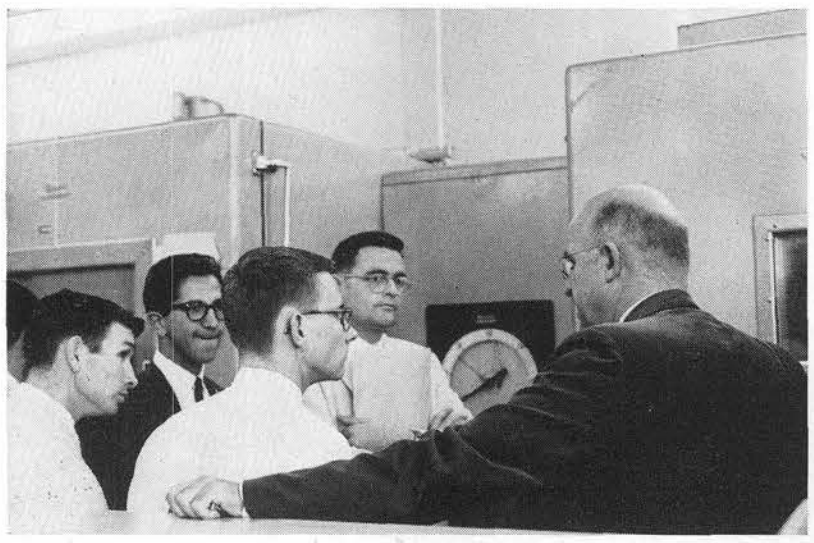
Entrants must be at least 21 years of age, have run the course at least once, wear approved life jackets, and sign an entry release blank. The entry fee is $1 per person and registration is required by 12 noon the day of the race.

Further information and entry blanks may be obtained from J. H. Fretwell, 4091 Trinity Drive, Los Alamos, N. M.

SANDIA SPHERE OF SCIENCE has been starting point of many student tours of Sandia Laboratory in recent weeks. Sphere houses scientific displays and exhibits of Sandia technical achievements. Any organized group may visit sphere by contacting Section 3431-2.



TECHNICAL INSTITUTE graduate opportunities at Sandia were described by M. A. McCutchan (3132) to a group of "TI" students touring Sandia Laboratory recently. Mr. McCutchan discussed Sandia educational programs which are available to employees.



ELECTRONIC COMPONENT DEVELOPMENT at Sandia was discussed by H. E. Vaiden (1432), right, during a recent student tour of Sandia by Highlands University Tech Institute students. The students also visited Data Processing Center and Telemetering Component Engineering Section in Bldg. 880.

Family Style Boat Trip on Colorado Attracting Many

An unusual opportunity will be offered Sandia families in June to see old Mormon settlements, Indian ruins, waterfalls, and other scenic views along 160 miles of the Colorado River. The area will be inundated by lake waters next year.

Ben C. Benjamin (7241) will lead the boat trip June 17-25 with 30 persons already planning to go.

The floating and paddling ride will start at Hite, Utah, and end at Crossing of the Fathers (Kane Creek).

Ben and several other Sandians have made the trip several times already and know where to look for the many interesting sights along the way. There will also be a short hike to world-famous Rainbow Bridge.

Sandians at Canaveral To Help in Open House

Cape Canaveral, Fla., will be opened to the public for the first time on Armed Forces Days, May 20 and 21.

Sandia employees at the Cape report there will be a "dry run" tomorrow and they will be allowed to take a carload of friends along. The "rehearsal" tour will start at the Titusville-North Gate and will end at the South Gate.

Highlands University Tech Students Visit Sandia Laboratory

Graduating students of Highlands University Technical Institute toured Sandia Laboratory facilities recently. M. A. McCutchan spoke to the visitors on opportunities for technical institute graduates at Sandia Corporation.

The group saw "The Sandia Story" movie at the Sphere of Science and scientific exhibits inside the dome.

They also toured Bldg. 813 training facilities, Electronic Component Development areas in Bldg. 802, Automated Data Systems Development in Bldg. 892, Data Processing Center in Bldg. 880, and Telemetering Component Engineering in Bldg. 880.

Tour was arranged by Community Relations Section 3431-2 and was conducted by Howard Shelton (3132-1).

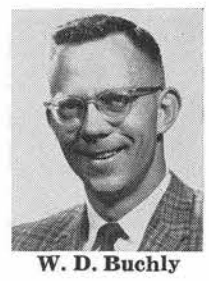
Sandians Participate in River Rescue; Offer Safety Suggestions

Because of a boating accident on the Rio Grande in White Rock Canyon this week, some of the "whitewater boaters" at Sandia are afraid that the sport may be getting a bad name.

Four Albuquerque men were missing when their rubber raft overturned south of Otowi Bridge. Participating in the rescue effort were W. T. Smith (7213), A. F. Huters (7221), H. E. Harling (3428), and H. H. Patterson (7110). All have had extensive experience boating on the Rio Grande, Colorado River and other stretches of fast water.

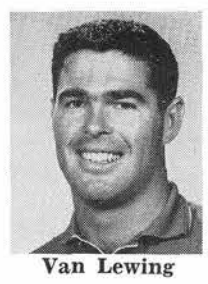
As Mr. Patterson left Tuesday for another flight search over the river banks he passed along these safety rules for whitewater boating, compiled from suggestions offered — and followed — by these Sandia river runners:

1. Do not leave the boat unless it is carried away from you in rapids.
2. All members of the party should have matches in waterproof containers on their person. Fire may be the best way of attracting attention and it is might comforting on a cold night.
3. Wear life preservers, especially in rapids.
4. Get out of cold water as soon as possible.
5. Keep your clothing on. If you must get a tan, don't get in rapids.
6. Have emergency food supply in waterproof bag that will float.
7. After a spill, face downstream, flex knees to absorb shock from rocks and work toward shore until feet contact bottom in shallow water.
8. Stick together and stay by the river until help comes. Attract attention of planes with a fire, throwing sand or waving clothes.
9. Tell neighbors or friends of your plans and expected arrivals.
10. Keep your head and consider your actions. This country needs a few adventurous types who can keep their wits about them in an emergency. It could become a matter of national survival.



W. D. Buchly

R. J. Harron



Van Lewing

Three Sandians Return to Laboratory From Military Leaves of Absence

Three Sandia Corporation employees have returned to their jobs after two years of military service.

Walter Dan Buchly served two years in the Army. He first was a platoon leader at Ft. McClellan, Ala.; then was commanding officer of a detachment of the 82nd Airborne Division at Ft. Bragg, N. C. Hired at Sandia in June 1957, Dan is now with Fuzing Systems Division 7162.

Ronald J. Harron spent his two years of military service attached to the National Institutes of Health at Bethesda, Md. During wartime the institutes are administered under the Navy Department. Upon return from military leave Ronald was assigned to Advanced Firing Set Development Division 1314, where he originally reported as a new hire in July 1957.

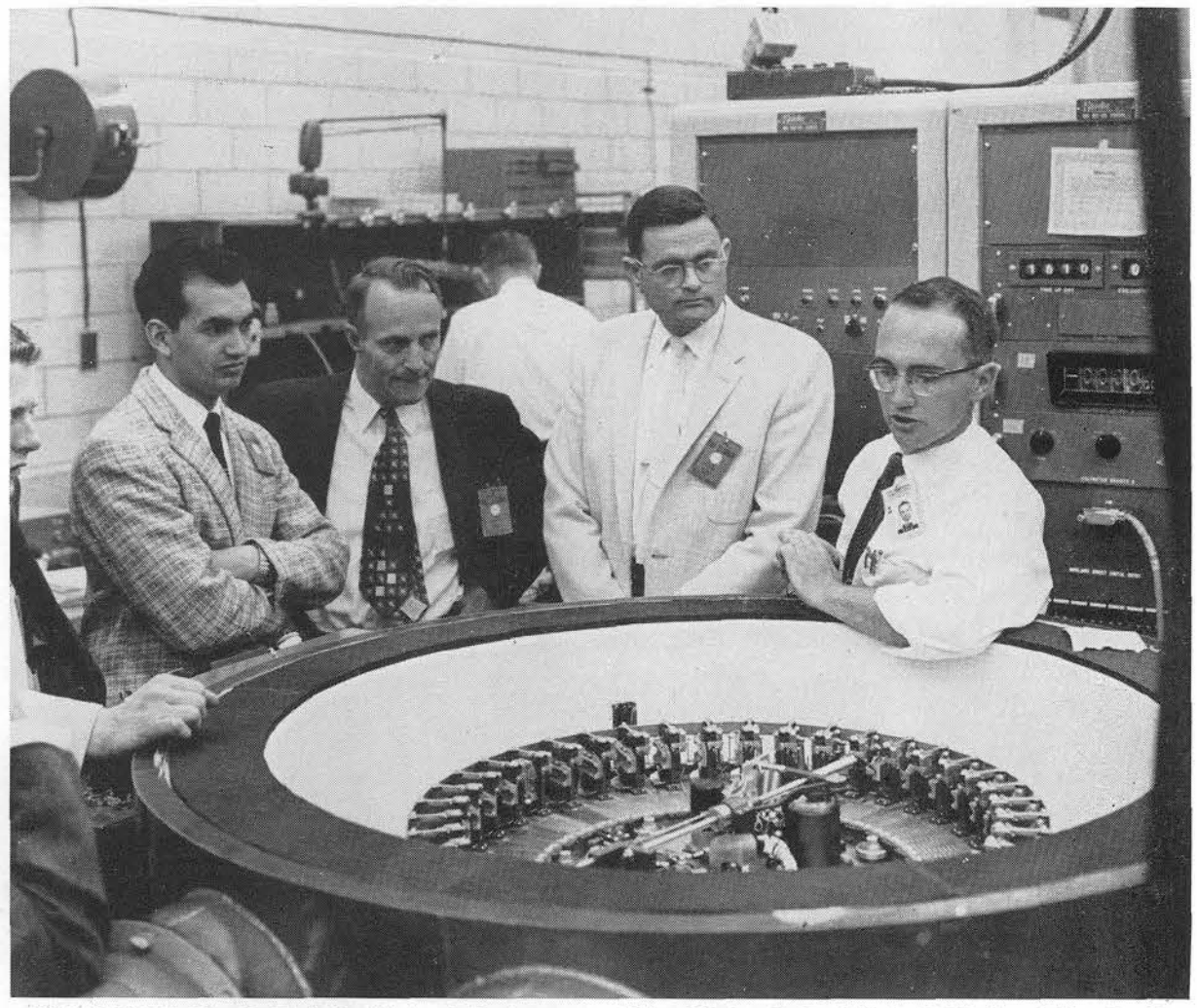
Van Lewing was with the Navy for nearly two years, assigned to Special Services. He was stationed in Pensacola, Fla., and Corpus Christi, Tex. Van reported back to Component Test Division 7321 where he was employed a short period before going on leave of absence.

Red Cross Honors Floyd C. Elder

An Award of Appreciation for "voluntary community service through the Red Cross" was recently presented by the American Red Cross, Bernalillo County Chapter, to Floyd C. Elder (4516-1).

Floyd has instructed various groups of Boy Scouts and Sandia Corporation employees in Red Cross First Aid during the past six years.

He has been with the Corporation for eight and one-half years.



TOURING Highlands Tech Institute students were told of automated data systems development in Bldg. 892 by G. R. Elliott (2452-1), right. Device is a revolving test head for an APAR machine.

A summer of work . . .

Students, Faculty Members Will Join Livermore Laboratory Technical Staff

Two college students and four faculty members will leave their college campuses this summer to work in technical organizations at Livermore Laboratory under the Laboratory's summer hire program.

Bernard W. Jordan, Jr., a graduate of the University of California at Berkeley with a Master's degree in electrical engineering, will spend the summer in Instrumentation Development Section 8122-3, working for Gayle Cain. He plans to return to school this fall to continue work on his PhD in electrical engineering.

Larry N. Dumas, who holds a BS degree in mechanical engineering, will be assigned to Structural Analysis Section 8116-1 under Tom Lane. Just released from the Navy, he plans to return to the University of California in September to obtain his MS degree in mechanical engineering.

Returning to Livermore Laboratory for his third summer is Victor P. Remillard, instructor of engineering at Stockton College, Stockton, Calif. Mr. Remillard, who received his BA degree in industrial arts from the University of California and his MA in history from Washington State University, will work in Drafting Division 8114, where he has worked for the past two summers. From April to June 1960 he served as a consultant to 8114.

Working in the Drafting Division with Mr. Remillard will be Rex W. Waymack, an instructor in the engineering department at Modesto Junior College, Modesto, Calif. Mr. Waymack received his Bachelor's degree in industrial arts from Western Illinois University and his MA degree in education from Notre Dame.

James F. Schon, an instructor at City College of San Francisco in the engineering department, will also return to Livermore Laboratory for the third summer, working as an engineer in Tool-Made Sample Section 8116-3, under A. J. Wiemken. For the past two summers he was assigned to Drafting Division 8114. He also served as consultant to the division from April to June 1960. Mr. Schon received his BS degree in mechanical engineering from the University of California at Berkeley.

Howard W. McCauley, who has worked for the past two summers at Sandia Laboratory in Design Division 4543, will be assigned to Plant Engineering Division 8221. Mr. McCauley, an associate professor of civil engineering at the University of Iowa, holds an MS degree in civil engineering from the University of Minnesota and a BS degree in civil engineering from North Dakota State University.

Continued from Page One . . .

Summer Employees

job offers are still pending to several others.

The students and faculty members (denoted by an asterisk), their schools, and Sandia organization numbers are:

University of Arksansas
*Franklin Deaver 7183

University of Arizona
Walter W. Walker 1121

Brooklyn Polytechnic Institute
John J. Hutchison 1112

Broome Technical Community College (N.Y.)
*Howard L. Greene 1110

University of California
William M. Dante 7223, John E. Scharer 1424, Harold S. Stone 1411, R. W. Watson 1424

Carleton College
Brock Spencer 1110

Carnegie Institute of Technology
W. A. Dodson 1431, Jon G. McGowan 7322

University of Chicago
Franz W. Schneider 5421

University of Colorado
*L. C. Garby 7130

Columbia University
*R. A. Bernheim 5130

Georgia Institute of Technology
*Charles E. Stoneking 7311

Harvard University
R. F. Dashen 5112, Clifford W. Erickson 5111, Ira H. Gilbert 5151, James E. Mann, Jr. 5153

Illinois Institute of Technology
William F. Adler 7182

University of Illinois
Charles A. Hall 1124, Philip E. Lambdin 7130, Ahto Palm-Leis 7182, James J. Rhyne 5152

Iowa State College
William M. Hartmann 5152, George R. Wilde 1432

Johns Hopkins University
Stephen I. Warshaw 1432

Kansas State University
Phillip M. Rinard 5130, Kenneth H. Carpenter 2412, John G. Harri 2442

University of Kansas
J. A. Rupf, Jr. 5150

Massachusetts Institute of Technology
Stuart P. Hastings 5426, Michael S. Mock 5432, M. L. Silverstein 5421

University of Michigan
Alan L. Cohn 2421

Michigan State University
*W. D. Jones 2560

University of Minnesota
Neal R. Vanstrom 3311

Missouri School of Mines
James I. Latham 7251, William L. May 1432

University of Missouri
Thomas O. Baldwin 5151, Orville Brill 1124, *Robert M. Eastman 2560

New Mexico State University
Larry Z. Kennedy 1110, H. G. Palmer 1120

University of New Mexico
Raymond J. Barreras 1111, S. Arthur Cone 1321, Jack E. Thompson 7180, *Arthur Bailey 4220, *K. R. Johnson 7323, *Robert M. Morgan 1443, *Richard Dove 7323, *Roland Finley 4543, *Glenn Whan 5432, *L. C. Meyer 7222

Northwestern University
Terry D. Herther 1320, Thomas J. Burgess 5432

Ohio State University
David L. Hutchins 1413, John P. Wilcox 7224

University of Oklahoma
*Olden Burchett 1331

Oklahoma State University
*O'Neill J. Burchett 7311

Pennsylvania State University
David E. Rundquist 5110, *Harold I. Knox 4412, *John R. Mentzer 5111

Princeton University
David L. Beckedorff 5426, John E. Bjorkholm 1320, Robert G. Chapman, Jr. 7223, Dennis Karjala 1413

Purdue University
Robert M. Montgomery 1332, F. J. Perdreauville 7182, Paul E. Phipps 7250, Richard E. Spalding 7250

Rice Institute
Tom E. Bullock, Jr. 2422, Robert D. Nasby 1432

St. Louis University
Michael K. Sain 1424

Texas Technological College
Ronald R. Miller 2561

University of Texas
Jack B. Brown 7512, *Eugene A. Ripperger 1313

Virginia Polytechnic Institute
Richard D. Harris 2563

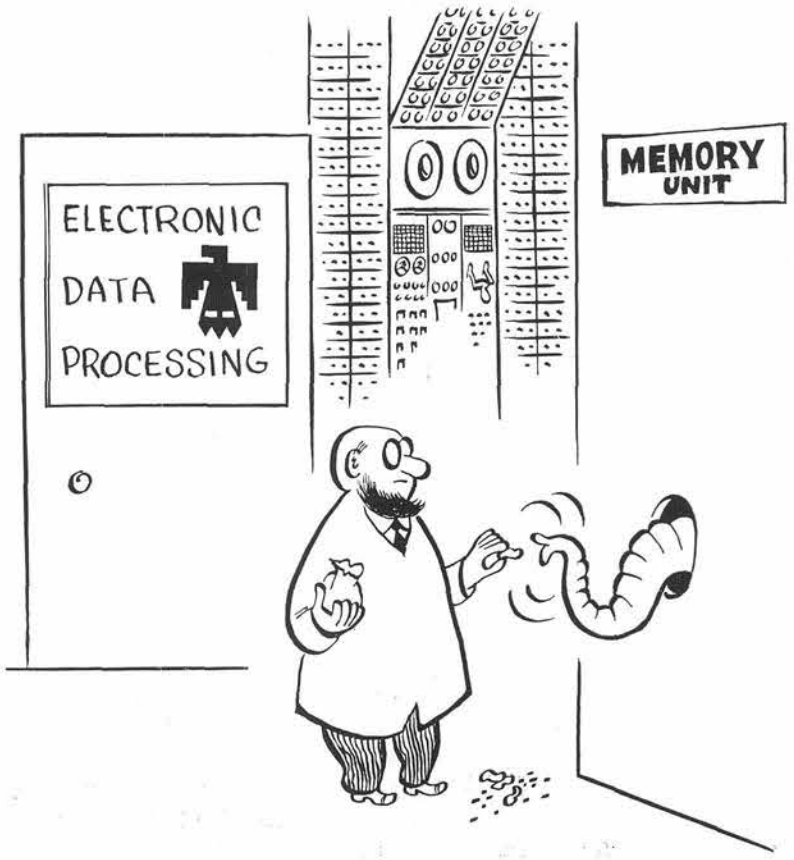
Washington University (St. Louis)
*Anthony R. Konecny 2564

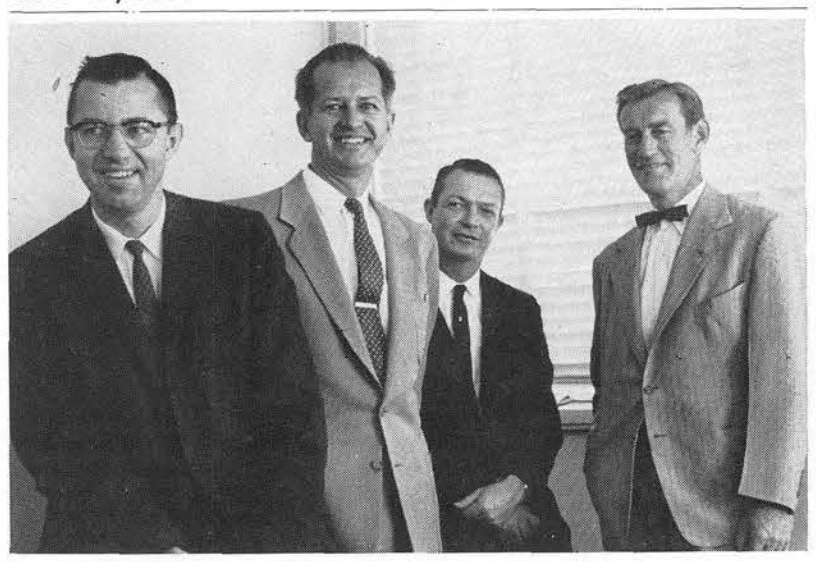
University of Washington
*Edwin F. Danielson 5111

Albuquerque Public Schools
*Michael E. Aguilar 2421, *Merton K. Bratton 2344, *Darrell L. Gentry 2344, *Randall L. Cain 7322, *E. R. Harrington 1310, *Robert Iden 3311, *Wilbur Maxson 3132, *Robert E. Kyrlach 7224, *Oliver Neece 4632, *Wendell Scarbrough 7241

St. Pius X High School (Albuquerque)
*John F. Brady 7251

Aztec, N. M., Public Schools
*Joseph W. McKinley, Jr. 7321





NEW OFFICERS for the American Institute of Industrial Engineers, Albuquerque area chapter, are (l to r): Albert Smailer (2563), director; Chester Ricker (3111), president; William Jones (ACF), vice president; and John Hueter (2563), secretary-treasurer. The men were installed in their new offices Monday, April 24.

Supervisory Appointment

CLARENCE R. MEHL to supervisor of Nuclear Burst Studies Division 5111. He has been working in the Nuclear Burst Physics Department since he came to Sandia in November 1954.

Before being hired here Clarence was at Lehigh University, Bethlehem, Pa., where he received his MS and PhD degrees in physics. He was awarded his BS degree at Montana State College.

During World War II Clarence served more than two years in the Army.

He is a member of Sigma Xi and Tau Beta Pi, honorary societies, and the American Physical Society.

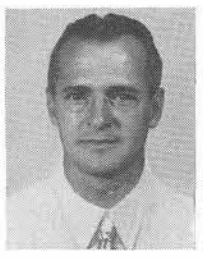
Letha Stewart Helped Plan Secretaries Week At Melbourne, Fla.

Letha Stewart, secretary at Sandia Corporation's site at Cape Canaveral, Fla., has been busy this past year as a member of the Cocoa Beach Chapter of the National Secretaries Association.

She recently served as chairman of a poolside fashion show which was held during National Secretaries Week. During the week, chapter members gave speeches, held an office exhibit, honored their bosses' wives at a luncheon, and presented a book to the Melbourne, Fla., library.

Funeral Services Held for O. L. Case

Funeral services were held April 28 for Ora L. Case, a machinist in



Millwright and Machine Service Division 4512. Mr. Case died April 24.

He had been employed by Sandia Corporation 10 years.

Survivors included his widow, a married daughter in Albuquerque, a son stationed with the Navy at Pearl Harbor, and three brothers and two sisters, all of Indianapolis, Ind.

Not All Poisons Are Labeled Poison; Anyway 18 Month Olds Can't Read

(Editor's note: A vast majority of items appearing in the Lab News we enjoy writing. The following item we did not write and we hardly enjoy publishing it, but feel we must. It first appeared in a safety bulletin of the U.S. Department of Agriculture's Forest Service. The Lab News has permission to reprint.)

* * *

DEATH UNDER THE SINK

The author's neighbor did not fish with him last Saturday. He attended a funeral. His niece, who was about a year and a half old, never had a chance from the moment her hand touched her mouth. She was exploring the things kept under the sink when her mother came to see what she was up to.

In replacing the items that were removed, a small amount of an automatic dishwasher product was spilled on the floor. The white powder looked inviting to the little girl and a few grains were grasped in her hand. As is the way with small children, the powder went directly into her mouth and from that moment on, death was inevitable. Blood appeared almost instantly.

Milk and oil were forced and she was taken immediately to the hospital. Four days later she died, not from chemical pneumonia as was suspected, but from complete destruction of the esophagus and stomach.

The father remarked that the only way this death makes any sense is if it will save other children. The hazard of plastic bags has been well publicized but very few of us are aware of the hazard of the modern miracle products we keep under the sink. These products are not labeled as to their lethal effect but they should be.

Please check your home for proper storage of modern miracle products, strong detergents, and the like. Apparently no first aid or prompt medical treatment is good enough to offset the damage that is caused by even a small amount of some commonplace household products when taken internally.

Tell your friends and have them tell theirs that these products belong well out of the reach of children.

Sandians Assist in Albuquerque UF Budget Review

Annual review of budgets for the 24 agencies of the Albuquerque United Fund is now underway. Several Sandians are serving on panels to examine proposed 1962 operating budgets of the agencies.

W. H. Chandler (3221) and R. M. Hawk (4112) are chairmen of two of the city's five panels. Serving as members are S. P. Schwartz, Sandia Corporation president, D. S. Tarbox (3200), W. R. Rosenberg (4360) and T. E. Zudick (3465).

The panels meet with agency officials, hear budget proposals, and report to the Board of Directors of the United Fund. The UF board makes the final decision on agency budgets and then establishes the goal of the fund drive.

150 Donors Needed To Replenish Blood Bank at Livermore

More than 150 volunteers are needed to replenish the dwindling supply of blood in the Livermore Laboratory Blood Bank, it was announced by Ray Huston, supervisor of Employee Services Section 8212-2.

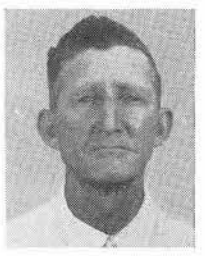
Ray said that 77 pints were drawn by employees and their dependents during 1960 and an additional 13 pints have been administered in 1961. "This leaves us with only seven pints in the bank," Ray said.

The life-giving fluid is provided without cost to any employee or dependent requiring transfusions as the result of emergencies or surgery. A mobile unit of the Blood Bank will be at the LRL cafeteria June 2 to accept donations but volunteers should sign up with Employee Services by May 19. For additional information, call Employee Services, ext. 2254.

C. H. Smithey Died Suddenly April 30

Charles H. Smithey (4574) died suddenly April 30.

Mr. Smithey had been employed



by Sandia Corporation since December 1952.

His survivors include his widow, a married daughter living in California, a son in the Air Force, two brothers, and a sister.

H. J. Jensen Speaks To Acoustical Society

"Zero Shift in Piezoelectric Transducers" is the title of a technical paper to be presented by Hartley J. Jensen (8122-3) May 12 at the 61st meeting of the Acoustical Society of America. The meeting will be held in Philadelphia, Pa.

POWER FOR THE helium refrigerator is supplied by these two 15 hp compressors. Above, Gary Krieger (1413-2) is monitoring the gauges which show pressure at different stages of compression.

'Lively Lady' Creates Quite a Stir When Bud Leonard Pushes Pedal

To race drivers, the color green is considered unlucky. Number seven, or a combination of numbers adding up to seven, is supposed to bring good luck.

These superstitions are well known by three Sandians who climb into the driver's seat of modified stock cars each Sunday at Speedway Park, and compete with other racers for top speed honors.

They are Bud Leonard (3464-2), Mel Heisler (7321) and Dick Case (1331).

Bud Leonard's car, the "Lively Lady," is a newcomer to the track this year, although he's been racing for six years. During this time, Bud has built four cars, always striving for more speed and power, less weight, and lower lines. His father, Jim Leonard (4622), helps design and build the cars.

The Lively Lady has a basic Model A frame and a modified Olds engine, but that's where the resemblance to any other car stops. Parts have been disassembled, narrowed, shortened, handmade, and bored for greater efficiency. Bud estimates that his car averages 85 mph on the track.

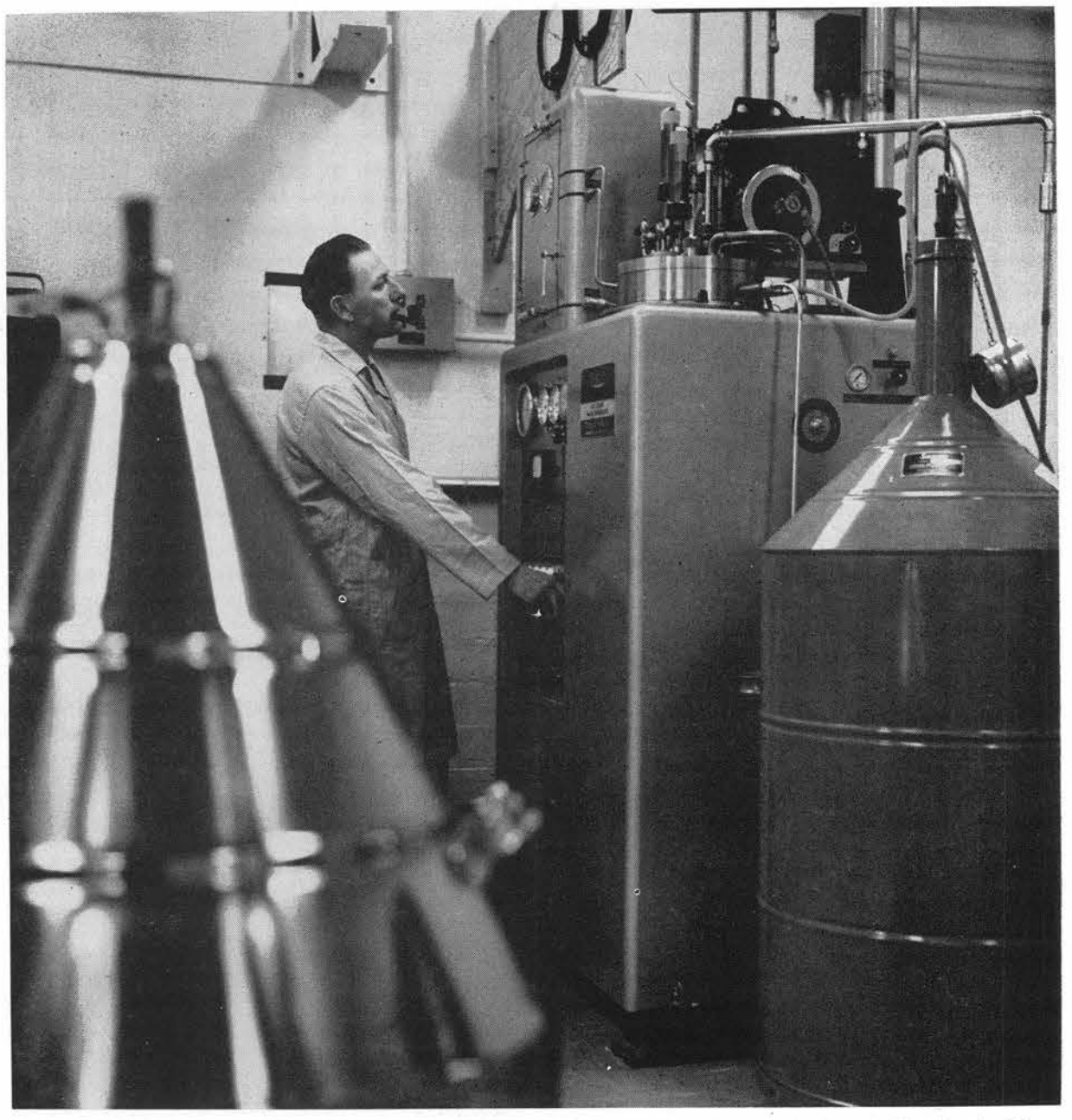
Incidentally, his number is 77 —in red figures.

Mel Heisler's first love is micro-midget racing, but since this type of race is not held in Albuquerque, he turned to modified stock cars. His car has a custom-built chassis, with a Ford engine.

Mel was top driver after three years of micro-midget racing. His first time out this year in stock car racing, he finished all events, and feels this is a promise of things to come. "At least I know my car will hold up," he says.

A veteran race driver of seven years, Dick Case has a converted sprint car which he built himself. It has a modified Olds engine, with about 300 hp. Weight of the car is between 1400 and 1600 pounds with Dick in it.

Dick became interested in race driving when he was stationed at Kirtland. He says that he once had a green car. "I didn't win a thing."



THIS ADL-COLLINS helium refrigerator, installed in Bldg. 855 last month, is used to achieve a near-perfect vacuum for materials testing. Ray Drury (1413-2), who will operate the machine, is checking temperature gauges. In the foreground are two Dewars containing liquid air for pre-cooling helium.

Near Perfect Vacuum Now Making Possible New Material Analyzing Tests

Experiments under near-perfect vacuum conditions can now be conducted by Advanced Development Division 1413 through use of a helium refrigerator which was recently installed in Bldg. 855.

Certain properties of materials cannot be accurately analyzed in the presence of air. By conducting tests in an ultra-high vacuum, the specimen is not contaminated by the atmosphere, and precise analyses can be made.

Physical Electronics Section 1413-2, headed by W. D. LaCoss, expects to achieve a vacuum which is 10,000 to 1,000,000 times better than a conventional vacuum. This will be 10^{-10} to 10^{-12} mm Hg (millimeters of Mercury) as compared to 10^{-6} mm Hg, which is considered a good vacuum.

"If a metal surface in a closed chamber can be made cold enough, gases other than helium will condense on this surface, leaving an ultra-high vacuum," says G. L. "Gary" Krieger (1413-2).

Ultra-High Vacuum

This ultra-high vacuum is achieved by a technique called cryopumping (cold pumping), which makes use of the fact that the common atmospheric gases have extremely low vapor pressures at temperatures near that of liquid helium.

Helium has a boiling point of 4.2 degrees Kelvin. The Kelvin scale starts at absolute zero, which is equivalent to —459.69 degrees F. In comparison, nitrogen has a boiling point of 77.3 degrees K, which is —320.4 degrees F.

The problem of how to get the icy temperature required to pull the residual gases from the vacuum chamber has been resolved by using the helium refrigerator.

Helium is compressed to 200 psi in two 15 hp compressors, and fed into the piston-type expansion engines of the refrigerator. By driving the pistons, the helium loses energy and becomes colder. It is then exhausted by the engines and returns through highly-efficient heat exchangers to be compressed again. When the helium re-enters the refrigerator, the same process is repeated, thus providing a refrigeration cycle.

Heat removed from the helium during the cooling process is dissipated in an oil bath located on top of the refrigerator. The oil bath is associated with a crosshead which controls the action of the valves and pistons of the refrigerator's engine.

The near-perfect vacuum is created in a bell jar which is connected to the refrigerator by two vacuum jacketed transfer lines. Low temperature helium flows through these lines to the bell jar, and then the inner element of the lines continues into the jar.

Process Necessary

"This entire process is necessary to get that metal surface so cold it will condense common gases from the air," Gary explains.

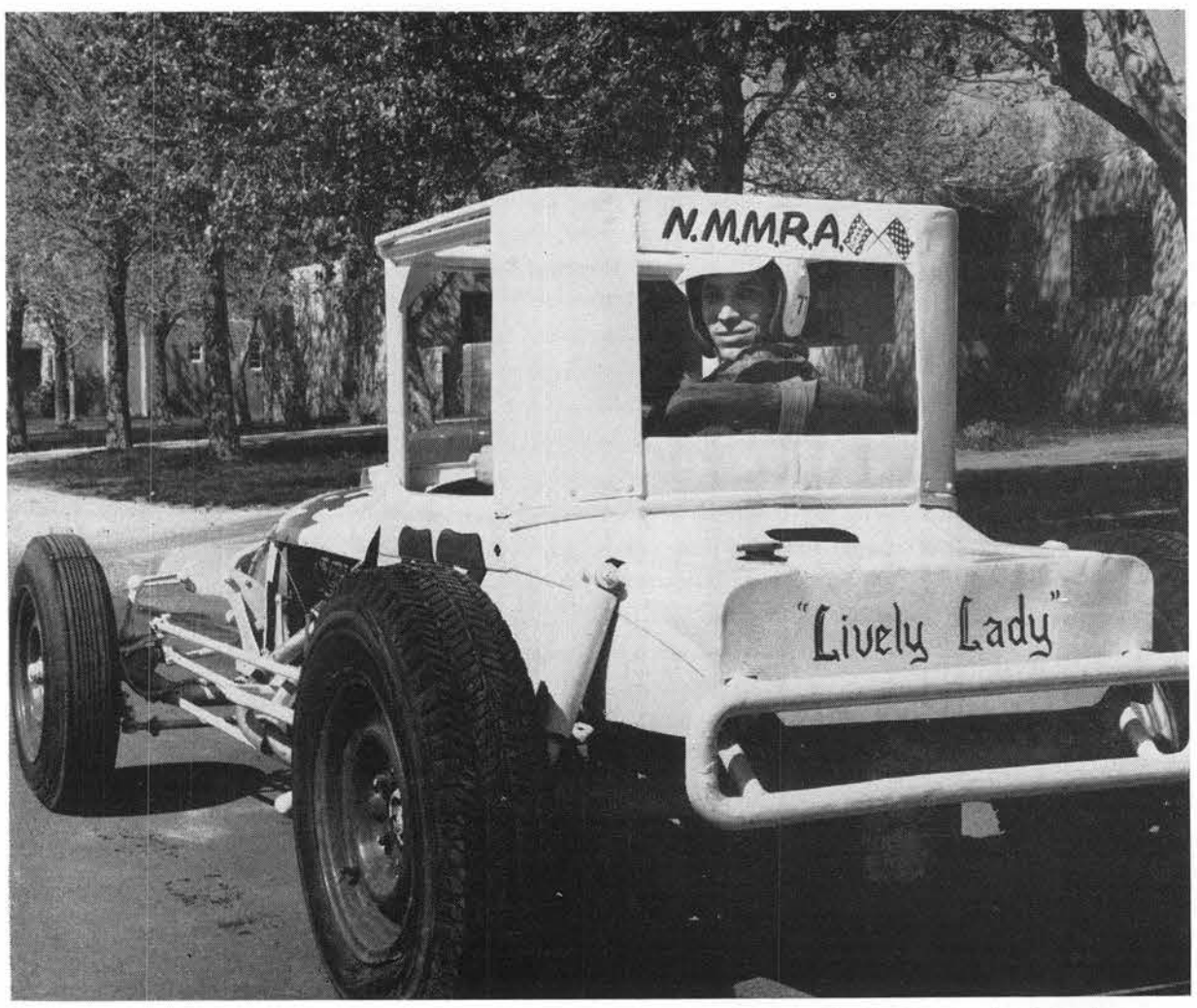
Since helium itself retains relatively high pressures even at these low temperatures, the bell jar which will be cryopumped has to be conventionally pumped first to remove most of the normal helium present in the air.

The helium which goes into the refrigerator is first pre-cooled by liquid air to shorten the time required to reduce the helium temperature. There is a large change in volume inside the refrigerator when the temperature of the helium is lowered. After the machine is shut down, a considerable quantity of gas re-appears which is recovered by pumping it into a high pressure storage tank.

Because conventional lubricants would freeze at such low temperatures, helium is also used as the lubricant for the fine machinery of the refrigerator. Common gases are kept out of the machine by using purifying filters and charcoal traps.

The refrigerator operates inside a vacuum jacket which is maintained by auxiliary conventional pumps. The equipment has interlocks and safety devices to shut down the machine in event of malfunction.

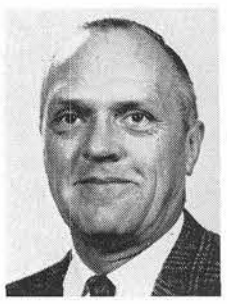
"This particular machine is designed to obtain low temperatures, and is not for making liquid helium, although in the process we can produce about two liters per hour," Gary pointed out. "A liquid helium-producing machine would make about eight liters per hour."



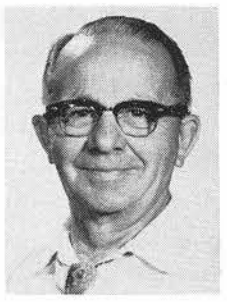
LIVELY LADY, built by owner-driver Bud Leonard (3464-2), is a familiar car at Speedway Park on Sundays. Two weeks ago Bud won the trophy dash, and came in second in the fast heat. The auto races are endorsed by the New Mexico Motor Racing Association. Stock cars race every Sunday eventing.

Sandia Service Awards

15 Years



William G. Funk
3120
May 13, 1946



Raymond K. Allen
2643
May 14, 1946

James E. McGovern
4310
May 17, 1946

James Karo
3462
May 21, 1946

10 Years

May 13-26

Robert W. Devore 3150, Hubert L. Hacker 2642, Charles T. Stewart, 7535, William D. Wing 7511, Charles J. Davis 4511, Ernest C. Fuentes 2444, W. A. Johnson, Jr. 4623, Ralph W. Olson 7131.

M. J. L. Gallegos, Jr. 2713, Nyrah H. Marchant 4631, Shelton B. Shannon 4252, Malcolm Ward 4518, Ora J. Crum 4511, Alfred J. Brady 4251, Clyde P. Howard 7323, Rolland R. Pyetzki 2622.

James L. Coursey 7535, Reuben J. Montoya 3242, W. Rappleyea, Jr. 4253, Norman F. Sinnott 7213, R. A. Vermillion 4224, Frank Lucero 3452, John Martinez 4623, Juan S. Sanchez 3241.

Need Women for Sandia Golf League

Seventeen women have indicated they would like to play in a Sandia-sponsored golf league. At least 20 are needed to set up the distaff league, reports Fred Romero (3122). Women who are interested should contact Fred, ext. 29157.

Madsen-Woolrich Team Champions In Tournament

M. R. Madsen and L. J. Woolrich (both 7322) won the doubles championship of the Sandia Laboratory table tennis tournament recently. Runnersup were K. D. Smith and J. E. Chavez (both 2642) who took the first two games of the finals but lost the next four to the champions.

Some 2500 employees participated in the laboratory-wide tournament, according to Services and Benefits Division 3122.

Roy Hansen Pitches No-Hitter for 4300-7500 Team

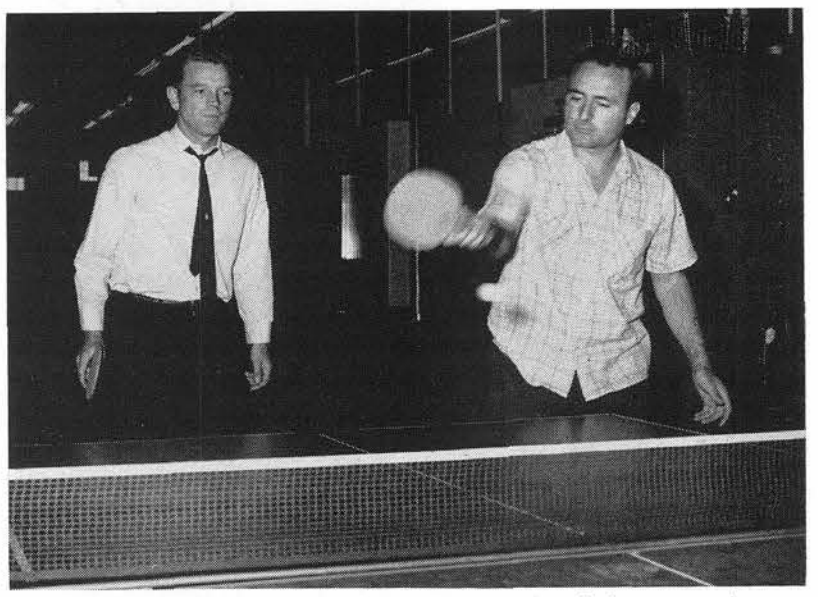
During Sandia Laboratory's first week of softball play, Roy Hansen (7523) pitched a no-hitter against the 4200-I team, although the final score was 7 to 4. The four runs were all made on errors by the 4300-7500 team.

The Men's Softball Association is divided into two leagues this year. There are seven teams in the American League, and 10 in the National League.

Games are played at 6:45 and 8:30 p.m. Monday through Thursday. Anyone interested in joining either league should contact Fred Romero or Ken Guerin (3122), ext. 29157.

Speaks in Toledo

L. E. Fuller (3110) recently spoke at the Midwest Compensation Conference in Toledo, Ohio. Subject of his talk was "The Professional Administrative Salary Survey."



DOUBLES CHAMPIONS of the Sandia Lab tennis tournament are shown above during last games with K. D. Smith and J. E. Chavez. Champs are M. R. Madsen, left, and L. J. Woolrich (both 7322).

Second Annual Fred J. Given Golf Tournament To Be Held This Month

Sandia and AEC employees are invited to participate in the second annual Fred J. Given memorial golf tournament which will be played on the University of New Mexico course on Saturday, May 20.

It is the Sandia Employees Golf Association's largest tournament of the year. Entry fee is $1, and should be sent to Fred Romero (3122) by May 16. The $2.50 green fee is payable at the course.

The 1961 medalist's name will be inscribed on a large silver trophy, which is displayed in Bldg. 802. A smaller replica of the trophy will be given to the individual. Larry Smith (5111) is defending champion.

Golfers will be divided into flights of 16, according to established handicaps. Low net and low gross prizes will be awarded in each flight for first, second and third place winners.

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

'53 BUICK, 2-dr. Riviera, hard-top, white and blue, auto. trans. R&H, other extras. Schaefer, AX 9-3191.

KINSMAN ELECTRONIC ORGAN, 5 months, double manual, terms. Johnson, AX 9-6912.

SIAMESE KITTEN, eight weeks old. Houghton, DI 4-7358.

1959 30-ft. MARLETTE house trailer, 1 bdr, $250 for equity and take over payments of $61.12/mo., $2100 pay-off. Fletcher, AL 5-0695.

AUTO TRAILER, two-wheel, cheap. Nott, AX 9-2232.

POLAROID 800 w/case, flash, etc. $70; Argus C3 w/case, $20; binoculars 6x30, $15. Hall, 298-3704.

ENLARGER, Solar f4.5 lens, cond., 2 carriers, $50; portable water evap. cooler, 1-room size, $35. Dlouhy, AL 6-7952.

BOXER, fawn, black mask, 7 mos., all shots completed, house broken, excellent with children, $50. Smailer, AX 9-8413.

'54 DODGE Coronet station wagon, 2-tone blue, new 710-15 white-walls, rebuilt 6 cylinder engine. Baca, AX 9-8500.

LAMBRETTA motor scooter. Ruff, AM 8-9969.

TWO FIVE ACRE LOTS in Antelope Springs, $1095 each; will sell equity for $250, $30/mo. for both. Asturias, AX 9-4173.

3 END TABLES, limed oak finish, $10 total; 2 table lamps, $2 each. Miller, AM 8-5992.

MT. CABIN, 2 lots, $300 down; ironer $60; Royal typewriter, std., manual, pica type, $95. Ogden, CH 3-4723.

FRIGETTE automobile air conditioner, now installed in a '60 Dodge Dart station wagon; sell for $100 removed, cleaned and crated. Murphy, DI 4-3124.

ENGLISH TYPE riding saddle, $40; 1 jewelry setting set, $75. Knoff, AL 5-0683 after 6 p.m.

ACME VISIBLE FILES, 4x6" cards; steel office desk with typewriter drawer, $125. Barker, AX 9-2365.

WORLD GLOBE, 18" diameter, plastic, 2 books trade stamps; baby scale Health O-Meter, 1 book, assorted toys for stamps. Mitcham, AX 9-8425.

20" SCHWINN girl's bike, puncture proof tubes, basket. McCullar, AX 9-0638.

'53 CHEVROLET sedan delivery truck, $395 or best offer. Gatlin, AM 8-8151.

TWO 3-pane bathroom windows, one screen; one 9-pane kitchen window, w/screen; one 3-pane door (one pane broken). Hodyke, AM 8-5210.

TWO SETS clothes line poles, 2½" pipe, reasonable. Apodaca, TR 7-3148.

WINCHESTER Model 69-22 rifle, bolt action, 7-shot clip magazine, heavy duty carrying sling, $15. Allen, AX 8-2278.

'51 JEEP MOTOR, 4 cylinder, overhead valve needs repair, will sell or trade. Pritchard, AM 8-6430.

ROTARY MOWER, 2-cycle, old timer, $10. Wilde, DI 4-6079.

HORSE TRAILER, single, sell or trade, reasonably priced. Causey, AX 9-0089 after 6 p.m.

TRUMPET, silver w/case, $30; shotgun, brand new 12 ga. single, full choke, 28" barrel, $20. Applegate, AX 9-3337.

TYPEWRITER, standard office size, not damaged, could stand cleaning and adjusting, $15. Browning, AX 9-6384.

STEEL FRAME WINDOWS, 1 4-foot wide, 3 3-foot wide, $35; screens $1.25 each. Heath, AL 5-5418.

MOSSMAN 3 BDR, den, dining room, 1¾ bath, 13x24' garage, air conditioned, forced air heat, walled yard. Natoli, AM 8-5033.

RECORDING TAPE, 1200 ft. reels of used tape, $1.25 each. Cope, BU 2-3240.

SMALL REFRIGERATOR, gas dryer, portable TV, electric heater, 4 venetian blinds, 85,000 BTU gas heater w/blower, thermostat. Riggs, DI 4-2791 evenings.

COOLER, 2-speed, 4000 cfm; small tricycle; baby stroller, folding; record cabinet, wood. Burkhart, 299-1798.

ACCORDIAN, Crucinelli, by Pan, 120 bass, 9 treble, 5 bass shifts, 7 separate reeds, best offer. Sepko, BU 2-3328 after 5:30 p.m.

'58 CHEV. 4-dr. powerglide, new tire and battery, $795. Ward, 2909 Valencia NE, AL 6-9286.

'55 NASH, R&H, OD, recently overhauled, makes into bed, good fishing car, $500 or best offer. Martin, 1417 Indiana NE, AL 6-3384.

EVAPORATIVE COOLER, portable, needs new pads, $5; lawn mower, 16 inch reel type, $5. Deeter, AL 5-5789.

BABY CAR BED, canvas, $2; canvas back, wrought iron legs, baby chair $2. Sirwinski, AL 6-9531.

COTTON RUG, best quality, w/heavy duty pad, sage green 11x12, $25. Porter, 7421 Winter NE, AL 5-8495.

BRICK 3 BDR, 1¾ bath, den, fireplace, parquet floors, central heat, air conditioned, landscaped, $18,000 FHA appraisal, 2309 Hendola NE, Schneider.

'53 PLYMOUTH, original owner, 50,000 actual miles; portable room size air cooler; sidewalk bike, best offer. Gasser, 1609 Lafayette NE, AL 5-4562.

CUSHMAN motor scooter, new tires, red. $95 cash. Johnson, AX 9-8980.

RICHARDS TOPICAL ENCYCLOPEDIA, includes children's classics, lands and people, growing up, index, 37 volumes. Nohl, CH 7-3106.

36" GAS RANGE, $40 or best offer. Newman, AX 8-2323.

'54 FORD, fordomatic drive, 4-dr., new brakes & battery, R&H, motor tune up, $350 cash. Silva, AL 5-3723.

HEADBOARDS and frame for Hollywood beds, 2 sets for $15. Kohut, AX 9-9092.

3 BDR HOME, 1¾ bath, utility, fireplace, kitchen built-ins, HW floors, convenient to base, schools, shopping, $16,400, terms. Peterson, AX 9-5921.

3 BDR, 1¾ bath, 1 block from Assumption school, $15,750; Kenmore automatic washer, $160; Philco refrigerator-freezer, $125. Hewitt, AM 8-2543.

MOSSMAN 3 BDR, den, double garage, drapes, carpeted, SW landscape professionally installed, all built-in appliances, 5¼% FHA, $23,500. Pearl, AX 9-8768.

POWER MOWER, 18" reel type, $15; BC-348 receiver, built in power supply, tuning meter, $25; 6-ft. relay rack w/casters, rear door, $5. Hollenback, DI 4-1340.

GAS RANGE, apartment size, $30 or best offer. Radwanski, AL 6-2468 after 5 p.m.

POWER MOWER, reel type, $35; Kelv. auto washer, $30. Liguori, AL 6-3613.

'52 STUDEBAKER Champion, R&H, $175 or best offer. Adair, AX 9-3971.

'56 FORD Fairlane club sedan, R&H, fordomatic, $650. Corey, AX 9-5168.

NEXT
DEADLINE
FOR SHOPPING CENTER ADS
Friday Noon, May 19

PUPPIES, red, registered Dachshund, only 2 left, $35 each. Neel, 3617 Espejo NE, AX 9-9309.

1960 VOLKSWAGEN, six passenger pick up. Cordova, DI 4-3063.

'53 FORD, 4-dr. custom, R&H, new fordomatic transmission, 4 new ww tires, new shocks, rear springs, generator, $325. Loeper, AM 5-0472.

LAWN SWEEPER, Craftsman, $20. Richardson, DI 4-4324.

BOWLING BALL, bag, shoes; 3-piece sectional, 2 end tables, floor lamp, poker table. Otero, AL 6-6597.

'50 WILLYS station wagon, $275. Johnson, AL 5-5427.

WASHER, GE Filter Flow, $100. Pasko, AL 5-3109 after 5 p.m.

BEAGLE PUPPY, 11 months old female, AKC registered, $30; new GE 6 transistor radio, 4½"x2¾"x1¼", earphone and case, $25. Carlmark, AL 6-3919.

'51 NASH Tudor Statesman with overdrive, five good tires, $195. Thompson, AX 9-2273 after 5 p.m.

POWER MOWER, rotary type, 24" cut, 3 hp 4-cycle motor, new, never used, $30. Weaver, AX 9-1581.

GAS STOVE, apartment size, $25. Sullivan, DI 4-7547.

$400 VALUE: two complete trains w/5' x 10' collapsible track table, $75; 14' boat w/5 hp motor and trailer, $250. Harrison, AL 6-0216.

'51 IMPERIAL V-8, 4-dr., torque-matic, R&H, power steering, brakes, windows, good body, upholstery, rubber, $350 or best offer. Mozley, AX 9-4204.

'53 PLYMOUTH Cranbrook 4-dr., clean interior, good paint and tires. Jordan, 621 Arizona, AL 5-4832.

'59 CHEVROLET Biscayne 6, 4-dr., power steering, standard shift, $725. Costello, AX 9-0563 after 6 p.m.

'55 PORSCHE with sun roof. Make offer. Hoagland, AL 5-6186.

EVAPORATIVE COOLER, 2000 cfm, portable, used 1½ seasons, $25. Hauer, AM 8-3885.

'57 BUICK Special, 4-dr., hardtop, $695. Terms if desired. Pasko, AX 9-6592.

SHOTSHELL RELOADER, Herter's model 333, 12 ga. dies, w/shot and bulk powder measure, complete instructions, $15. LeRoy, AL 6-4180.

COMET 4-DR. station wagon, 7000 miles, loaded with extras, save $1000; custom built, completely enclosed, luggage trailer, 4'x8'. Qualle, AM 8-2827 after 6 p.m.

3 BDR., den, 1¾ bath, double carport, air cond., fireplace, screened patio, new carpeting, $14,500. Thunborg, 1837 Britt NE, DI 4-2089.

CAMPING TRAILER, one wheel, bumper hitch included. Mick, 2621 Rhode Island NE, AX 9-5814.

EQUITY in one or two acres in Corrales under irrigation, $3000 per acre. All offers considered. Trujillo, CH 2-3827.

'53 PLYMOUTH sedan, standard shift, runs well, $200. Esterly, AL 6-9251.

3000 CFM COOLER, Arctic Circle, 2-speed; 26" girl's English bike; treadle sewing machine; girl's tap shoes, size 4; men's roller skates, size 7; hobby horse. Sweatman, AX 9-3256.

'58 FIAT "600," $575. Everett, 9627 Towner NE.

1957-58 factory air conditioner for Chevrolet, $35. Ryan, AL 6-1546.

EXERCYCLE, 2-speed; umbrella clothes line. Frame, AX 9-8195.

PORTABLE BAR, formica and bamboo, includes 2 swivel stools. Van Fleet, AL 6-1770.

ELECTRIC MOTOR, ¼ hp, $5; GE Waffle iron, $10; bassinet, $5; youth bed, mattress, side rails, $30. Fessia, ext. 42181.

BICYCLES, boy's English racer, $15; girl's 24-inch, $20. Nelson, AL 6-6300.

2 LAWN MOWERS, one gasoline rotary, $10; one hand powered, Sears reel mower, $5. Smith, AM 8-1228.

GE DOUBLE OVEN push button range, $125; polaroid w/case, flash, never used; breakfast set; console sewing machine w/attachments, $60. Brown, 344-6831.

TRAILER, 17 ft. camp or office, all metal, trade or sell for $395 or best offer. Elifritz, 6505 Bellrose NE, AX 9-9330.

CUSHMAN scooter, completely equipped; "Easy" cabinet type ironer with porcelain top; will accept reasonable offers. Wank, AX 9-3450.

3 BDR HOUSE, fireplace, forced air heat, air conditioned, pitched roof, 1¾ bath, landscaped, good location. Randle, AL 6-1747.

MOUNTAIN HOME, by owner, 1½ acres, detached garage, 20 minutes from Base; Newly redecorated home near University. Miller, BU 2-3243 or 265-0029.

SIAMESE KITTENS, 6 weeks old, housebroken, cheap. Uhl, AM 8-1855, 501 Charleston NE.

'52 WILLYS Stationwagon, 4-wheel drive, extras. Andrews, AL 6-7328 after 5:30 p.m.

LAWN MOWER, grinder, Simplex; Foley saw filer, Foley retoother, and circle saw grinder. Miller, AL 6-3895 after 5 p.m.

'50 STUDEBAKER, 4-door, dependable transportation, $100. Van Deusen, AX 9-4328.

24-CUP PERCOLATOR, coffee urn, fully automatic, $15 or best affer. Rowe, ext. 20111.

3 BRM MANKIN, dishwasher, AC, tile wall, carpeted, hardwood floors, sell FHA valuation, $13,250, $400 down, owner retired, leaving city. Redburn, 936 California SE.

WANTED

WOOD WARDROBE, cheap. Mitcham, AX 9-8425.

CHILD CARE my home, $2/day, meals furnished, near Sandia and Kirtland, Lepore, 8005 Southern SE, AM 8-8459 after 5 p.m.

ADDING MACHINE, hand operated. Comstock, AX 9-6051.

RIDE from vicinity of Hilton and Morningside NE to Gate 8. Candelaria, D. 4-6393.

CHILD CARE my home, special week-end rates, infants preferred. Weiss, AX 9-0603 after 5 p.m.

SMALL LUGGAGE TRAILER, preferably a 1-wheel trailer or a 2-wheel trailer if wheels are small Crosley type. Batsel, AX 9-4091.

WOMAN to do ironing once a week for couple, SE Heights. Burns, CH 2-2407 after 6 or week-ends.

TWO 2-drawer legal size file cabinets, prefer with locks. Ogden, CH 3-4723.

HOME for three male kittens, all black and white with unusual markings like panda bears. Bode, 3707 Hannett Ave. NE, AM 8-2157.

BABY JUMPER CHAIR, sturdy enough for a church nursery. Johnson, AX 9-1057.

PUPPY for 3 year old boy, prefer male, medium or large breed. Gonzales, CH 2-5084.

RIDE or carpool, vicinity of Carlisle and Smith SE to Bldg. 829. Blakey, 255-5372.

I WILL PAY better than market price for Indian cents and other old coins. Walsh, AX 8-3173.

RIDE from Carlisle and Lomas. Perea, AM 5-0861.

TRADE full size gas kitchen range, swap for good 38 or 22 revolver. Harness, AX 9-6639.

GERMAN LUGER, Nazi daggers or old hunting knives; gold coins. Smitha, AX 9-1096.

CEMENT MIXER to rent for summer. Foster, AM 5-0069.

TRADE one new 7.50x14 Firestone 500 tubeless tire for 6.70x15 or 7.60x15 tires. Elliott, AL 5-8842.

SINGLE LADY to share residence with retired woman and share home expenses, Princess Jeanne Park area. Fleming, AX 9-6833, after 5 p.m., AX 9-4553.

CHILD'S car, jeep or etc., must be in excellent condition. Robinson, AL 6-2903.

FOR RENT

3 BDR HOUSE, built-in refrigerator, completely carpeted, landscaped, sprinklers, walled back yard. Available June 1. La-Fond, AX 9-7862.

2 BDR HOUSE, swimming pool, shady yard, patio, stove and dinette furnished, $90. Edwards, AL 5-8185 or AM 8-8017 after 5:30 p.m.

3 BDR APARTMENT, all modern utilities, 10 blocks southwest of downtown, unfurnished, $65/mo. Alderete, AL 6-6047.

2 BDR APT. SE heights, range, refrigerator, air conditioning, carpeting, private yard, water and garbage paid. Petrone, AL 5-3633 after 5 p.m.

LOST AND FOUND

LOST: Butane cig. lighter, light brown wallet, glasses in black leather case, gold wedding ring J.A.C. to R.E.C., safety glasses, kaywoodie pipe, black spiral pocket notebook, tan gabardine coat, pearl handle pen knife, J. Young Mtr. Co. keys, prescription safety glasses, bracelet purple w/gray beads, wallet with I.D. Tom Heaphy, brown hairpin w/rhinestones, white moccasin shoes. Lost and Found, ext. 26149.

FOUND: House and car keys, tan and brown button, ladies beige gloves, necklace-chain w/pearl in star, white silk scarf, crystal necklace, plumbing valve, silver screw-type earring. Lost and Found, ext. 26149.

FOR SALE—LIVERMORE

5 BDR HOME, one year old, insulated, large fenced, landscaped lot, sprinklers, family room with fireplace, electric kitchen, nylon carpeting, draperies. Rowe, HI 7-3493.

3 BDR, 2 baths, landscaped, wall-to-wall carpeting, draperies, coppertone kitchen, built-in range, oven, refrigerator, freezer, garbage disposal, insulation, fenced, $21,000. Glaze, HI 7-4167.

'54 MERCURY, 2-dr. hardtop, $275. Rindone, Ext. 2229.

5 PIECE CHROME dinette set, $30; walnut desk, chair, $20; beige drapes, $10; 4 captain barstools, $8 ea.; 7 piece fireplace set, $20. Cooper, JE 7-0280.

CAMPING TRAILER, 14 ft., '55 Shasta sleeps five, tubeless tires, insulated body, icebox, butane stove, storage space, $595. Larned, VI 6-2929.

24" TV, $75; 36" gas range, $35; Compact cleaner with floor polishing equipment, brand new, $100 off. Henderson, HI 7-4417.

4 GAL. kerosene weed burner, unused, $20. Richards, HI 7-4389.

WANTED—LIVERMORE

24' BOY'S bicycle, $15 or under. Clauson, HI 7-3291.

USED standard typewriter. Rindone, Ext. 2229.

SOMEONE to help drive to the Midwest and return, leaving June 24, returning July 16. Olson, Ext. 2327.

FOUND—LIVERMORE

MASONIC tie clasp in parking lot 4/21/61. Employee Services, Ext. 2252.

Sandia Lab Is Developing Theory for Billion Component Ultra Micro-Circuitry

At Sandia Laboratory, as in any research and development organization, there are scientists pursuing visions of the future.

One such group here is the Applied Research Section of Advanced Development Division 7223 headed by Bill Rollosson. This group works with ultra micro-circuitry and much of the effort is "far out" by conventional standards.

In a recent national contest in miniaturization, Sandia's work was awarded a certificate of excellence, one of 10 awarded from 160 entries. The entries were submitted by some of the largest research and development organizations in the country. This is a commendable achievement for this small group.

Judged in the contest was Sandia's development of microscopic components and its statement of a basic theory for mass producing billion-component circuitry.

This circuitry is being developed for information handling and processing for advanced instrumentation. The microscopic components being developed can only carry extremely limited amounts of power because of their size. Devices which handle information are general purpose computers, the first stages of amplifiers, and various control circuits. These devices, as they exist today, occupy large amounts of space and require extensive power.

Size Reduction

Current aim of Sandia's microtechnology, Bill Rollosson reports, is to design sections of conventional devices using ultra micro-circuitry. "Eventually we would hope to produce electronic circuitry that could fit into a hat box," he says, "which, in conventional form, might occupy hundreds of square feet of floor space."

The system would be a mesh of ultra micro-circuits containing electronic components packed to a density of as much as 10^9 per cubic inch. This approaches the neuron density of the human brain. Similar to the human brain, this "hat-box data device" would be a self-organizing system.

"The hat box would be 'blank,'" Bill continues. "A potential data processor is all it would be. Very carefully it would have to be 'taught' to handle data. Thousands of minute electrical voltages would be fed into the system and recorded. The instrument's response would be noted, the reaction pattern would be confirmed, and the 'teaching or self-organizing process' would continue."

Carefully formulated theory is behind this bold new concept. Laboratory development work has given practical support to the theory.

"One of the things that is unique about a living brain," Al Goodman of the section explains, "is its millions of pathways that signals travel." He explains further that this contrasts greatly with instrumentation circuits or computers such as the IBM 704 in which the signals travel a "straight track." Any significant malfunction will put an entire device out of operation. By producing circuitry simulating that of the brain, reliability can be increased tremendously. If a single track is not functioning, a hundred more could carry the signal. The device would be built to choose and make its own signal pathways.

Minute Fiber Switch

The switching function, of primary importance in any circuit, has been partially solved for ultra micro-circuitry. A "fiber switch" with overall dimensions of three to five mils has been produced and successfully tested hundreds of times.

Producing the circuitry is the next consideration. Applied Research Section 7223-3 has made considerable progress toward solving this problem. A microscopic circuit containing a great many electrical paths, microscopic gaps, conductors and electrodes can be produced. This is done by drawing the pattern, photographically reducing it and transferring it to a light-sensitive nylon base. Developing the nylon, as photographic film is developed, etches tiny grooves in the surface which correspond to the original pattern.

Next step is to vacuum evaporate a conductive coating onto the surface of the film. When metal is heated in a vacuum chamber, particles break out of the mass and travel in straight lines until they impact on the surface to be coated. When the etched nylon circuit surface is arranged at an angle to the particle source, the "shadow side" of the grooves is not coated. In this manner parallel conductive paths can be created that are separated and insulated.

In the original circuit pattern drawing, a space was provided for "wells" at the circuit junctions. These wells emerge as microscopic cups recessed in the surface of the nylon base.

Into some of these wells will be placed microscopic components which will perform transistor functions. Section 7223-3 has produced germanium spheres a few mils in diameter by vibrating pieces of germanium inside a water- or air-filled container until the action has worn the pieces to the desired spherical size.

When the nylon base is electrostatically charged and the surface is wiped clean, the charge remains only in the recessed wells. When the germanium spheres are dropped onto the surface, they are drawn into and held in the wells by the electrostatic charge.

Coatings of cement or dielectric material complete the fabrication of the micro-circuitry.

Can Be Automated

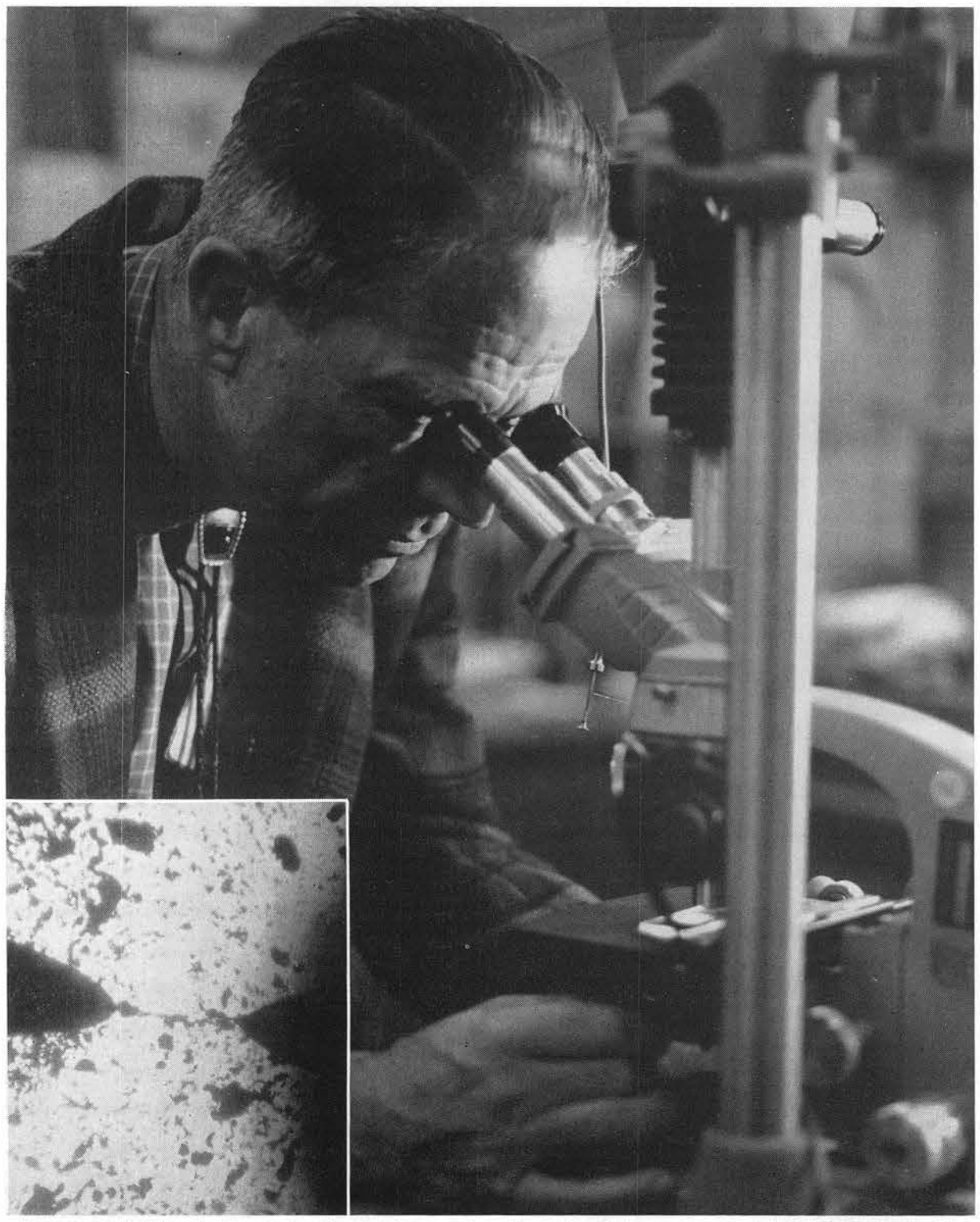
"This method of fabrication appears to be practical and can be automated," Al says. "A computer memory wafer with a capacity of four million information bits could be mass produced by this method at a cost of between two and 10 dollars. The wafer would measure about two inches square and would be about one-eighth of an inch thick. It would have a component density of 10^6 per square inch."

At the moment, however, the section is concentrating on developing more long-lived fiber switches; perfecting the production of germanium spheres, and investigating other techniques for producing microscopic components. Under study is the possibility of vaporizing material that would crystallize into functional transistors on micro-circuitry surfaces.

Rocket Flights

"The instrumentation devices which are the building blocks of today's space technology are admirably suited to the ultra micro-circuitry concept," Al says. "Devices developed as a result of our program would have immediate application to the various projects underway in the Field Testing organization as well as other Sandia organizations. These devices, for instance, if flown in a rocket, could be extremely light, tiny and capable of digesting large amounts of data prior to transmission to an earth station."

Many of the concepts guiding the work of the section were contributed by Iben Browning, formerly of Sandia's research staff and now a Sandia consultant. Other persons who have contributed to the program are Robert Matthews, Robert Swyers, John Lohse, William Jacoby, Arthur McCarthy, and Milton Zimmerman.



FIBER SWITCH, developed by Applied Research Section 7223-1, is viewed under microscope by John Lohse. Inset picture shows the magnified view. Contact points are separated by 1/100 inch. In this space minute metal particles, floating in viscous liquid, form a bridge when voltage is applied.

D. R. Morrison Speaks To Computing Group In Scottsdale, Ariz.

"A Subroutine to Compute Almost Anything" is the title of a technical paper prepared by D. R. Morrison (5426). He presented it at the spring meeting of the Rio Grande Chapter, Association for Computing Machinery. The meeting was recently held in Scottsdale, Ariz.

Jim Mick Elected New Club Director

Jim Mick (4254) has been elected a member of the Coronado Club Board of Directors.

He was chosen by the other directors to fill the unexpired term of George Banos (3111), who recently resigned. Since George was elected for a two-year term, Jim will serve until the 1962 board of director elections.

E. G. Thuman Heads AMA Seminar On Data Processing

Edward G. Thuman (3451-1) last month served as a co-chairman of a seminar on The Personnel Department's Use of Data Processing. The seminar was presented in San Francisco by the American Management Association for personnel executives.

The Association's program included three workshops for executives with experience in the subject area, and three other instructional seminars.

Mr. Thuman served as co-chairman with Harry M. Dixon, head of the Department of Economics and Business at Whitworth College, Spokane, Wash.

During his four years at Sandia, Mr. Thuman has been working in the Electronic Data Processing Department. He previously had experience in the computer field while operating his own service bureau and working for IBM in Albuquerque.

Speakers Bureau Providing Talent To Local Groups

Demand for Sandia Laboratory speakers is steadily increasing. A total of 163 employees are listed in Sandia's Speakers Bureau, and the list of names continues to grow.

More than 350 talks have been given since the Bureau was set up by Public Relations Division 3431. Thirty-one speeches were given in April, and 21 have been scheduled for May.

Speeches cover careers, public affairs, hobbies, and technical and general subjects. Speakers have been requested by local businessmen, schools, service clubs, churches, technical societies, civic groups, and military reserve groups.

Any group which would like to obtain a speaker from Sandia may contact Robert Gall (3431-1), ext. 43150.

Industrial Hygiene Gives Food Handling Course at Club

Industrial Hygiene's Sanitation Unit conducted a sanitary food handling course at the Coronado Club last week for all food handlers in Bldg. 880 and the Club.

A. J. Jack (3311-1) and Peter Griego, a guest from the Albuquerque City Health Department, presented correct sanitary procedures through the use of movies and class demonstrations.

At the end of the course, a Certificate of Attendance was awarded by Sandia Corporation to all those who participated. Hap Holliday, manager of the Club, and his staff served the graduation dinner for the food handlers.

Sandia's Safety Record

Sandia Laboratory	*Livermore Laboratory*
HAS WORKED	HAS WORKED
1,340,000 MAN HOURS	87,000 MAN HOURS
OR 39 DAYS	OR 17 DAYS
WITHOUT A	WITHOUT A
DISABLING INJURY	DISABLING INJURY