

SANDIA LAB NEWS



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Magnetically Set Counter Highly Reliable and Accurate



COUNTER AND TIMER using magnetically set wires to perform switching function are displayed by inventor Gordon Bachand (7261). He plans application of the device to magneto-optic memories.

One of the more unreliable components in an electrical system is the switch because it is subject to wear and corrosion. A recent invention by Gordon Bachand (7261) eliminates that problem by substituting magnetic coupling for switching or sliding contacts.

Although called a magnetic settable counter, the principal described in the patent can be adapted to a timer, a variable frequency divider, or to recirculate an output pulse. No electrical contacts are needed to set the counter.

"The invention is based on establishing magnetic reversals, called domains, in small diameter nickel-iron wire together with a means for propagating these domains," Gordon explains. "Original work using this approach was done (by others) as early as the 1930's and is presently being pursued for application to compact magnetic memories in computers."

In using the moving magnetic domain principle, the number of "counts" for a specific counter design is limited only by the length of the magnetized conductor. Reliability and accuracy of the device are high since there are no ohmic contacts whose characteristics would change with time and usage.

Gordon has been investigating use of the invention in a number of devices and plans application of the principle to magneto-optic memories.



SPACE SAVER—These two banks of electronic tracking filters take the place of the nine racks of equipment previously required to obtain distance data during rocket tests. The array of filters was designed by Murray Silverman (9222) and will yield data from as many as 32 rockets.

Multi-Object Tracking

Reliable Electronic Filter Array Saves Space, Money and Manpower

When Murray Silverman (9222) developed an electronic tracking filter array for use in a multiple rocket firing test he came up with a more reliable DME (distance measuring equipment) system. The filter array also reduces the amount of equipment needed and the number of operators.

By applying tracking filter technology, Murray's approach allows playback recovery

of DME range information from raw videotaped DME/tm data. Previously it was necessary to use real time equipment to process DME telemetry signals into digital and analog range information and then record it for later analysis.

Videotape recording of raw DME/tm data for later playback and analysis was not feasible with earlier equipment because passive filters could not cope with the wow and flutter characteristics inherent in tape machines. The frequency of the signal tends to shift and, consequently, erroneous information is obtained on playback. With Murray's tracking filters, however, a phase-lock-loop principle is invoked whereby the filter locks onto the signal and follows it, whatever the phase shift.

In the test series for which Murray designed the system, 32 rockets would be fired simultaneously. If the earlier redundant real time system had been used, a total of 64 range computers and digitizers, plus recorders, would have been necessary. It takes about nine racks to hold this much equipment and four or five men to tend it. Murray's tracking filter array reduces the 670 rack inches of equipment to about 15 inches — less than one rack — and takes only one operator.

A further benefit is the capability to vary the number of rockets to be tracked with virtually no effect on the cost of obtaining the data. Tracking data from one to as many as 32 rockets is obtainable using the same equipment.

The value of the system was demonstrated during a rocket test series at TTR. The real time equipment, then still in use, failed during the test. However, the DME/telemetry data had also been recorded raw on videotape and, using the electronic filter array, range personnel were able to recover the essential information.

Non-Leader Leader

Model Cities Concern of Lonnie Johnson

"I don't want to be a leader. I like to be the follower behind the leader, but often that guy in front of me steps out of the picture. It's sort of like going to your first ball game and winding up on the team."

That's how Lonnie Johnson explains his role in society. At Sandia he is a storekeeper in Section 4614-5. In private life — well, he's the kind of person who is asked to be president of a church choir and doesn't even belong to the church.

"People have a tendency to let others do a job and it ends up that the majority of the minority rules," he says. "For example, I was curious about precinct-level politics and went to a meeting. That evening we voted for precinct committeemen, only most of the candidates weren't among the nine people present." Those in attendance felt they would like to see who they were voting for and that's how Lonnie became a precinct committeeman.

Lonnie's main interest at present is in

connection with the Albuquerque Model Cities program. He is a member of that group's citizens board and last year was on the joint policy board. At the same time he is vice president of the South Broadway Association, one of several neighborhood organizations formed to work on the program with the city and federal government.

Albuquerque is one of 75 cities taking part in the effort to improve the quality of life in selected areas. Residents of the target areas are responsible for identifying the problems, while the city plans and administers the program and the federal government provides 80 percent of the financing.

The Albuquerque target area is bounded by Interstate 40 on the north, Interstate 25 on the east, Woodward on the south, and Fourth St. on the west plus the South Baretas area.

The proposed projects relate to employment and economic development, physical

improvements, crime and juvenile delinquency, housing, education, and health and social services.

The most impressive physical improvement has been construction of the South Diversion Channel and eventual installation of new storm sewers and paving of several streets. "For many years," Lonnie explains, "the South Broadway area has been flooded by runoff from higher areas during heavy rainfall. When the federal government announced a 75 percent cut in funds for urban renewal and neighborhood development programs, we were afraid that no money would be available to complete the water diversion project."

A delegation of 22 citizens, including Lonnie and City Commissioner Pete Domenici, flew to Washington to talk with members of New Mexico's Congressional delegation and other public officials.

The delegation split into several smaller

(Continued on Page Two)



KINDERGARTEN PROGRAM for the Model Cities area has started at the John Marshall School. Karen Abbott is one of the teachers for the five-year-olds. Lonnie was accompanied on this school visit by Sister Marie Dominic Ortega (standing).



GUADALUPE PARK near South Broadway is one of the new vest-pocket parks completed under the Albuquerque Model Cities Program. Lonnie Johnson (4614-5) awaits his turn as several young residents check the durability of playground equipment.

Sandia Photo Contest

There's still time to submit those photos for the first Sandia photo contest. Deadline is Friday, Dec. 12. Cash prizes will be awarded and winning photos will be printed in the LAB NEWS.

The contest is open to Sandia and AEC employees. As many as five photos may be submitted for each of the two categories: (1) people and abstracts and (2) animals and scenics. Entries must be black and white and no smaller than five by seven inches. At Albuquerque submit entries to the LAB NEWS office, Bldg. 802, Rm. 133. At Livermore, bring the photos to Division 8216, M04.

New State Constitution Up to Voters

Next Tuesday New Mexicans decide the fate of the proposed new constitution. Their decision will affect the course of state government for years to come.

In previous issues, LAB NEWS discussed some of the features of the proposed document. In this issue we'll touch on an area of interest to most of us — finance and taxation. Articles applying to local government and transition also will be discussed.

The new constitution would retain the existing provision that, with certain exceptions, property tax not exceed 20 mills on each dollar of assessed valuation. However, the new document would limit the assessment ratio to 33 1/3 percent.

Contrary to charges by some opponents of the proposed constitution, the veterans' exemption would not be repealed. The present constitution does not specifically guarantee this exemption, nor would the new one: both merely allow the legislature to provide for (or repeal) this and other exemptions.

Debt limitation, public expenditures, and limitations on use of tax monies are not radically altered when compared to the provisions of the present constitution.

In matters of local government, the proposed constitution more clearly defines — as well as adds to — the powers of municipal and county governments.

No change is required in the length of terms of the county officers; instead the matter is left to the legislature (the present document limits terms to two years). The proposed constitution does specify, however, that the legislature can authorize county districting, subject to approval by the voters of the county. The districting option was provided so that voters could determine the form of representation that best met their local needs.

Similar districting options would be open to municipalities. In addition, the proposed constitution contains specific provisions for home rule. The home rule section states, in part, that: "A municipality which adopts a charter may exercise all legislative powers and perform all functions not expressly denied by general law or charter. This grant of powers shall not include the power to enact private or civil laws governing civil relationships except as incident to the exercise of an independent municipal power . . . No tax imposed . . . except a tax authorized by general law, shall become effective until approved by a majority vote in the charter municipality." The reasoning behind this provision is that municipal authorities should not have to spend time lobbying and appealing to state lawmakers — who may have no real interest in or knowledge of the problems of a particular city — to pass laws for local governments. Home rule also frees the legislature from the need to devote committee and floor debate time to purely local questions.

The provision for city-county consolidation is essentially the same as in the existing constitution: no city and county may be merged without approval by residents of both city and county — the two groups voting separately on the question.

Certain types of special service districts — such as flood control, conservancy, or irrigation districts — also are provided for under the proposed constitution. However, the document does limit the governing and taxing authority of these districts and also adds the requirement that officers be chosen by the electors of the district.

If the new constitution is passed, it be-



comes effective immediately. Any currently effective laws, ordinances, or resolutions inconsistent with the provisions of the new constitution would remain in effect until July 1, 1971. Those not in conflict would simply remain in effect until they expire or are amended or repealed, and all officials now holding office — whether elective or appointive — would continue in office until their term expires.

On the other hand, if the constitution revision attempt fails, then it probably will be necessary to amend further the present document in order to update it. For example, the present provision that one member of the State Board of Education be elected from each judicial dis-

HOST Needs Homes For Foreign Students

The Community Committee for Hospitality to Foreign Students (HOST) does just what the title indicates, it sets up a social relationship between an American family and a foreign student at UNM so that the student gets a chance to see something of this country beyond the strictly academic community. During the Christmas holiday, when the university is in recess and the dormitories are closed, some of the foreign students need a "home" for one or two weeks. "It's a nice introduction into the program," explains Mrs. Lane Peterson (her husband works in 7422), who is coordinator for HOST.

"The program is really an extension of friendship," she says, "with the American family and the foreign student getting to know each other."

Many of the graduate students live in apartments and HOST maintains a "loan closet" of household items to help these foreign visitors get settled.

For further information call Mrs. Peterson at 282-3820 or Gerald Slavin, UNM foreign student advisor, at 277-4005.

Continued from Page One

Model Cities

groups and, as Lonnie says, "We were well-received wherever we went. Model Cities is a citizen's participation program and we were proud of that desire to participate. We explained that the city had done its part, the people had fulfilled their role, and now we wanted the federal government to make good on their promises and assure us that the project would be completed."

An outgrowth of the trip was that the Corps of Engineers approved use of city funds (to be reimbursed when federal funds are available) for partial construction of the South Diversion Channel to provide some flood protection before the next rainy season. Bids for the entire channel project will be opened in March, subject to Congressional approval of funds.

Meanwhile, there is progress in other areas. Two vest-pocket parks have been dedicated, construction is underway on a swimming pool in the East San Jose section, a kindergarten program has been started at the John Marshall school, and a \$10,000 scholarship fund is available for prospective college students living in the Model Cities area. Progress has also been made in employment and training.

As to Lonnie's involvement in this and other projects — well, he arrived in Albuquerque by bus in 1946 with \$12 in his pocket. He'd just been discharged from military service and planned to visit his sister in Los Angeles before going on to Portland. "My sister says mine is the longest trip to Los Angeles she's ever heard of. In those 23 years, Gallup is as far west as I've gotten," Lonnie says.

trict conflicts with the U.S. Supreme Court's "one man-one vote" rule. The lack of mandatory redistricting rules for the legislature in the present document will probably lead to continued litigation and court directives.

One example of the type of provision found in the present constitution is Art. 20, Sec. 17 which states that textbooks in the public schools shall not be changed more than once in six years. Another dated section allows women to hold the office of notary public. All of the 246 articles in the constitution at one time or another had relevance (including the 143-word sentence describing where, on the planet Earth, New Mexico is located). Many, however, no longer apply or, because of changing political and social conditions, no longer serve the needs of the people.

Whatever your opinion, LAB NEWS urges you to vote at the polls on Tuesday, Dec. 9. Whether or not the proposed constitution is adopted, we all will live with Tuesday's decision for years to come.

Events Calendar

- Dec. 7—Moon rock exhibit, UNM, Fine Arts Center, 11 a.m. to 6 p.m.
- Dec. 8-9—Shalako dances at Zuni Pueblo. YWCA charter bus, for reservations tel. 247-8841.
- Dec. 10-13—University Theatre presents "The Entertainer." For reservations tel. 277-4402.
- Dec. 11-14, 18-21—George Bernard Shaw's "Androcles and the Lion." Old Town Studio, 1208 Rio Grande NW.
- Dec. 12—Matachines dance at Jemez Pueblo.
- Dec. 14—UNM Chamber Orchestra, 4 p.m., Recital Hall.
- Dec. 14-15—Ballet West presents "The Nutcracker," UNM Popejoy Hall.
- Dec. 17—UNM Chorus Christmas Concert, Popejoy Hall.

New Wise Owl Club Members

Safety Glasses Prevent Serious Eye Injury to Three Employees

Two recent incidents at Sandia Laboratories point up the value of wearing safety glasses. Three employees came very close to serious eye injury.

The first incident occurred at the steam plant, Bldg. 605, when Al Jiron and Charles Mitchell (both 4511) were feeding caustic soda into a boiler to clean it. Evidently there was water in the feeder pot, and an explosion occurred when Al poured in the caustic soda. He was burned on the body and leg but his safety glasses — which had caustic soda on both lenses — prevented eye injury.

Charles also received burns on his body and face, and his safety glasses prevented eye injury as well.

Both Sandians are now members of the Wise Owl Club of America, a national organization of persons whose sight has been saved by the use of safety glasses or other protective equipment for the eyes.

The second incident involved Ted Brueggemann (4252). While melting some filler metal (called Rigidax Type W1) out of a copper tube, a pressure build-up inside the copper tube caused the molten filler metal to be violently expelled. Rigidax melts at 175°F.

Ted's safety lenses were covered with the metal, but he received only slight burns on his forehead. There was no injury to his eyes. He has applied for membership in the Wise Owl Club.

Sandians Assist Children's Home

Because a number of people — including several Sandians — cared enough to offer their spare time services, a housing facility for homeless children will become a reality shortly after the first of the year.

The first units of the Albuquerque Christian Children's Home are expected to be ready for occupancy around Jan. 1. The cottage-style units, located in the North Valley, each will house about a dozen children. The operating agency — the Churches of Christ — hopes to have several such units ready in the near future. The home is to be operated in cooperation with state and local health and welfare agencies.

For the past couple of weekends, a number of painters and electricians from Plant Maintenance Department 4510 have volunteered their time and skills to the project. They are Doyle Clark (4513-1), Benny Gonzales (4513-1), Wayne Phelps (4513-3), Mike Ryanczak (4512-2), LeRoy Simpson (4513-1), Willie Smith (4513-1), and Mason Wittenberg (4513-2).

Others actively involved in the project are Al Martin (4542) and Frank Corner (4235) who are members of the home's board of directors. Fred Eichert (7610) headed the planning committee and will work with the admissions committee.

Machinists Union Sponsors Party

Boxes have been placed in a number of Sandia Laboratories buildings for collection of gifts for children attending Longfellow Elementary School.

This Christmas project is sponsored by the International Association of Machinists, Local Lodge 1689.

In addition, Sandia membership of the International Brotherhood of Electrical Workers, Local No. 1888, is buying shoes for 30 of the children at the school. The children will be taken to Salazar Shoe Store on December 19 for fitting.

The boxes are located in Bldgs. 840, 892, 809, 802, 894, and 6587 in Area III. Contents will be collected at noon Dec. 12 and prepared for distribution to the 307 children at a Christmas party to be held Saturday, Dec. 20, at the Albuquerque High cafeteria. There will be entertainment and a visit by Santa Claus.

In addition, the union will sponsor a Christmas dinner for the children to be served at the school on Dec. 10. Anyone interested in contributing money for this dinner should contact Jim Mick (4254).

Coordinators for the project are Bill Minser (4252) and Charles Ladig (4251). Others heading committees are Leo Webb (4253), Ernie Lovato (4233), John Garcia (4254), Roger McClure (4511), Bill Wagner (4253), Tom Cleveland (4222), Flavio Gonzales (4212), and John Malpas (4254).



VERY WISE OWL—Ted Brueggemann (4252), who has applied for membership in the Wise Owl Club, has reason to appreciate the protection of safety glasses. In a recent incident, his glasses were splattered with molten metal but his eyes were not injured. Two other Sandians have been recently inducted into the Wise Owl Club: Al Jiron and Charles Mitchell (both 4511) were both wearing safety glasses when caustic soda splattered their faces at the steam plant.

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Take Note

Leo Gutierrez, Director of Systems Development 8100 was guest speaker at a recent meeting of the Men's Club of St. Paschal Church in Oakland. He discussed "Sandia's Role in the Atomic Energy Pro-

gram and the Effect of Spinoff or the Non-nuclear Benefits from Nuclear Development." His presentation included a showing of the films "Sandia Spinoff" and "Project Gasbuggy."

LIVERMORE NEWS

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DECEMBER 5, 1969

What Is It?

The LAB NEWS asked employees for their remarks about the objet d'art below. Their reactions and comments follow.



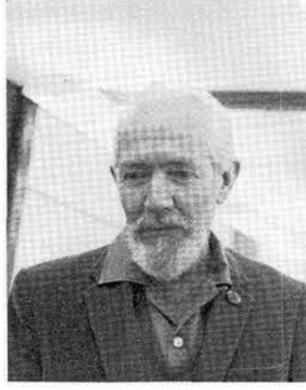
LISTENING TO REMARKS made during a briefing at Sandia Laboratories Livermore are Directors Warren Search (4300), left, and Hilt DeSelm (8200). Mr. Search — formerly a manager in WE's Purchasing and Transportation Division — became director of Sandia's Purchasing and Traffic organization on July 1.



Lynn Hearn (8252-1): "Nice object. Looks more like an abstract."



Hilary Jones (8311): "It's a napkin holder, obviously."



Ben Aikin (8233-2): "It's strictly nonrepresentational. It represents itself. It exists. It is."



Ralph Cozine (8162): "Something left over from the machine shop."



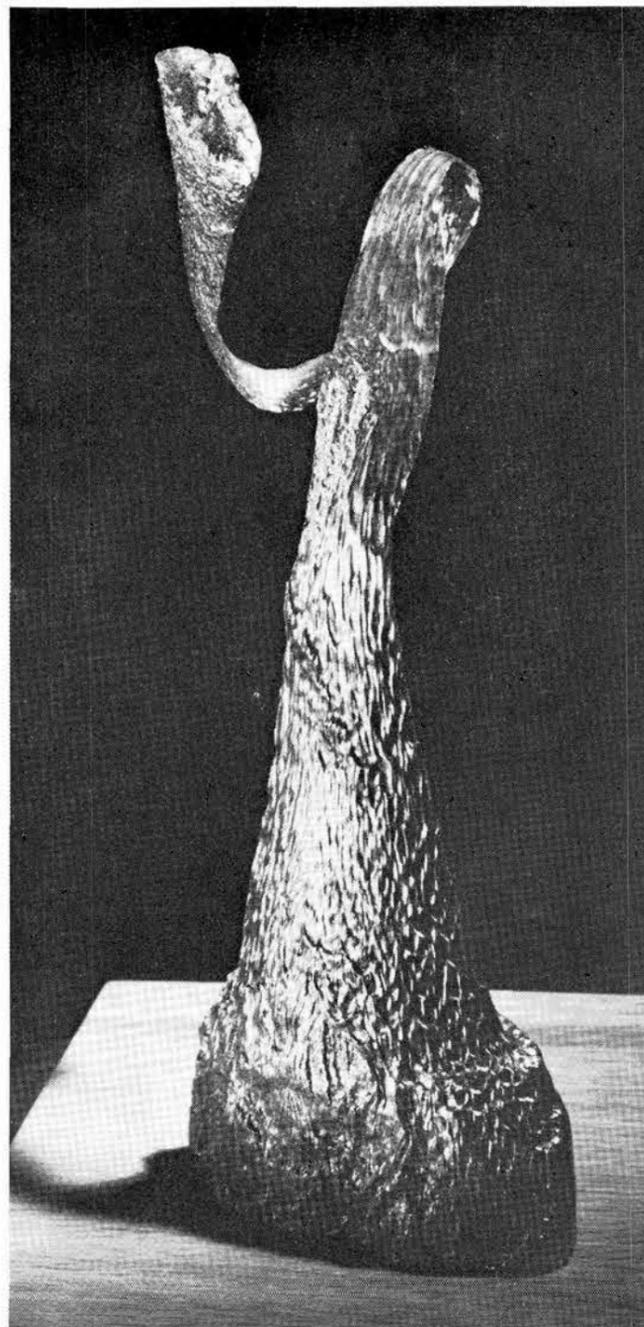
Emily Joiner (8212): "Gee, reminds me of a tree. A dead one . . . old and twisted around."



George Dawson (8223-1): "Man, you've got me."



Joe Weihe (8320): "Looks like an aborted taffy pull."



WHAT IS IT? One end of a nearly dissolved copper anode (positive electrode) after spending three years in an acid sulfate solution electroplating materials.



Betty Dominguez (8253-1): "Looks like a crooked mountain top to me."



Jack Deveneau (8161): "It's the fickle finger of fate . . . twisted."



Clifford Young (8182): "Hmmm. I really don't know. Looks nice. Like a snake coming out from behind a mountain."

Sandia Host for AEC Contractor's Meeting On Coatings

An integrated contractors' meeting on metallic and inorganic coatings was held at Sandia Laboratories Livermore Nov. 12 and 13. About 50 persons attended the two-day program, chaired by Jack Dini and Rudy Johnson (both 8311).

The group is interested in materials research and application, chiefly in the areas of plating, vacuum coatings, plasma spraying, printed circuits, and soldering. Speakers were heard from Bendix-Kansas City, DuPont/Savannah River, Mound Laboratory, Dow Chemical/Rocky Flats, Y-12, LASL, LRL, and Sandia.

Ronald Hatcher of Development Laboratories Division B, 4222, spoke on two subjects, "Electroforming for Rolamite" and "Plating Rhodium on Tantalum." Other Sandia speakers from Materials Division 8311 and Metallurgy Division 8312 were: Arnie Andrade, "Multilayer Circuits"; Paul Coronado, "Stress Measurements During Plating"; Jack Dini, "Plating on Stainless Steel"; Lee Graves, "Spraying on a Foam Substrate"; John Helms, "Plating on Thorium"; and Rudy Johnson, "Electroforming Rolamite Cases."

Watch for Gay Cans

Many people and organizations at Sandia Laboratories Livermore are pooling money to help poor families at Christmas time instead of exchanging greeting cards. The contributions, collected by Lab secretaries, will be turned over to the Livermore-Amador Valley Emergency Fund Center.

This year, collection cans are being gaily decorated so that they may be easily spotted, and secretaries are competing for the best decorated or most unusual container. A trophy goes to the winner and a plaque to the winner's division. Next year the plaque goes to the new winner's division.

Deadline for contributions is Dec. 22. Secretaries should turn in donations to Employee Benefits Division 8214 by that date.

Divisions wishing to "adopt" a family at Christmas time can get family names from the Emergency Fund Center office, phone 447-4186.

LRL, Cal Tech Speakers At December Meetings

Two colloquiums will be held at Sandia Laboratories Livermore in December.

On Dec. 9, James Carothers, head of Test Division at LRL, will speak on "Diagnostic Techniques." Pat Gildea (8174) is host. More information regarding this colloquium will be posted on bulletin boards.

The subject of the Dec. 19 colloquium is the relationship between large explosions and earthquakes. Speaker is Professor Stewart Smith of the Seismological Laboratory at California Institute of Technology. Prof. Smith does earthquake research and has published several articles on the subject. H. A. Spetzler (8311) is host.

Tickets are required for admission to both meetings.

Congratulations

Mr. and Mrs. Ernie Bennett (8322), a son, David Paul, Nov. 12.



"CLASSIFIED RESEARCH IN THE UNIVERSITY" was the subject of a talk by the chairman of the department of mechanical engineering at UNM, Dr. R. C. Dove, gesturing in picture above. His was one of several talks and panels at a Classification Seminar held at EG & G last week. Also shown are Jim Marsh, head of Classification Division 3414 and Seminar chairman; Bill Carstens, 3420; and Richard Boberg of Aerospace Corporation, president of the National Classification Management Society and also a guest speaker. The Society was formed at Sandia in 1963.



CHRISTMAS will be warm hands, warm ears for children living in communities on South Highway 10. More than 50 sets of caps and mittens were knit as part of 3400 Christmas project. Edith Miller (3411) organized the cap and mitten drive and prepared knitting instructions for 25 volunteers. She asks that any knitting still out be turned in to her by Dec. 15. The 3400 project raises money and collects food and clothing for families in the Manzano mountains. As part of the project, donated books and records will go on sale Monday in the lobby of Bldg. 802. If you wish to make a donation, bring your books or records to the LAB NEWS office.



JACK STRASCINA (4221) won this trophy and a new set of tires as winner of the recent Galles-Groesbeck Sports Rally. The rally, an exercise in precision driving, was run over a 90-mile course with three check points. Earl Gruer (4542) was rally master.

Speakers

K. E. Sutton (3250), "Attitudes Toward Accounting As a Career" panel; J. M. Hueter (3134), "Creativity — Choice or Chance?"; T. W. Hoover (1222), "Taxation at the State and Local Levels" panel, Fifth Annual New Mexico Accounting Seminar, Nov. 21, Albuquerque.

R. L. Schwoebel (5330), "An Atomistic View of Crystal Growth," Wayne State University Physics Colloquium, Nov. 6, Detroit.

N. J. DeLollis (5333), "Long-Time Aging and Mechanism of Adhesive Bond Failure," Aerospace Corporation Conference on Age Effects on Systems Survivability: Electronic and Mechanical Components, Nov. 6-7, Los Angeles.

W. H. Curry (9322), presentation on Sandia terradynamics research program and the T-fin bomb stability study, Tripartite Exterior Ballistics Panel Meeting, Oct. 28-31, Eglin AFB.

B. C. Benjamin (9133), "Sandia Laboratories Technical Program for the Milrow Event on Amchitka Island, Alaska," Albuquerque Chapter of the American Instrument Society, Oct. 29.

J. W. Reed (9150), "Plowshare Nuclear Excavations and Inter-Oceanic Canal Studies," Texas Chapters of the ASQC and Geological Society, Nov. 13, Amarillo.

M. M. Robertson (5525), "The Sun," Air Force Lab Weapons Branch, Scientific Research Society of America, Nov. 18, Albuquerque.

D. A. Freiwald (5242), "Gradient Shock Tubes with Strong Incident Normal Shock Waves in Hydrogen," American Physical Society Fluid Dynamics Meeting, Nov. 24-26, Norman, Okla.

R. M. Jefferson (5221), "A University-Industry Cooperative Teaching Laboratory in Nuclear Engineering"; T. R. Schmidt (5222), "Autonomous Nonlinear Oscillations in Nuclear Reactors"; J. A. Reuscher (5222), "Thermomechanical Testing of Uranium Alloys"; J. E. Powell (5223), "Comparison of Proton-Recoil Proportional Counter and Time-of-Flight Neutron Spectrum Measurements in a U-235 Fueled Fast Reactor," 1969 Winter Meeting of the American Nuclear Society, Nov. 30 - Dec. 4, San Francisco.

Consumer Protection Law in Effect; Purpose Is Consumer Protection

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Credit buying probably affects most Sandians. The LAB NEWS feels that discussion of the "Truth-in-Lending" law is consistent with the editorial responsibilities of an employee newspaper: to bring attention to, and provide information on, relevant social, community, and political issues.)

For the past few years, Americans have been on a buying binge. A good deal of that has been on the "buy now, pay later" plan, a practice which accounts for the fact that Americans are going into debt at the rate of \$800 to \$900 million per month. Given an average interest rate of 18 percent per year (actually the range extends from 9 percent per year to 50 percent and more), Americans are paying some \$13 million per month to cover credit costs.

Thus retail credit is a big industry. As the consumer demand for the temporary use of money increases the competition among retailers and credit agencies for a share of this lucrative business likewise increases. Americans are learning — with a good deal of encouragement from the retail industry — that they easily can have the things they want now and worry about paying for them later. Consequently, an increasing number of American wage earners are burdened or over-burdened with time payments, and the personal bankruptcy rate has nearly doubled in recent years. Competition for the consumer's "few dollars down and a few dollars a month" also has produced a number of deceptive credit practices, usually in the form of hidden costs, or misleading or intentionally vague interest rate agreements.

Some investigators believe that unscrupulous credit practices led to the destruction of certain stores in many cities during rioting in recent years.

The Federal Government, however, now has come to the aid of shoppers who, in nearly every kind of retail outlet, are beset with enticing offers to "charge it." The Federal Consumer Credit Protection Act, which went into effect on July 1, 1969, not only affords some protection against deceptive lending practices but also enables consumers to shop for the cheapest credit.

As interpreted by CONSUMER REPORTS, the "Truth-in-Lending" act requires "conspicuous disclosure of . . . annual interest rates on the vast majority of credit contracts, private-house first mortgages, and time-sale agreements."

For the many people who use a revolving charge account the disclosure provision means that the annual percentage rate of finance charge must be conspicuously shown on the original contract and on every monthly bill assessing a finance charge of more than 50 cents. Thus if the monthly rate is one and one-half percent, the annual rate will be shown as 18 percent. Previously it was not necessary to volunteer this information. Purchasers usually were told only the monthly rate, e.g., one and one-half percent on the unpaid balance.



Cash or charge?

However, CONSUMER REPORTS warns of a loophole in the law that could cost purchasers additional money: some stores calculate the monthly service charge before deducting payments and credits posted on the account that month. For example, on your charge account at Store A your balance owed is \$350, and the service charge is the standard one and one-half percent per month on the unpaid balance. You mail in a partial payment of \$200. On next month's bill, the store deducts this payment before computing the service charge, in this case \$2.25 — an annual rate of 18 percent. If you had the same account with Store B, however, which computes the charge before deducting the payment, your service charge would be \$5.25 — a true annual rate of 42 percent! The law does require creditors to disclose this difference in computing procedures, but many buyers are likely to be unaware of the significance of the difference.

Another feature of the new law which applies to revolving charge accounts is that the store must define the "free time period," — the period, if any, in which an account may be paid up without charge. Also the percentage rate of any minimum finance fee for any such charge over 50 cents must be disclosed.

The law also offers protection to persons taking out purchase loans or time-sale contracts. Again, it requires that the annual percentage rate be disclosed. Other requirements include the disclosure of the cash price of the goods or services purchased, the down payment or trade-in allowance, an itemization of all other charges, the total money actually borrowed, the total finance charges, the number of payments, their amount and due dates, any extra charges for late payments, and a description of any lien or other security interest kept by the lender on your property. The law gives the consumer the right to cancel — by midnight of the third business day after it was signed — any contract making real estate a security interest except a first-mortgage contract.

Before the "Truth-in-Lending" act, the consumer or borrower had few clues on the cost of the money being used. To get the true annual interest rate, it was necessary to use this formula:

$$i = \frac{2mD}{P(n+1)}$$

where i = interest rate, m = number of payments in one year, n = number of payments to discharge debt, D = total finance charge in dollars, and P = price of goods minus any downpayment.

Many Sandians, if they took the time, would have little difficulty figuring interest rates with this formula, but a significant number of consumers — usually those who could least afford extravagant finance charges — had little appreciation of what their credit buying was actually costing. Hopefully this new consumer act will make them less gullible in the market place.

Supervisory Appointment



JERRY KENNEDY to supervisor, Test Systems Division 9134, effective Nov. 16.

Jerry came to Sandia in 1963 and for five years was a member of the Shock Wave Physics Division where he studied the physics of shock-induced high pressures. Since 1968 he has been with the Experiment Planning Division 9114 which provides technical direction, planning, and coordination for experiments at the Nevada Test Site.

Previously he had worked in shock wave physics at Lockheed Missile and Space Division at Palo Alto, Calif.

Jerry has a BS in engineering physics from the University of Oklahoma, an MA in physics from the University of California-Berkeley, and a PhD in physics from Lehigh University.

He is a member of the American Physical Society.

Jerry, his wife Lynn (1224), and their two children live at 8904 Crestwood Dr. NE.

Variable Annuity Unit Value

Dec. 1, 1969	1.657
November 1969	1.573
Average 1968 Value	1.647

Service Awards

25 Years



Elizabeth Foley
4131

20 Years



Reo DePew
2452



Leo White
2321

15 Years



George Buddrius
7434



Richard Burken
4623



Charles Cundiff
1614



John Devenau
8261



Charles Griffin
2340



Ralph Hampy
2633



Voris Hope
3417



George Hosking
7422



Homer McIlroy
3114



Robert Newman
7511



Margaret Platt
3121



Ernest Ramirez
4518



Betty Rannigan
3412



Arthur Savage
1614



Victor Schaeffer
4254

10 Years

Robert Banks 5100, George Edgerly 4221, John Stomp 7323, Emelia Vigil 7532, Donald Hoke 7613, Richard Eisold 7651,

Gilbert Esquibel 8183, Bertha Frick 8253, Gordon Worthen 9252, and Raymond Chavez 3417.

Unions Adopt Needy Children

For the tenth consecutive year, Office and Professional Employees Union, Local No. 251, AFL-CIO will adopt needy youngsters of the Riverview Elementary School during Christmas. This year, the International Guards of America Union, Local No. 27, is joining in sponsorship of the project.

Each year many employees, both union and non-union, forego exchange of greeting cards to participate in this and other similar Christmas projects.

Events planned include a Christmas dinner at the school's cafeteria on Wednesday, Dec. 10. Then on Saturday, Dec. 20, the Christmas party for the Riverview children will feature a visit from Santa Claus and a gift of toys, candy, and food for each child.

Coordinating the project are Pete Olguin (7635), vice president of the O&PE union, and Robert Stewart (3520), president of the guard's union. Tony Chavez (7512) is chairman of the publicity and entertainment committee.

Boxes for gift donations will be placed at various locations throughout the Laboratories.

Anyone interested in helping out should contact one of the above.

Authors

L. D. Bertholf (5162) and C. H. Karnes (5165), "Axisymmetric Elastic-Plastic Wave Propagation in 6061-T6 Aluminum Bars of Finite Length," Vol. 36, No. 3, JOURNAL OF APPLIED MECHANICS.

Lynn Kennedy (1224) and O. E. Jones (5130), "Longitudinal Wave Propagation in a Circular Bar Loaded Suddenly by a Radially Distributed End Stress," Vol. 36, No. 3, JOURNAL OF APPLIED MECHANICS.

F. R. Norwood (1721), "Exact Transient Response of an Elastic Half Space Loaded Over a Rectangular Region of Its Surface," Vol. 36, No. 3, JOURNAL OF APPLIED MECHANICS.

R. C. Reuter (1541), "Dispersion of Flexural Waves in Circular Bimaterial Cylinders—Theoretical Treatment," September issue, JOURNAL OF THE ACOUSTICAL SOCIETY OF AMERICA.

D. E. Merewether (2627), "Electromagnetic Pulse Transmission through an Infinite Sheet of Saturable Ferromagnetic Materials," November issue, IEEE TRANSACTIONS ON ELECTROMAGNETIC COMPATIBILITY.

R. P. Clark (2343), "Phase Diagram of the System LiCl-KCl-CaCrO₄," October issue, JOURNAL OF CHEMICAL AND ENGINEERING DATA.

Take Note

Two technical presentations are scheduled for the 5100 Staff Seminar Tuesday, Dec. 9, at 8:30 a.m. in Rm. 201, Bldg. 806. Joel Lipkin (5165) will discuss "Plastic Waves of Combined Stresses Due to the Longitudinal Impact of a Pre-Torqued Tube" and Ray Reed (5163) will present "The Fracture Behavior of Metal Matrix Composites."

The Albuquerque Philatelic Society will have a stamp auction at the First National Bank on East Central Thursday, Dec. 11, at 7:30 p.m. Lots can be viewed at 7 p.m.

Club president Milt Jenkins (4362) says that there will be a wide range of stamps varying in value from pennies to dollars. Albums, catalogs and other items of interest to philatelists will also be shown.

Other Sandians active in the club are Jim McCutcheon (2326), vice president, and Jim Cocke (1521), treasurer.

Norman Sinnot, 7263, has been elected chairman for 1970 of the Aerospace, Gyro and Accelerometer Panel of IEEE. The Panel is concerned with guidance components and includes representatives from the military, NASA, industry and universities. Membership is 160.

"Science, Technology, and the Quality of Life", a one-hour-television documentary about the effects of science and technology on people will appear twice on KNME Channel 5, Dec. 8 at 5:00 p.m. and Dec. 12 at 9:30 p.m. The program was produced in cooperation with the American Institute of Aeronautics and Astronautics.

Do you have a son interested in attending the U.S. Naval Academy at Annapolis? If he is between 17 and 21, a U.S. citizen, has a good scholastic record, good character and never been married, then Cdr. J. K. Deuel may be able to help. Cdr. Deuel is an alum of the Academy and is currently helping with recruiting. He may be contacted at 264-3220 or 265-6129.

Congratulations

Mr. and Mrs. Gino Carli (7624), a son, Louis Joseph, Oct. 21.

Mr. and Mrs. John Kelly (5223), a son, Trek Thunder, Nov. 18.

Sympathy

To Noble Johnson (3433) for the death of his mother, Nov. 18.

To Don Cotter (100) for the death of his mother, Nov. 8.

SHOPPING CENTER

CLASSIFIED ADVERTISING
Deadline: Friday noon prior to week of publication unless changed by holiday.
A maximum of 125 ads will be accepted for each issue.

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 Laboratories and AEC employees only
6. No commercial ads, please
7. Include name and organization
8. Housing listed here for rent or sale is available for occupancy without regard to race, creed, color, or national origin.

FOR SALE

MISCELLANEOUS

PIONEER 14-20 chain saw, 18" bar, 1 month warranty left, list price \$259, sell for \$200. Johnson, 299-7071.

WURLITZER B flat clarinet w/case, \$75. Peurifoy, 296-5907.

12" WOOD thickness planer, \$250; Atlas bench horizontal mill, \$375; Atlas quick change 10" lathe, \$390; Craftsman quick change 12" lathe, \$575; firm. Stott, 299-7302.

"45" LONG COLT, flat top, N.F.S.A.A., 7 1/2 brl., complete w/accessories, \$150; "38" Long Colt, 1901 Army holster & ammo, \$60. Haines, 255-2368.

1959 B&G Austin Healey engine 100-8, good oil pressure & valves, needs boring, \$75; 2 wire wheels for AH, MG, TR, \$25 takes both. Wilingham, 298-7043.

SKI BOOTS, Molitor size 9, used 5 times, \$30; trail bike, Honda Ace 90, \$250. Arthur, 299-1802.

HO TRAINS, complete sets, \$15 ea.; misc. equipment; HO scale slot car set. Rayner, 299-7429.

SOLID WALNUT 7-pc. Duncan Phyfe dining rm. set, drop leaf table has 2 additional center sections, chairs recently reupholstered. Bower, 299-5765.

SNOW TIRES, 6-50x13, 2, tubeless, retread, \$10; stadium seat, \$2. Pearce, 265-9170.

NEW HI-STANDARD .22 auto. carbine, brass butt plate, tubular magazine, \$40; Hamster cage, all metal w/water feeder, \$3. Guttman, 299-7031.

FRIGIDAIRE electric range, turquoise colored, \$85. Thompson, 298-0946.

CAMPER SHELL, fits lwb. bolts on, rear cargo panel w/walk-thru door, wired for 12V & 110V, sliding side & rear windows w/screens, roll-up top vent, insulated. Dollahan, 299-8107.

STUDIO COUCH, makes into 2 separate twin beds, \$69. McKinley, 296-7015.

AKC COLLIES, show quality, sable & white, \$50 up, terms, 6 wks. old Dec. 1. Lotz, 296-2473 after 5.

CAMERA, Rollei Model 5A, Xenar 3.5 lens, Rollei lens, 4 filters, lens hood, 24-exposure kit, flash attachment, all for \$65. Goens, 296-8441 after 5.

MOTOROLA 21" console TV, \$45. Campbell, 3804 Smith Ave. SE, 255-4271.

NIKON "F" w/50mm f.2 lens; communications receivers & power supplies, electronic gear. Laskar, 299-1024.

BICYCLES, 2 26" girl's, medium weight, w/baskets, w/w tires & thorn resistant tubes, \$15. ea. Kepler, 298-5652.

MODEL TRAIN, HO gauge, engine, cars, track, accessories & village buildings, will sell all, disassembled for \$25 or as individual pieces. Pardee, 255-1998.

LOUNGE CHAIR, Pullman, leatherette covered, \$45. Hawk, 1005 Washington SE, 255-7752.

MAPLE platform rocker, \$38; lg. gold leaf mirror, \$65; Indian oil painting of Geronimo, \$110; .22 revolver, \$10. Smitha, 299-1096.

WIRE, size 0000, 200 amp. capability, use for lead in from meter, about 60 feet. Souder, 282-3121.

LIVE Christmas tree, 4' Englemann Spruce, balled & ready to take from ground, \$5. Tieffla, 299-2763.

RABBIT cages, all metal, automatic water & feed, \$100; moldy oat hay, 25c per bale. Shoemaker, 1-865-9809.

FREE TO \$5 — Christmas puppies: 6 wks. old Christmas Day, will hold until Dec. 24. Young, 268-3209.

VOX AMPLIFIER, 100 watts, 2 12" speakers/vinyl covers, piggyback; cost \$800, sell \$250. Payne, 298-3968 after 6.

'65 HONDA 50cc motorcycle, 1500 miles, not driven in 2 yrs., \$100 or best offer. Lyon, 299-2717.

'67 SUZUKI 250cc Scrambler, blue, \$499. Astorga, 344-4584.

ETHAN ALLEN twin beds, bookcase headboards, \$75; 2 Ethan Allen end tables, \$10 ea.; small maple finish loveseat, \$15. Morris, 298-3349.

FIREPLACE SCREEN, free standing, 39x32 inches, \$10; 3-pc. tool set, \$5. Priddy, 298-8912.

7-00 & 15 TIRE w/split rim, 8-lugs. Nelson, 255-2364.

SCHWINN BIKE, girl's 20", \$20. Zownir, 256-3717 after 5:30.

ROPER GAS RANGE, white, 4 burners, oven, broiler, 2 storage drws., timer, fluorescent light, 38x26x36 inches high to cooking surface \$50. Stark, 299-5953.

IMPERIAL upright piano, \$100. Wenzelburger, 256-9370.

MEN'S 36 zip liner topcoat, \$12; ladies 12 camel hair coat, \$10; student Royal portable typewriter w/case, \$18. Devor, 255-4890.

ROPER dishwasher, copper-tone, built-in, 3 cycles, same washing action as Sears', needs no repairs. Brooks, 299-1884.

JUNK, SCRAP STEEL, trailer parts, misc. tools, a lg. yard full at bargain prices, Sat. 10 a.m. - 1 p.m., 9204 Susan SE, Villeda, 298-7955.

SCODDLE PUPS born Nov. 11, 7/8 Poodle, 1/8 Scotty; Christmas Eve pickup, tails docked & dew claws clipped. Anderson, 299-7782.

BOY'S Schwinn bike, 24", Palkovic, 255-4084.

BENILLI 50 motorbike. Gentry, 898-3325.

WHIRLPOOL auto. washer, top loading, water level & temp. select., \$40. Ferguson 299-1501.

UNDERWOOD typewriter, almost new, \$75; men's Rosemont ski boots, bucket type, size 8, used twice, cost \$70, sell for \$45. Barton 255-5491.

PORTABLE dishwasher lg. size, \$80, consider trade. Rose, 298-4849.

FILTEX vacuum cleaner w/attachments, 1 yr. old, \$50. Henry, 256-2467.

MEN'S SKI BOOTS, size 12, \$20. Verstynen, 298-2087.

PUPPIES, West Highland White Terriers, AKC, ready Dec. 15, Young, 296-1963.

WONDER HORSE on springs, for 2-7 yr. old, has "soft flesh" body, \$10. Abbott, 298-2039.

COLEMAN floor furnace, thermostat control, used 1 season, \$160 new, sell for \$80; four chrome wheels for Volkswagen; extra long single bed, \$35. Campbell, 268-8445.

FIVE-year-old Sorrell registered quarter mare, good pleasure horse with foal. Good health. Eiffert, 898-0324.

GARAGE sale. Boy's bike, outboard motors, Dearborn heater, American Flyer and acc., books, games, coats, dresses, misc. Dec. 6 & 7. Luikens, 3500 Dakota NE.

RIFLE, 244 cal. (GMM) Remington, heavy barrel, \$75. Lionel Train C&O engine, 6 cars, 12' track, and heavy duty transformer \$30. Bedeaux, 344-6277.

HIDE-A-Bed sofa, Simmons, foam cushions; lamps, table for bdrm. or LR, 1 pr. gold, one blue. Less than 1/2 cost. Browning, 299-6384.

'59 Piper Comanche 250, tip tanks, recent paint, King KX-150, Narco MKZ, Lear ADF, Auto-pilot, Alcor EGT, \$11,000. Bowen, 255-6759.

TWO old Motorola TV's. Portable 17" and table 19", operating condition, \$30 each or both for \$50. Van Deusen, 299-4328.

PICK-UP shell, LWB cargo, walk-thru doors, insulated, wired with 12v/110v, sliding windows, twin 5-gal. Butane bottles, valve and carrier. Dollahan, 299-8107.

BUNK BED. Murray, 344-5289.

PUNCHING bag, cotton filled, \$10; girl's bike, 24-in., \$15. Stein, 299-8875.

VIOLIN, 3/4 size, w/case, \$50. Hayes, 299-1200.

BICYCLE, girl's 20", Schwinn, puncture proof inner-tubes, boy's conversion bar, \$15. Surface, 298-1394.

SOFA bed, green, wood arms, \$15; table and 4 chairs, maple, \$15; enamel steel sink, \$10; student desk, pine \$15. Koletar, 255-4751.

STANDARD Airline guitar w/case, \$15. MW portable sewing machine, \$10. King, 299-8976.

TOY poodle puppies, silver, male and female, very small, excellent pedigree. Down payment holds till Christmas. Shipley, 298-2433.

SKIS, Laminated hickory woods, 205's cable bindings, safety straps for beginners or intermediate. \$25. Browne, 344-9675 after 6.

GIRL'S bike, 20", \$15. Claassen, 255-4347.

'69 Honda, 350cc Scrambler, \$600. Kefauver, 296-3547.

PACER citizens band trans-receiver, 8 channel, never used. Costs new \$95. Sell for \$50. Westman, 255-6048.

PUPPIES, Daneshtund AKC, four red, one black & tan, all females, ready for delivery Dec. 5. Caudell, 299-0646.

ELECTRONIC Organ Lowery model SS, two 44 key manuals plus bass pedals, bench incl., \$800. O'Neill, 255-6355.

'58" Shapewear hunting bow, 45-lb. pull, \$35. Webster, 298-8102.

PERSIAN kittens, 2 males, ACFA reg., cameo \$40, chinchilla persian \$50. Kromer, 256-2552.

FASCINATION (bumper) pool table, \$50. Hodges, 298-9018.

'68 KAWASAKI motorcycle, Kelly, 298-6035.

FUR COAT, sheared muskrat, full length, size 8, \$200; Stereo, Magnavox console, six speakers, 25 watt, \$100; Chest of drawers, maple \$35. Crumley, 299-5293.

CARS & TRUCKS

'64 RAMBLER station wagon, white, classic, 9-passenger, std. trans., w/OD, rebuilt motor, new clutch w/w tires, \$650. Melancon, 255-0677.

'68 FORD 1/2-ton pickup w/or w/shell, 360 V8, PS, 3-sp. auto. Nykanen, 296-1082 after 5:30.

'67 FIREBIRD, overhead cam, 6-cyl., 4-spd., \$1500; '66 FORD GTA, 390 high performance engine, 3/4 cam & 3 duces, new paint, wide ovals, \$1495. Randall, 268-2313 after 5.

'60 JEEP station wagon, 4/wd, 6-cyl., many extras, \$700. Kavet, 299-1793.

'60 CHEVROLET Biscayne, std. trans., 4-dr., \$75. Johnson, 256-9218 after 5.

'51 FORD 4-dr., black, \$75 or best offer. Morgan, 298-7228.

'59 CHEV. wagon, V8, 4-dr., R&H, life-time load level shocks. Dadd, 9706 Morrow NE, 299-6330.

'65 MERCURY MONTCLAIRE, 4-dr. HT, AT, PS, PB, R&H, AC, Fries, 268-1362.

'63 FORD Galaxie 4-dr. sedan, see and make offer, \$20 Dallas NE. Trujillo, 255-5053.

'64 Corvair Spyder, supercharger, 4-spd. trans., R&H, 34,900 miles, one owner, \$595. Stark, 8212 Pickard Ct. NE, 299-5953.

'55 3/4 ton Ford pickup w/8' bed, 6'x 8' 3/4" plywood box, new '57 rebuilt motor, less than 10,000 miles, best offer over \$695. Hanna, 298-8127 after 6.

REAL ESTATE

3-BDR. MOSSMAN, hw/floors, wb/fp, pitched roof, carpeted. Wilhelm, 296-7172.

3 ACRES of land w/3-room rock house, 13 miles east of Albuquerque, Zamora Rd., \$4000. Griego, 299-4043.

FOR RENT

CAMPER COVER & camper storage space, store your boats, trailers, etc., guard dog protected, \$5/mo., near Base. Villella, 298-7955.

FURNISHED 3-bdr. house, SE, near bases, schools, busses, shopping. Carpeted. No pets. Ref. required. \$175 per mo. Campbell, 256-1015.

WANTED

SYNTHETIC carpet, wanted. 3/8 inch thick. Stuart, 299-9190.

BEGINNER'S GUITAR, 6 or 8 string, cheap. Lotz, 296-2473 after 5.

SMALL TRACTOR w/blade for snow removal. Muench, 264-5137.

BICYCLE exerciser w/adjustable tension. Nielsen, 299-2919.

LOST AND FOUND

LOST—3-ring green cloth binder containing sample of orders and memos for safety glasses, man's 3-diamond wedding yellow gold band, man's green suede lined left hand glove, Gold Cross pencil, Mido wristwatch w/gold/black face & gold stretch band. LOST AND FOUND, tel. 264-2757, Bldg. 610.

FOUND—Gold ring-shaped earring, pearl bracelet, paperback book — A PROGRAMMED COURSE IN BASIC ELECTRICITY. LOST AND FOUND, tel. 264-2757, Bldg. 610.

Coronado Club Activities

Formal Sanado Ball Tomorrow

Tomorrow night, eight lovely young ladies will be presented by President John Hornbeck as part of the Sanado Club's formal Debutante Ball. The event starts with social hour at 6 p.m., the presentation at 7, dinner at 7:30 and dancing from 9 to 1. Sol Chavez and the Duke City Brass will be on the bandstand.

The Club has been decorated for the holiday season by a Sanado committee headed by Mrs. William Meyer. Decorations follow a Spanish and New Mexican theme.

Tickets for the formal ball should be picked up from the Club office today.

Kid's Christmas Party

Santa Claus will visit the Club on Saturday morning, Dec. 20, to pass out goodies to all the kids 12 years old and under. Ron Day (3132) and his wife Mary Kay will present a special Christmas marionette show. Cartoons will also be shown. The party is free to children of members.

Special Luncheon

The Coronado Club's special 99-cent luncheon featuring roast turkey with the works will be offered on Thursday, Dec. 18. The special will be available at the Club, and in Bldg. 839 and Area III cafeterias.

Tutoring Program Now Extends to High School

The Albuquerque Tutoring Council is extending its program to high school students and needs additional instructors.

"Until now, we've focused our attention on children in the elementary and junior high school grades," explains Joe Willis, community coordinator for the program. "However, we have had a number of requests for tutoring help in high school-level science, math and English."

Among the lower grades, the need is concentrated in the Valley schools from Corrales to Las Padillas, and in Tijeras. "More children are behind in school in these areas for cultural or linguistic reasons. They need tutoring in basic math and basic reading skills — including how to read, pronounce, and comprehend what they are reading," Joe adds.

Tutors devote a minimum of an hour a week and instruct in a public school, community center, or other meeting place. Orientation sessions, workshops, and tutor-manuals are available for interested persons.

Sandians who have or are taking part in the teaching program include Don Morrison (1720), Henry Monteith (9422), Fred Norwood (1721), and Diane Holdridge (1711).

For more information, call Joe Willis at 242-1056.

Social Hours

With organizational Christmas parties dominating the Club calendar through New Year's, social hours will be held in the main lounge only from 5 to 7 p.m. on Fridays. Free snacks will be served, but no buffet. The midweek social hours continue on Tuesdays from 5 to 8 p.m. The Club's main lounge will be open starting at 12 noon on Wednesday, Dec. 24.

Bridge

Duplicate bridge meets Mondays at 7 p.m. Coronado ladies bridge meets Thursday, Dec. 18, at 1:15 p.m.

Promotions

- Ray Baldonado (7652) to Staff Assistant Drafting
- Stephen Breeze (7652) to Staff Assistant Drafting
- Marguerite Burrell (3255) to Staff Assistant Administrative
- Josephine Emery (1720) to Secretary
- Dixie Fambrough (9427) to Staff Assistant Administrative
- D. W. Fenstermacher (4222) to Specialties Worker
- Lillian Funk (8253) to Service Clerk
- Patricia Gomes (8322) to Data Processing Clerk
- Joann Guillen (3256) to Secretarial Steno
- Roy Hart (4221) to Welder
- Sandra Hudson (5230) to Secretary
- Christine Imler (8321) to Secretarial Typist
- Anna Isham (8253) to Service Clerk
- Roy Jaramillo (4221) to Welder
- David Larsen (8253) to Camera Operator
- Andrew Lopez (9411) to Computer Facilities Operator
- Esther Martinez (9411) to Data Processing Clerk
- Louise Meyers (1600) to Secretary
- Elefio Montoya (7654) to Staff Assistant Drafting
- Craig Mueller (8322) to Data Processing Clerk
- Louis Nogales (9411) to Computer Facilities Operator
- Russell Parmley (7652) to Staff Assistant Drafting
- Joe Santana (7652) to Staff Assistant Drafting
- Theodore Simmons (8322) to Data Processing Clerk
- Edmundo Sisneros (4231) to Technician
- Michael Spencer (7533) to Technician
- Peggy Stevens (5310) to Secretary
- Jean Stewart (3256) to Secretarial Steno
- Kerry Sturgeon (7653) to Staff Assistant Drafting
- Benjamin Tafoya (7654) to Staff Assistant Drafting
- Cecil Tafoya (3428) to Mail Clerk
- Jane Thompson (3100) to Secretary
- Kenneth Varga (7654) to Staff Assistant Drafting
- Bernardo Vigil (7654) to Staff Assistant Drafting
- Opal Walker (4613) to Service Clerk
- Sheridan Ward (3256) to Secretarial Steno
- Fredericka Weber (3110) to Secretary

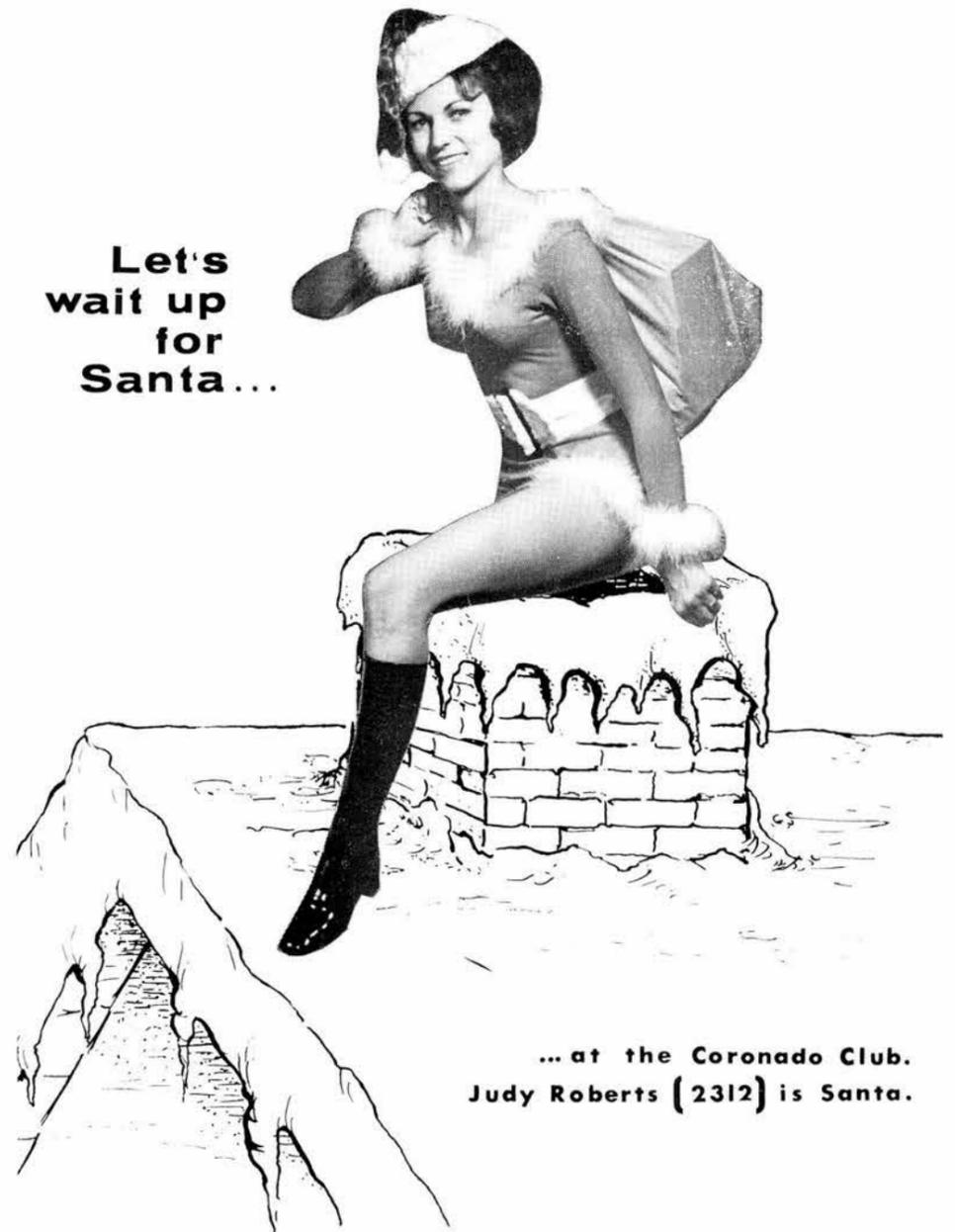
Solid Water?

To Stop a Sled . . .

A problem with monorail sleds has been "how do you stop the sled before it gets to the end of the track?" Dual rail sleds travel on two rails which have a water trough between them, and the sled is stopped by a scoop or probe brake extending into the water. On monorail sleds the most common stopping device has been polyethylene bags filled with water and taped to the rail so that sled energy is dissipated by displacement of the water. But this method has two major disadvantages — the polyethylene material wedges between the sled shoe and the rail and clean-up after the test is a considerable job.

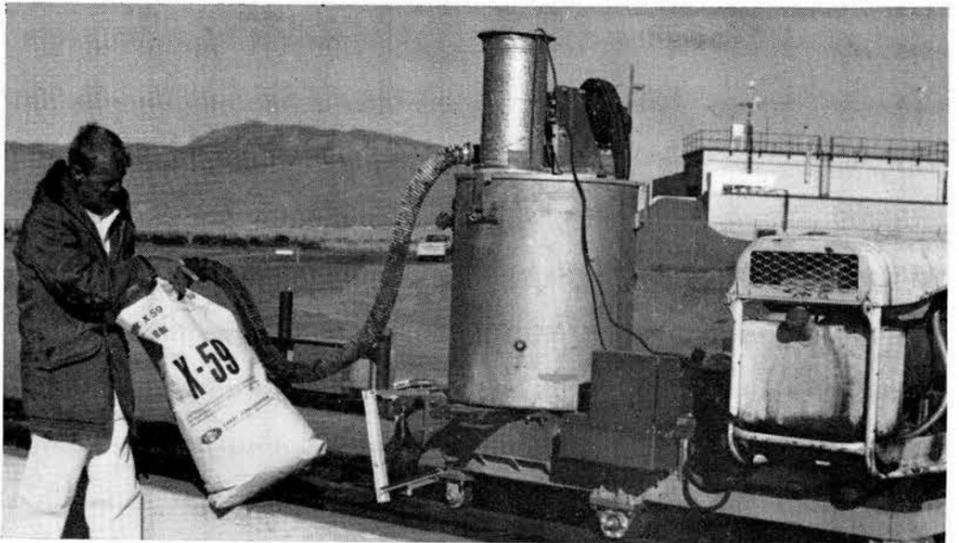
These pictures show the elements of a new and simplified braking method devised by Bill Kampfe of Track and Guns Division 7325 with the help of Divisions 5333 and 5516. "Cabosil," a dry, powdery silica is mixed with water (above) in a dispenser and extruded onto the single rail in a continuous bead (below left). Small concentrations of Cabosil in water create a heavy greaselike substance that has all the energy absorbing properties of water needed to slow down the rocket sled.

Nick Delollis (5333) suggested use of Cabosil for this purpose, and Dick Traeger (5516) recommended a polyhydroxy additive to reduce the evaporation rate of water so that the grease is stable for several hours. Division 7325 then designed and built the mixer dispenser.



Let's wait up for Santa...

... at the Coronado Club. Judy Roberts (2312) is Santa.

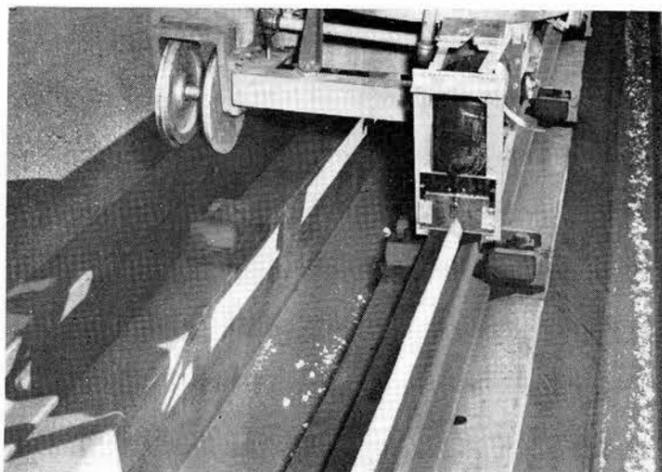


LEONARD HITCHCOCK (7325) loads dispenser with Cabosil.

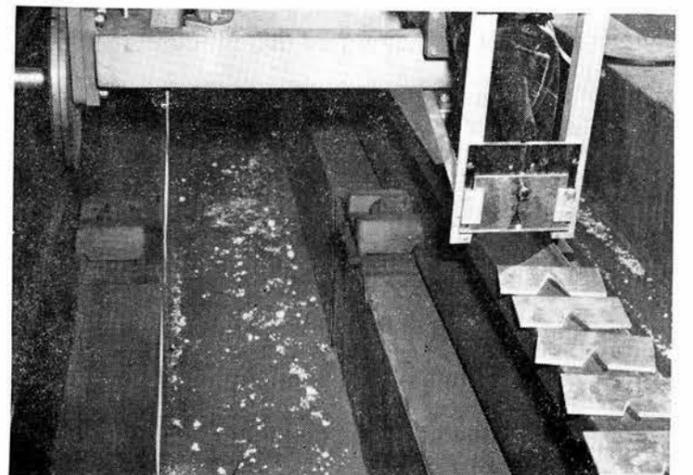
The consistency of the mixture is such that a bead or channel of water can even be laid on a vertical surface, using no supporting container. Clean-up problems are nonexistent because when the water eventually evaporates the Cabosil just blows away.

Monorail sleds which have impacted the

Cabosil at speeds up to 3000 fps have been successfully stopped using this method. Since the braking force generated is a function of the sled velocity squared, the bead of Cabosil must be increased in size as the sled slows down. Larger beads are obtained by use of outlet plates with larger notches (lower right).



DISPENSER rolls along track laying continuous bead of braking material.



OUTLET plates permit different size beads for different sled speeds.

SAFETY



is using a mask for a toxic task