



LAB NEWS

VOL. 22, NO. 22

OCTOBER 23, 1970

SANDIA LABORATORIES • ALBUQUERQUE NEW MEXICO & LIVERMORE CALIFORNIA

Sandia's 'Flying Laboratory' on Mission Towards North Pole

Sandia's "flying laboratory" left Albuquerque Wednesday bound for the arctic circle. A similar NC-135 plane left with Los Alamos Scientific Laboratory scientists earlier this month for New Zealand. The two planes will gather data simultaneously while flying at magnetic conjugate points—the points where the magnetic field lines curving in a north-south direction around the earth, intersect the flight paths.

The mission is part of a continuing study of atmospheric phenomena associated with the aurora borealis and aurora australis (commonly called the northern and southern lights). The scientists are interested in determining the energy source that creates and maintains the auroras and the energy transfer mechanism involved in their formation. Various particles—electrons, protons—spiral back and forth along the magnetic field lines between the conjugate points.

Similar studies conducted during the past three years have shown definite conjugate relationships in which the auroras appear to be mirror images of each other in the northern and southern hemispheres.

The two planes will conduct the experiments the nights of Oct. 25, 27, 29, 31 and Nov. 2. The Sandia plane will fly on a line from the tip of the Alaskan peninsula toward the North Pole. The LASL plane will fly from New Zealand toward the South Pole. Each plane will fly a precision

course and the timing of the simultaneous data taking will be controlled with crystal clock timing instrumentation.

In addition to conjugate photoelectron effects, the stable auroral red (SAR) arc phenomenon will be studied. The SAR arcs appear to be related to magnetic disturbances and sunspot eruptions. Data will be gathered also on cosmic rays and airglow—a faint, upper atmospheric light akin to the auroras.

During the flights, the two planes, flying at opposite ends of the world, will maintain direct communication through the ATS satellite. Particle density data gathered by this satellite will also be correlated with findings from the current project through the cooperation of the Environmental Science Services Research Laboratories at Boulder, Colo. University of Alaska and EG&G scientists are also participating in the project.

Bob Peterson of LASL is the mission scientific director. Mert Robertson, supervisor of Spectroscopy Division 5525, helped coordinate scientific activities for the project at Sandia. Sandia operations officer is Al Hutters, supervisor of Test Operations Division 9222.

The flying laboratories are specially instrumented NC-135 aircraft (modified Boeing 707 jets) designed primarily for use in the test readiness program.

Preliminary Total In ECP Campaign Shows 50% Fair Share

With about two-thirds of the payroll deduction cards returned, preliminary results of the current Employee Contribution Plan campaign show a significant increase in the number of fair share contributors, according to Jack Merillat (3120), ECP committee chairman.

Among employees contributing to ECP, Jack says, almost 50 percent are designating the fair share (one hour's pay per month) level or better.

"When we started the drive," Jack says, "about 35 percent of our employees were giving a fair share."

The preliminary figures show a total of \$247,262 contributed by 4611 employees whose cards have been reported. The percentage of Sandians participating at this time is 87 percent as compared to 75 percent at the start of the campaign.

Jack expects the remainder of the cards to be tallied within a couple of weeks. Employees on vacation, leaves of absence and sick leave remain to be contacted.

Dale Bellamy Dies

A person well known and liked by many Sandians, Dale Bellamy, died on Oct. 13 after a long bout with emphysema. He was 60.

Dale retired last year after long service as manager of the Credit Union. He is survived by his widow Ruth, who resides in Martinez Lake, Ariz., where he died.

Speeds to 150 mph

Lew Longmire Builds Hot Little Bird

The little red and white airplane whizzes around Seven-Bar airport at a smart 150 mph. Lew Longmire (2325) is wringing-out his newest design in home-built experimental aircraft. It resembles one of the Bendix racers of the mid-30's or something out of the old Tailspin Tommy comic strip. It's small, it's fast, it's pretty.

The plane, powered with a 65-hp Continental engine, has a wingspread of 18 feet. Fuselage length is 14 feet. It weighs only 400 pounds empty. Lew started building the plane about a year ago but dropped

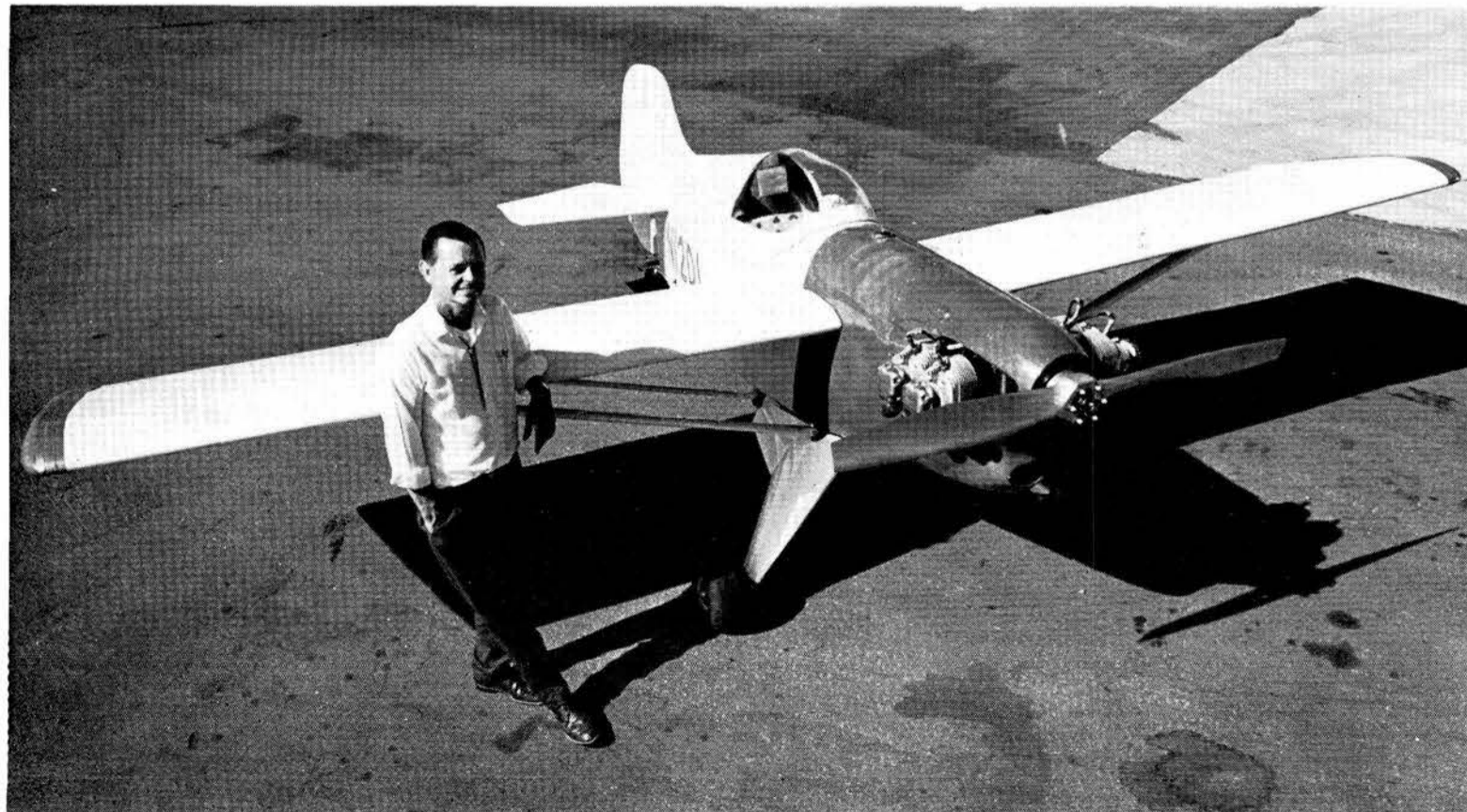
the leisure-time project for about six months. He did a lot of calculating and redesigning.

"What I wanted," Lew says, "was a high performance airplane at minimum cost. To get high speed with a 65-hp engine meant using extremely lightweight construction. But it had to be strong, very strong. I used fir plywood and fir stringers for almost all of the construction. I ran strength and stress tests as I went along—loading the wings with weights, for instance. I rebuilt a lot of parts that way.

"I figured the weight of everything in the plane—including me. The control surfaces are so small that a difference of one-half inch in the center of gravity makes a tremendous difference in the way it handles. That's why I put the four-pound battery for the radio right above the tail wheel."

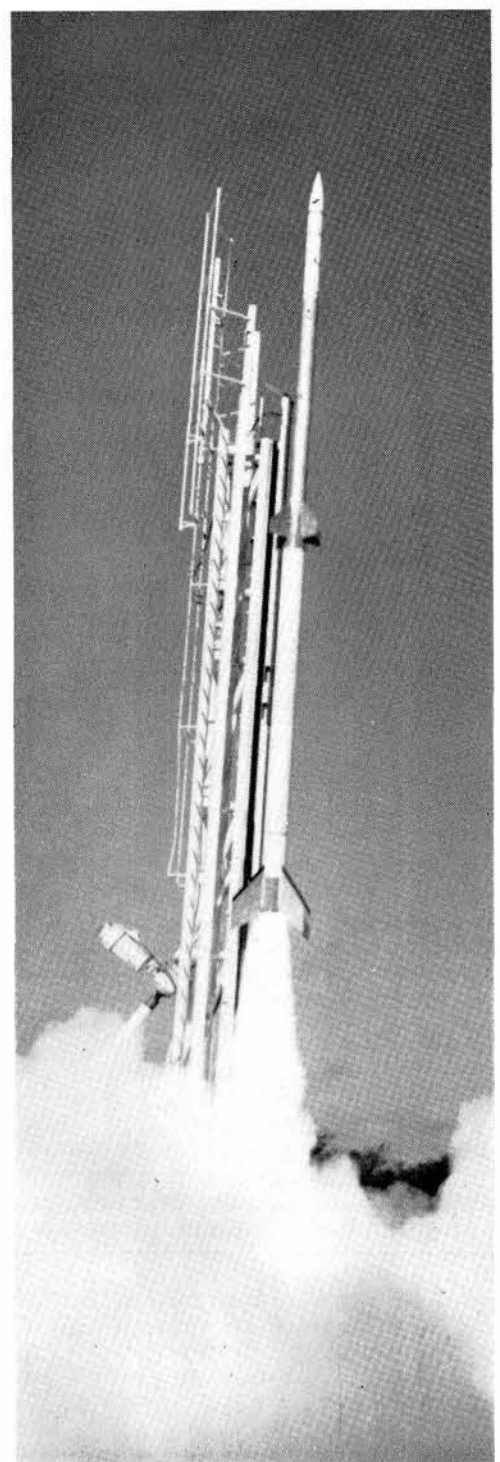
A lot more calculating went into the design and construction of the airplane. Lew modified a standard airfoil—the curve in the cross section of the wing which pro-

(Continued on Page Four)



LEW LONGMIRE stands beside his new little airplane. He designed and built it during his spare time this past year and is currently run-

ning it through a series of performance tests before certification by the FAA. Lew plans to add a sharp nose spinner and wheelpants.



SANDHAWK-TOMAHAWK rocket rises from launcher at Barking Sands on Kauai. The new system is under development as a high-altitude sounding rocket. The rocket carried a 175-lb. payload to an altitude of 321 miles.

Two Sandia Rocket Systems Successfully Tested at Kauai

Two development tests of new Sandia rocket systems were successfully conducted recently from Barking Sands Launch Facility on Kauai in the Hawaiian Islands. About 40 Sandians participated in the operation.

First of the rocket systems was a Terrier-Recruit low altitude, high acceleration system initially flown at Tonopah Test Range last May. With a launch angle of 35°, the rocket achieved a velocity of 9000 feet per second (Mach 8.4). Total flight time was about 325 seconds, with six seconds burn time.

The 65-pound payload was separated and recovered by parachute as planned.

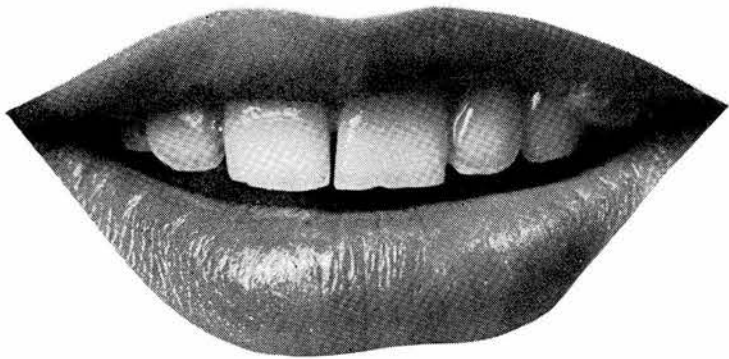
The second system was a high altitude sounding rocket, a two-stage Sandhawk-Tomahawk. This system carried a 175-pound instrumented payload to an altitude of 320 miles. The payload was successfully recovered 121 miles downrange. Instruments measured the aerodynamic heating of the system, including temperature measurements in the fin assembly. The data will be useful in further design of this and other systems.

Aerodynamics Projects, Upper Atmospheric Projects, and Instrumentation Applications Departments participated in the development of the rocket systems. Al Hutters, supervisor of Test Operations Division 9222, was test director.

LTD Gets More Takers

The Long Term Disability plan offered to Sandians last month is getting more takers—84% as of this writing. The critical percentage (75%), necessary for the plan to go into effect, was early reached.

Persons who have not signed up are reminded that they can continue to do so through October. But even if you don't plan to subscribe, you should complete the "waiver of coverage" portion of the enrollment card and return it to Division 3122.



Fluoridation Facts

By Sheldon Bliss, MD, Medical Director

The procedure of fluoridation of public water supply provides protection against dental decay. All drinking water has some naturally occurring fluorine, but usually in an amount below the level necessary to provide this protection, namely, 0.7 to 1 part per million parts of water. Some areas have as much as 12 to 15 parts per million, but even in these areas the only undesirable effect is staining of the teeth. Many exhaustive studies have failed to reveal any other detrimental effect. Here are additional findings from these studies.

Does Fluoridation Reduce Dental Decay?
In 1938, Dr. H. Trendley Dean and associates of the U.S. Public Health Service made several studies, among which was a survey of children in Galesburg and Quincy, Ill. Galesburg used deep well water with 1.8 parts of fluoride per million, while Quincy got its drinking water from the Mississippi River with only 0.1 parts per million. Quincy children between ages of 12 and 14 had three times as much tooth decay as the Galesburg children.

In 1941 and 1942, Dr. Dean, in association with Drs. Francis Arnold and E. Elvove, studied tooth decay in 7257 children of the same age group. The children resided in 21 cities in four different states, and tooth decay was checked against the fluoride content of their drinking water. The findings, since confirmed by independent observers, were:

1. At one part fluoride per million parts of water, children had about 60 percent fewer decayed teeth than in non-fluoride cities.
2. Disfiguring stains or mottled teeth did not occur where water contained up to 1.5 parts of fluoride per million parts of water.
3. At one part per million, tiny white flecks were found on the enamel of about one-tenth of the children. These were discernible only under a strong light.

The next step was to see if the same benefits were attainable by raising the fluoride-deficient water of some communities to a level of one part fluoride per million parts of water. In 1945 controlled studies began at Newburgh, N.Y., Grand Rapids, Mich., and Brantford, Ontario; each of these cities had begun a water fluoridation program. For comparison, data was also obtained from a fluoride-deficient city. Other programs and studies were begun in Sheboygan, Wis., in 1946; Evanston, Ill., in 1947; and Madison, Wis., in 1948. After some nine years of fluoridation, observed results have been similar to those detected in naturally fluoridated areas:

1. Dental decay dropped 54 percent in baby teeth of Grand Rapids' six-year olds, and 60 percent in permanent teeth.

2. Newburgh children drinking fluoridated water from birth showed 48 percent reduced tooth decay. Kingston children from 6 to 9 (without fluoridation) had eight times as many first permanent molars missing as the Newburgh youngsters.

3. Brantford reports show 54 percent less decay in the permanent teeth of children from 6 to 16 than before fluoridation.

4. Evanston, after 8½ years, had 64 percent less tooth decay in permanent teeth of children from 6 to 8 who had been drinking fluoridated water since birth.

5. No staining or mottled enamel occurred.

How Do We Know Fluoridation Is Safe?
To be as certain as is humanly possible, many studies of animals and human beings have been undertaken. Careful analysis of experience in places where people have been drinking fluoridated water all their lives reveals no harmful effects.

A 10-year study was made of 116 persons in Bartlett, Tex., who had been drinking water containing 8 parts of fluoride per million parts of water for an average of 37 years. Their records were compared with the records of 121 citizens of Cameron, Tex., which had 0.4 parts of fluoride per million. Examinations of arthritis and arthritic changes, blood content, cataracts, eye lens opacity, cardiovascular changes, hearing, tumors, cysts, fractures, kidney and gallstones, gingivitis, hemoglobin, blood cells and sedimentation, blood calcium, urine albumin and glucose were made. No significant differences were found.

The studies of the communities which first adopted fluoridation programs included careful medical histories, complete physical examination, periodic measurements, blood and urine analyses and x-rays. No medical differences were found in children drinking fluoridated water and those who drank water that was deficient in fluorides.

The vital statistics of people in 32 cities having appreciable fluoride in their water supplies have been compared with those of people in 32 cities whose water is fluoride-deficient. The causes of all deaths, and specific mortality from cancer, nephritis, cirrhosis of the liver, heart disease and intracranial lesions were examined. No important differences were found.

Minute traces of fluorides occur in nearly all foods; the only way we could avoid all fluorides would be through a diet consisting of beets, cabbage and cauliflower cooked in distilled water. Thus, as long as man has existed, he has been ingesting fluorides. To produce even the mildest symptoms of fluorine poisoning, one would have to drink 2½ bathtubs of fluoridated water during a single day; to absorb a lethal amount would require drinking 50 bathtubs of the water over a short time period.

What About Potential Sabotage? It takes about 20 pounds of sodium fluoride for each million gallons of water to obtain the proper level of fluoridation; about two tons of the chemical per million gallons to produce even the mildest poisoning; and 40 tons per million gallons to produce lethal results.

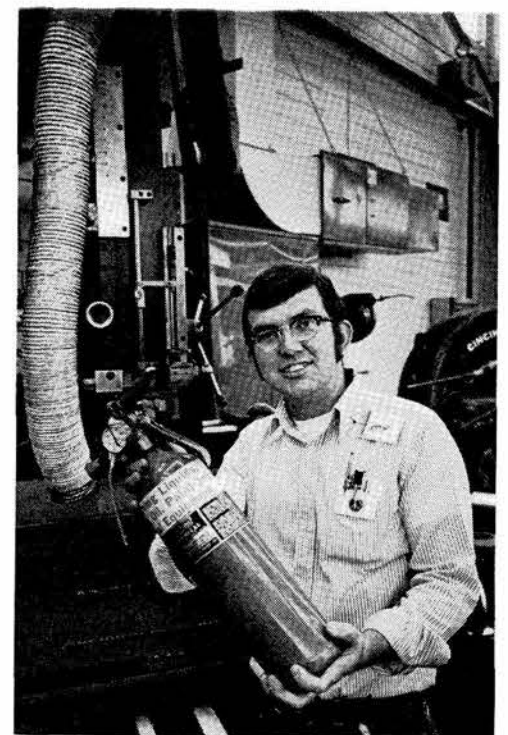
Is Fluoridation "Compulsory Mass Medication"? Fluoridation is a preventive, and not a remedy, for any existing condition.

It operates in much the same way that chlorination of water prevents bacterial infection but does not serve in any way as a treatment of any infectious process.

Other similar preventive measures are vaccination against smallpox, addition of vitamins to bread and milk, and irradiation of milk.

Is Fluoridation Of Benefit Only To Children? It is true that for fluoridation to be most beneficial it should be used early in life, but children become adults, and it has been proved that the number of missing teeth in the adult population in all age groups is roughly twice as great in the no fluoride community.

Costs: A feasibility study done in 1967 predicted that cost per person per year to bring the fluoride level up to 1 ppm in Albuquerque would be 10 cents. Analysis of the 64 wells used as our source of supply revealed that 60 of the wells had less than 1 part per million of fluoride, and the average for the 64 was .64 part per million.



QUICK ACTION by Dan Poole (5253-4) prevented a serious fire in the Development Shops. Dan was cutting aluminum honeycomb with an electric discharge machine when flames suddenly burst from the electrode. Dan shut off the machine and smothered the fire, which was spreading on the surface of a tank of liquid dielectric material, using a dry chemical fire extinguisher. Ironically, the blaze occurred during Fire Prevention Week. No damage was incurred.

Confused About Constitutional Amendments? Here's Help

When you step inside the voting booth Nov. 3rd, the ballot will probably seem a little overwhelming in its complexity. Among the issues to be voted on are eight constitutional amendments — and the voting booth is not the place to deliberate about these because you won't have the time. Also, the amendment wording on the ballot is not particularly illuminating: "Constitutional Amendment No. 3 — Proposing an amendment to Article 5, Section 1 of the Constitution of New Mexico pertaining to State Executive Officers and their Terms of Office."

Here is a digest of the content of the proposed amendments. The amendments were drafted during the 1970 regular session of the legislature.

Amendment #1

This amendment would provide for the districting of municipalities in order to elect municipal governing body members and to allow adoption of municipal "home rule" charters. Except when done under general law, districting would require approval of the voters of the municipality, and any governing body member who represents a district would be required to reside in, and be elected from that district.

Amendment #2

Most of the material to form a new elective franchise article is taken from the present article and rewritten in clearer, more modern language. To vote, a citizen would have to meet local residence requirements provided by law instead of the fixed 30-day precinct residence requirement, and special residence requirements could be provided by law for voting in presidential elections. All local government elections, except those for county officers, would be held at times other than when general or statewide elections were scheduled; the present constitution requires only that school elections be held separately.

Amendment #3

Under amendment No. 3 a four-year term for state executive officers would be established; the officers would be prohibited from holding office for consecutive terms, except in the case of the lieutenant governor who would be allowed to run for the

office of governor at the end of his term. Four-year terms would begin Jan. 1, 1971.

Amendment #4

If adopted, this amendment would eliminate the mandatory state property tax levy for public schools and remove constitutional limitations on the distribution of certain public school income.

Amendment #5

This amendment would delete the section requiring a constitutional convention to change the requirements for amending the constitution.

Amendment #6

Amendment number 6 proposes to add "financial conflict of interest" as a ground for removal of regents of state educational institutions and to allow the legislature to specify other grounds. It would specify that removal proceedings could be initiated only by the governor or by two-thirds vote of the Senate.

Amendment #7

This proposed change would except from the present constitutional restrictions against state financial assistance to private individuals, any state loan program for post-secondary students at educational institutions under exclusive control of the state.

Amendment #8

Although most of the material is taken from the present article it is rewritten in clearer, more modern language in the form of a new taxation and revenue article. It would provide the legislature the tool necessary to set the percentage of value to which the tax rates would be applied by all taxing districts, not exceeding 33-1/3%. The legislature would specify the manner for allocating the twenty-mill maximum property tax levy among the various taxing districts, and the present constitutional limitations within the twenty mills would be deleted. All present property tax exemptions would be retained, subject to repeal only by three-fifths vote of each house of the legislature. The head-of-family property tax exemptions would be increased from \$200 to \$600. Bonds of the state and its political subdivisions and income from these bonds would have a constitutional exemption from all taxation.

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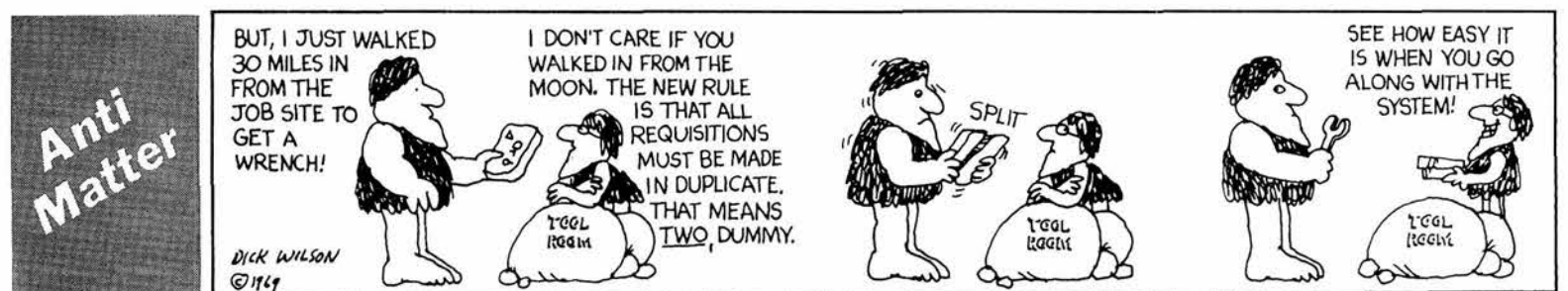
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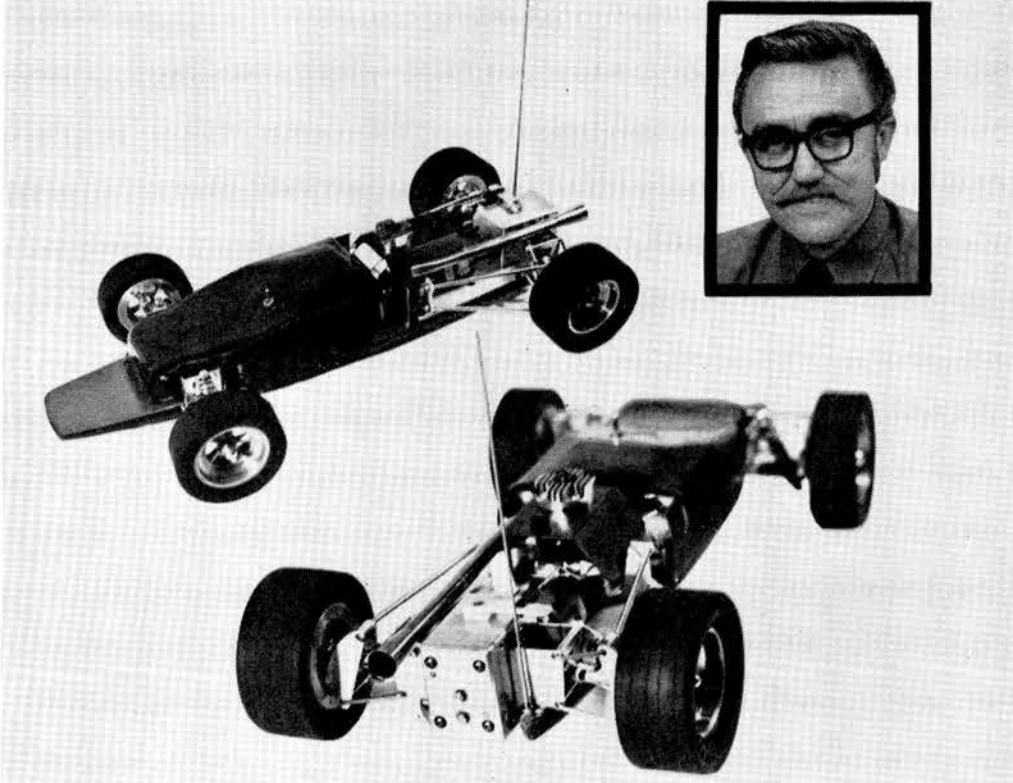
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SANDIAN'S REMOTELY CONTROLLED MODEL RACERS APPEAR IN NEW MAGAZINE—A new sports magazine, *PIT STOP: THE JOURNAL OF AUTOMOTIVE RACING* (Sept. issue, Vol. 1, No. 1), features a radio-controlled model racing car built from scratch by Jim Muir (8181). At one-eighth scale, measuring 20 inches in length and weighing about seven pounds, the model car took Jim a year and a half to complete. It is patterned after a Lotus Formula 1, with a four-wheel independent suspension system and a fiberglass chassis. He used no commercial parts, except for the engine and tires. The steering, throttling, and shifting of the two-speed transmission (designed jointly by Jim and Bill Byroads, 8333) operate remotely. Photos for the magazine were taken by Jack Casey (8181).

Livermore Employees Contribute Over \$33,000 to LEAP Fund Drive

A total of \$33,294 has been contributed by employees to the recent Livermore Employees' Assistance Plan (LEAP) fund drive. The figure represents an increase of \$2954 (or 9.7 percent) over last year's contributions of \$30,340.

The average gift per contributor was \$39.97, a 12.2 percent increase over the 1969 contribution of \$35.61. Employee participation in LEAP was 81 percent, up three percent from last year. Of those contributing, 30 gave one percent of their annual salary; 105 contributed a LEAP share (one hour's pay per month). The number of employees participating on a one percent or LEAP share is almost double that of the previous year.

"We can be proud of our LEAP program," comments Alec Willis (8351), chairman of the LEAP committee. "Increased participation indicates that employees approve of the program as a means to contribute to local and national health and service organizations. We continue to receive letters of appreciation from organizations participating in LEAP."

LIVERMORE NEWS

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SANDIA LABORATORIES

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Understand GECENT, BXXCLO, KTGEIC?

NC Machine Programmers Use Strange Idiom

"Watch your language!" could well be the byword for people in the Special Machining and Support Shop Section 8271-2 at Sandia Laboratories Livermore. Because of their ability to describe a drawing in computer language, automatic operation is possible for the seven numerically controlled machines in the Laboratory's model shop.

"Increased accuracy — imperative in our work — is only one of the benefits computer-oriented machines provide," says Bill Schmedding, supervisor of Section 8271-2. "Once we get the design layout, we can give engineers the numeric or graphic data that they would normally have to compute themselves or request from drafting. Design layouts can be for printed wiring boards, a prototype weapon part, a fixture for a test item, a template for a tracer controlled machine or a shadow-graph for inspection."

"From point coordinate information digitized from a design layout," explains Bruce Affeldt (8271-2), "we can calculate a part's weight, center of gravity and moments of inertia by using a computer program known as DIGPOD (Digitizer Post-Processor On Disc). The same information can be provided by COMPTR (Computer) if the part description is written in APT (Automatically Programmed Tools) language."

DIGITAL is used extensively for making photographic printed circuit masks and drilling holes for printed wiring boards.

The fabrication of a printed wiring board is automated from the time the digitizer analyzes a draftsman-prepared circuit drawing until the plating or chemical etching labs take over. The digitizer converts lines on a drawing to numerical data. When the operator pushes a switch on the digitizer's reading head and adjusts the fixed data entries on a control console, DIGITAL program codes and x and y coordinates of each hole and line are automatically keypunched. Coordinate locations are accurate to .001 of an inch. Cards then go to the computer for calculations and preparation of a punched tape. The drafting machines respond to the tape commands. On the Gerber machine, a beam of light striking photosensitive paper draws the circuit to specified scale with an overall accuracy of one-half mil (.0005 of an inch).

"APT," says Lou Reis (8271-2), "is most useful when one chooses to make more than one mechanical part or a part that is difficult to machine — like the helix (spring) with an exponentially variable pitch. Use of a conventional lathe for the job takes too many setups for the machinist. But the two-axis Monarch lathe programmed with GECENT (General Electric's Mark Century controls) machined the changeable pitches of a double start thread on the outside of a six-inch-long beryllium/copper cylinder. Boring the center of the cylinder completed the spring."

APT involves the assignment of geometry statements to each surface of a part (e.g., LINE/PI, ATANGL, 45). Statements for start-up, geometry, tool commands and shutdown are added. The combined state-

ments are keypunched, sent to the computer for processing and preparation of paper tape. To avoid the time-consuming effort of trying out the program on the equipment that will machine the part, the tape is fed to the Orthomat drafting machine. It draws the part's contour. Revisions are made as needed.

Each piece of numerically controlled equipment requires a computer language of its own because of its unique capabilities. The Orthomat recognizes ORTHO and MACHIN/TRW 2; the two-axis Excello milling machine, BXXCLO (Bendix, Excello); the three-axis Cincinnati mill, GECENT; and the three-axis, 15-tool turret Milwaukee-Matic Machining Center, KTGEIC (Kearney and Tracker Corp., General Electric Integrated Circuit). Manufacturers of the equipment provide post-processor programs to operate them. But it's up to Hanloy Quock (8321) to modify, adapt and maintain numerically controlled post-processor programs for Livermore's use.

"The usefulness of numerically controlled tools," Bill Schmedding claims, "is limited only by one's imagination. They are accurate, their accuracy is repeatable and their by-product data has proved a computational time-saver for engineers and draftsmen."

Take Note

Ben Aiken of Technical Art Section 8231-2 is exhibiting one of his oil paintings, "Mandala #3," at the San Francisco Museum of Art during the month of October. His showing is part of the annual fall exhibition of the rental gallery. Paintings are available for sale or for rental to members of the museum.

Jack Dini and Rudy Johnson, both of Metallurgy Division 8312, were coauthors of a technical article entitled, "Separating Large Thin Electroformed Parts from Mandrels," which appeared in the September issue of *METAL FINISHING MAGAZINE*.

Jack and John Helms (also 8312) were coauthors of an article, "Electroplating Gold on Stainless Steel," which appeared in the September issue of *PLATING MAGAZINE*. This article was based on a technical paper presented at the 57th Annual Convention of the American Electroplaters' Society held in Montreal, Canada, in June.

Two Sandians presented technical papers at the Fifteenth Annual Technical Symposium of the Society of Photo Optical Instrumentation Engineers held in Anaheim, Calif., Sept. 14-17. Danny Hartley of Aerothermodynamics Division 8351 presented a paper titled "Unsteady Multispecie Gas Mixture Concentration Measurements Using Laser Raman Scattering," and Sheridan Johnston of Fluid Mechanics Division 8333 presented "A Dark Field Laser Schlieren Technique to Study Gas Mixing in Unsteady Flow Processes."



LOU REIS (8271) compares finished spring to prototype (at left). Machined on a numerically controlled lathe using APT language, the spring has an exponentially variable pitch rate where the mean diameter, the beam width and the beam height vary continuously.

New Environmental Protection Agency Subject Of Oct. 30 Colloquium

The newly established Environmental Protection Agency (EPA) will be the subject of a colloquium to be held at Sandia Laboratories Livermore on Oct. 30. The agency, which consolidates the major pollution-abatement activities of the Federal government — air, water, solid waste, radiation, and commercial poisons — begins activity on Dec. 2. Dr. Wilson Talley will discuss the rationale behind the formation of the EPA, what it is, and its future prospects.

A recipient of the White House Fellowship, Dr. Talley was assigned to the Department of Health, Education, and Welfare as a Special Assistant to the Secretary from 1969-70. During that time he served on the President's Advisory Council on Executive Organization and on the panel on Environmental and Natural Resources. Now an associate professor of applied science at the University of California at Davis, Dr. Talley earned his doctorate in nuclear engineering from UC/Berkeley.

Tickets will be required for admission. Marlin Pound (8236) is host.

Dave Timmer Elected

Dave Timmer (8168) has been elected president of the Twin Valley Chapter of the Alameda County Association for the Mentally Retarded for 1970-71. The chapter currently sponsors a nursery school five days a week for handicapped children until they qualify for the public school system programs. Dave says a fund raising boutique is scheduled for Nov. 8 at St. Michael's Church Hall in Livermore, starting at 10 a.m. with a variety show at 7:30 p.m.

Sympathy

To Jeanne Powell (8121) for the death of her mother-in-law in San Leandro, Sept. 24.

To Bob Schultz (8124) for the death of his father-in-law in Livermore, Sept. 23.



SANDIA RETIREES from the Bay Area renewed acquaintances at the fifth annual retirement get-together held recently in Berkeley. Chatting before the luncheon are (l to r) Mr. and Mrs. Wil Miller; Burnie Biggs, former vice president at Livermore; and Tom Cook, vice president 8000, one of the program speakers.



CANDIDATES, candidates! Among Sandians running for public office in the forthcoming election are these five who will be vying for seats in the State Legislature. (L to r) Jim Caudell (7623), Bill Warren (1721), Tom Hoover (1222), Bill Owens (1612), and Bill Atkins (1614) all urge you to vote for the candidate of your choice.

Take Note

Preston Harrington (9226) took both low gross (77) and low net (70) in the recent Sandia Golf Association Desert Classic tournament played on the UNM south course. Winner in the second flight was Glenn Morter (9221). Third flight ended in a six-way tie between Jack Hansen (4200), Jess Denton (4713), Marv Taylor (9325), Bill Saric (9341), Al Clamp (7425) and Rand Rozelle (7651).

* * *

Aldred Stevens (5133) will present "The Effect of Precompression on the Dynamic Fracture Strength of 1020 Steel and 6061-T6 Aluminum" at the 5100 Staff Seminar Nov. 3. The seminar meets at 8:30 a.m. in rm. 201 of bldg. 806.

* * *

Several Sandians at Tonopah Test Range attended a training course conducted recently by the REEC Environmental Sciences Department. The three-day course included classroom instruction covering theoretical and practical considerations of radiation protection and industrial hygiene, as well as actual field experience under conditions and performance testing.

The Sandians were all members of Optical Measurement Division 7372.

* * *

The open hunter sight-in shoot, sponsored by the Sandia Gun Club, will be held from 8 a.m. to noon, Saturday, Oct. 31, at the Sandia Base Rifle Range. The range is on the southwest part of the base, south of the road connecting Sandia Base and Kirtland AFB. All hunters are welcome. For additional information contact Dick Vivian (1611), tel 264-4355.

* * *

Paul Robertson (3134) has been named a member of the steering committee for the nuclear technicians manpower project of the Southern Interstate Nuclear Board. The board is concerned with possible benefits and application of nuclear technology in the southern states.

Paul's committee will meet for the first time Oct. 29 in Atlanta, Ga. Emphasis will be placed on development of a suitable curriculum for the training of nuclear technicians.

Promotions

C. E. Albright (2635) to Member of Technical Staff
Dorene Allen (8170) to Secretary
Frank Chavez (4515) to Cleaner
Irene Chavez (4135) to Typist Clerk
Patricia Chisholm (3422) to Library Assistant (Circulation)
Anna Maria Farina (5240) to Secretary
Michael Finley (3428) to Mail Clerk
Hilario Garcia (4221) to Platemaker
William Garcia (3233) to Laboratory Staff Associate
Robert Gardner (3455) to Staff Assistant-Laboratory
Juan Griego (7632) to Micro Equipment Operator
Margarito Griego (4518) to Laborer
Roy Jaramillo (4221) to Technician
George Lujan (4515) to Janitor
Ruben Molina (4514) to Laborer
Doris Mortensen (7225) to Staff Assistant-Technical
Nadine Ortiz (3523) to Service Clerk
Wilfred Otero (9411) to Computer Facilities Operator
Frederick Perez (8275) to Reproduction Equip. Operator
Melvin Reynolds (4135) to Staff Assistant-Laboratory
Beatrice S. Sneros (3256) to Steno Clerk
Lewis S. Sneros (4364) to Staff Assistant-Laboratory
Alfonso Trujillo (4233) to Technician
J. C. Vandermolen (8310) to Secretarial Steno
Roberta Voelker (7340) to Secretary
Antonio Yanez (9411) to Computer Facilities Clerk
Dewey Bolten (7323) to Lab Assistant
Dennis Gutierrez (4221) to Assembler
Evelyn Harris (3256) to Secretarial Steno
R. L. Miller (7632) to Composer
Rubel Romero (4514) to Janitor

Electronics Meet Almost Competitor to Expo-70

Invited papers by two Nobel Prize laureates were highpoints of the Sixth International Quantum Electronics Conference, held recently in Kyoto, Japan, and attended by Curtis Anderholm (1224/5113).

Dr. Charles Townes, inventor of the maser and laser and recipient of the Nobel prize for physics in 1964, discussed his recent work in astronomy in which he uses masers and lasers to study dust clouds in space. The other Nobel winner was from the Soviet Union.

Curt presented a paper entitled, "Energy Balance in Inertially Confined Laser Plasmas."

The conference was attended by about 1000 persons and, after the opening plenary session, the four-day meeting was divided into three working sessions for presentation of papers.

"The conference hall in Kyoto is specifically designed for large meetings and has excellent facilities," Curt says. "It is surrounded by hills, gardens, and lakes and there are numerous balconies for enjoying them."

His only inconvenience on the trip was missing his flight to Osaka after his plane arrived late in Tokyo. As a result his bus got caught in the traffic jam from Expo-70 which had attracted 860,000 persons that day. At that he was luckier than two scientists from Great Britain—they came via Moscow and arrived two days late.

Speakers Abroad

G. J. Thomas (5522), "Annealing Behavior of Helium Implanted Molybdenum," Seventh International Congress of Electron Microscopy, Sept. 30-Oct. 5, Grenoble, France.

J. G. Webb (2623), "Energy Conversion Formulas and Reliability Conditions for a General Class of Nonlinear Circuit Elements," Kyoto International Conference on Circuit and System Theory, Sept. 9-11, Kyoto, Japan.

Albert Narath (5100), "Magnetic Resonance and the Kondo Problem," 12th International Conference on Low Temperature Physics, Sept. 4-10, Kyoto, Japan, and with H. T. Weaver (5154), "NMR in Dilute Pd and Pt Alloys," 1970 International Conference on Magnetism, Sept. 14-19, Grenoble, France.

S. W. Kay (1541), "Analysis of Thin Shells with a Doubly-Curved Arbitrary Quadrilateral Finite Element," seminar talk at the Technical University of Denmark at Copenhagen, sponsored by the Danish Center for Applied Mathematics and Mechanics, Sept. 12; with Zelma Beisinger (1541), "The Analysis of Thin Shells by the Finite Element Method," IUTAM Symposium on High Speed Computing of Elastic Structures, Aug. 24-28, Liege, Belgium.

Reminder: Daylight Saving Time, in effect from the last Sunday in April to the last Sunday in October, ends at 2 a.m. Oct. 25. Turn your clock back one hour.

Tom Fox Takes Singles In Labs Tennis Tournament

Forest Hills it ain't, but the Sandia Labs Fall Tennis tournament did offer good competition and some fine play over the weekend of Oct. 10th. And a new Labs champ has come upon the scene—Tom Fox, supervisor of Computer Graphics and Information Division 9427.

Tom beat Bob Scipes (4123) in the finals in a three-set match that, according to fairly reliable witnesses, saw the two masters operating like surgeons on either side of the net. The match was close, but Tom's skill was the greater.

In another tennis tournament, held at Kirtland Air Force Base over the same weekend, Sandia's answer to Ken Rosewall, Charlie Chavez of organization 4337, took the singles finals from KAFB's Luis Cuadra. In straight sets yet. Earlier in the year Charlie had had a little difficulty at a similar Kirtland tournament—but Charlie, our faith in your ultimate triumph never faltered. . .

Retiring



LOIS PRICE

Measurements Standards Laboratory 7453



WHIZZING at 150 mph above the runway at Seven-Bar airport, Lew Longmire gets acquainted with performance characteristics of his new airplane. At high speeds the plane responds quickly to the controls. It is tricky to fly during landings and takeoffs. Blurred object in background is the airport windsock.

Continued from Page One

HOT LITTLE BIRD

duces lift — sharpening the leading edge to reduce drag and undercutting the bottom side slightly to increase lift.

As a result, Lew has a very personal airplane. At high speeds, he says, the plane responds to a touch. On level flight, the controls are "neutral" — no pressure required in any direction to keep the plane level. This behavior was designed into the plane — there are no trim tabs but the rudder is slightly offset from center to compensate for torque.

Landings and take-offs are tricky however. "I have to be moving at least 50 mph for the control surfaces to have any bite," he says. "I control it while on the ground with the individual brakes on the front wheels."

Lew has to log 50 hours on the airplane before final certification by the FAA. Then he is going to fly it to Chicago and visit his brother who also builds experimental aircraft. The plane has an 11-gallon fuel

tank which gives it a range of about 300 miles.

Lew has built a number of experimental aircraft, including gliders, autogiros, and a single-place twin engine airplane which he sold before completion.

He built his first glider when he was 14 years old. He had never seen a glider. He worked from drawings in a magazine.

"It was crude," he says, "but the thing flew. I launched it by dragging it up a hill, attaching a line to my horse, and then yelling like mad as the horse charged down the hill. I got it off the ground that way."

When he was 18, Lew was working with a barnstorming team in West Texas — sort of a flying circus act with stunt flying, parachute jumps, and driving autos through flaming walls.

"With this new airplane," Lew says, "I feel like a kid again."

Lew, a staff assistant in advanced component development, joined Sandia in February 1952.



CONSTRUCTION DETAILS of Lew's airplane are revealed in this photo taken about a year ago. He used fir plywood and fir stringers for most of the construction. Sheet metal is aluminum.

Service Awards 20 Years

25 Years

Training and Newsletter Pay Off; Patent Activity Doubles in Year



Charles Allen
3520



Fred Bentz
4373



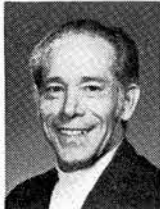
Fred Brooks
4612



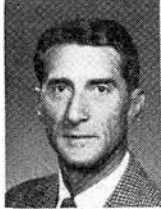
Glenn Fowler
9000



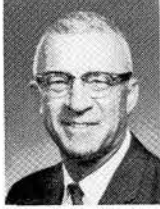
Richard Cash
3520



Arthur Castillo
4151



Carl Cianciabella
9217



Hubert Cole
7432



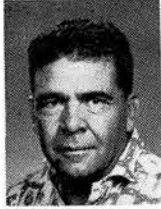
William Davis
4151



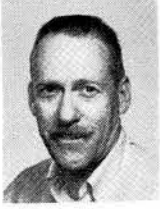
Chester Eaves
3520



James Fisher
7625



Tony Gallegos
4513



Neal Humble
4542



Ernest Lovato
4253



Ray Lucero
4613



Miguel Montoya
4553



John Nakayama
1514



Donald Quayle
4232



Arthur Pearson
8257



Melvin Reynolds
4135



Alton Simpson
4513



Eugene Smith
3520



Paul Welker
4212



Ralph Whitson
7523

15 Years



C. Gutierrez
4518



James Hare
4311



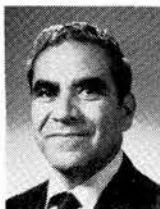
Floyd Hursh
7615



Herb Johnston
8342

10 Years

Karl Livingston 8124, Wright Van Deusen 3414, Donovan Dawson 4252, Robert Dungan 5332, and Paul Koetting 8274.



Ben Marquez
7422



Antonio Pino
4212



Robert Windham
7521

An impressive increase in the number of inventions disclosed to Sandia's Patent Department 6010 is attributed to a monthly newsletter and a Patent Training Workshop.

According to PATENT TRANSACTIONS, the newsletter originated by Tom Marker (6010), the disclosure average in U.S. industry is 0.6 disclosure per technical worker per year. Sandia Labs' 1966-69 average was 0.025. For the year 1969, the total number of Sandia disclosures was 83, but in the first eight months of 1970, the total has reached 159 bringing the average up to .066 — and the quality has remained at the same high level.

"We feel an important factor has been and individual's recognition that he may have a device or method that is patentable," Gene Newlin (6011) says.

The Patent Training Workshop was developed by Organization and Management Development Division 3131 and the former Audiovisual Presentation Services Section 3417-4. Assistance in patent law accuracy was given by Bob Peters, formerly of Sandia and now Division Patent Attorney at Western Electric's Allentown Works.

The two-and-a-half hour presentation includes an informal talk by Tom Marker, a slide show, movie, and short seminar period. A total of 820 technical employees at Albuquerque, Livermore and Tonopah have already attended the workshop; some 140 more are on the waiting list for future sessions.

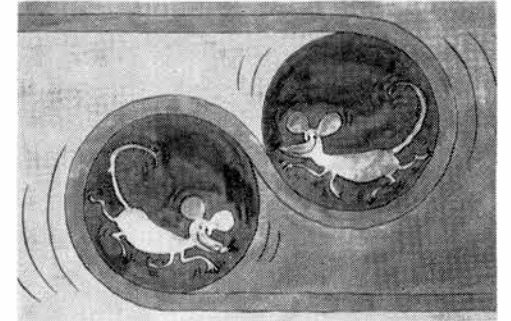
By way of explanation, Sandia Laboratories must disclose the inventions of its employees, but the Atomic Energy Commission decides whether the invention should be forwarded as a patent application to the Patent Office in Washington, D.C., for the sometimes lengthy processing which precedes issuance of a patent.

Despite this critical culling of disclosures, Sandia Labs' ratio of patents issued vs. number of disclosures compares favorably with private industry. Actually, Sandia has contributed a high percentage of "pioneer art" patents, instances when no prior "art" exists (rolamite, laminar air-flow, electro-optic ceramics). Even for less original devices there have been as many as 600 inquiries for additional information.

"You might say it's a way to fame, but not necessarily fortune," Gene notes.



PATENT DEPARTMENT experts Gene Newlin (6011), left, and Tom Marker (6010), attribute increase in invention disclosure rate to patent workshop and monthly newsletter.



PATENT TRAINING WORKSHOP includes slide show with keep-em-awake invention renditions by Ken Miller (3417).

Authors

R. T. Meyer (5224), "Mass Spectrometric Studies of Nitrogen Evolution from Penitrided Zirconium Droplets Burned in Pure Oxygen," Vol. 2, No. 3, HIGH TEMPERATURE SCIENCE.

J. V. Otts and N. F. Hunter (both 7324), "Shock Reproduction on Shakers," Vol. 17, No. 1, ISA TRANSACTIONS.

M. J. Forrestal (7346), W. E. Alzheimer (1517), and D. B. Longcope (DSP at Stanford University), "Transient Response of a Cylindrical Shell Containing an Orthotropic Core," September issue, AIAA JOURNAL.

D. B. Longcope (DSP at Stanford University) and M. J. Forrestal (7346), "Bending Stress at a Clamped Support of an Impulsively Loaded Conical Shell," September issue, AIAA JOURNAL.

L. R. Edwards (5132), "Resistivity Minima in Pd-Ag and Pd-Au Alloys," Vol. 8, No. 17, SOLID STATE COMMUNICATIONS.

W. B. Gauster (5225) and J. C. Bushnell (100), "Laser-Induced Infrared Absorption in Silicon," Vol. 41, No. 9, JOURNAL OF APPLIED PHYSICS.

E. J. McGuire (5234), "K-Shell Auger Transition Rates and Fluorescence Yields for Elements Ar-Xe," Vol 2, No. 2, PHYSICAL REVIEW A.

J. E. Schirber (5150) and A. C. Switendick (5151), "Effect of Pressure on the Fermi Surfaces of AuGa₃, AuAl₃, and AuIn₃," Vol. 8, No. 17, SOLID STATE COMMUNICATIONS.

Speakers

E. G. Kadlec (1212), "A Feasibility Study of Four Special Use Weapons by Sandia Laboratories," ARPA Cirads 4 meeting, Sept. 15-17, El Paso.

F. G. Blottner (9343), "Prediction of Electron Density in the Boundary Layer on Entry Vehicles with Ablation," Symposium on the Entry Plasma Sheath and Its Effects on Space Vehicle Electromagnetic Systems, Oct. 13-15, Hampton, Va.

R. D. Bentley and C. J. Ruttle (both 7282), "A Projectile Telemetry System for In-Barrel Data," International Telemetry Conference, Oct. 15, Los Angeles.

SHOPPING CENTER

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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

CARRIER FURNACE, 100,000 BTU, counter-flow type w/thermostat, \$100. Gelder, 298-8960.
TRAIL BREAKER 2-wd trail bike, \$275; 2 Remington chrome plated .41 cal. dbl. derringers, \$40 & \$45; reloading equipment. Mattox, 296-4149.
SUN CRAFT camper shell, new, \$325 value for \$290. Magee, 256-1358.
GIRL'S bicycle, 24". Vogel, 256-0975.
WEBSTER'S 3rd New International unabridged dictionary; walnut table on removable casters providing extra shelf for other ref. books. Graff, 268-5291 after 6.
ANTIQUE bedroom set w/twin mattresses, chest, mirror; antique mirrors, lamp; baby car seat, car bed, mattress; utility table. Fisher, 299-9235.
ELECTRIC STOVE cook top for built-in, copper-tone, \$15; unicycle, \$20. Peterson, 256-7514.

LARGE COLEMAN fuel catalytic heater, 5000-8000 BTU, \$28. Marney, 299-3676 after 5.
DESK, executive mahogany, make offer; Grandma's rocking chair, gray, \$8; folding chairs, 50c ea. bowling shoes, 7/2. \$2. Ortega, 265-5014.
GIRBILS, 6 wks. old, 75c ea. Porter, 298-3623.
SKI PANTS, boy's size 16, \$5; ice skating skirts, waist 24, \$3.75 ea. Smith, 299-6873.
COUCH, \$8; elec. range, working, \$15; Sunbeam coffee pot, \$3; toaster, \$3; new port. mixer, \$8; used port. mixer, \$3. Peterson, 255-7671.
39-LB. Bear "Grizzly" hunting bow, \$30; 35-lb. "Tigercat," \$30; '66 Colliers encyclopedias, \$150; Post Versalog, \$10. Lauger, 296-3197.
PHOTOGRAPHY EQUIP.: Vitar lens, 400 mm F5.6, 8 element, \$65; rangefinder, 35mm Tower, \$25; enlarger & other darkroom equip. Fox, 256-2606.
LAZY SUSAN coffee table, maple; Zenith maple TV-stereo comb.; Early American rocker. Tyler, 255-4254.
EICO Signal gen. #320, Heathkit elec. crossover model XO-1. Carli, 298-9271.
SEARS weatherproof car top luggage carrier, \$15; used once; pr. 8.25x15 tire chains, \$8. Armstrong, 255-8862.
SLIDE IN camper shell for long wide bed pickup. Causey, 299-0089.
YAMAHA '65, 100cc twin, needs work on elec. starter, 19,200 miles, \$175. Johnson, 298-1437.
BOOKCASE; Lane coffee table; table lamp; 24x36 oil painting; 1902 antique Kodak, carpenter's tools; ass't. taps & dies. Brown, 299-9134.
SWAN 400 transceiver including power supplies & tuning heads for mobile & home base stations; port. TV. Muchow, 299-1813.
BEDSPREAD, Spanish style, fringe, dbl. size, extra heavy, "Spanish Gold," \$15. Johnson, 255-5427.
MOBILE HOME, '64 Chickasha, 2 bdr., 10'x55' furnished, \$2800. Gonzales, 877-6745.
BOW, arrows, etc., nearly new Ben Pearson 35-lb. laminated, \$40 outfit for \$19. Tiefs, 299-2763.

113 BORDER BLOCKS w/3 miters; ironer (Mangle); 5-gal. rectangular heavy duty gas can w/screw-on spout. Smith, 299-7151.
FREE KITTENS—will pay 25% of spaying, 6 wks. old, 2 white, 1 gray, 1 black. Barton, 282-3349.
21" ZENITH color TV, walnut console, \$150. Hill, 255-6538.
REG. QUARTER HORSE & good grade saddle horses. Rhoden, 296-2473 after 5:30.
'70 450cc Ducati Scr., 1800 miles, \$725. Munford, 296-4552.
2 END TABLES & 1 corner table, walnut w/formica tops, \$30. Chavez, 256-1087.
.22 PISTOL, hi-standard duramatic 4" barrel, new, \$50. Guttman, 299-7031.
DISHWASHER, Lady Kenmore, copper-tone, roll-around, money-back guarantee, \$45. Merritt, 299-1482.
SHOP MANUAL for '65 Dodge Dart & Coronet, \$2. Richardson, 298-6527 after 5:30.
'67 BMW, R-60, 600 cc motorcycle, 3/4 fairing, Craven bags & rack, trip tank, \$850. Carstens, 898-0065.
GIRL'S size 10 winter coat, gold corduroy, pile lined, has never been worn. Erickson, 299-6824.
HEADPHONES, new Superex St.-Pro, \$30; call for specs; MG 950 engine, starter, clutch, ignition, fuel pump, carbs, everything, \$45. Martin, 282-3794.
PICKUP TRUCK WHEELS for 17.5 in. tires, 8 hole, \$5 ea.; water pump & jet, \$35; small bicycle, \$10. Souder, 282-3121.
MODERN chandelier, \$25; pole lamp, walnut & amber, \$18; Basset oiled walnut modern style coffee & end tables, \$50 set. Harrison, 296-2379.
TV console, 17" Sylvania w/halo light, \$20; 5" oscilloscope, PACO model S-50, \$35; curtain stretcher, new, \$6. Bassett, 898-1840.
HEATH 100w stereo amplifier, 2 Karlson type speakers; Garrard SL65 auto. turntable, \$150. Watterberg, 299-8517.
MINIATURE black poodle puppies, thoroughbred, 6 wks. old, males & females, \$25 ea. Johnson, 255-0262.

EARLY American dining set, drop leaf table, 6 chairs, hutch & buffet. Wilson, 299-1721.
REFRIGERATOR, \$35; 4 Mag wheels for VW for '68 or newer. Campbell, 268-8445.
SINGLE ACTION 45 Colt revolver, \$75 or best offer; 6.95x14 tires, \$4 ea.; several rifle scopes, 1/2 price. Svensson, 344-7700.
FOUR '67 Corvette wheels w/rinns, caps & belted tires, \$160. Gabaldon, 247-9364 after 5:30.
SIX 15" chrome reverse rims, 9" wide, fits 6-hole Chev. truck, \$100; 2 ea. 7.55x15 8-ply, \$60; 2 7.50x15 6-ply tires, \$40. Martinez, 877-6031.
'69 WARD's Mohave 125cc motorcycle w/trail & street sprocket, \$145. Fox, 299-9332.

CARS & TRUCKS

'65 DODGE DART convert., AT, PS, R&H, new tires, 43,000 miles, slant 6 227 engine, \$895. Bradley, 296-3305.
'53 PACKARD, orig. owner. Petterson, 299-0164.
'69 VW CAMPER w/poptop, sleeps 4, AM-FM radio, brand new Michelin radials, other extras, \$3200. Rawlinson, 344-6609.
'63 FALCON 8-pass. bus, 48,000 miles, orig. owner, \$550. Levesque, 299-1213.
'58 DODGE STATION wagon. Callahan, 299-3273.
'70 CAMARO, V8, 3-spd., low mileage, 4 mos old. Ring, 268-3503 after 5.
'69 MUSTANG Mach 1, 428 Cobra Jet engine, 4 spds. on floor, PS, \$2600. Eaves, 299-7728.
'63 VW sedan, orig. owner, 42,000 miles, 4 new tires (Firestone), luggage rack, radio, \$650. Williams, 296-7169.
'62 CADILLAC, white, all power, AC, etc., new tires. Krumm, 299-2279.
'65 GRAND PRIX, all power, AC, bucket seats, cons. auto. Gabaldon, 855-9612 after 5.
'68 MERCURY Monterey, AT, R&H, AC, PS, PB, lg. police interceptor engine, new 4-bar. carb. Stixrud, 298-0478.

'58 MERCURY station wagon, PS, radio, push button trans., mud tires, \$195. Stamm, 255-2640.
'67 PONTIAC Bonneville, 4-dr., loaded w/extras, \$1650. Anderson, 268-4188.

WANTED

24' SELF-CONTAINED late model travel trailer w/twin beds. Shaeffer, 295-9473.
SECRETARY CHAIR; exposed hammer breaking 16 or 20 gauge shotgun; single shot bolt-action .22 rifle; 7x35 binoculars. Fisher, 299-9235.
YORK OLYMPIC barbel set, will consider equivalent. Doro, 299-6505.
RADIAL ARM SAW, 10" or 12". Carli, 298-9271.
PORTABLE HEATER FOR GARAGE; mini bike, any condition. Sarkis, 877-4146.
GOOD SET of used drums. Rhoden, 296-2473 after 5:30.
AR-2a or AR-2 plus AR-3 st super tweeter or will sell AR-2 plus AR-3st. Hill, 298-5925.
WANT TO RENT for my parents for the winter months, completely furnished house, apt. or house trailer. Gardiner, 298-0116.
GAS WELDING equipment, all or part. Stixrud, 298-0478.

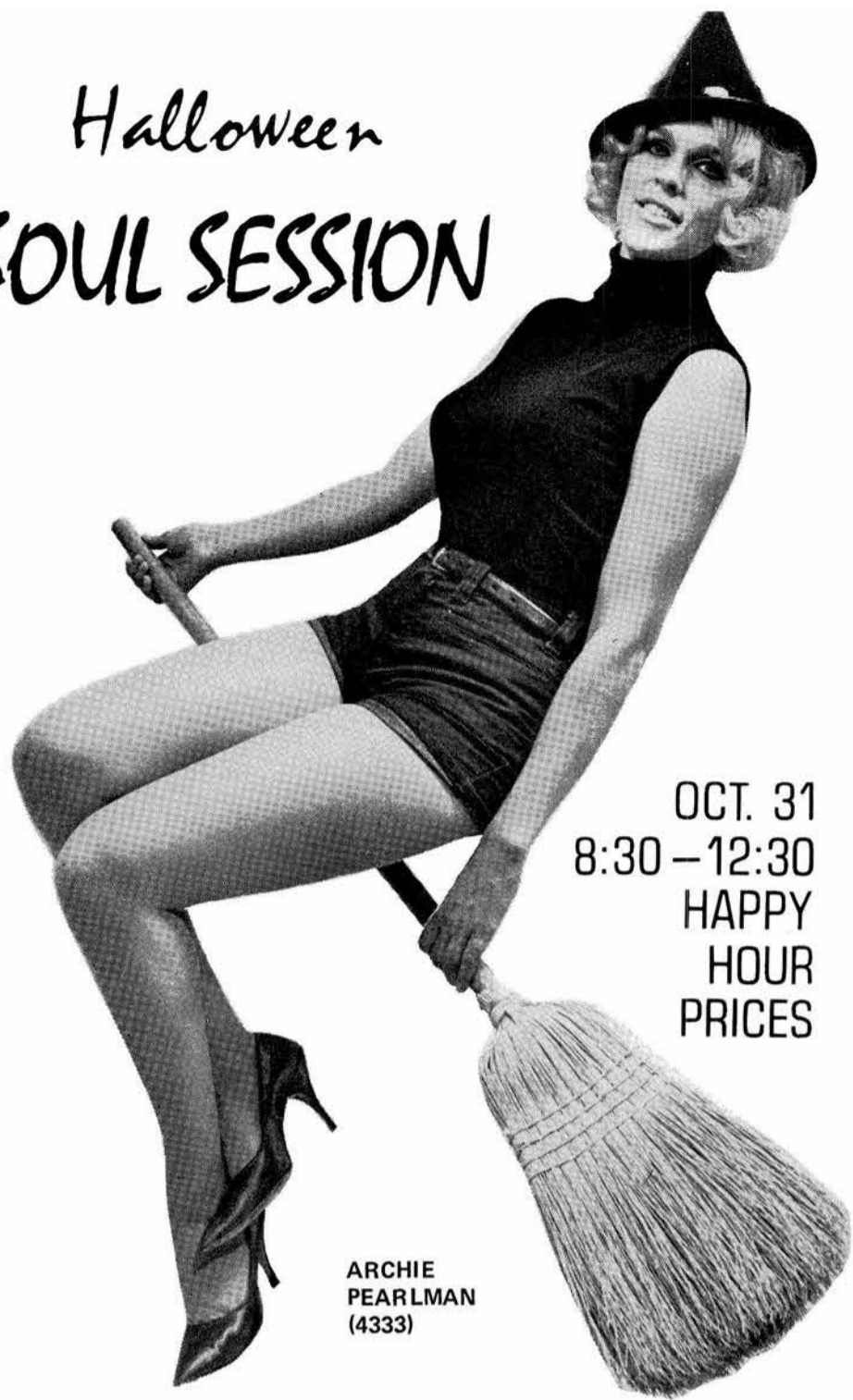
FOR RENT

ROBERSON 3-bdr., 1 1/2 bath, corner Shoshone & Eubank, no built-ins, \$185/mo. Wentz, 298-2630.

LOST AND FOUND

LOST—Ebony & silver cuff link, man's wallet, round earring w/rhinestone, Rx safety sunglasses, grey leather purse containing sunglasses, gold billfold w/badge, charge cards, cash, etc., keys, Cashier's check; man's grey wallet, blue/black reversible nylon jacket. Rx sunl-s-s w/brown frames. LOST AND FOUND, tel. 264-2757, Bldg. 832.
FOUND—Nail file case, charm from 10-yr. service award bracelet, lt. blue scarf, man's Bulova watch w/cloth band, ID bracelet. LOST AND FOUND, tel. 264-2757, Bldg. 832.

Halloween SOUL SESSION



ARCHIE
PEARLMAN
(4333)

OCT. 31
8:30 - 12:30
HAPPY
HOUR
PRICES

Events Calendar

Oct. 24-25, Oct. 31-Nov. 1. 2 p.m. and 7 p.m. The Music Theatre's production of "Snow White" — call 255-8560 for information.

Oct. 23-25—UNM Drama Dept. presents "Oh What a Lovely War." Rodey Theater, 277-4522 or 277-4402.

Oct. 23-25—Albuquerque Little Theater presents "You Know I Can't Hear You When the Water's Running."

Oct. 23-25—Sandia Peak Ski Patrol's Fourth Annual Ski Swap. State Fair Flower Bldg.

Oct. 24—Novice swim meet, Heights YMCA pool, 8 a.m. to noon. Open to non-affiliated swimmers. All age groups. Jim Stoeber, tel. 256-2439, or John Brannon, tel. 265-6971.

Oct. 24—Trigo Canyon in the Manzanos. N.M. Mountain Club, leader Jayne Lund, tel. 268-4847.

Oct. 28—Broadway play "Forty Carats." UNM Popejoy Hall.

Oct. 30-Nov. 8 — Second Annual Albuquerque Art Festival, The Mall.

Nov. 5-8—"Medea," Old Town Studio, 8 p.m.

Nov. 6—Duke Ellington Orchestra, San Felipe Church benefit. Civic Auditorium, 8 p.m. For information: 243-1049.

More Travelers Needed For Bahamas Trip

"Our Frontier jet is not quite full for the Coronado Club travel package to Grand Bahamas Island Dec. 9-15," Chet Fornero (4337), Club travel director, reports. "Anyone who still wishes to make the trip can be accommodated provided he makes the full payment of \$299 by Nov. 6."

A schedule of events from the Kings Inn, where the Coronado Club group will be staying, reveals that a national golf tournament — The Bahama Islands Open — will be underway during the time the group will be there. Such notables as Jack Nicklaus, Sam Snead and Lee Trevino will be competing. Spectator admission fee for the tourney will be \$2 per day.

In addition, Sammy Davis, Jr., and Sidney Poitier will be performing.

The package includes first class jet flight to Grand Bahamas Island, a welcoming cocktail party, rooms at the luxurious Kings Inn with breakfast and dinner each day plus unlimited golf and swimming. The Kings Inn features top name entertainment in the lounges and casino.

Coronado Club Activities

Halloween Soul Session Oct. 31

A Soul Session at the Coronado Club is a now-it's-happening kind of thing where the troops bugaloo, frug, sagebrush shuffle and perform all those things that take a lot of moving around. Up on the bandstand a group called the Mark IV featuring Freeman Lacey plays it rock modern while on the dance floor the miniskirts show that all is not lost in the fashion world.

On Halloween, Oct. 31, add costumes (optional) to the affair and you have a Halloween Soul Session. Prizes will be awarded for the best getups. The happy monsters, the bartenders, are not competing, so no wisecracks.

The affair runs from 8:30 to 12:30 and happy hour prices are in effect all evening. Admission is free to members, 50 cents for guests.

Social Hours

Max Newsom (1213), Coronado Club president, was exasperated. Sitting at the north end of the lounge, Max was saying, "Man, we've had happy hours at the Coronado Club for 20 years. The other day I was talking to a guy who had never been here. He couldn't believe our prices. We've always had special prices for happy hours and when we say special, we mean special. Happy hours are one of the primary benefits of Club membership. At our prices, you are taking a hosing by not being here."

Tonight, Bob Banks and the red Yamaha electronic organ will be on the bandstand along with the other jokers making their own kind of happy music. The Mexican food buffet will be spread from 6 to 8 p.m. The buffet costs \$1.25 for adults, \$1 for kids.

On Friday, Oct. 30, Max Madrid and his smooth swinging combo will play for

dancing while the Club's kitchen staff wheels out the giant chuckwagon roast beef buffet. This one costs \$1.75 for adults, \$1.50 for kids.

On Nov. 6, a special entertainment feature has been booked — a group of country and western youngsters called Cheryl Lee and the Carter Brothers. They will present a couple of supper-club-type shows and play for dancing. Seafood will be the buffet feature.

New England Seafood Dinner

The Club's famous New England Seafood Dinner is scheduled for Saturday, Nov. 14, but tickets must be picked up two weeks in advance to allow for the proper planning that it takes to fly in those lovely Maine lobsters and cherrystone clams. This makes the deadline for getting tickets Monday, Nov. 2. Prices are \$6 for members, \$6.50 for guests. A free wine taste and dancing to Max Madrid are included.

Aquatic Club

Julian Lovato (7615) is the newly elected president of the Coronado Aquatic Club. Kip Blossom (4612) is vice president and Jay Wardlow (1211) is treasurer. Secretary is Betty Hock. The Club offers a program for competitive swimming for youngsters ages 6 through 17. Anyone interested in enrolling their boys or girls in the winter program should contact Julian, tel. 298-1375. Synchronized swimming classes for girl intermediate swimmers are just starting.

Bridge

Coronado Ladies bridge meets Thursday, Oct. 5, at 1:15 p.m. Duplicate bridge meets Tuesdays at 7 p.m.

COG Meets

Overall Goals and Objectives Concern Many Sandians

What kind of community do residents want to live and work in?

Some 1500 Bernalillo County residents were offered an opportunity to indicate their feelings in this matter during a recent meeting of the Bernalillo County Regional Goals Committee. Only about 10 percent of those invited responded, but that number included several Sandians.

The project is part of the Middle Rio Grande Council of Governments (COG) program. Similar meetings were previously held in Sandoval, Torrance, and Valencia counties. The program is part of a nationwide comprehensive planning project sponsored by the U.S. Department of Housing and Urban Development.

Sandians participating and their areas of interest include: job development and technology subcommittee, John Hall (4543) and Ken Sutton (3250); ultimate population, housing and living conditions subcommittee, Bill Chandler (3112); conserva-

tion and ecology subcommittee, Max Linn (3400), vice chairman, and Cherry Burns (3432); pollution control subcommittee, Frank Bell (3000); open space, agriculture, and recreation subcommittee, Tom Hoover (1222), chairman, and Lou Hopkins (9500), vice chairman; urban and rural farm and land use subcommittee, Ralph Plumlee (5153), chairman.

Sympathy

To Evaristo Gonzales (4515) for the death of his brother in Tijeras, Oct. 2.

To Leo Baca (4515) for the death of his father in Belen, Oct. 5.

To Gil Lenert (7521) for the death of his father in Milwaukee, Wis., Oct. 11.

To Bill Laskar (3432) for the death of his sister, in Albuquerque, Oct. 17.

To Dick (3417) and Tom Strome (1611) for the death of their father, Sept. 24.

Coming to Grips with the Atom

Back when some of us went to school, there was an elegant theory to the effect that fire, earth, air, and water constituted all the elements. Even an English major could comprehend that but, unfortunately, some scientific types had to intrude and the present view of the elements is, well, somewhat more complicated. Which is one reason AEC publishes its "Understanding The Atom" series, a group of booklets dealing with various aspects of nuclear energy.

The booklets are addressed to high school science students and thus are not overly technical. Here are a few of the 55 titles:

Nuclear Power and Merchant Shipping
Animals in Atomic Research
Genetic Effects of Radiation
Accelerators
Microstructure of Matter
Rare Earths, The Fraternal Fifteen

Each booklet runs 40-50 pages and is illustrated. A few have been printed in French, Spanish and Italian. They are free for the asking (two per order) by writing to AEC at Oak Ridge. The LAB NEWS office has a supply of folders containing a title list and order blank; if you're interested drop by and pick one up—Bldg. 802, Rm. 133.



ATOMS are the name of the game in AEC's 55-booklet series "Understanding The Atom." Kathy Pitts (3256) displays a few of her favorites. The booklets, written on a high school science level, contain many illustrations.

Safety Shoes



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LAB NEWS

PAGE SIX

OCT. 23, 1970