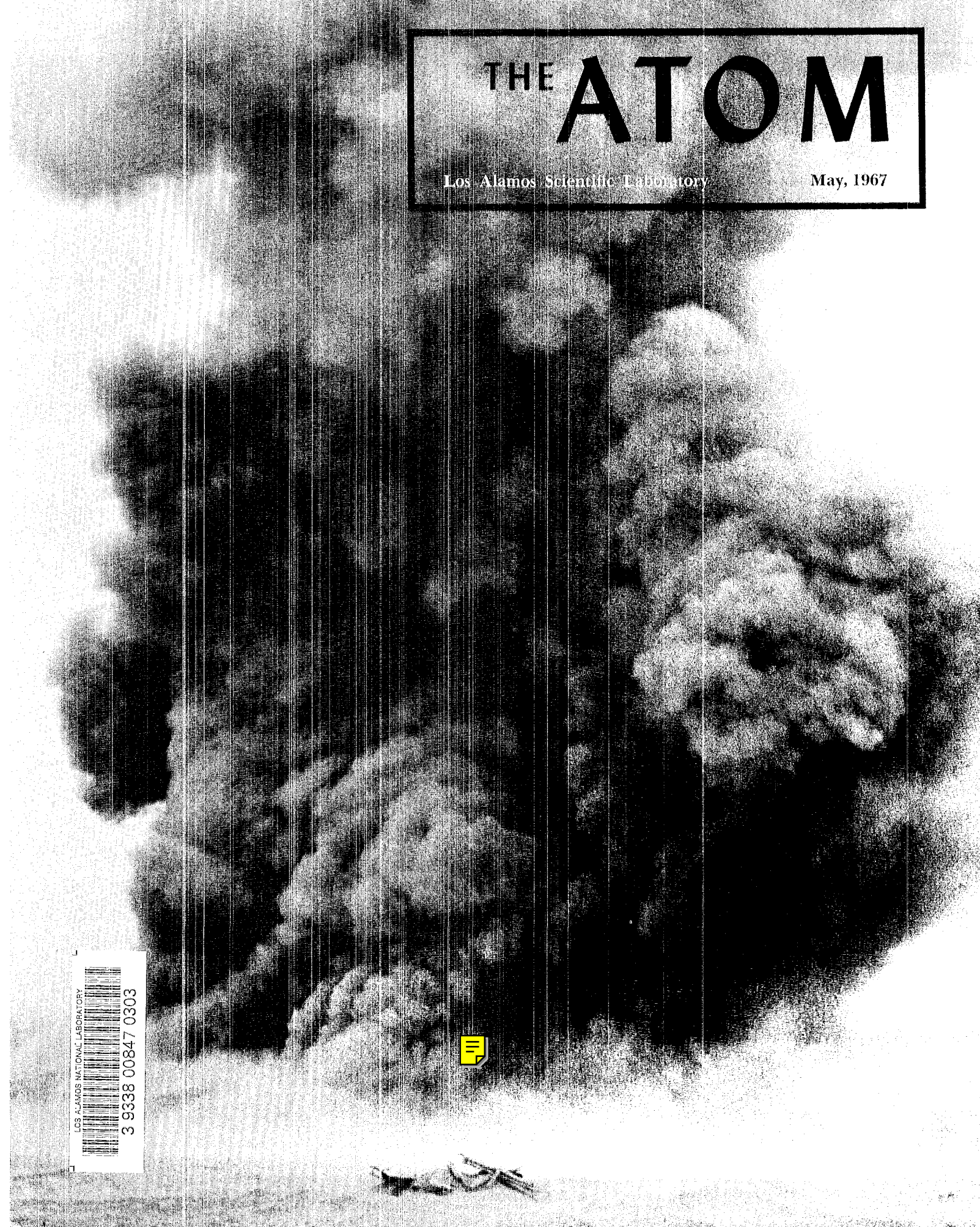
THE ATOM

Los Alamos Scientific Laboratory

May, 1967



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THE ATOM

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COVER:

Sleeping Beauty, an initiator test that failed nearly 21 years ago, went up in a cloud of dust this spring when LASL men decided to destroy the remains of the experiment and fill in the bunker. Story begins on page 8.

short subjects

Robert J. Van Gemert, alternate head of the Supply and Property department, was elected president of the New Mexico chapter of the National Association of Purchasing Agents at their April meeting in Albuquerque. The chapter encompasses New Mexico and parts of eastern Arizona. Van Gemert, a LASL employe since Aug. 27, 1943, took office immediately for the one-year term.

Paintings by two Santa Fe artists are on display through June 10 in the SP-Personnel building.

Dorothy Morang Emmett, curator of fine arts at the Museum of New Mexico, is exhibiting 12 colored chalk pastels. Largely self-taught, she has won numerous awards for her paintings and crafts.

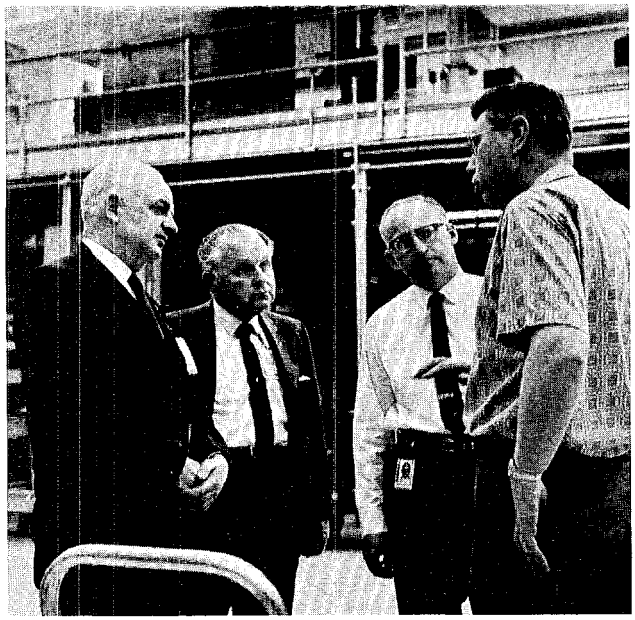
Helen Rumpel, an expressionist painter who features Southwestern subject matter, is showing several "projection paintings" and several abstracts among the 12 in her exhibit.

The exhibit is located in the unclassified area on the ground floor of the Personnel building and is open to the public.

William H. Hannum, assistant group leader, K-1, is in England on a two-year change-of-station assignment. He is working in the fast reactor physics division of the Atomic Energy Establishment at Winfrith under a United Kingdom/United States agreement for cooperation in peaceful uses of atomic energy. Hannum received his B.A. degree in physics from Princeton University and his M.S. and Ph.D. degrees, also in physics, from Yale University. He has been with LASL since February, 1963. Hannum's wife, Irene, and three children accompanied him on the new assignment.

Dana E. Elliott, GMX-1 group leader, has been selected "Boss of the Year" for 1967 by the Los Alamos Chapter of the National Secretaries Association (International). Elliott, who won the honor at a banquet last month held by the chapter, was the guest of secretaries Lana Jo Allsman and Sonia Strong. He was presented a statuette and a certificate in recognition of the award. With LASL since 1954, the new Boss of the Year is a graduate of the University of Louisville.

David A. Heimbach, records management officer for the Los Alamos Scientific Laboratory, was selected "Elk of the Year" for 1966-'67 by the officers of the Los Alamos Elks Lodge. The award, presented at an April 1 ball, cited Heimbach for his work as chairman of the publicity and information committee and for his efforts as editor of the "Los Antes," the monthly Elks newsletter. Heimbach received a plaque and certificate in recognition of the honor.



John Convey, left, president of the American Society for Metals, visited the Los Alamos Scientific Laboratory April 25 and was guest speaker at Colloquium that day. Convey, who also is director, Mines Branch, Department of Energy, Mines and Resources, Ottawa, Canada, spoke on "The Development of Materials Research in Canada." Gerold Tenney, second from left, technical advisor for nondestructive testing in the director's office, escorted Convey on a tour of certain Laboratory facilities. The tour included CMB-6 where James Taub, CMB-6 group leader, next to Tenney, and George Jaynes, foundry supervisor in CMB-6, explained the group's work.

Eliminates Co-op Requirement

New Housing Proposal Recommended

By Barbara Storms

A new proposal for the sale of multi-family housing which extends to each occupant the opportunity to obtain priority to purchase his building has been recommended by the AEC's Ad Hoc Committee on Multi-Family Housing in Los Alamos.

The plan would eliminate the requirement, specified in Section 58 amending the 1955 Atomic Energy Community Act, for the sale of apartment buildings to cooperatives. This essentially enforced membership in cooperatives was one of the major complaints of apartment residents last fall in their campaign for changes in the rules.

The recommendations, which would require some legislative changes, are not yet final and are still under study by the AEC and the Bureau of the Budget in Washington.

Under the new plan, each occupant of any apartment property, at the time it is offered for sale, would be extended a priority interest in its purchase. This provision would permit participation by retirees and widows of project-connected persons since present occupants need not be project-connected.

The occupant could then assign his priority interest one of two ways: either to another occupant of the sales lot, say, for example, to the senior tenant of his quad; or to an entity, or group of occupants who would purchase as tenants in common. The entity would be composed of occupants of the sales lot, project-connected persons or other persons residing in the community.

The AEC would award tentative priority to the occupant or entity demonstrating that he or it represents the priority interests of more occupants of the unit in question than any other occupant or entity. In the case of a tie, the winner would be determined by lot.

The final priority of purchase would go to the occupant or entity with tentative priority who represents the priority interests of 70 per cent of the housing units in the sales lot. The winning occupant also must show that after receiving tentative priority he offered to accept the assignment of priorities from all other occupants on the same terms. A winning entity must demonstrate that it offered membership or association to all occupants of the apartment in question.

Any occupant whose priority interest is not represented by the occupant or entity receiving final priority may request and receive from the AEC a lease to the unit he occupies which would extend for not more than 15 months from the date the property is first offered for sale.

If the occupant or entity with final priority is unable to consummate the purchase within the time specified by the AEC, his or its tentative rights would terminate, and all assignments of priority interest would expire. The second priority would not be offered to individuals, but to an entity which has demonstrated that its members, who need not be occupants, have agreed to occupy at least 70 per cent of the housing units in the sales lot.

If the second priority holder fails to consummate the purchase, the apartment sales lot would be offered to the highest bidder.

A person who has exercised a priority in the purchase of a housing unit in Los Alamos would not be permitted to consummate a priority purchase under the program, nor would such a person be considered in qualifying any occupant or entity for a priority award.

Elimination of the co-op requirements would permit the sale of quads by individual buildings, but some of the larger buildings, such as the concrete efficiencies and the 1949 and 1950 apartments, will be sold in blocs of two or more as originally specified by the AEC.

The Ad Hoc Committee was appointed late last year after increasing protest forced postponement of the sale of apartment buildings. First offering of the buildings was to have been made on Oct. 21 to legally organized cooperatives in accordance with the provisions of Section 58. First priority would have gone to cooperatives composed of a majority of the bona fide occupants of the buildings in question. Second priority would go to cooperatives made up of fewer than a majority of the occupants.

Before either priority could be exercised, however, the purchasing cooperatives would have had to acquire 100 per cent of the occupants or potential occupants as members. In addition, the buildings were to have been sold in blocs, making it impossible to purchase a single building such as a quadruplex.

Opposition to the cooperative system prompted a last-minute postponement of the sale until further study could be made. The Ad Hoc Committee held an open hearing in January to hear complaints from interested citizens and recommendations and suggestions for improvement in the sales procedure.

Prime mover in the protest movement, Charles Caldwell, GMX-8, said the new plan "appears to be a 100 per cent improvement over the original offer."

"It isn't as good as it could have been," he said, "but it is so much better that I am extremely pleased with the potential."

Western Area Denver Steel Occupants May Purchase Homes, AEC Rules

Residents of the Denver Steel houses in the Western Area won their four-year battle late last month when the Atomic Energy Commission's Albuquerque Operations Office announced its decision to offer the houses for sale to the occupants.

Although Denver Steel houses in the Eastern area are still scheduled for removal, there will be up to a year's delay, and occupants of Eastern area houses will be offered any vacancies existing in the Western area Denver Steels.

Unlike the proposal for multi-family housing, the Denver Steel decision is final and requires no Congressional action. However, Herman Roser, Los Alamos area manager, said it will be quite some time before sale is started, since the entire area must be platted and appraised.

In 1961, the AEC excluded the houses from the community disposal program under an arrangement providing continued use as government rental property as long as they were needed and then removing the structures from the land. Late in 1966, a poll conducted by a committee of Denver Steel occupants indicated support for sale of the houses to occupants.

As a result, L. P. Gise, manager of the Albuquerque Operations Office, appointed a committee to study the matter, and a public meeting was held in Los Alamos in January. The report of this committee resulted in the new policy determination.

"You have never seen such a bunch of happy people around here," said Louie Brownfield, a member of the Denver Steel commitee. "We are grateful, too, that the people in the Eastern area got as much consideration as they did."

Brownfield added that although the committee could not possibly thank each person individually for the help with their campaign, "we want everyone to know how much we appreciate all that has been done for us."

Under the new policy, disposition of the houses will proceed on the following basis:

The 193 Denver Steel units in the Western area will be platted and offered for sale to the occupants on a basis similar to the sale of other single family housing at Los Alamos.

Vacancies existing in the Western area will be offered on a priority basis to occupants of Eastern area Denver Steel units. Any vacancy remaining in the Western area will be offered under the routine housing assignment system.

One-year leases will be offered to eastern area occupants not accepting a vacant Western Denver Steel unit.

Any of the Eastern area's 50 Denver Steel units which are now vacant will be removed immediately. Occupied units will be removed following expiration of any existing or authorized lease lease upon being vacated voluntarily, which ever occurs first.

LASL Men Participate in Vacuum Society Meeting

Norman Wilson, K-1, right, L. M. Ford and Charles Sheehan sign awards agreement to present annual $100 award to UNM student.

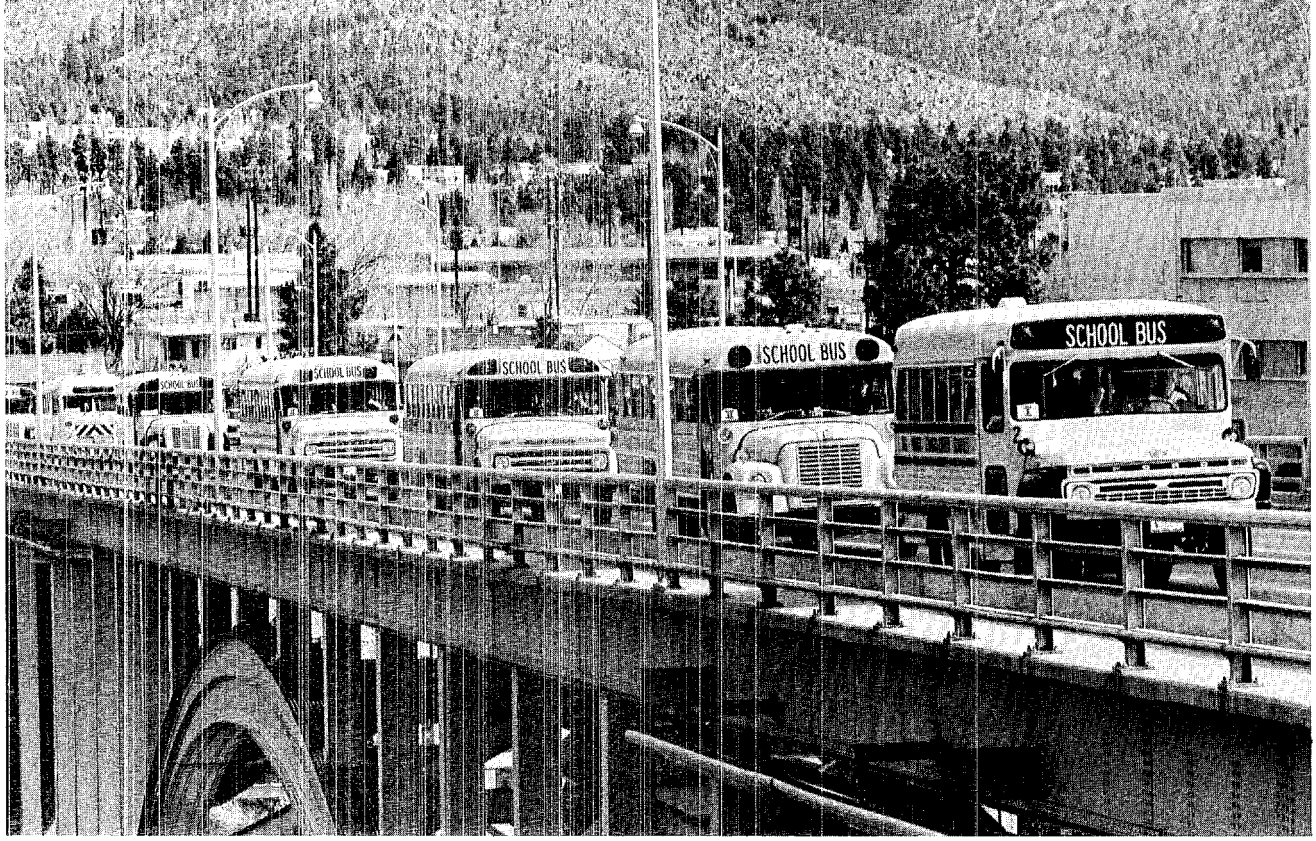
Several LASL men were among the 125 scientists who participated in the third annual symposium of the New Mexico section of the American Vacuum Society in Albuquerque recently.

Keynote speaker H. W. Schleuning, physics professor at Brooklyn Polytechnic Institute and AVS president, announced that the charter for the Los Alamos section of the society has been approved.

Los Alamos scientists who participated in the symposium include K. W. R. Johnson, CMB-11, who moderated one of the technical sessions, and Claude Winkelman, K-1, who moderated a workshop on vacuum technology. W. M. Olson, CMF-5, presented a paper entitled "Use of a Quadrupole Residual Gas Analyzer in Knudsen Effusion Studies."

Norman Wilson, K-1, is outgoing chairman of the New Mexico section, succeeded by Maurice Laufer, Sandia Corporation.

First recipient of a new award of the section is James Cope, a University of New Mexico junior majoring in physics. The $100 award will be presented annually for the best paper written by a UNM student on vacuum technology.



They came by the bus load; 802 science students toured parts of the Los Alamos Scientific Laboratory during the two-day Science Youth Days last month.

A Laboratory Tour for Students

Blustery spring winds and a few flakes of snow greeted senior science students taking part in the annual Science Youth Day tours at Los Alamos Scientific Laboratory April 13 and 14.

There were 802 students from five states and seven foreign countries in the 39 high school groups that made the two day-long tours. LASL Public Relations department, with Patrick G. Smith, Pub-2, as general, chairman, handled all the arrangements for the tours.

The students visited Health Research Laboratory, occupational health, radiation waste treatment, Van de Graaff accelerator, physics building and Sherwood laboratories. Staff members at each site showed the students through the facilities and discussed research programs being carried on there.

Members of the Public Relations staff shuffled busses between sites,

Patrick G. Smith, Pub-2, Science Youth Days coordinator, answers questions while distributing box lunches. At right Bill Jack Rodgers, Pub-1 photographer, gives up his camera to sell soft drinks when the crush of business overwhelmed other Pub staffers during lunch.

Smith, Sue Wooten and Bob Porton, all Pub-2, check buses as they arrive for tours.

helped get the visitors fed, loaded and unloaded on schedule. Norris E. Bradbury, LASL director, greeted the visitors each morning.

Science Youth Days was originally started at the Laboratory to honor Thomas A. Edison whose birthday is in February. Although none of the events was ever cancelled, there were a few days when the thermometer was mighty low, and some out-of-state schools had to cancel because of poor traveling conditions. This year the affair was postponed to April and officially redesignated Science Youth Days.

The foreign exchange students came from Greece, South Vietnam, Spain, Italy, Korea, Japan and Sierra Leone. States represented were New Mexico, Arizona, Colorado, California and Texas. The California contingent for the

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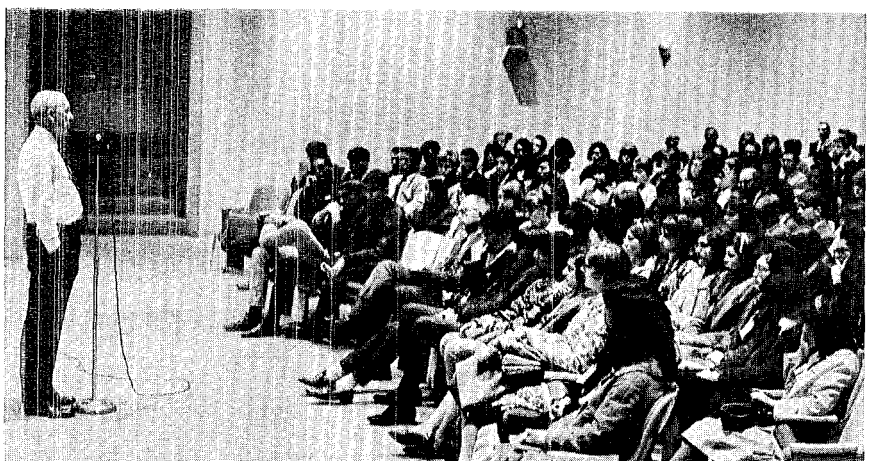
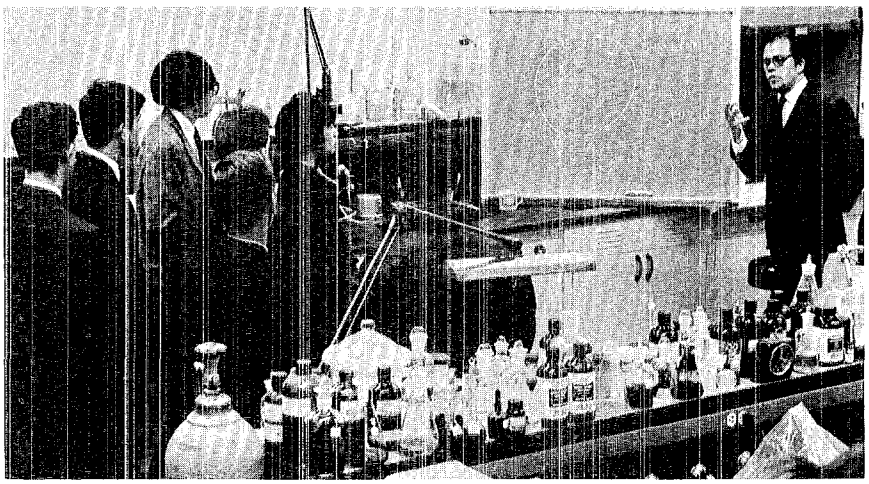
ABOVE, Faith Stephens, Pub-2, right, organizes a group from Los Alamos High School for the physics building tour. BELOW, Laboratory Director Norris E. Bradbury greets students before they begin tours.



ABOVE, George Johnson, left, H-7 staff member, explains some of the equipment used to handle radioactive waste. BELOW, Don Petersen, H-4, discusses some of the LASL research in cell biology.



Los Alamos High School students Ray Phillips, Arnie Gore and Greg Bayhurst listen to Edward R. Flynn, P-10, describe the cyclotron operation.

Student Tours . . .

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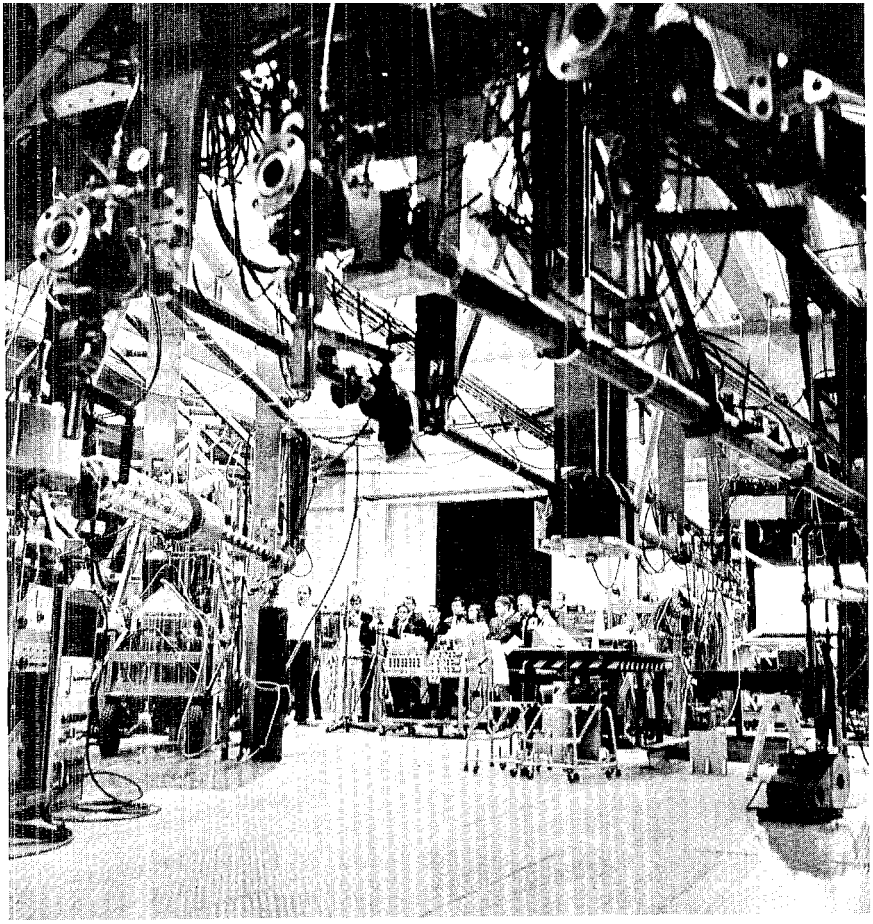
seventh year came from Los Angeles High School and included students who had competed for the John Essick, science instructor who started the annual contest, came with the group again this year. No Albuquerque high schools came to Los Alamos this year. Sandia Corporation in cooperation with Los Alamos, took over the task of handling students of that area.

New Mexico schools taking part in Science Youth Days included Pojoaque, Santa Cruz, El Rito, Taos, St. Michaels, Los Alamos, Espanola, Institute of American Indian Arts, McCurdy, Santa Fe, Loretto Academy, Mora, Bloomfield, Santa Fe Prep, Raton, Gallup, Taos Central Catholic, House Municipal and Artesia.

Colorado students came from Sanford, Sierra Grande, Monte Vista, Trinidad, Ignacio, Centennial, Pagosa Springs, Del Norte, Alamosa, LaJara and Antonito. Students also came from Alhambra, Central and Camelback in Arizona and Snyder, Dalhart and Dimmitt in Texas.



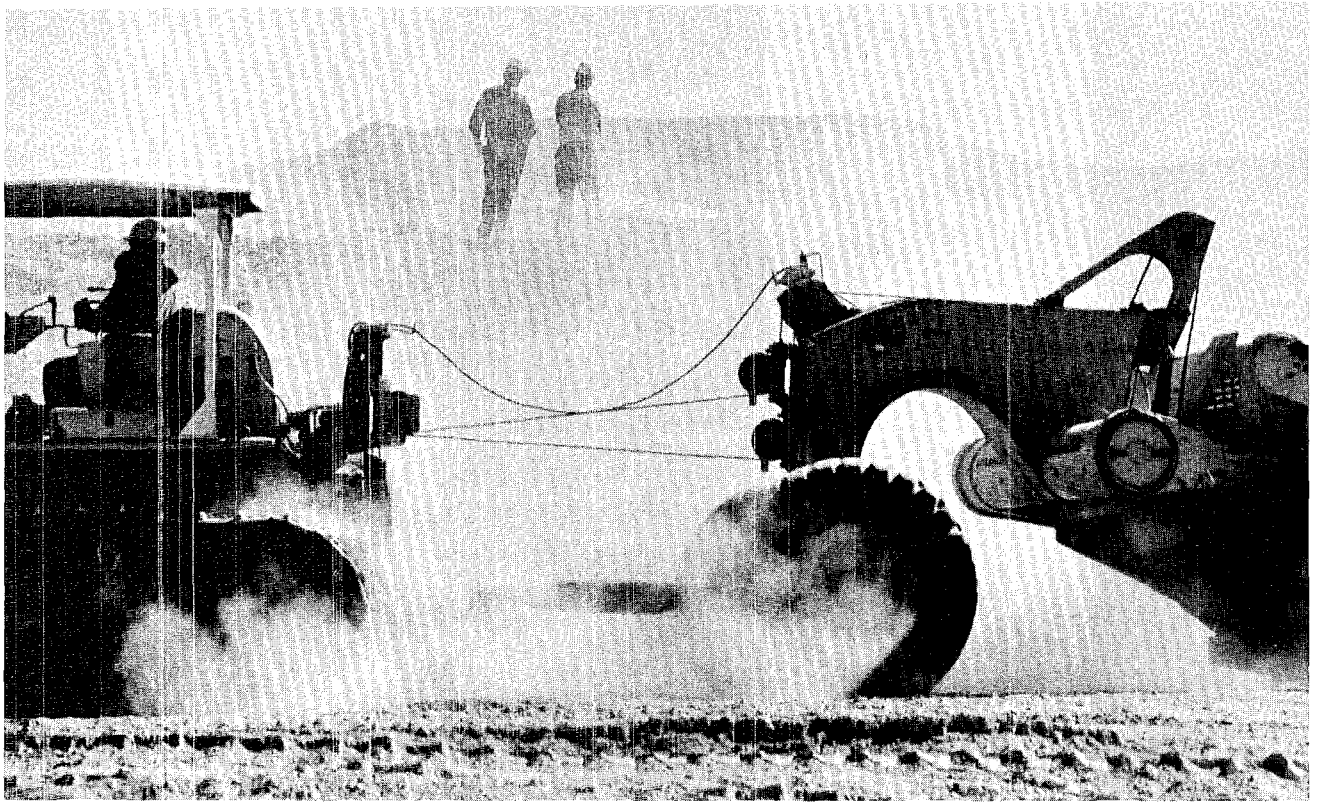
High school students visited Van de Graaff accelerator facilities as part of their tour of the Laboratory.

George Sawyer, P-15, right, lectures on plasma confinement problems encountered in the Scylla IV machine in Sherwood for the benefit of the Los Angeles High School group. Left to right: Ken Cole, David Wong, Rich Miller, Jim Perrin, Jim Lashler and Richard Leonard.

Robert B. Leachman, P-12, describes experimental area of cyclotron to students from Taos and Santa Fe.

While the dust is still settling, GMX men Bob Drake, Manuel Urizar and Mike Clancy rush in from detonation point to see what 100 pounds of high explosive did to Sleeping Beauty.

Sleeping Beauty Awakens



Wes Trask and Clarence Courtright, center, watch as Zia heavy equipment operators dig out mound of dirt to get down to Sleeping Beauty bunker. Fes Gentry, foreground, pulls scraper around mound to enter excavation.

UNLIKE SLEEPING BEAUTY in the fairy tale, the Los Alamos Scientific Laboratory's Sleeping Beauty awoke with a thunderous roar, in a cloud of dust that could be seen for miles. She was much the worse for the experience, but LASL men had planned it that way—for Sleeping Beauty was a 21-year-old failure, resting in a very exclusive "kingdom".

LASL's Sleeping Beauty was an experiment on the design of an alpha-n initiator—the first in a series of such tests. Equipment was located in an underground bunker at Trinity Site in the New Mexico desert, some 250 miles south of Los Alamos —and only 1600 feet from ground zero of a spectacular success, the world's first nuclear explosion. But Sleeping Beauty did not involve the use of fissionable material—and she was an embarrassing failure.

The initiator test misfired on Sept. 8, 1946—and promptly got the name, Sleeping Beauty, when it was decided, because of the possible hazards involved and the problems of digging out a 40-foot shaft, not to attempt to complete the experiment. Because the test site was in a closed area no longer in use, it was felt it was safe to leave the explosives where they were—in the reinforced concrete bunker covered by a 40-foot mound of dirt. One similar test was later conducted successfully in another bunker several hundred yards away, and then the series of experiments was moved to Los Alamos after a suitable test area—TA-33—had been prepared. Sleeping Beauty was the only failure.

The bunker remained untouched for more than 20 years. Then, early this year, it was decided to detonate the remaining high explosives and level off the mound of dirt over the bunker. In addition, two other bunkers would be leveled, and the entire area of Trinity Site would be monitored and cleared of any hazardous material. This decision was based primarily on the possibility that Trinity Site—where Los Alamos scientists tested the world's first atomic bomb on July 16, 1945—may soon be designated a national historic site.

The plan for destroying Sleeping Beauty called for a cautious approach. Although scientists in charge of the original test had several theories about the reasons for its failure, they were not absolutely certain what had occurred in the bunker—nor was there any certainty about what had happened to the materials in the intervening 21 years.

In mid-March, several LASL men from the engineering department and health division, along with heavy equipment operators from the Zia company, began work at Trinity Site, which is now part of the White Sands Missile Range.

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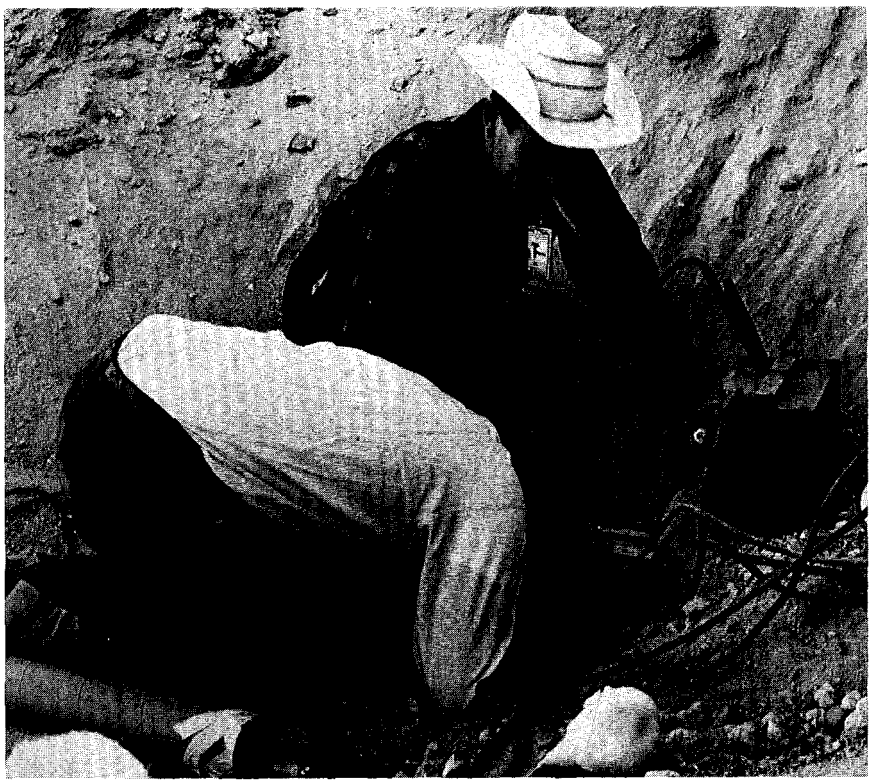
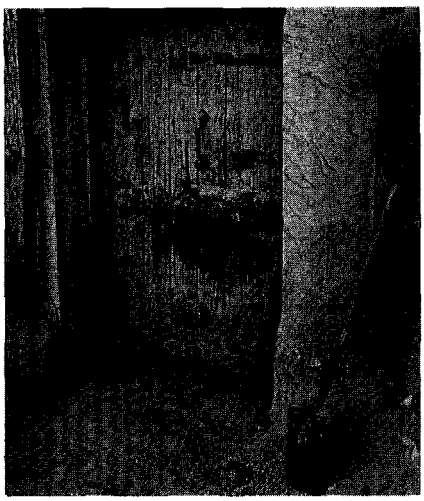
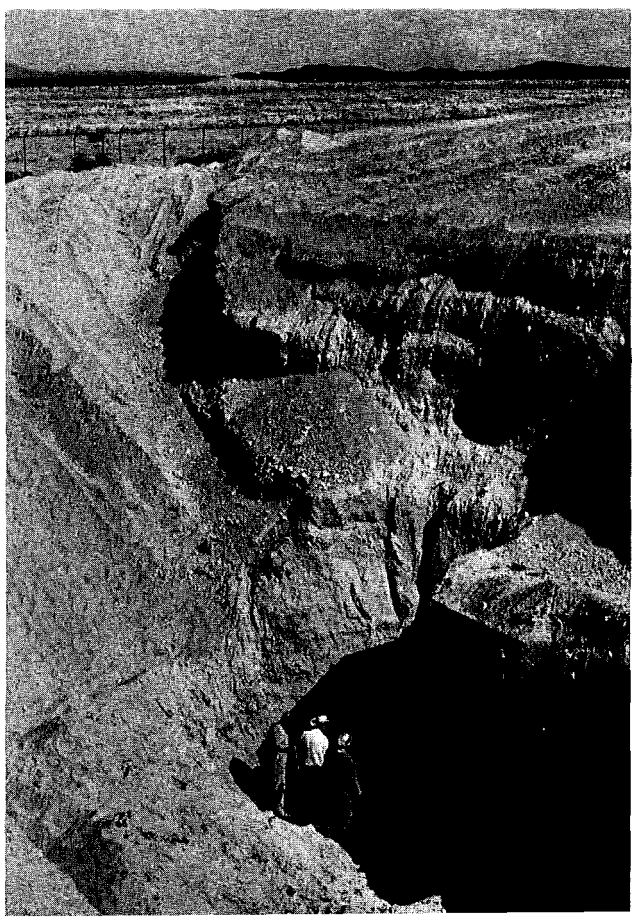




LEFT, Wes Trask, foreground, and Phil Reinig feed a light through an air vent in preparation for looking into bunker with periscope. ABOVE, although wood around bunker door was beginning to rot, the bunker and its contents survived 21 years under the desert dirt quite well.

Red Jackson, Wes Trask and Fes Gentry watch as Phil Reinig pushes periscope through air vent. Fence in background surrounds ground zero of 1945 Trinity test in a 1600-foot radius. Bunker in distance is where successful test similar to Sleeping Beauty was conducted.



Sleeping Beauty . . .

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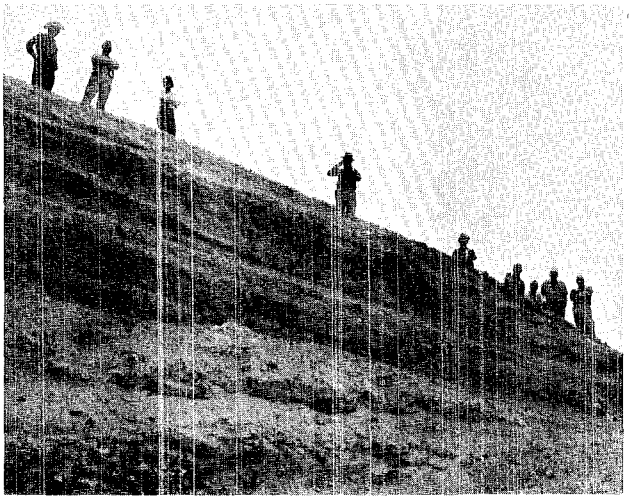
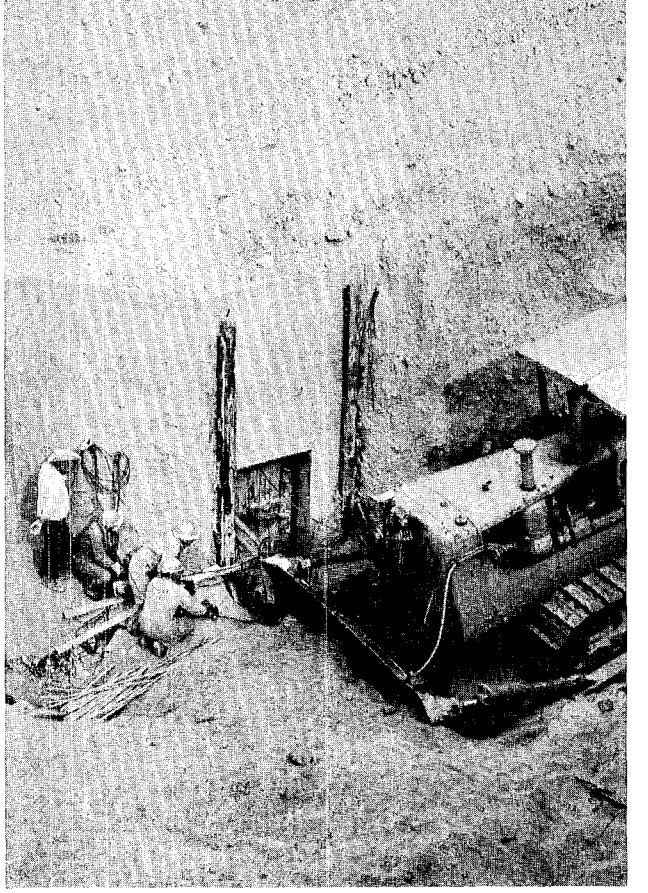
The first LASL contingent included Wes Trask, Eng-1; Clarence Courtright, H-3; Charles Blackwell, Jerry Eagan, Jack Richard and Fred Fey, all H-1. Zia equipment operators Andrew Red Jackson, Fes Gentry and Wayne Wells began cutting into the deep mound of dirt covering the bunker. Fighting the desert dust, which at times cut visibility almost to zero, they bulldozed their way down to the floor level of the octagonal bunker, exposing the door and front surface and a portion of the roof.

Easter Monday at Trinity Site saw the LASL contingent increase. This was the day set for the "unveiling" of Sleeping Beauty, when the door to the bunker would be opened.

Early that morning, Trask and Phil Reinig, engineering department head, pushed a periscope through one of the bunker's air vents to try to discover whether anything was blocking the door. But all that was visible was what appeared to be a crumpled sheet of copper and a bit of something white. There was still no certainty of the situation inside.

Two LASL scientists who had worked on the original Sleeping Beauty test—Don MacMillan, now





ABOVE, edge of excavation provided a safe vantage point for watching door opening operations. RIGHT, because of uncertainty of the situation inside the bunker, hydraulic jacks were operated remotely. From left are Wes Trask and Zia riggers Otis Sissel, Louis Rojas and Art Sena.

N-1 group leader, and Robert Lanter, now W-3—arrived to watch operations and see what had actually occurred in that bunker nearly 21 years ago. They had been in the old M-3 group which conducted the series of initiator tests. Other members of the test group who are still with the Laboratory include Henry Filip, Jim Runyon and Fred Lujan, N-1; Art Sayer, W-4; and Jim Greenwood, SD-1.

LASL Director Norris Bradbury and Technical Associate Director Raemer Schreiber were also among the dusty, windblown group who watched on Easter Monday as Zia ironworkers gingerly placed hydraulic jacks against the heavy bunker door.

With a bulldozer blade bracing one end, Louis Rojas, Otis Sissel and Art Sena placed three jacks against the door to bend the metal keepers and moved off to one side to operate the jacks remotely.

Finally the big door began to open. H-1 personnel checked the doorway with monitoring equipment. There seemed to be no problems. The door was opened about two feet, and air sampling and radiation monitoring equipment was placed inside. The bunker seemed safe to enter.

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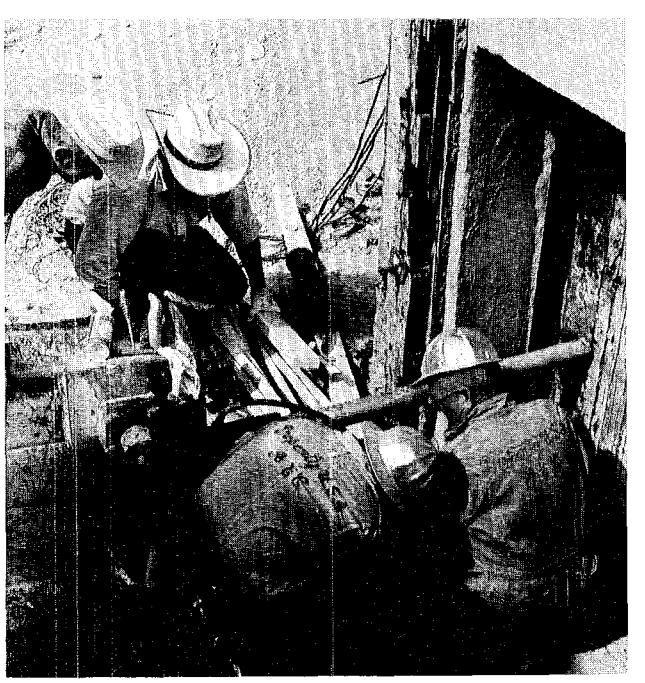
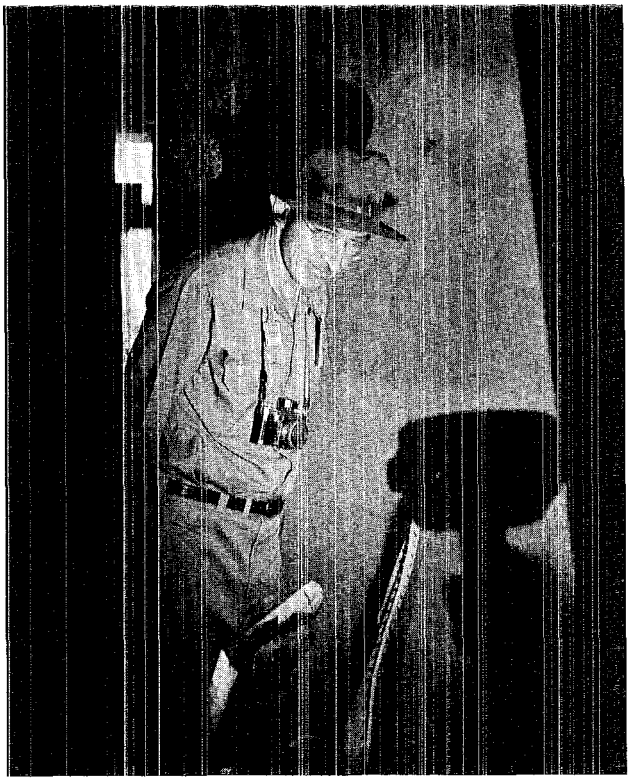
Clarence Courtright and Wes Trask watch as Louis Rojas and Otis Sissel adjust hydraulic jack against dozer blade.



LASL Director Norris Bradbury and Technical Associate Director Raemer Schreiber were on hand for Sleeping Beauty's awakening.

As a precaution, Charles Blackwell monitors bunker as soon as the door begins to open and finds it safe to continue operation.

After nearly 21 years, Don MacMillan can see what actually happened in the bunker. MacMillan was a member of the group that conducted the initiator tests. Sleeping Beauty was the only failure.



Sleeping Beauty . . .

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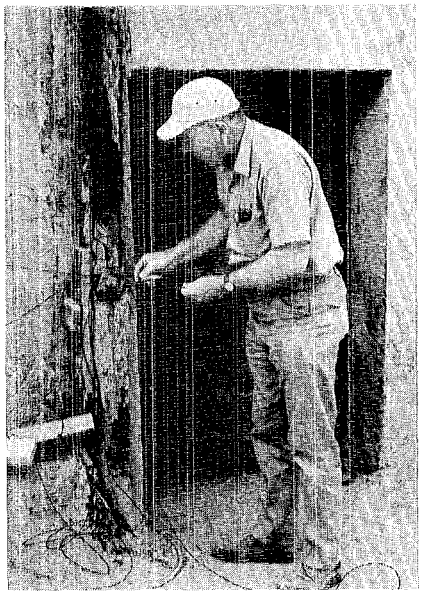
Inside, things were very well preserved and much the way scientists had left them 21 year before—with one exception, which provided the answer to what had caused the failure.

The small container of high explosive remained intact, still surrounded by six large counters—including one still suspended by chains above the HE. These were to have been used to record neutrons emitted by the initiator in the first few microseconds after the detonation. A broken light fixture found on the floor was a puzzle until MacMillan recalled that someone had left it in the bunker in the last-minute rush to get on with the test—for there had been problems in some of the equipment, and it was nearly midnight when the test was finally fired. Group leader Harry Fullbright left immediately afterward for a teaching assignment—after postponing his departure from the Laboratory through several postponements of the test. The white object seen through the periscope turned out to be an ordinary cheesecloth dust rag.

But the clue to what had gone wrong was the object that, through the periscope, had appeared to be crumpled copper. This was the remains of the high voltage box that contained electrical equipment, including a firing switch operated by a small explosive charge. The fact that the box had been

Manuel Urizar and Mike Clancy bring explosives into the excavation to place inside bunker.



Bob Drake checks final hook-up of detonator wires leading into Sleeping Beauty bunker.

Norris Bradbury, Bob Drake and Raemer Schreiber look inside shambles that was once a bunker.

blown apart by this small charge but that the principal experimental equipment had remained intact meant that the explosive-operated switch had failed in some way to set off the main explosive charge, MacMillan said.

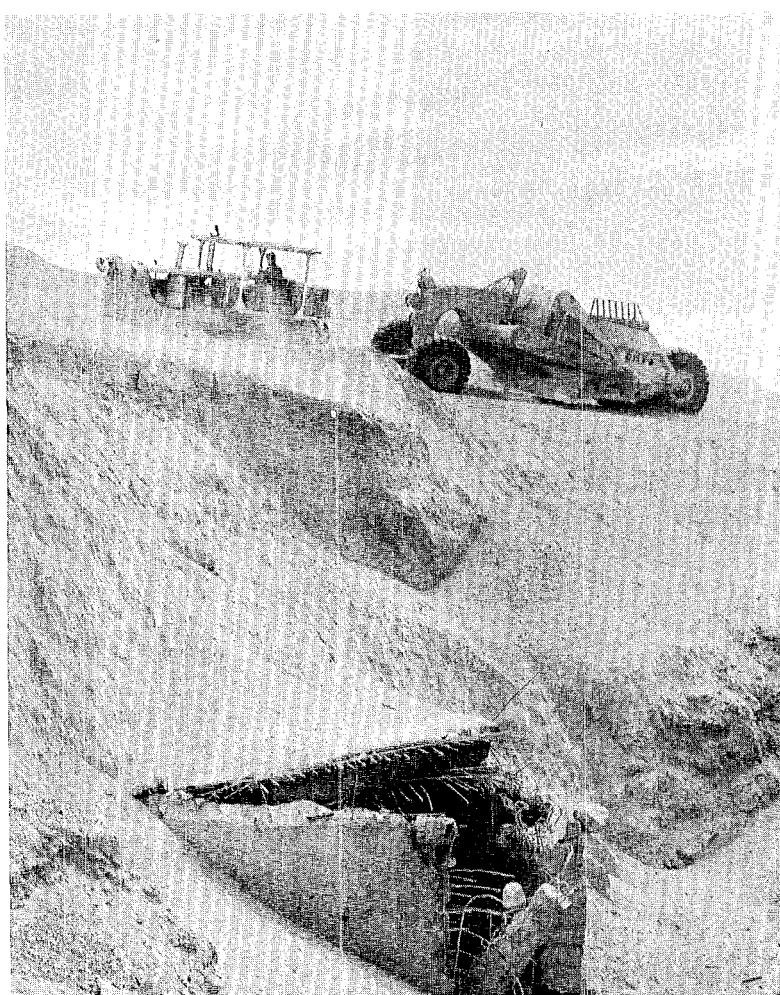
The following day was set for Sleeping Beauty's "awakening", and three explosives experts arrived from Los Alamos to join the LASL contingent. Robert Drake, assistant GMX division leader, Mike Clancy and Manuel Urizar, both GMX-2, strung detonator cords across the desert from the bunker to a safe firing location. Inside the bunker they placed 100 pounds of high explosive—enough to awaken almost anything from a 21-year nap.

Everyone retreated to a safe distance, out of the range of flying debris. The rumbling of Sleeping Beauty's "alarm clock" reverberated across the desert, jolting a jackrabbit out of its morning sleep.

When the dust had settled, the handful of onlookers, now almost knee-deep in the loosened surface of the desert, converged on the remains of Sleeping Beauty. Gnarled steel rods and jagged chunks of concrete were all that was left. Almost immediately, the heavy equipment operators climbed on their bulldozers and began filling in the hole.

At last Sleeping Beauty could be termed a success.

Scrapers begin job of filling in excavation immediately after bunker was blown apart. Two similar bunkers also were filled in; however, because they were empty, no explosives were used for those operations.



Laboratory Director Norris E. Bradbury opens classified weapons briefing for University of California regents in the Blue Room. From left are Harold Agnew, W division leader; Regents Edwin Pauley (behind Bradbury), Einar Mohn, Laurence Kennedy, Gov. Ronald Reagan, Philip Boyd, Harry Haldeman and William Forbes; Earl Bolton,

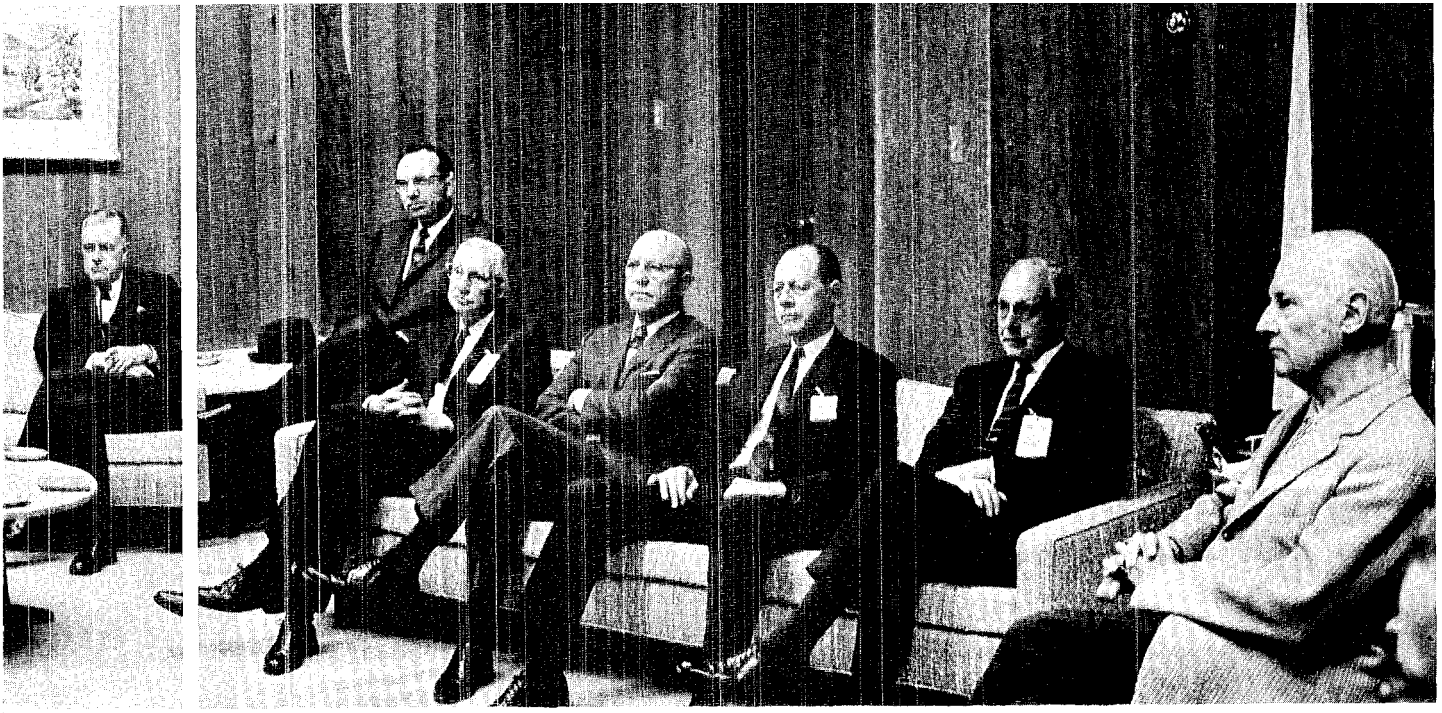
University Regents Visit

Eleven regents of the University of California, including the governor of California, the chairman of the board of regents and the acting president of the University, visited the Los Alamos Scientific Laboratory late last month.

Arriving in Los Alamos Thursday evening, April 27, they spent all day Friday in briefings and visits to numerous Laboratory areas. On Saturday they took part in ceremonies marking the extension of the contract between the University and the Atomic Energy Commission for another five years. The University of California has operated LASL since its inception in 1943.

Regents who visited Los Alamos include California Gov. Ronald Reagan, regent president; Theodore R. Meyer, regent chairman; Harry R. Wellman, acting UC president; John E. Canaday, chairman of the regents committee on special research projects; Edwin Pauley, Harry Haldeman, Philip Boyd, William Forbes, William Hudson, Laurence Kennedy and Einar Mohn. Earl C. Bolton, UC vice president for governmental relations, accompanied the regents.

The regents' tour on Friday began with a classified weapons briefing, followed by a tour of PHERMEX Site, where they witnessed a test shot. After a luncheon in the LASL Science Museum's Red Room and a tour of the museum, the regents visited Kiva 3 at Pajarito Site for a briefing on Project Rover and a movie of the recent full power test of the Phoebus 1B reactor. At TA-46, they saw a de-



vice president for government relations; Regents John E. Canaday, William Hudson, Theodore R. Meyer and Harry R. Wellman, acting UC president; and Henry Hoyt, LASL assistant director for administration.

Laboratory

monstration of a LASL-invented heat pipe. The regents' tour then continued to UHTREX and finally to Project Sherwood for briefings and tours of the facilities.

Winding up the day's official activities, the regents took part in a ceremony awarding University of California service pins to LASL personnel with 25, 20, 15 and 10 years' service.

Saturday morning the regents were briefed on the Laboratory's proposed meson physics accelerator

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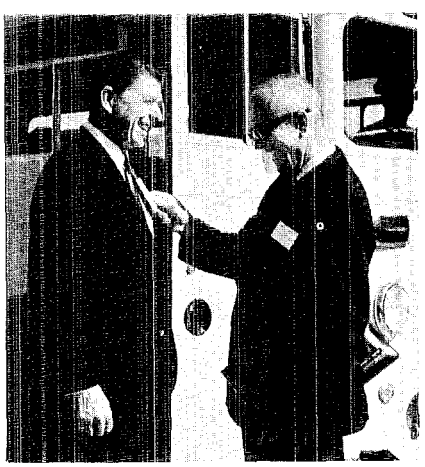
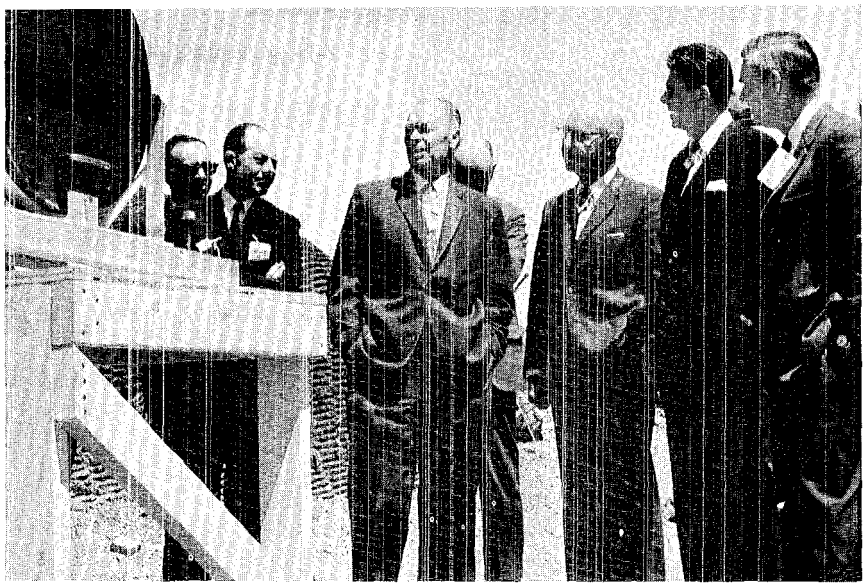
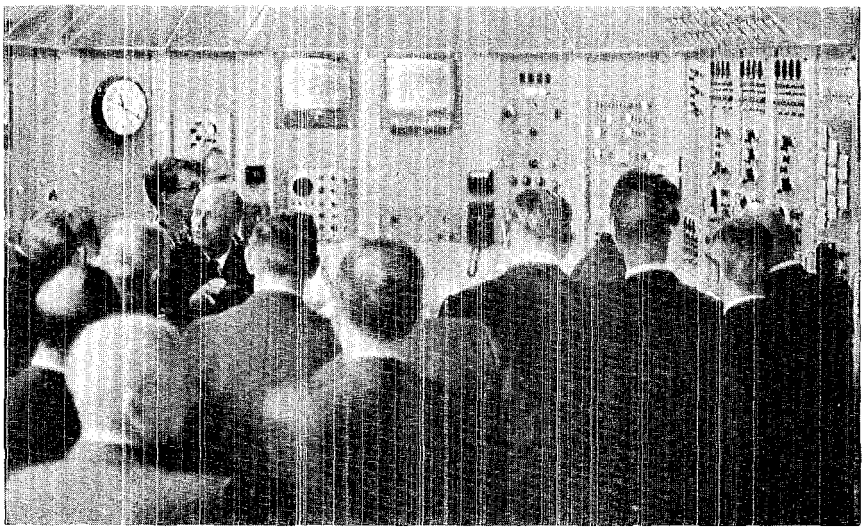


ABOVE LEFT, Mary Sue Wooten, Pub-2, gives visitor's badge to Edwin Pauley, who is now serving his second 16-year term as a University of California regent. ABOVE RIGHT, Emmy Stice, LASL museum guide, explains Scylla exhibit to Acting University President Harry R. Wellman. LEFT, California Gov. Ronald Reagan and Robert Y. Porton, Pub-2 group leader, chuckle over Reagan's visitor badge number—13.

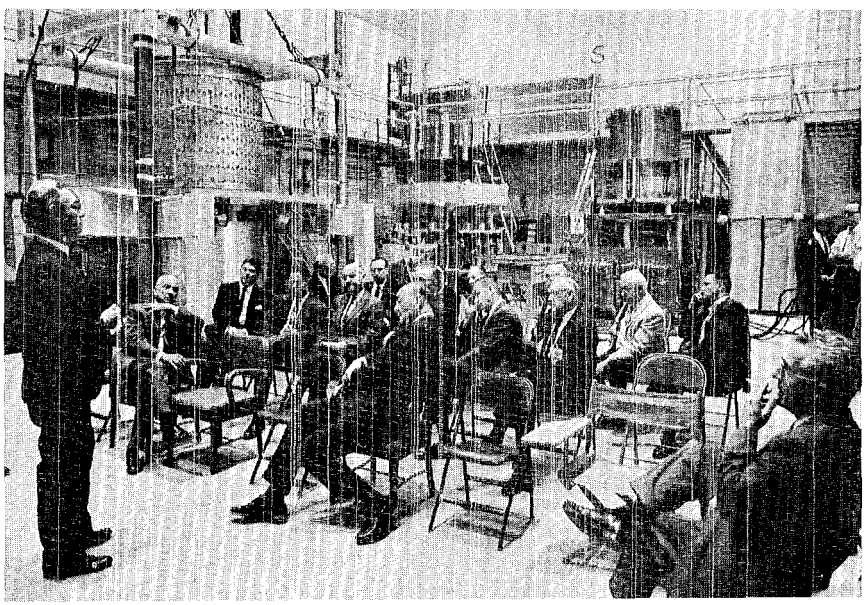


ABOVE, Duncan P. MacDougall, GMX division leader, center, explains PHERMEX experiment to regents before the shot. BELOW, in PHERMEX control room, Douglas Venable, GMX-11 group leader, facing camera, explains what is happening as countdown nears zero.

LASL-invented heat pipe transfers heat from boiling coffee to fingers within seconds, Regents Hudson and Forbes discover.



Surrounded by Phoebus and Kiwi reactor prototypes in Kiva 3 at Pajarito Site, regents hear Roderick W. Spence, N division leader, discuss Project Rover.



Regents . . .

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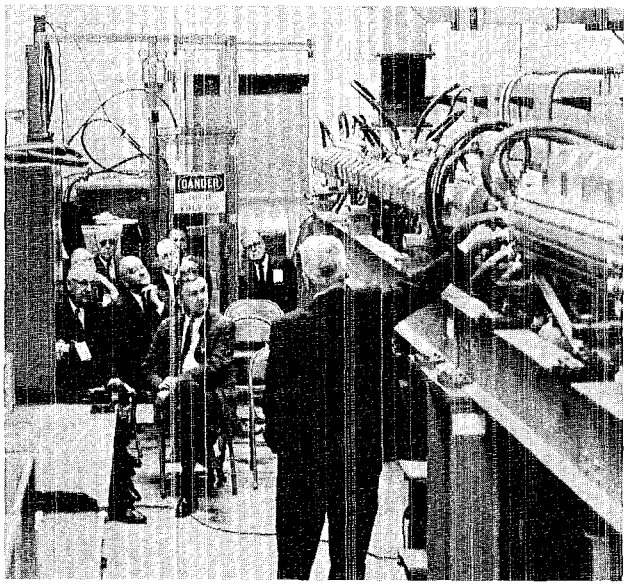
and saw some of the experiments already under way.

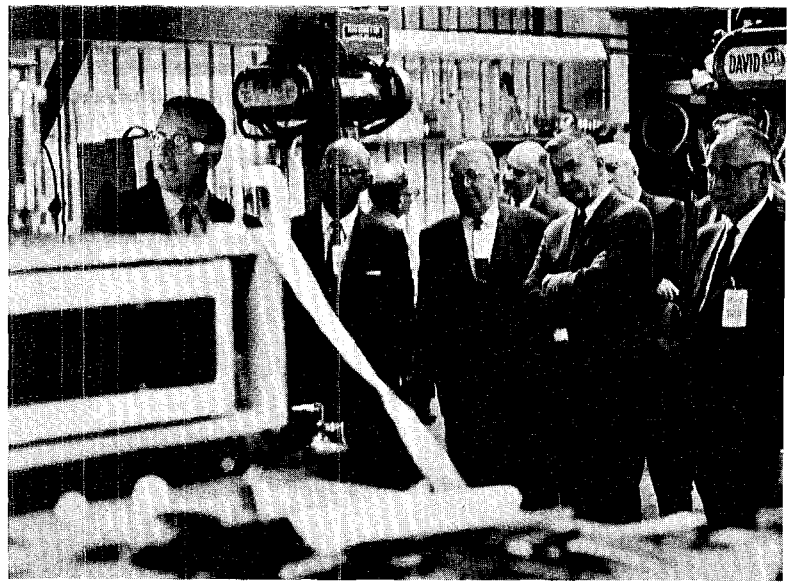
Before the contingent of regents returned to California, Chairman Meyer, on behalf of the regents, and Lawrence P. Gise, manager of the AEC Albuquerque Operations Office, signed the new five-year contract—to be in effect through Sept. 30, 1972—for the University's operation of LASL.

The University of California employs about 4,000 people at the Los Alamos Scientific Laboratory, including more than 100 at the Nuclear Rocket Development Station in Nevada. The annual payroll is approximately $44,000,000, and estimated operating costs for the current fiscal year are about $93,000,000, excluding construction. AEC-owned laboratory plant and equipment at Los Alamos are valued at approximately $237,000,000, with an additional $16,000,000 in plant and equipment at NRDS.

Several of the regents spoke during the brief program at Friday's luncheon, and all were strong in



Darragh Nagle, associate MP division leader, describes prototype section of drift tubes for meson facility.



P-15 Group Leader Fred Ribe shows Scylla IV equipment to visiting regents.

their praise of the Laboratory and its accomplishments.

Said Acting University President Wellman, "We in the administration are enormously proud of you and of what you are doing here." He added, "We would like to brag about your specific accomplishments, but (referring to a reminder given the regents about their security obligations) Norris Bradbury has told me I cannot talk about them."

Said Regent Canaday, "When I see the work that is being done and meet the men responsible for it, I become more and more impressed with the character of this institution and its dedication to not only the security of our country, but to the peaceful pursuit of things constructive throughout the world."

Chairman Meyer, commenting on a reference to LASL as the "tenth campus" of the University, said Los Alamos is not only the largest in size, but could be considered the largest in terms of accomplishments. "There is no comparison between this and any other thing within the University's system," he said.

In introducing Gov. Reagan, Canaday referred to a recent controversy, commenting, "I have come to build a very great respect for Gov. Reagan, and of one thing I'm sure: Gov. Reagan in no way diminishes the importance of the University of California and its role in the state's destiny—and in the nation's destiny, for that matter."

Reagan, referring to the same situation, said, "I'm sure some of you were a little concerned about a certain sound and fury that rose over California some time ago. I would think that your scientific curiosity would be aroused—because it's the only instance I know where the farther away from the center the shock waves went, the more shock they seemed to develop. Some of the sound and fury, I think, was politically inspired; some of the sound and fury was, perhaps, just a case of Chicken-Little thinking the sky was falling.

"The University of California will continue to be run and led and guided by the very unselfish and civic-minded and devoted regents of the University as it has in the past. There will be no political invasion or infiltration or interference with the University of California. It has a long history of being run by devoted citizens in the persons of the regents. This is the way it will continue. The University will continue to grow; it will continue to hold its very prominent position in the years ahead. I pledge you that, and I pledge you that if there is any political interference at all, it will be political interference with those who would bring about political interference; it won't be with the University of California."

Reagan, who, as governor, is president of the board of regents, concluded, "It's pretty presumptious of a freshman regent to attempt to speak on behalf of his fellow regents—those who have been here for a great many years and have served this cause, the state and the University so well; but in their behalf, you should know of their very great pride in this "outpost campus" and their great desire and intention that this carries on, and that the bonds between the University and Los Alamos will not only continue, but be strengthened."

Don Juan players perform in an old adobe building near Otowi bridge, a few miles down the hill from Los Alamos. In outdoor setting, audience can not only see the plays, but also have a sweeping view of Northern New Mexico scenery—including the Valley, Black Mesa and sunsets over the Jemez.

Playhouse At Otowi Bridge

By Barbara Storms

Since its stage lights first went on, the Don Juan Playhouse has made a habit of meeting challenges—and its tenth anniversary celebration this summer will be no exception.

The Playhouse will launch the season with the winner of its $500 playwriting contest, "Behind the Paper Faces" by Bruce Harrison, an Arlington, Va., public relations man.

The three-act drama centers around a Negro college in a small southern town and dramatizes the conflicts arising from the separation between the college and the white community. It has many complicated sets and a large cast including several Negroes.

"It will be a challenge to produce," said Alice Bernard, president of the Playhouse, "and we are honored to present it this season."

But producing the untried play will be only one of the challenges.

Just choosing the contest winner has been challenge enough, as the

half-dozen or so bleary-eyed members of the judging committee will attest.

The contest was announced last winter with flyers to college and university drama departments and press releases to major metropolitan newspapers across the country. At best, Playhouse board members expected 75 to 100 entries; the less optimistic worried that there would be only a few.

But then the deluge began.

The entries came, in manila envelopes, brown paper bags and even in bulk quantities in cartons, from 31 states and the District of Columbia. Two came from Canada, and another came from Australia—apparently by slow boat, arriving nearly two months too late.

California produced the most entries with 63; New York was second with 36. New Mexico submitted third most with 15, of which several were from Los Alamos and Santa Fe. There were 11 from Florida, 10 from Texas, nine each from Michigan and Pennsylvania, seven from Connecticut, six from Indiana and five each from Illinois and Maryland. The grand total was 334 plays.

There were 221 authors in all, and whether they wrote tragedy or comedy, in free verse or prose, their subject matter ranged wide. Two entries were musical; one, possibly aimed especially at a Los Alamos audience, was a science-fiction tale entitled "Please Pinch the Plasma."

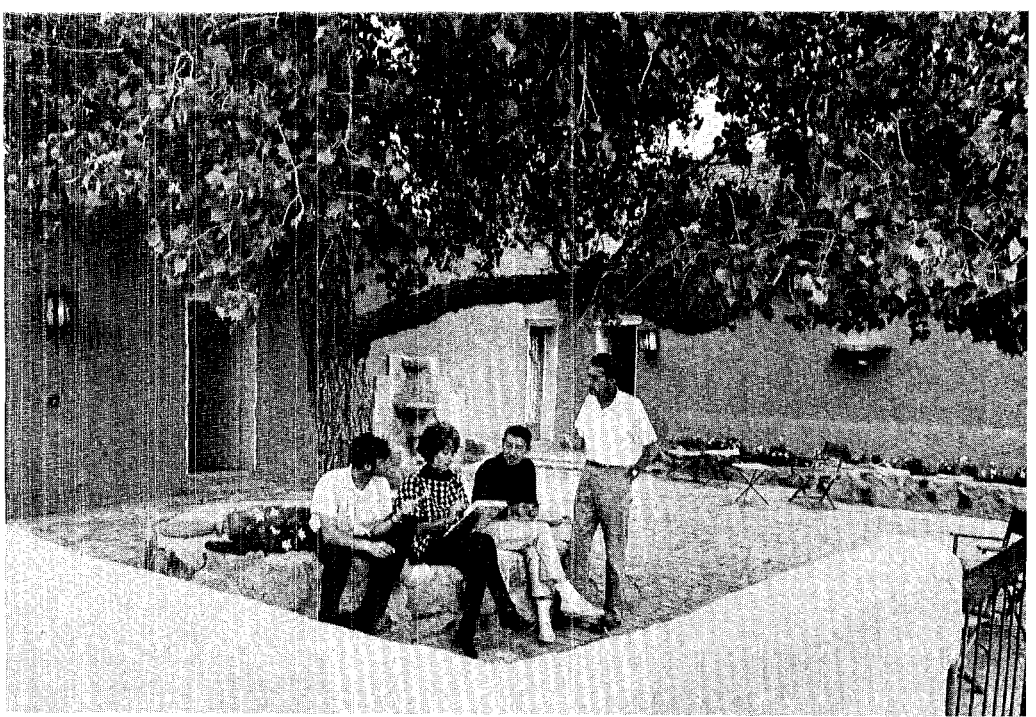
The judges found a surprising number of good plays and at least 50 that were termed excellent. But good, bad or indifferent, each play was read by at least two judges selected from members of the Don Juan board of directors and others active in Playhouse productions. The better the play, the wider became its readership. Distribution of manuscripts and reader comments were carefully recorded in a card file system.

Although the winner was to have been announced by March 15, it was not until a week later that the

continued on next page

Alice Bernard, president of the Don Juan Playhouse, Lou Schlatterer, SD-3, and Foster Evans, T-DOT, both members of the board of directors, ponder the merits of one entry in the recent play contest. Easy access to the fire is not significant; each rejected manuscript was returned to its author at the end of the contest.

Patio of playhouse provides pleasant setting for planning the season's productions. From left are Hans Ruppel, T-12; Mrs. Bernard, Schlatterer and Evans.



Playhouse . . .

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judges were able to narrow the contenders down to a dozen. Rereading and discussions of these ran far into a good many nights.

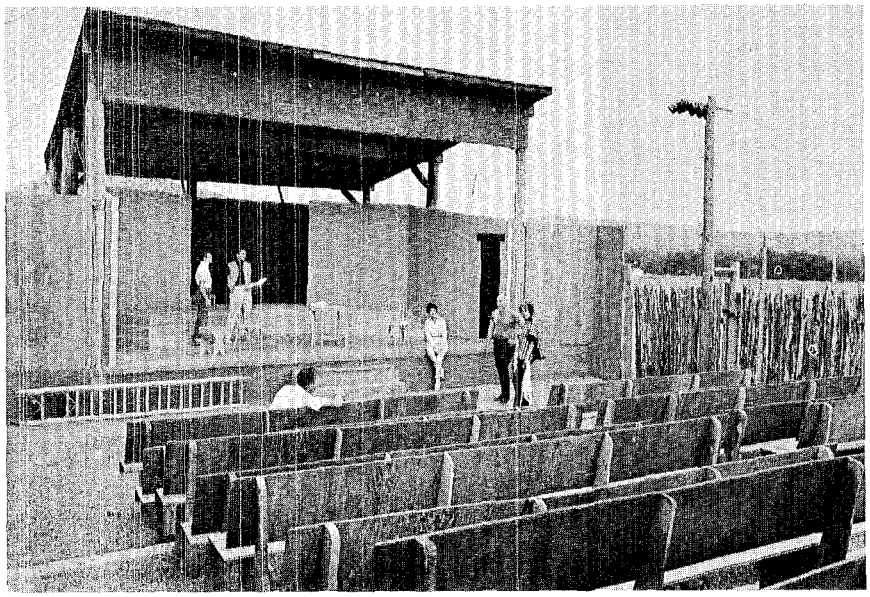
" 'Behind the Paper Faces' is exciting theater," Mrs. Bernard said. "It is well-written with a dynamic force to hold one's interest from beginning to end. Harrison's characterizations are strong, well-defined and credible."

A former Alabama newspaper man, Harrison is manager of public relations activities for Manufacturing Chemists Association in Washington and has been acting and directing with northern Virginia theater groups since 1958. He plans to come to New Mexico for the play's opening in late June.

The Don Juan Playhouse was established in 1958 in a run-down adobe building on San Ildefonso land just east of Otowi Bridge. Over the years, with volunteer labor and money from box office receipts and contributions, the theater has expanded and improved. Latest improvement, now in progress, is construction of rest rooms, complete with plumbing, to replace the colorful but dilapidated Don John that has served cast, crew and audience for so many years.

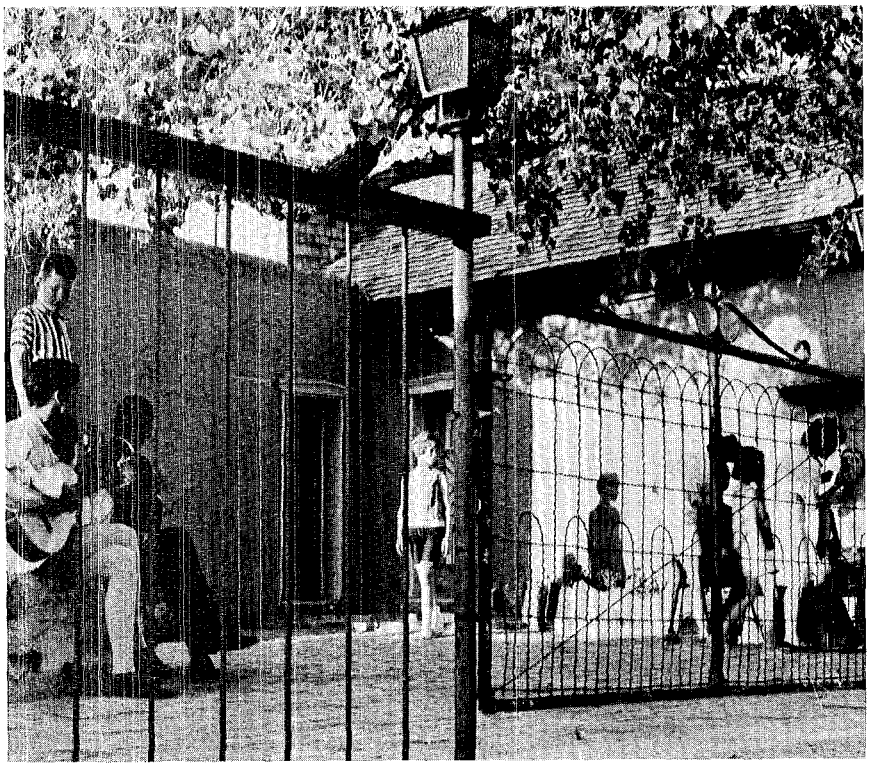
Work in all phases of the productions is done without financial compensation. Prize money for the playwriting competition was part of a grant from the National Foundation on the Arts and Humanities obtained by the Playhouse through the cooperation of the New Mexico Arts Commission.

In addition to "Behind the Paper Faces," the Playhouse will present Edward Albee's drama, "Who's Afraid of Virginia Woolf?" and the musical comedy "Irma La Douce." The Playhouse season will run six weekends, with plays presented each Friday and Saturday evening from June 23 through July 29. The three productions each will be presented two different weekends, with "Paper Faces" opening the season.



Rustic setting contributes to effect of Don Juan Playhouse productions.

Cast and crew gather on patio for make-up and last-minute check of lines for previous season's production of "William Shakespeare: What's in a Name?"



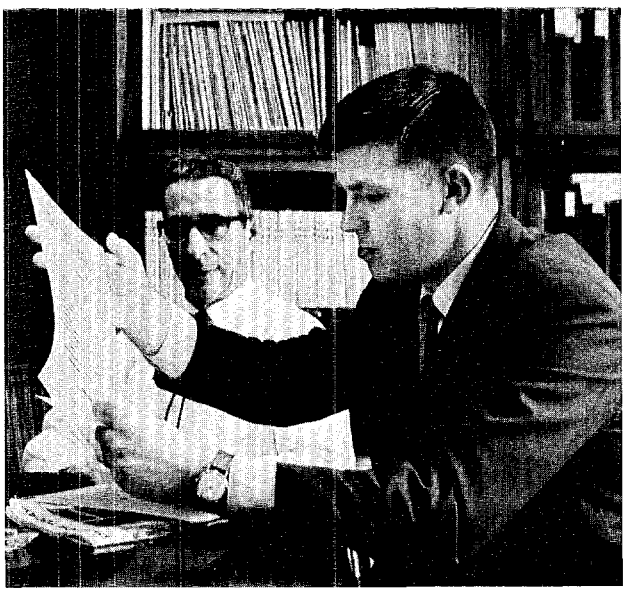
Miller, Kazek, Pazdra Retire from LASL

Three Los Alamos Scientific Laboratory employes retired during April.

R. J. Miller, senior health surveyor in H-1, retired April 18. He started work in January, 1956, in that group. Miller received his A.B. degree in history from Indiana University in 1924 and his M.A. degree in education from the same institution in 1927. He was also admitted to candidacy for the doctorate in education by Colorado State College, Greeley. During World War I, he was a member of the Student Army Training Corps. The greater part of his career has been as teacher and administrator in the educational field. He and his wife, Nina, who formerly ran the Nina Miller Prekindergarten School in Los Alamos, will move to Plainfield, Ind., a suburb of Indianapolis, to make their future home. Their daughter was the late Mrs. Patricia Freyman of Los Alamos. They have three grandchildren, Mrs. Sue Douglas, who is attending the University of Oklahoma City; Carol Lynn Freyman, a senior at Los Alamos High School; and Robert, a junior at Los Alamos High.

Chester Kazek, Sr., design engineer in GMX-3, retired April 28. Hired into W-1 in February, 1951, he transferred to GMX-3 in May, 1952, and has been with that group continually since. He received his B.S. degree in mechanical engineering from the University of Illinois. He, too, was a member of the Student Army Training Corps during the First World War. He and his wife, Malvine, have two sons, Chester, Jr., a staff member in T-1; and Paul, formerly with T-5, now with Computer Science Corp., Silver Spring, Md. Last year Kazek and his son, Chester, Jr., received their 15-year pins at the same ceremony. Following retirement, Kazek will go into full-time real estate sales in Los Alamos.

Joseph F. Pazdra, lead operator, physical inspection section, GMX-3, retired April 28. He was hired by LASL in 1949 as a machinist in the old "C" Shop and transferred to GMX-3 on Aug. 16, 1951. He was born in Illinois, but spent most of his life in California before coming to Los Alamos. In California he worked for General Tire and Rubber Co., South Pasadena, and for the Morrison Engineering Co., San Gabriel. After retirement, he plans to stay in this area, since he has a home in La Mesilla, and do some fishing and hunting. He has one son, who lives in California.



Two Soviet nuclear scientists visited the Los Alamos Scientific Laboratory last month as part of a reciprocal exchange program between the United States and the Soviet Union. In left photo, James A. Phillips, P-14 group leader, left, chats with D. P. Ivanov of the Kurchatov Atomic Energy Institute in Moscow. At right, A. I. Yermakov of the Physical Technical Institute of the Ukrainian Academy of Sciences in Kharkov confers with P division leader Richard Taschek, left. During their three-day visit, the Soviet scientists toured Project Sherwood and discussed research on controlled thermonuclear reactions with LASL scientists. U.S. scientists have also visited Soviet laboratories under this exchange agreement, which is provided for under the Memorandum on Cooperation in the peaceful uses of atomic energy between the U.S. Atomic Energy Commission and the USSR State Committee on the Utilization of Atomic Energy. The memorandum is part of the over-all U-S.-USSR Exchanges Agreement.

The Technical Side

Presentation at Air Force Association Meeting, San Francisco, Calif., March 16:

"Technology Versus the Balance of Power" by H. M. Agnew, W-DO. (Invited talk)

Presentation at American Chemical Society Meeting, Central New Mexico Section, Santa Fe, N.M., March 17:

"A Review of Developments in Computer Design" by W. J. Worlton, T-1. (Invited talk)

"The Use of Computers in Physical Chemistry" by H. G. Hecht, CMF-2. (Invited talk)

Presentation at University of Houston, Houston, Texas, March 28:

"Quasi-Stellar Objects" by James Terrell, P-DOR.

Presentation at Seminar, University of Oklahoma, Norman, Okla., March 28:

"On the Phase Transition of Solid Hydrogen" by D. A. Depatie, CMF-9.

Presentation at 12th Coated Particle Fuels Working Group Meeting, Nevada Test Site, Nev., March 28-29, CLASSIFIED MEETING:

"Development of Particles Coated with Pyrolytic Carbon" by R. J. Bard, CMB-8. (Invited talk)

Presentation at Colorado Section, American Nuclear Society, Third 1966-67 Dinner Meeting, Denver, Colo., March 31:

"The Los Alamos Nuclear Rocket Program and Related Critical Assemblies Activities" by C. W. Watson, N-2. (Invited talk)

Presentation at Annual Meeting of the New Mexico Industrial Photographers Association, Los Alamos, N.M., April 1, and Lions Club, Los Alamos, N.M., April 6:

"The Weapons Incident in Spain" by W. H. Langham, H-4. (Invited talks)

Presentation to the Los Alamos Medical Center Medical Staff, Los Alamos, N.M., April 3:

"Cryogenics in Biology and Medicine" by R. S. Thurston, CMF-9.

Presentation at Computer Science Colloquium, University of Illinois, Urbana, Ill., April 3:

"Covering Problems in Combinatorial Computing" by M. B. Wells, T-7. (Invited talk)

Presentation at Meeting of the Key Club, Los Alamos High School, Los Alamos, N.M., April 4:

"A Travelogue on Southern Spain" by W. H. Langham, H-4. (Invited talk)

Presentation at Society for Nondestructive Testing Meeting, Philadelphia, Pa., April 5;

"The Ever Challenging Role of Nondestructive Testing in the 1960's" by G. H. Tenney, Dir-Off. (Invited talk)

Presentation at Symposium of the American Mathematical Society, New York, N.Y., April 5-7:

"Stochastic Formulations of Neutron Transport" by G. I. Bell, T-DOT. (Invited paper)

Presentation at Drafting Class, Santa Fe High School, Santa Fe, N.M., April 6:

"Numerical Control of Machine Tools and Automatic Drafting Machines" by B. G. Harvey, GMX-3.

Presentation at Seminar, Departments of Pathology and Biochemistry, University of Washington, Seattle, Wash., April 7:

"Some Trouble with Current Thoughts on Collagen Structure" by J. H. Manley, Dir-Off. (Invited talk)

Presentation at Institute of Electrical and Electronics Engineers Meeting, Los Alamos Subsection, April 7:

"Airborne Electronic Eclipse Instrumentation for the Solar Eclipse of Nov. 12, 1966" by Bobby Strait, N-4, and Ralph Partridge, J-DO.

Presentation at Japanese Cryogenic Engineering Conference, Kyoto, Japan, April 9-13:

"Cryogenic Research at the Los Alamos Scientific Laboratory" by E. F. Hammel, Jr., CMF-9. (Invited talk)

American Chemical Society Meeting, Miami Beach, Fla., April 9-14:

"Hydroxyl Radical Reactions Involved in the Flash Photolysis of Hydrogen Peroxide" by N. R. Greiner, GMX-2.

"Vaporization by Angular Displacement" by R. C. Feber, Jr., CMB-8, M. V. Fraser, T-7, and C. C. Herrick, CMF-13.

"Synthesis of Neutron Rich Nuclides by Prompt Multiple Neutron Capture" by G. A. Cowan, J-11. (Invited paper)

"A Study of the System Thallous Hydroxide-Picric Acid and a New Basic Thallous Picrate" by Manfred Stammler, GMX-2.

"Beta Decay of Neutron-Rich Cerium and Praseodymium Isotopes" by Darleane Hoffman and W. R. Daniels, both J-11.

American Nuclear Society Topical Meeting, San Francisco, Calif., April 10-12:

"Operation of the Plutonium-Fueled Fast Reactor LAMPRE" by R. E. Peterson, K-DO, and R. L. Cubitt, K-1. (Invited paper)

Presentation before the Sanado Club, Albuquerque, N.M., April 11:

"The General Problems Encountered by a Research Scientist" by W. H. Langham, H-4. (Invited talk)

Presentation at Defense Atomic Support Agency, Nuclear Emergency Preparedness Program of Instruction, The Sandia Corporation, Albuquerque, N.M., April 11:

"The Palomares Accident" by W. H. Langham, H-4. (Invited talk)

Presentation at NASA Electronics Research Center Computer-Aided Circuit Design Symposium, Cambridge, Mass., April 11-12:

"NET-2 Circuit Analysis Program" by A. F. Malmberg, T-7. (Invited talk)

Presentations at Symposium on Nondestructive Testing in the Nuclear Field, Oak Ridge National Laboratory, Oak Ridge, Tenn., April 11-13, CLASSIFIED MEETING:

"Quantitative Determination of Boron Content in Reactor Control Plates, Utilizing Epicadmium Neutron Transmission Measurements" by D. A. Garrett, R. A. Morris, both GMX-1, and M. M. Thorpe, P-2.

"A Vacuum Cassette for Microradiography" by R. A. Morris, GMX-1.

"Ultrasonic Inspection of Braze Joints Using Integrated Signal" by N. B. Edenborough, GMX-1.

"Challenges to the Nondestructive Testing Profession in the Reactor Field" by G. H. Tenney, Dir-Off.

Presentation Western Electric Bell Telephone Laboratory Joint Engineering Symposium, El Paso, Texas, April 12:

"The Nuclear Rocket Propulsion Program" by W. L. Kirk, N-DO. (Invited talk)

Sixth International Shock-Tube Symposium, Division of Fluid Dynamics of the American Physical Society and the Deutsche Physikalische Gesellschaft, Freiburg, West Germany, April 12-14:

"A Shock-Tube Study of the Effects of Nitrogen and Water Vapor on Recombination in the Hydrogen-Oxygen System" by R. W. Getzinger and L. S. Blair, both GMX-7. (Invited paper)

Presentation at Fifth Meeting in Miniature, Southern New Mexico Section, American Chemical Society, New Mexico State University, Las Cruces, N.M., April 15:

"The Applications of Gel Permeation Chromatography in Graphite Binder Research" by E. M. Wewerka, CMF-13.

"Spectrochemical Determination of Niobium, Tantalum and Titanium in Uranium Using Solvent Extraction Separation and Graphite Spark Excitation" by Juanita V. Pena, H. M. Burnett, C. J. Martell and R. T. Phelps, all CMB-1.

Presentation at Meeting of the Federation of American Societies for Experimental Biology, Chicago, Ill., April 16-21:

"Properties of Mitotic Cells Obtained by Shaking" by R. A. Tobey, E .C. Anderson and D. F. Petersen, all H-4.

Presentation at University of Texas at El Paso, Texas, April 17:

"The Present Status of Fundamental Physics--A General Look at the Frontiers of Physical Science" by Nelson Jarmie, P-DOR.

Presentation at Physics Department, University of Texas at El Paso, Texas, April 18:

"Proton-Proton Spin-Dependent Scattering" by Nelson Jarmie, P-DOR.

Presentation at 48th Annual Meeting, American Geophysical Union, Washington, D.C., April 17-20:

"Satellite Observations of the Solar Wind During Sudden Geomagnetic Impulses and Storm Commencements" by J. T. Gosling, J. R. Asbridge, S. J. Bame, E. W. Hones, Jr., all P-4, A. J. Hundhausen, T-12, and I. B. Strong, P-4.

"Correlations of Electron Bursts in the Magnetotail with High Latitude Magnetic Field Pertubations" by E. W. Hones, Jr., J. R. Asbridge, S. J. Bame and I. B. Strong, all P-4.

"The Behavior of the Solar Wind During a Large Geomagnetic Storm" by J. T. Gosling, J. R. Asbridge and S. J. Bame, all P-4, A. J. Hundhausen, T-12, and I. B. Strong, P-4.

"Observations of the Structure of the Earth's Bow Shock" by A. J. Hundhausen, T-12, J. R. Asbridge, S. J. Bame and I. B. Strong, all P-4.

"Search for Solar Neutrons During the September 2, 1966, Solar Flare Event" by S. J. Bame, J. R. Asbridge and H. E. Felthauser, all P-4.

"Observations of the Filamentary Structure of the Solar Wind" by I. B. Strong, J. R. Asbridge and S. J. Bame, all P-4, and A.J. Hundhausen, T-12.

"The Long Term Average Non-Radial Flow of the Solar Wind" by I. B. Strong, J. R. Asbridge and S. J. Bame. all P-4, and A. J. Hundhausen, T-12.

"Fluctuations in the Direction of Flow of the Solar Wind" by H. E. Gilbert, J. R. Asbridge and S. J. Bame, all P-4, A. J. Hundhausen, T-12, and I. B. Strong, P-4.

"Solar Wind and the Planetary Disturbance Index K_p" by S. J. Bame, J. R. Asbridge, both P-4, A. J. Hundhausen, T-12, and I. B. Strong, P-4.

"Thermal Anistropies in the Solar Wind: Vela 3 and IMP 3" by A. J. Hundhausen, T-12, S. J. Bame, P-4, and N. F. Ness, Goddard Space Flight Center.

"Cosmic Ray Modulations at 18 R_E" by J. R. Asbridge, S. J. Bame, H. E. Felthauser and J. T. Gosling, all P-4.

Presentation at Rice University, Department of Engineering, Houston, Texas, April 18:

"The Los Alamos Meson Factory" by F. R. Tesche, MP-5. (Invited talk)

Lecture, University of South Dakota Medical School, Vermillion, S. D:, April 19:

"Health Physics" by D. D. Meyer, H-1. (Invited lecture)

Presentation at American Vacuum Society Meeting, Albuquerque, N.M., April 19-21:

"Use of a Quadrupole Residual Gas Analyzer in Knudsen Effusion Studies" by W. M. Olson, CMF-9.

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the technical side . . .

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Presentation at Symposium on Computer Simulation of Plasma and Many Body Problems, Sponsored by NASA, College of William and Mary, Williamsburg, Va., April 19-21:

"Numerical Solution of the Vlasov Equation for the Pinch Compression" by T. A. Oliphant, Jr., P-18.

"Computer Simulation of Beam Bunching" by K. R. Crandall, MP-4.

Pacific Northwest Metals and Minerals Conference, Portland, Oregon, April 19-21:

"Characterization of Commercial Carbide Powders" by R. E. Riley, CMB-6. (Invited talk)

Presentation at Regional Meeting of the American Chemical Society, Institute of Mines, Socorro, N.M., April 21:

"Alice in Wonderland—or—Organic Chemists in Molecular Biology" by F. N. Hayes, H-4. (Invited paper)

Presentation at American Physical Society Meeting, Washington, D. C., April 24-27:

"Multilevel Analysis of ^{235}U Fission Cross Section from Petrel" by J. D. Cramer, W-8.

"A Multilevel Analysis of the ^{239}Pu Fission Cross Section from 14 to 90 eV" by J. A. Farrell, W-8.

"Flow Studies of the Liquid He II Film Using Potentiometer Probes" by W. E. Keller and E. F. Hammel, Jr., both CMF-9.

"The Thermal Conductivity of Liquid He I" by J. F. Kerrisk and W. E. Keller, both CMF-9.

"A Diagrammatic Representation of the Fundamental Wigner Coefficients in U_n" by L. C. Biedenharn, Duke University, and J. D. Louck, T-9.

"Properties of Nagaoka's Bound State in Cu (Fe)" by W. A. Steyert, Jr., and M. D. Daybell, both CMF-9.

"A Precision High Temperature Capillary Viscometer" by W. E. Wageman, F. A. Guevara and B. B. McInteer, all CMF-4.

"A Test of Time-Reversal Invariance via a β-γ-γ Angular Correlation in ^{106}Rh-^{106}Pd" by E. T. Ritter and R. B. Perkins, both P-DOR.

"Levels in ^{235}U Excited by (d, p), (d, t) and (t, p) Reactions" by F. A. Rickey, Jr., and H. C. Britt, both P-DOR.

"Fission Fragment Angular Correlations from (d, pf) Reactions in ^{233}U, ^{335}U and ^{239}Pu" by H. C. Britt and F. A. Rickey, Jr., both P-DOR, and W. S. Hall, P-12.

"The Levels of ^{206}Pb as Observed by Two-Nucleon Transfer Reactions" by E. R. Flynn, P-10, P. D. Barnes and G. J. Igo, both P-DOR, and Richard Woods, P-9.

"A Study of the (t, p) Reaction on ^{90}Zr, ^{122} Sn and ^{124}Sn" by J. G. Beery, P-10, D. D. Armstrong and A. G. Blair, both P-12, and E. R. Flynn, P-10.

"(d, ^{4}He) Double Scattering" by E. M. Bernstein, T-DOT, G. G. Ohlsen and V. S. Starkovich, both P-12, and W. G. Simon, University of Wyoming.

"Phonon Dispersion Curves in ^{7}LiD" by J. L. Verble, Tulane University of Louisiana, J. L. Warren and J. L. Yarnell, both P-2.

"(t, d) Reaction on ^{90}Zr, ^{122}Sn and ^{124}Sn" by D. D. Armstrong, P-12, and E. R. Flynn, P-10.

"^{116}Sn(t, P)^{118}Sn Reaction at 20 MeV" by G. J. Igo and P. D. Barnes, both P-DOR, E. R. Flynn, P-10, and Richard Woods, P-9.

"^{116}Sn(t, d)^{117}Sn and ^{118}Sn(t,d) ^{119}Sn Reactions at 20 MeV" by P. D. Barnes, P-DOR; E. R. Flynn, P-10; G. J. Igo, P-DOR; and Richard Woods, P-9.

"Nuclear Spin Filter for Polarizing a Metastable Hydrogen Beam" by J. L. McKibben, P-9, G. G. Ohlsen, P-12, and R. R. Stevens, Jr., MP-4.

"LASL Metastable Polarized Negative Ion Source" by G. P. Lawrence, J. L. McKibben, H. L. Daley, all P-9, G. G. Ohlsen, P-12, and R. R. Stevens, Jr., MP-4.

"Generation and Measurement of Positive Ion, Negative Ion and Neutral Beams in the LASL Polarized Ion Source" by H. L. Daley, G. P. Lawrence and J. L. McKibben, all P-9.

Presentation at Two Seminars, Molecular Biology Laboratory, University of Wisconsin, Madison, Wisc., April 25 and 27:

"Biochemical Genetics of Subcellular Structure and Assembly" by K. D. Munkres, H-4. (Invited talks)

Presentation at the Instrument Society of America Meeting, Albuquerque, N.M., April 27:

"The Nuclear Rocket Program with Emphasis on Instrumentation in the Cryogenic Region" by K. D. Williamson, Jr., CMF-9. (Invited talk)

Second International Cell Synchrony Conference, Oak Ridge National Laboratory, Oak Ridge, Tenn., April 27-29:

"Essential Biosynthetic Activity in Synchronized Mammalian Cells" by D. F. Petersen, R. A. Tobey and E. C. Anderson, all H-4.

Presentation at Seminar in Department of Pathology, University of Colorado, School of Medicine, Denver, Colo., April 28:

"Ribosomal RNA Synthesis and Methylation in Mammalian Cells" by M. D. Enger, H-4. (Invited talk)

West Texas/New Mexico Regional Civil Defense Council Conference, Los Alamos, N.M., April 29:

"Palomares Incident" by W. H. Langham, H-4. (Invited talk)

Presentation at Southwestern and Rocky Mountain Division, American Association for the Advancement of Science, 43rd Annual Meeting, Tucson, Ariz., April 29-May 3:

"Schröedinger Equation Solutions" by J. E. Brolley, P-DOR.

Presentation at Annual Meeting of the American Society for Microbiology, New York, N. Y., April 30-May 4:

"Simulation of Amino Acid Incorporation by Competence-Stimulating Factor from Hemophilus Influenzae" by B. J. Barnhart and S. H. Cox, both H-4.

new hires

CMB Division

Stephen E. Newfield, Vallejo, Calif., CMB-6

CMF Division

Horace J. Martinez, Chimayo, N.M., CMF-13

Engineering Department

Ralph W. Bennorth, Albuquerque, ENG-3

William A. Bradley, Albuquerque, ENG-7

John A. Meissner, Albuquerque, ENG-7

GMX Division

William R. Marsh, Santa Fe, GMX-3

J Division

Ronald R. Sharp, Las Vegas, Nevada, J-7, NTS (rehire)

George E. Tachick, Fort Bliss, Texas, J-8 (casual-rehire)

Jimmy J. Villareal, Alcalde, N.M., J-11

Mail and Records

Bersabe Trujillo, Cordova, N.M., M/R

MP Division

Homer D. Clover, Stoughton, Wisc., MP-AE

Robert D. Patton, Denver, Colo., MP-2

Personnel Department

Nadyne Harbour, Los Alamos, Per-1 (casual)

P Division

Edward Chang, Los Alamos, P-16

Shops Department

Leland L. Zollars, Mt. Vernon, Ohio, SD-1

Robert W. Morgan, Washington, Pa., SD-1

Supply and Property Department

Gene. G. Sandoval, Espanola, N.M., SP-4

T Division

Jane C. Roberson, Los Alamos, T-DO (casual)

Charles P. Johnson, Phoenix, Ariz., T-1

Alice M. Naranjo, Los Alamos, T-1

Margery J. McCormick, Los Alamos, T-7

W Division

Charles D. Rose, Bunkie, La., W-3

Olivas, Leach Awarded Scholarships

Edward W. Leach, P-2 reactor technician, and Peter N. V. Olivas, GMX-8 electronic technician, have been awarded scholarships for full-time study to work toward their bachelors degrees. The awards are made through the Technical Scholarship Program sponsored by the Atomic Energy Commission. Ten men from the six participating laboratories received scholarships.

Leach and Olivas both have been taking courses through the Los Alamos Graduate Center of the University of New Mexico. Leach plans to work on his bachelor of science degree in chemistry at either Oregon State University or New Mexico State University, while Olivas will study toward a B.S. in electrical engineering at either Purdue or the University of New Mexico.

Leach joined the Los Alamos Scientific Laboratory in June, 1965, after his discharge from the U.S. Navy. Previously, he attended Massachusetts Institute of Technology for two years.

Olivas has lived in Los Alamos since he was eight years old, coming with his family in October, 1943. He attended Los Alamos schools from the second grade through high school. After serving in the Navy for four years, he joined the Laboratory in October, 1959.

Started last year, the Technical Scholarship Program permits selected employes of AEC contractors to receive full salary while studying full time for their baccalaureate degrees. In addition to LASL, participating laboratories include Argonne, Brookhaven and Oak Ridge National Laboratories, Lawrence Radiation Laboratory, Berkeley, and Lawrence Radiation Laboratory, Livermore.

LASL's first two scholarship winners, Robert Newell, MP-2, and John Pritchard, CMB-6, are now attending the University of New Mexico.

Leach

Olivas

First 25-Year Awards Given

Although Los Alamos and the Los Alamos Scientific Laboratory are not yet 25 years old, three LASL employes received their University of California 25-year service awards in a ceremony April 28. The three had been employed by the University before coming to Los Alamos.

The 25-year service awards went to Thomas Putnam, MP-1 group leader; Hugh Jennings, P-9; and Robert Whitson, SP-11 group leader. Jennings and Putnam came to Los Alamos in 1952 from the University of California's Crocker Laboratory, Berkeley, and Whitson had been with the University's Los Angeles purchasing office before moving to Los Alamos in 1965.

In addition, more than 175 LASL employes received pins for 20, 15 and 10 years' service to the University of California. University regents Theodore R. Meyer, regent chairman, John E. Canaday, chairman of the regents committee on special research projects, and Harry R. Wellman, acting UC president, presented the service pins.

20-YEAR PINS

Rodney L. Aamodt, J-12; Benjamin B. Alarid, SD-1; William B. Allen, H-2; Clyde Boggs, GMX-3; Zenas J. Boone, GMX-8; James A. Bridge, K-3; Robert L. Carpenter, CMB-1; Earl J. Cox, H-1; Robert C. Crook, D-8;

James A. Edmonds, N-3; Cerda L. Evans, T-2; G. Foster Evans, T-DO; Harold L. Fishbine, J-10; Antonia H. Flores, N-2; Robert W. Freyman, P-1; Blanche L. Gilman, MR; Louis Goldstein, T-10;

Sidney W. Hayter, CMB-8; G. William Heinze, SP-4; Jack Hill, SD-5; Allan E. Johnson, AO-6; Jean H. Kelley, PER-7; William H. Lane, T-1; Paul E. Leake, Jr., GMX-3; James R. Lilienthal, CMB-7; Alice M. Luders, T-1; Alfredo R. Lujan, N-1;

Romualda O. Madrid, H-5; William J. Maraman, CMB-11; Robert H. Martin, D-8; Wilbert H. Meyers, GMX-7; Flavil H. Newbury, CMB-14; Robert H. Osborn, CMB-6; Marion E. Powers, N-1;

R. Arthur Rivera, MR; Frederick H. Rossiter, Jr., ENG-4; Salvatore E. Russo, ENG-3; Fred W. Schonfeld, CMF-5; Heri T. Schulze, P-1; Clark R. Seay, AO-2; Davis S. Shaffer, CMB-14; Simon Shlaer, H-1; Oliver R. Simi, CMB-1;

Joe M. Tapia, SP-3; Olga F. Thomas, CMB-1; Billy D. Travis, CMB-8; Theodore T. Trujillo, H-4; Beltron J. Wilmoth, SD-5; Duane C. Winburn, CMB-3.

15-YEAR PINS

Dorothy L. Ashford, GMX-7; M. Dorothy Barylski, AO-4; Philip J. Bendt, CMF-9; Robert Benz, CMB-3; Theodore M. Benziger, GMX-2; Laurence A. Blatz, CMF-2; Herbert H. Carmack, SD-5; Eldon L. Christensen, CMB-11; Ralph M. Clark, ENG-4; Dwight S. Clayton, SP-2; Eston P. Covington, Jr., ENG-2; Robert D. Cowan, T-DOT;

Wilfred O. Duhaime, GMX-3; William C. Dunn, SD-5; C. Robert Emigh, MP-4; Ramon C. Esquibel, CMB-3; Elizabeth O. Falkner, H-2; Gilbert H. Ferran, H-5; John E. Furchner, H-4; Francisco Garcia, SD-O; Virgil W. Griffin, ENG-2;

James F. Hipskind, GMX-3; Harvey I. Israel, H-DO; Ernest E. Kimble, GMX-3; Edwin R. Knotts, ENG-2; Dennis W. Lamb, P-9; Charles E. Lamkin, SD-1; Augustabelle Lane, AO-3; Glenn T. Lindholm, N-7; I. Ernie Lujan, W-1; Lawrence F. Manker, Sr., GMX-3; William W. Martin, CMB-6; Joseph W. Mather, P-7; Clement G. Meyer, CMB-1; Victoria E. Mitchell, H-4; Jose B. Montoya, SP-3; Paul G. Murray, SD-5;

Lewis C. Osborn, N-2; Daniel Pavone, CMF-2; George H. Pimbley, Jr., T-8; Vito P. Pizzuto, SD-1; Fred L. Ribe, P-15; Jose A. Rodriguez, GMX-3; John D. Rogers, Jr., CMF-9; Raymond N. Rogers, GMX-2; Aurelia S. Romero, SP-3; Tony M. Roybal, CMB-6;

Alfonso Sanchez, GMX-3; John W. Schultz, GMX-3; John D. Seagrave, P-DOR; Theodore T. Shull, J-11; Richard H. Stokes, P-12; Patrick L. Stone, CMB-3; David B. Thomson, GMX-6; Ermil E. Thrasher, CMB-3; Louis F. Torghele, W-4; Emma A. Warren, P-12; Joseph B. Weldon, ENG-2.

10-YEAR PINS

Belarmino L. Abeyta, CMB-6; Fidel Alarid, MR; Lon F. Alexander, Sr., ENG-4; Dorothy C. Barber, GMX-3; Barry L. Barthell, CMB-6; Calvin A. Baum, GMX-1; Richard C. Billings, SD-6; Normand C. Blais, CMF-4; David F. Bowersox, CMB-11; Joseph Bubernak, CMB-1;

George S. Calvert, GMX-3; Jacob Campos, MR; Ruby A. Chandler, GMX-3; Thomas E. Chandler, GMX-3; Beverly J. Clifford, GMX-7; Marguerite J. Coleman, K-2; James R. Davis, SD-5; Walton P. Ellis, CMB-8; Karl A. Esch, W-3;

Victor W. Foster, N-3; Mary M. Frankoski, H-2; Neil D. Gardner, P-13; Paul M. Giles, W-3; Guadalupe H. Giron, Jr., ADP-SF; Robert B. Glascock, P-1; Walter V. Green, CMF-13; Genevieve F. Grisham, J-11; Jess M. Hanna, GMX-3; Charles E. Hannaford, GMX-2; Jack N. Hardwick, GMX-11; Robert S. Harper, Jr., D-8; Leon Heller, T-9; Laura M. Hendrix, SP-10; LaVere A. Hiteman, Sr., W-1; Alvin D. Hues, CMB-1;

Irving V. Johnson, P-1; Allan C. Juveland, W-3; Charles P. Kempter, N-1; Clayton W. Kennedy, GMX-3; Norman K. Kernodle, GMX-3; Cletis C. Land, CMF-5; Richard J. Lawrence, GMX-3; Ed-

ward R. Laymen, PER-DO; Richard E. Lewis, T-7; Douglas W. Lier, J-14; William T. Lowery, SD-5;

Donald D. McCormick, GMX-3; Jeannette L. McGowen, H-1; Charles R. Machovec, D-2; Robert W. Marr, GMX-3; Lorraine M. Martin, PER-DO; Cleo C. Martinez, T-1; Pedro Martinez, GMX-7; Chester O. Morris, SD-5; Glenn H. Mottaz, CMB-14; Charles P. Milich, N-4; Marilyn J. Myers, GMX-3; Joe B. Montoya, ENG-3;

Gilbert B. Nelson, CMB-1; Thomas E. Nolen, SD-6; Harold F. Olsen, Jr., D-3; Herman Ortiz, Jr., MR; Tony A. Pacheco, K-4; George A. Peel, GMX-3; Margaret H. Plageman, P-11; Anthony L. Porto, GMX-3; William R. Prince, N-7; Carter L. Pruett, SD-1; Paul Rachett, T-1;

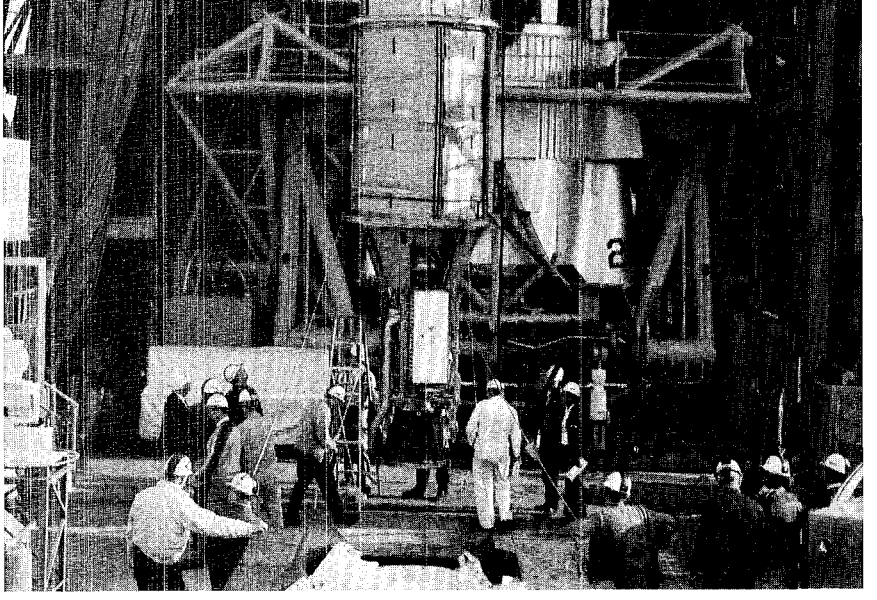
Olus C. Ramsey, H-5; Nathaniel K. Richerson, CMB-6; Richard H. Robertson, N-1; Duane J. Roehling, N-5; John C. Rowley, N-7; Paul Rudnick, J-16; Leonard T. Scott, K-1; Marlan L. Shepard, W-4; Edward R. Shunk, W-8; Wilmer L. Sibbitt, N-7; Betty J. Simes, T-DO; Doyle D. Simes, ENG-1;

L. Dick Tatro, J-16; Arthur C. Tegtmeier, ENG-4; William M. Visscher, T-9; Robert Waldschmidt, SD-1; Nina M. Weisgerber, J-14; Brian H. Wood, GMX-3; Robert H. Wright, GMX-3; Gerhard W. Zimmermann, W-7.

Nevada Employes Receive Service Pins

At an awards ceremony April 7 in Las Vegas, LASL Director Norris E. Bradbury presented service pins to LASL employes assigned to the Nevada Test Site.

Avery L. Bond, J-9, received a 20-year pin. John O. Winks, J-3, and Herbert F. Knight, J-DO, received 15-year pins. Ten-year pins were presented to Jack W. Barger, J-5; Robert C. Beiler, J-3; Arlin R. Givens, Jr., J-3; Lawrence F. Krenzien, J-8; John P. Rink, J-17; and William Skivington, J-9.



Agena booster, carrying LASL heat pipe mounted on aft rack just above rocket nozzle, is hoisted to top of Atlas launch vehicle.

Heat Pipe Tested In Space

A heat pipe invented by a Los Alamos Scientific Laboratory physicist was successfully tested in the weightlessness of outer space last month.

George Grover, group leader of N-5, is the inventor of the heat pipe which is designed to remove heat from an unwanted area and dissipate it elsewhere. The experiment was flown in early April as a "piggy-back" experiment on a launch from Cape Kennedy.

The heat pipe started up and operated in a zero-gravity environment in excellent agreement with the predicted operational plan.

The heat pipe has no moving parts and uses capillary action to remove the heat. It has a wide variety of possible future uses, from satellites to home appliances.

Although a number of heat pipes have been designed and built by industry and universities, none had been tested in outer space until last month.

John Deverall, N-5, center, makes adjustment on heat pipe similar to one launched from Cape Kennedy last month as George Grover, N-5 group leader, left, its inventor, and Joseph Kemme, N-5, look on.

20 years ago in los alamos

Culled from the files of May, 1947, Los Alamos Times by Robert Y. Porton

Hill Worshipers Dedicate Chapel

The project's chapel—where all Hill denominations may worship—will be dedicated at special services at 9 a.m. Sunday, May 4th. Painters and carpenters hurried at their tasks on construction of the chapel this week, in order to complete it in time for the dedication.

Women Request Garden Water

Members of the civic committee of the Los Alamos Garden Club petitioned the town council Monday evening for allocation of water faucets to residents who have gardens. Mrs. John H. Manley, chairman of the committee of six women and spokesman of the group, pointed out the urgent need of water on the mesa for gardens. These, when grown, will provide plant coverage to combat the dust nuisance, according to the chairman.

Site Goes on Mailing Map

Los Alamos will have a post office address of its own beginning Friday, according to Col. Herbert C. Gee, manager, Santa Fe Area Office, Atomic Energy Commission, and commanding officer. On that day, control of the base post office will be transferred from the War Department to the United States Post Office Department.

Ismael Trujillo, Espanola, has been appointed acting postmaster at the site. Capt. Margaret Upshaw, who expects to be transferred in June, will remain with the WAC.

Capt. Upshaw said that in accordance with procedure in the new post office set-up, addresses of persons at the project will be as follows: For tech area personnel, P.O. Box 1663, Los Alamos, N.M.; for military personnel, P.O. Box 180, Los Alamos; for official mail of the Atomic Energy Commission, P.O. Box 1539, Los Alamos. For all other residents, the address will be General Delivery, Los Alamos.

In the past, mail for the project has been routed through the Santa Fe Post Office.

Commissary Out

According to the commanding officer, the commissary will close permanently Friday, May 16th. Local residents will be served by the two new supermarkets which will open for business Monday, May 19th. These stores, located in the Community Center and in the Western Housing Area, will replace the commissary as a source of the community's groceries and meats.

what's doing

FILM SOCIETY: Civic Auditorium. Admission by single ticket, 90 cents, or season ticket, $4.
Wednesday, June 21, 7 and 9:15 p.m., "Letters from My Windmill," droll French comedy.

OUTDOOR ASSOCIATION: No charge, open to the public. Contact leader for information about specific hikes.
Sunday, May 21, Trampas Mountain from Trampas Creek campground, Terry Gibbs, leader, 8-4909.
Thursday, May 23, Evening hike, D. Hagar, leader, 2-6209.
Thursday, June 1, Evening hike, V. Winsor, leader, 2-3440.

TOUR OF HOMES IN PAJARITO ACRES: Sunday, May 21, 2 to 5 p.m. Sponsored by, and proceeds to go to, Los Alamos High School Field Service Scholarship Fund. Tickets at $1.50 available from Mrs. J. E. Loucks, Mrs. H. V. Argo, Mrs. A. P. Roensch, Mrs. George Best, Mrs. F. H. Harlow and Mrs. L. W. Mann.

SWIM & TRIM: Free Red Cross recreational swimming class open to all women. Saturdays noon to 1 p.m., Los Alamos High School Pool. Telephone Mrs. L. K. Neher, 2-4094, *for more information.*

PUBLIC SWIMMING, Los Alamos High School Pool. Adults 25 cents, children 15 cents. Saturday and Sunday, 1 to 6 p.m.; Monday through Friday 7:30 to 9:30 p.m. Adults only Sunday, 7 to 9 p.m. (Swimmers Club of Los Alamos).

MESA PUBLIC LIBRARY EXHIBITS:
Art Exhibits:
May 12 to June 6, Ink washes—Joan McConnell, Los Alamos.
Case Exhibits:
May 17 to May 31, Memorial Day exhibit, "Kilroy Was Here."

LOS ALAMOS TENNIS CLUB: Informal singles tennis tournament May 27 through June 4. Fee: one can of balls. Open to all Los Alamos County residents and project-connected tennis players. Sign up with Jean Cotter, 2-3360.

MUSEUM OF NEW MEXICO: Buildings in Santa Fe open 9 a.m. to 5 p.m. Tuesday through Saturday; 2 to 5 p.m. Sundays and holidays. Closed Mondays.
Museum of International Folk Art:
"Fabric for Living—year-long exhibit, opened April 2.
Fine Arts Building:
Continuing:
"The Artists' Record: Northern New Mexico."
Palace of the Governors:
Continuing:
"Prehistoric Indian Civilizations of the Southwest from the Ice Age to 1700."
"Southwestern History: Spanish Colonial and Territorial Periods."

BACK COVER:

Four LASL scientists who returned to Trinity Site this spring for the first time in many years found the remains of an old windmill at MacDonald ranch still had some moving parts, in spite of a heavy layer of rust. Ranch house in background is where Los Alamos scientists assembled the first atomic bomb in 1945. Norris E. Bradbury, LASL director; Robert Lanter, W-3; Raemer Schreiber, technical associate director; and Donald MacMillan, N-1 group leader, were at Trinity Site in March when an old test bunker was excavated. (Story on page 8)

Remote-control manipulators seem to fascinate everyone. Pat Pagett, a student at Centauri High School, La Jara, Colo., tries her hand at the manipulator LASL scientists use for handling radioactive waste material—and finds that even the most concentrated effort produces a less than successful result. Pat was one of the 802 students who visited LASL during Science Youth Days.

Henry T. Motz
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Los Alamos, New Mexico 87544