

# THE ATOM

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# THE ATOM

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*Editor:* Kenneth J. Johnson

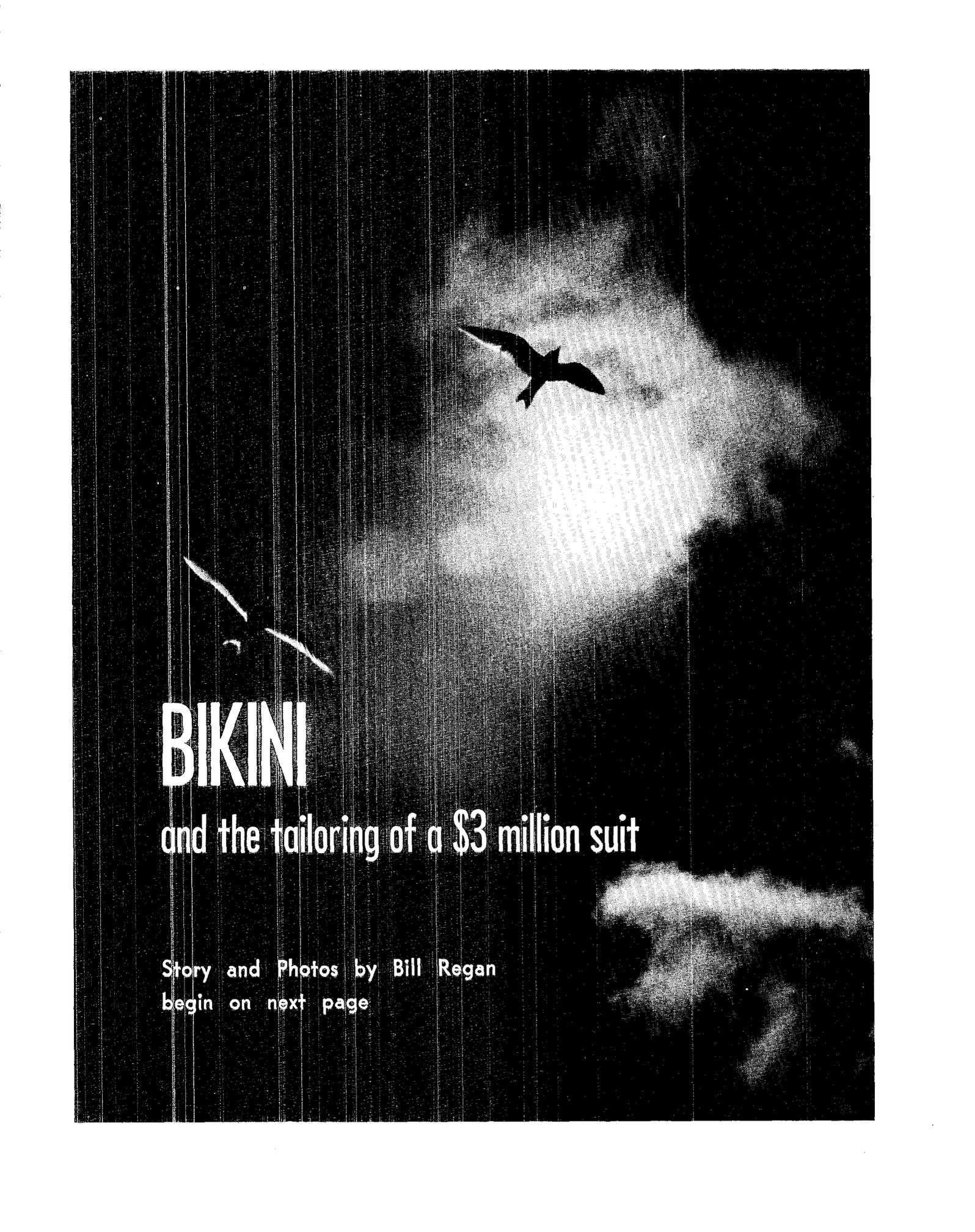
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## COVER:

On Bikini Atoll relics of nuclear test days are still scattered over the many small islands which served as scientific stations. This signal cable runs from a small bunker on Enirikku Island, underwater, to another installation. The glass fishing float is of more recent origin, one of hundreds which drift up on the beaches of the atoll. The cover photograph and others which accompany a story about Bikini Atoll were taken by Bill Regan.



# BIKINI

and the tailoring of a \$3 million suit

Story and Photos by Bill Regan  
begin on next page

*"If the U.S. Government needs to use our houses for the goodness of mankind, then by the kindness of God we are willing to go."*

*Magistrate Juda  
Bikini—1946*

And so, in the spring of 1946, the gentle people of Bikini Atoll sailed away into exile leaving their lovely islands for use by the United States as a nuclear testing site.

Carrying a few pandanus leaves for thatch, their Bibles and Congregational hymnals, they followed their Magistrate Juda first to nearby Rongerik Atoll, then to Kwajalein and finally, to Kili, a tiny islet only a third of a square mile in area. On Kili, the rainfall is heavy and the coconuts grow well. But there is no lagoon for fishing or anchorage for their big sailing outriggers. Small canoes can seldom get through the thundering surf which pounds the reef of this small speck of land, so fishing in the open sea is normally impossible. Though ships visit Kili, they often can't get boats ashore to bring in supplies and take away the copra. Contact with the outside world is frequently non-existent for months on end. Kili is not a happy home for Bikinians.

The first time I saw Bikini Atoll was at misty dawn. The first rays of the sun, which our C-118 aircraft had fled all night flying west and south from Honolulu, caught us about 80 miles from our destination, the landing strip on Enyu Island.

Gray cloud tops below the plane changed to white in startling contrast to the still dark ocean below and ahead. Our Navy pilot, Commander J. S. Orloff pointed to a spot in the murk ahead where the island should be appearing.

Then suddenly, there it was. A moving finger of dawn light penetrated a break in the clouds ahead and reflected from the thin, white line of surf breaking on the coral reef 8,000 feet below.

A white line on a dark ocean. . . how different this was from the picture long retained in my memory of this far away spot.

Bikini to me has always been a photograph of a towering column of water erupting from the lagoon and dwarfing an array of battleships so they looked like toys. The caption read "Operation Crossroads"—Baker shot.

This image was impressed on my memory when I first saw it on an Associated Press Wirephoto negative in the darkroom of a California newspaper. From that day in 1946 to this, my dream has been to visit the scene where that memorable



This was the scene 23 years ago when 166 Marshallese natives waved farewell to their homes on Bikini Atoll to allow the United States to use the area for nuclear testing. The first detonation in 1946 was followed by 22 more over a period of 12 years.—UPI Photo.

photograph was made. With the tricks that only the imagination sometimes plays, that old memory superimposed itself on the peaceful lagoon which now stretched out ahead in all its translucent beauty of greens and blues.

I couldn't help but wonder what my traveling companion, Bill Ogle, LASL J-division leader, was thinking at this particular moment. Where my imagination had only one image, his must have whirled like a kaleidoscope. Ogle saw Bikini for the first time from the deck of a ship, part of the 1946 Crossroads task force.

Unlike neighboring islands in the Marshall group, such as Eniwetok and Kwajalein, Bikini's place in history did not begin with World War II battles in the island-hopping campaign against Japan. Only six Japanese soldiers were stationed on Bikini and all were killed by the intense air and naval bombardment beginning Jan. 1, 1944, which had as its target all known Japanese installations in the Marshalls. Kwajalein and Eniwetok, the atolls most heavily fortified by the Japanese were assaulted in Feb. 1944 and captured only after fierce fighting which all but wiped out the defenders. For example, 2,661 Japanese were killed on Eniwetok atoll, with only 41 captured.

World attention came to focus on Bikini in 1946 when the United States felt it necessary to test the effects, on naval ships, of atomic weapons

similar to those dropped on Japan. In Operation Crossroads, two bombs were detonated—the first, ABLE, an air drop over the 90-ship target array in Bikini Lagoon; the second, BAKER, an underwater explosion.

Ogle saw the first detonation, not as a flat picture, but with all the attendant effects of sound and shock. And 21 more he witnessed at Bikini. For Operation Crossroads was only the first of many nuclear tests in the Pacific. Ogle has participated in all of them, as an experimenter, administrator for test group operations, and lastly as Scientific Deputy for Joint Task Force Eight.

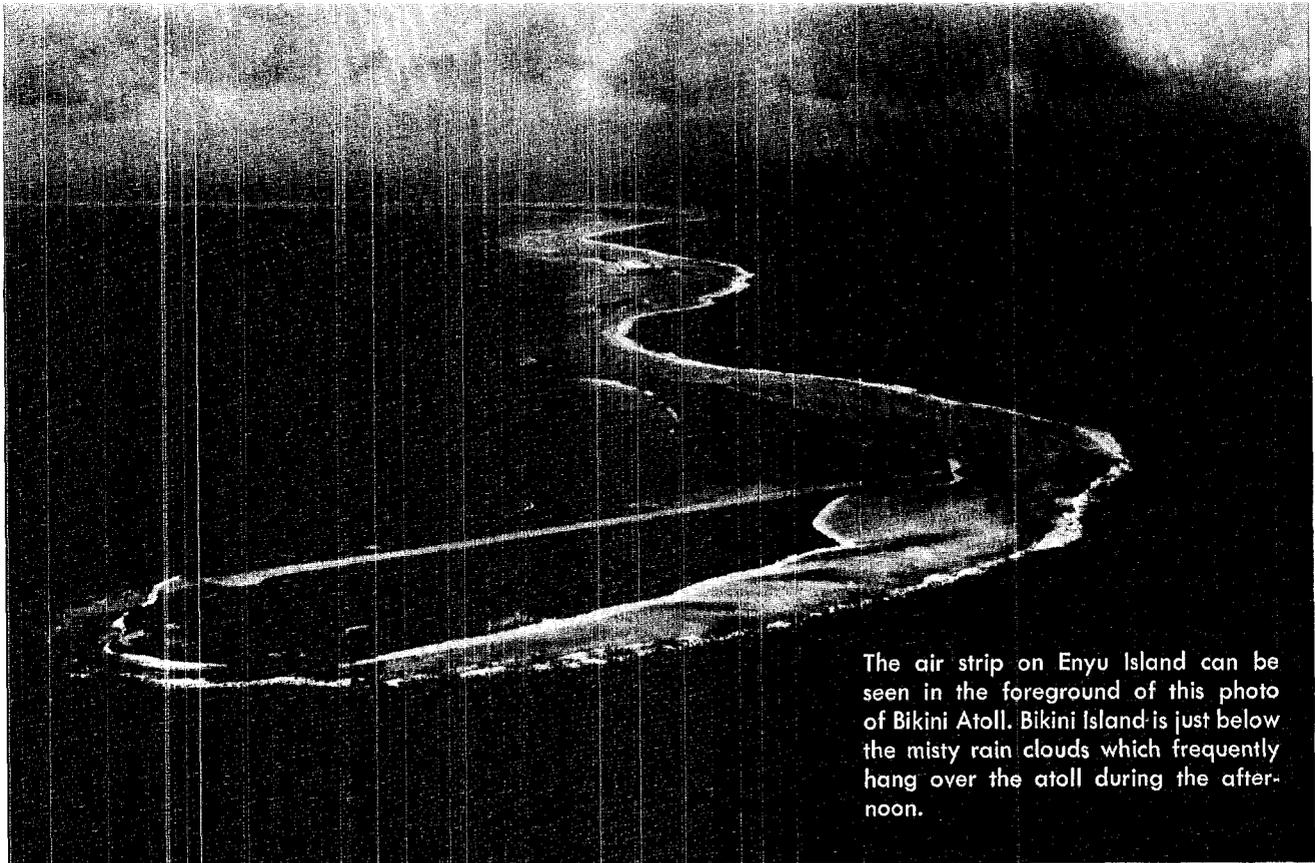
Although test operations shifted to Eniwetok Atoll in 1948 for Operation Sandstone, the increased rate of field testing and the advent of very high yield test detonations, with associated problems of site contamination from both, made it necessary to expand the Pacific Proving Ground. Bikini Atoll, 194 miles east of Eniwetok, once again became the scene of nuclear weapons testing for Operation Castle in 1954. It was used until August 22, 1958, when Juniper shot of Operation Hardtack-Phase I signalled the end of Bikini's use as a test site.

This date also marked the beginning of a moratorium initiated by President Dwight Eisenhower which resulted in a complete cessation of all nuclear tests until late 1961 when Soviet Russia ended the moratorium with a full scale atmospheric test series. The United States followed suit with Operation Dominic, but did not use either Eniwetok or Bikini as a Pacific test site. Dominic utilized Christmas Island, an atoll previously used by the British for their nuclear testing program. Following the end of Dominic in the fall of 1962, negotiations between the United States and Russia culminated in the limited Test Ban Treaty of 1963 which prohibits all nuclear tests in the atmosphere.

Although the beautiful islands of Bikini Atoll are far distant from the Jemez mountains of New Mexico, once they were temporary home for men from Los Alamos. Many LASL employees assigned to nuclear test operations remember them well, if not always fondly, for overseas duty was frequently long.

As full sunlight illuminated the atoll, our aircraft banked low over Enyu Island's air strip and

continued on next page



The air strip on Enyu Island can be seen in the foreground of this photo of Bikini Atoll. Bikini Island is just below the misty rain clouds which frequently hang over the atoll during the afternoon.

# BIKINI . . .

continued from preceding page

then started a clockwise circle at low altitude of all the islands ringing the 10 by 25 mile lagoon. The tiny land spots flashed by under our right wing as we followed the reef line around the atoll. Old installations—camp sites, bunkers, instrumentation towers, landing docks—could be plainly seen from our vantage point, although from ground level much is obscured by dense overgrowth.

Like a moving map the islands passed beneath—first Airukijji (Oboe), Airukiraru (Peter), Bigiren (Roger), Reere (Sugar), Eninman (Tare), Enirikku (Uncle), Rukoji (Victor), Chieerete (William), Arriikan (Yoke), Ourukaen (Zebra), Bokoetokutoku (Alfa), Bokororyuru (Bravo), Namu (Charlie), Yurochi (Dog), Uorikku (Easy), Romurikku (Fox), Aomoen (George), Bikini (How), Bokonfuaaku (Item), Yomyaran (Jig), Eniairo (King), Rochikarai (Love), Ionchebi (Mike), and finally once again Enyu (Nan) where we landed.

For those interested in geography each island has a third name—that given by the Marshallese—in addition to the Japanese and the phonetic names used for scientific test operations. For instance, Reere is called Lele, and Chieerete is Jelete to the Bikinians. Other Japanese names differ only slightly from the Marshallese, such as Enyu which is Eneu.

To keep the record straight for the map reader, two islands, Bokobyadaa (Able) and Bokonejien (Baker), no longer exist. Baker was blasted from the surface of the lagoon by a high yield hydrogen bomb shot. Changed water currents washed the sand away from Able, leaving only a massive block house still standing in shallow water. A number of the smaller islands shown as separate entities on the map, actually are connected by sandspits which are covered by water only at high tide. Some others were connected during nuclear test operations by causeways.

As we landed at Enyu and taxied up to the now dilapidated structure that once served as air terminal during the years when LASL scientists came here for nuclear test operations, my reverie of the past ended. This was real. The activity outside gave positive proof that the displaced people of Bikini will return.

Through the cabin windows we could see heavy construction equipment—trucks, bulldozers, cranes, and front loaders. And in the background

was a typical Holmes and Narver style, Pacific island, temporary work camp, consisting of open-sided floored tents, screened mess hall, and a portable shower room.

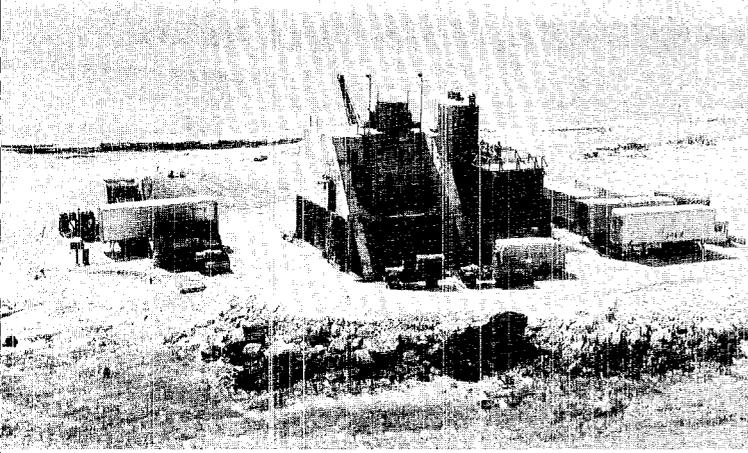
For 23 years the Bikinians have yearned to once again live on their homeland; to harvest the teeming abundance of fish in the lagoon; to be able to visit their ancestors' graves on the island of Bikini; and to introduce a generation of their young people to the good life that only the elders still remember.

Last August, the dreaming ended and hopes soared when President Johnson announced that Bikini Atoll was once again safe for human habitation and the Bikinians would be allowed to return. This decision was based on an Atomic Energy Commission report on the 1967 radiation survey of Bikini made at the request of the Secre-

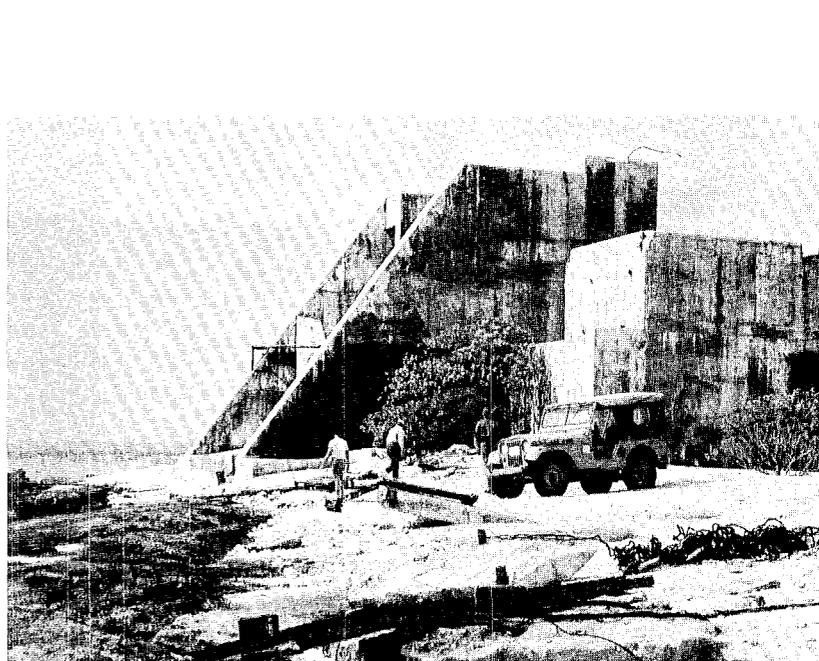
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Vice Admiral Lloyd Mustin peers at weather-worn Japanese monument on Bikini Island. As translated by Fumiyo Campbell, T-9, the inscription on side facing camera reads, "Chitose Aircraft Company . . . tomb of two brave men who died for their duty."





This heavily-shielded station on Aomoen Island, right, housed two different LASL experimental areas, used at times by Herman Hoerlin, J-10 group leader, Art Cox, J-15 group leader, and Gaelen Felt, former J-DO staff member. Aerial photo, above, was taken in 1954.



Only the now faded sign looks the same at Camp Blandy, Enyu Island recreation area. Photographs at left and below were taken from approximately the same spot about 15 years apart.



When Bikini Atoll was used as a nuclear testing site, the installation on Eninman (Tare) Island, was a busy place as shown in the aerial photograph taken in 1954. Lt. Col. W. E. McKenzie and Admiral Mustin look at it as it is

today at right. Heavily overgrown, it will be no more when cleanup teams move on to the smaller islands. This camp area was used by scientists from LASL's sister laboratory, the Lawrence Radiation Laboratory, Livermore.



## BIKINI . . .

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tary of Interior whose department is responsible for the welfare of the Bikini natives.

Experts of the scientific survey team and the group of consultants who studied their report agreed that the islands have made a remarkable recovery from the ravages of nuclear testing which ended there in 1958.

However, it was also agreed that the islands would have to be cleaned of debris from test operations, vegetative overgrowth removed, coconut trees replanted and provisions made for construction of housing and community facilities before any Bikinians are resettled. The resettlement is expected to be gradual as the atoll's capability to support its people is developed. An estimated 530 persons have land rights on Bikini. About 330 of them are now living on Kili.

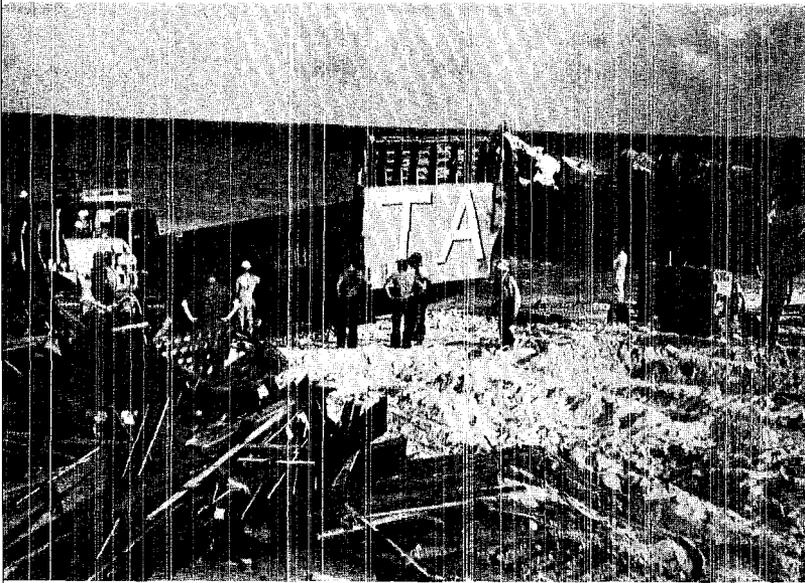
The Department of Defense and the AEC are handling the job of cleanup and sharing the initial cost, this fiscal year. The Department of Interior has asked for funds to complete the cleanup and to start the agricultural redevelopment of the islands and resettlement of the natives which will be the responsibility of the Department of Interior/Trust Territory. This phase may take as long as six years. Overall project cost is estimated at about \$3 million.

Cleanup is now underway and in late April progress was checked by a party led by Vice Admiral Lloyd M. Mustin, director Defense Atomic Support Agency (DASA) in his role as DOD Bikini Project Manager. Others in the group were: Major General Edward H. deSaussure commander Joint Task Force Eight, which is providing most of the men and equipment for the cleanup, Jim Johnson, manager Holmes and Narver Pacific Test Division which is supporting the DOD effort, William Bonnet, Honolulu AEC area office manager, Colonel John Bowen and Lieutenant Colonel William E. McKenzie, both of DASA headquarters, and Ogle.

For four, full days we toured the atoll with Colonel John W. Rawlings, Jr., USAF, commander of the JTF8 cleanup force, as our guide. By jeep, foot, Mike boat (LSM) and various combinations of the three we searched out all the old installations. Colonel Rawlings described the cleanup plan for each spot and old Bikini hand Ogle reminisced about what had happened there.

The test days came alive for us all. Each spot

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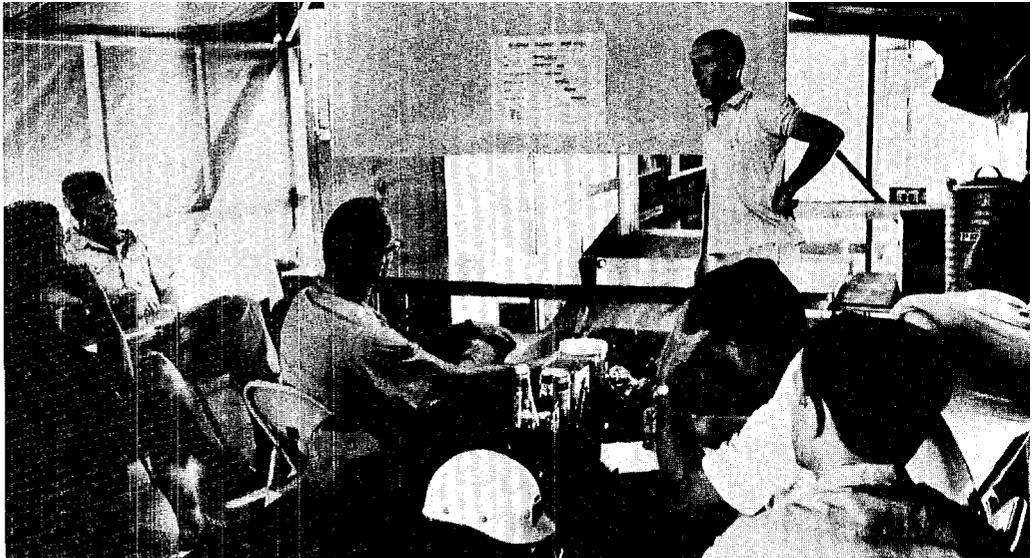


The beach area near the dock on Enyu is bustling with activity as cleanup operations continue. At left is the LSM (Mike boat) which transported inspection party to other islands of Bikini Atoll. Barge is loaded with junk metal that will be dumped into the sea.



The bomb assembly building on Enyu is still in good condition and will be retained for use by the returning Bikinians.

Nine Bikinian elders visited their home atoll last fall, the first time since 1946, and planted this coconut palm.

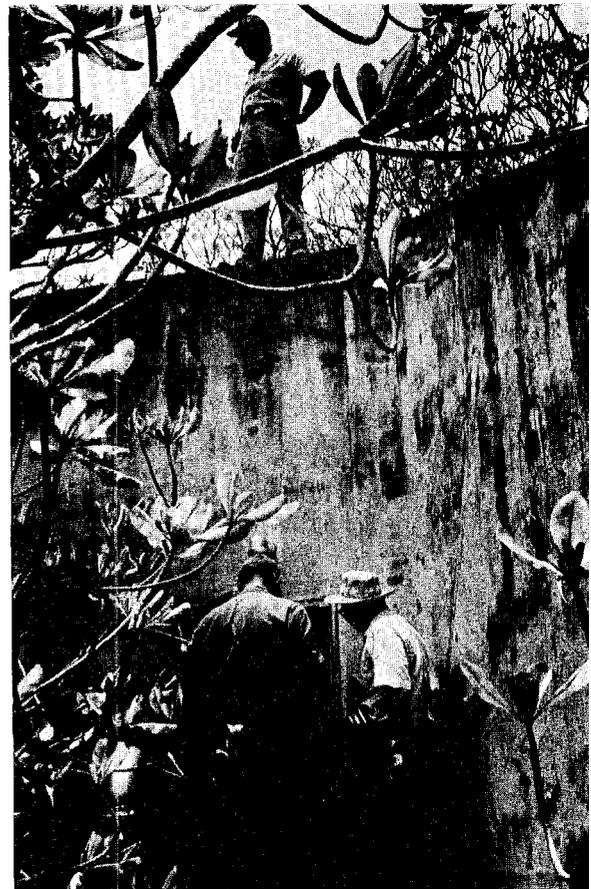


Members of the Bikini inspection party were briefed on cleanup progress by Jim Johnson, standing, manager of Holmes and Narver Pacific Test Division. At left are William Bonnet, Honolulu AEC area office manager; Major General Edward H. deSaussure, commander of JTF8, and Admiral Mustin, DASA director.

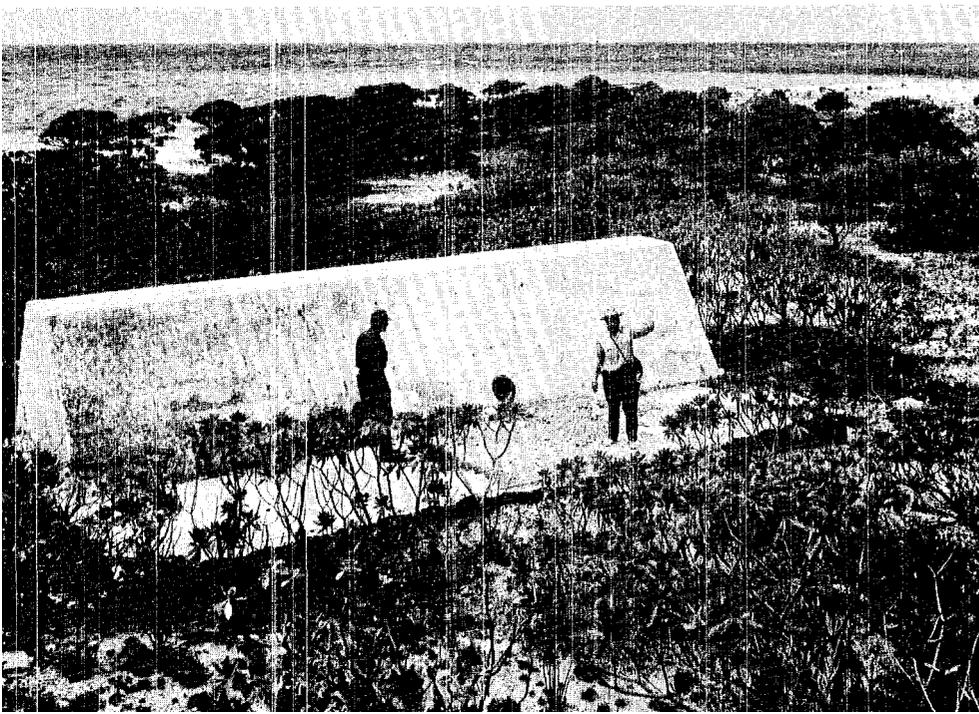
Ogle sampled one of the small coconuts that grow on the few trees still standing on Enyu. Enyu will be replanted with 40,000 coconut trees.

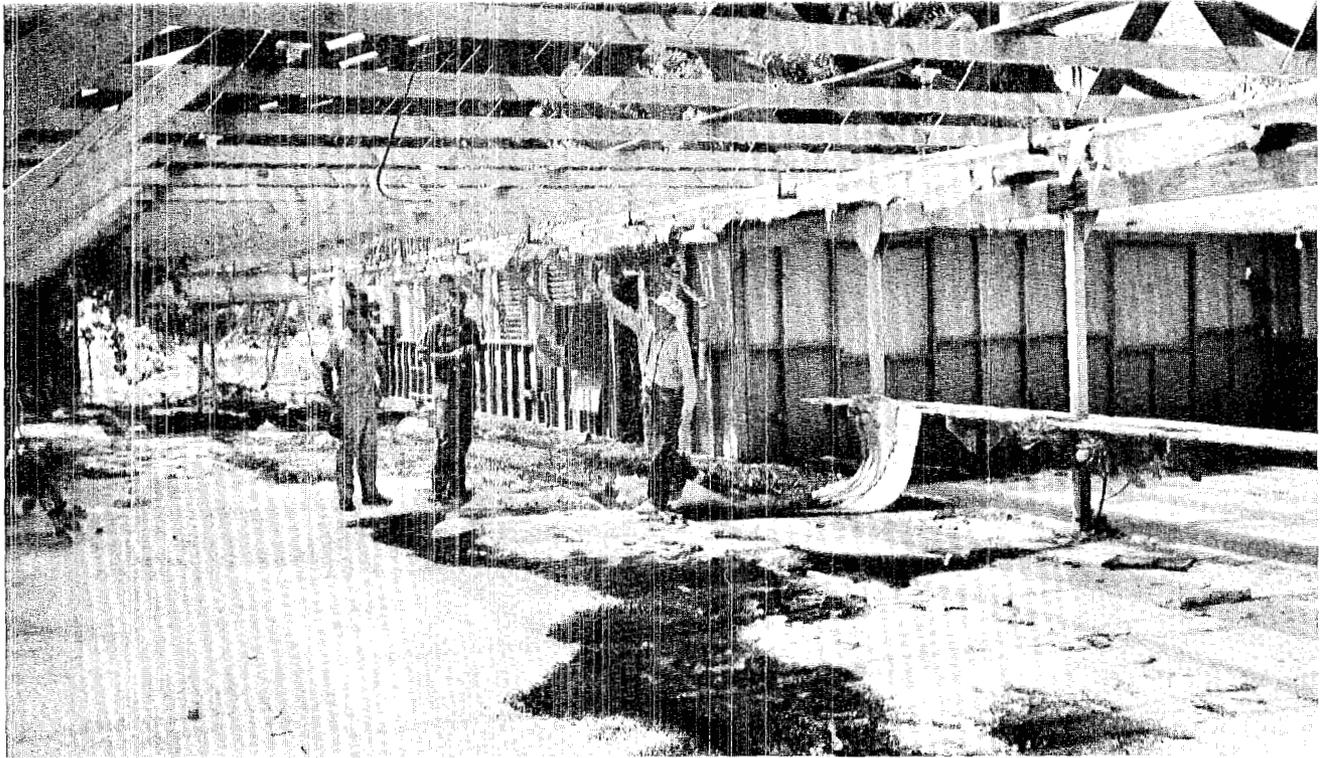


Ogle described the use of these collimators, a part of the alpha station on Yurochi Island, for Colonel John W. Rawlings whose cleanup team will soon remove this massive block of concrete.



Colonel Rawlings, Admiral Mustin and Ogle found this small recording station, above, in a dense overgrowth of succulent portulacca on Airukijji Island.





Admiral Mustin, Colonel Rawlings and Ogle inspect the mess hall on Bikini Island. Building is in relatively good condition except that it lacks roof covering.

## BIKINI . . .

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had its story . . . the lettuce airlift for Jack Clark's birthday on Able Island; the helicopter evacuation of Clark and Caelen Felt from the control bunker on Enyu after a shot which raised the radiation level above acceptable levels; a cryptic notation on a switchbox about Dennis . . . the Menace; the castle-like station on George Island first used by Felt and later by Art Cox, J-15 group leader, and the nearby camp on Fox swamped and battered by an unexpectedly high-yield thermonuclear shot on Operation Castle; the helicopter taxi service to work stations all over the atoll; and at day's end the Bikini martini, the driest of all, which still gets its vermouth from that bottle supposedly attached to one of the early bombs by a scientist who will remain unnamed.

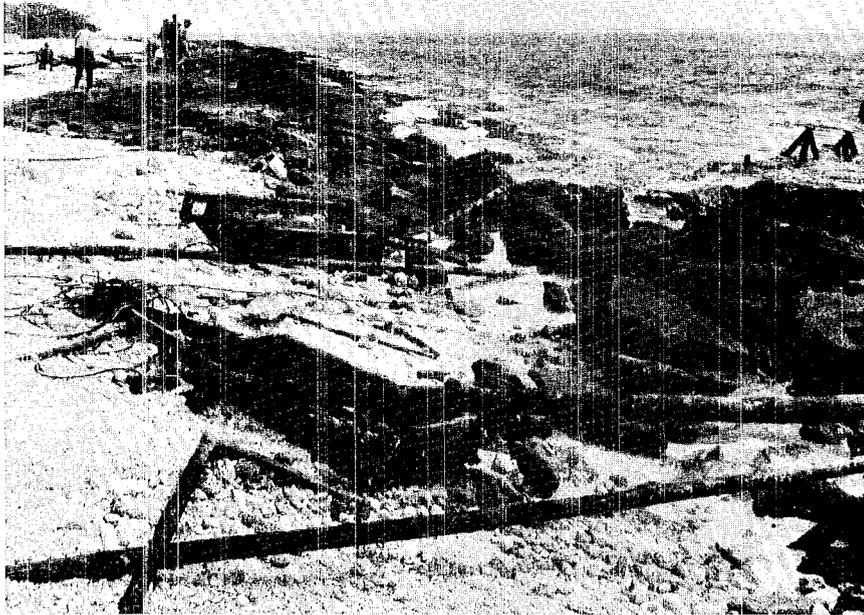
On Enyu, cleanup is well along with most expendable structures already razed and hauled to the barges which will dump the debris into the sea. Incidentally, the principal hazard from most of the debris on Bikini and Enyu is believed to be more of an industrial type rather than radiological. But when the Bikinians do return, they will be well looked after. The AEC, charged with the

radiological safety of the islanders, has appointed Dr. Robert A. Conard, Brookhaven National Laboratory, to conduct routine medical surveillance of the people as they come back to their home atoll.

The ad hoc consultant committee which, in 1968, declared the atoll once more safe for human habitation also recommended, as a reasonable precaution, that continual checks be made on the Bikinians' radiation exposure status after their return to the atoll. Dr. Conard has just returned from Kili, where the former Bikinians now live. While there he began his baseline studies by obtaining urine samples from about half of the first work party going back to help rehabilitate the atoll. Detailed plans for the medical surveillance are not yet complete, but are expected to center on urine analyses and whole body counting.

Dr. Conard believes that there will probably be some measurable increase in the radioactive body burden of the returned Bikinians after they are living on the home atoll, but it will be very low and is not expected to cause any medical problem.

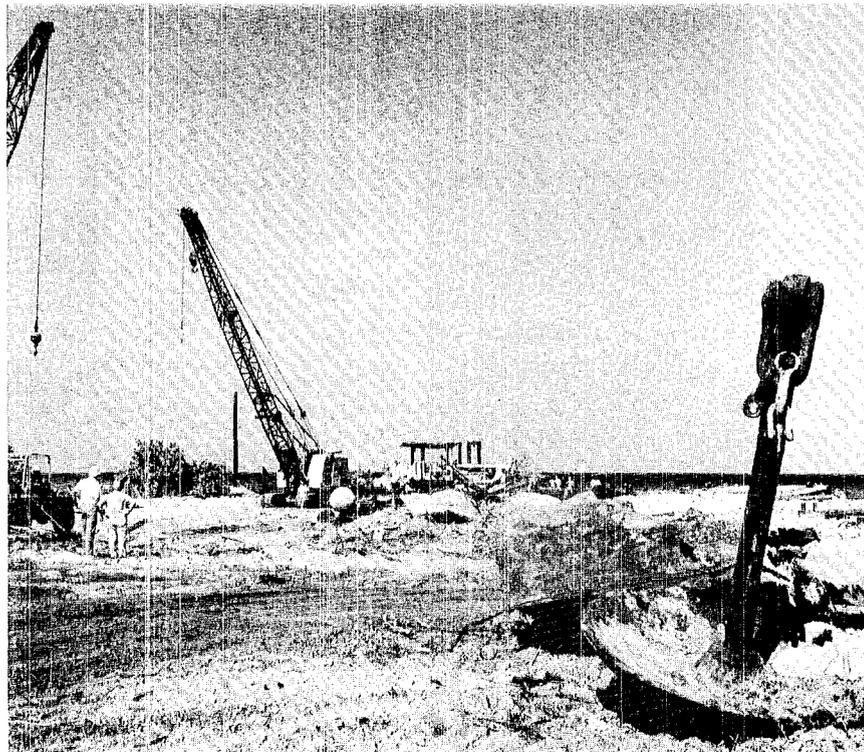
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The beach is littered with rusted metal near the massive instrumentation bunker on Aomoen Island.



Ogle and Admiral Mustin inspected the Bikini Island Redstone control bunker which will be renovated and used as a medical facility by Dr. Robert Conard when the Bikinians return.



Cranes are used to pick up and load heavy metal debris at the dock area on Enyu Island during cleanup operations.



Overgrowth and junk litter the mess hall on Enyu Island where many notables from LASL once gathered to sample Holmes and Narver's fine cuisine.



Slow speed is the rule on this freeway at Enyu Island.



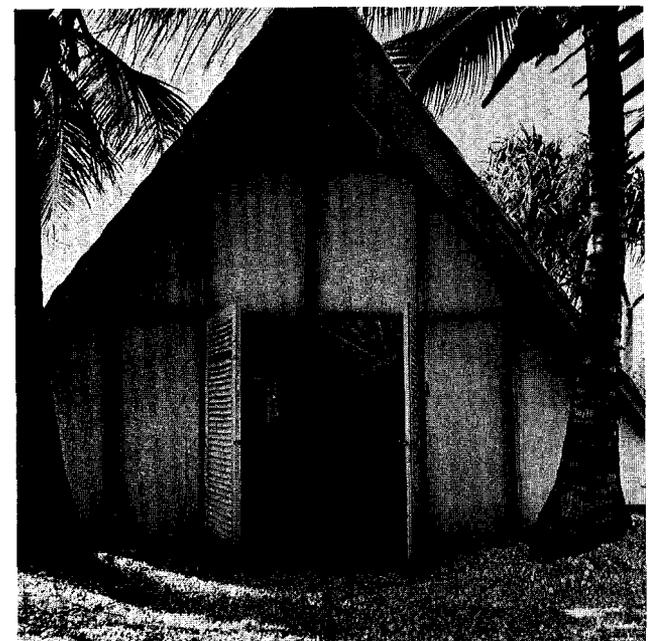
Charles Dunlap, Holmes and Narver, with transit and radio directs bulldozer hidden in the overgrowth which is being knocked down in 24-foot-wide strips for coconut trees.

Jack Tobin, a representative of the Trust Territory, is advising the cleanup force on what material and which buildings will be of use to the Bikinians. Of the thousands of concrete pads scattered over the atoll most are being removed, but a few will be retained for use as copra drying yards. Useable wood is being stacked for future utilization.

Debris on Bikini, principally rusted metal and broken concrete, is being stacked for disposal after Enyu is cleaned. Main activity in late April on Bikini, the largest island in the atoll, was the stripping operation. Twenty-four-foot-wide planting strips are bulldozed 56 feet apart. Sixty-thousand coconut trees will be planted in the strips. The undergrowth is knocked down and allowed to remain for humus and mulch for the young trees. The strips are laid out with a transit line and run the long way of the two-mile-long island.

Following rehabilitation of the two largest islands, Bikini and Enyu, cleanup operations will continue on the smaller islands. Perhaps in six months time the whole atoll will be clean of debris and scrub vegetation and agricultural development may proceed.

First step in the agricultural redevelopment will occur soon when eight Bikinians will be brought from Kili to their home atoll. Here they will be employed by the Department of Interior/Trust Territory to start a coconut nursery. Coconuts are first planted in nursery beds, then transplanted after sprouting to permanent plantation rows. On Bikini they begin bearing at six to eight years. Sometime next month a rodent-



The chapel on Enyu Island, built for the men on nuclear test operations, has been refurbished for use. E. L. "Dutch" Robertson, an electrician and lay minister, devoted his spare time to restoring this building and conducted regular Sunday services for the men of the cleanup crew.

Bulldozed strips, 56 feet apart, which will be planted with coconut trees, right, can be seen in this aerial view of Bikini Island.



Colonel Rawlings holds a wahoo, above, caught near the atoll. Fishing is good. At bottom Admiral Mustin is framed by debris as he walks the beach on Bikini Island.

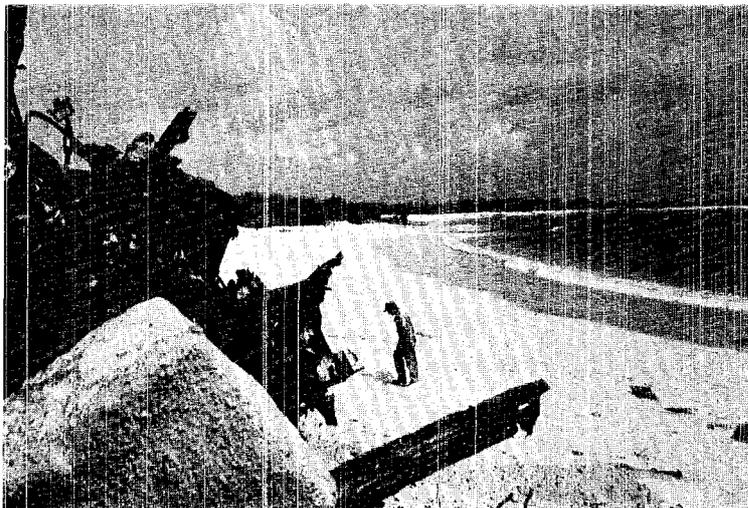


control team is supposed to arrive and carry out a vigorous campaign to eradicate or drastically reduce the present thriving population of rats on Enyu and Bikini islands. In addition to the 60,000 coconut trees to be planted on Bikini, 4,000 will be planted on Enyu and on both islands an unknown quantity of breadfruit, pandanus and bananas will be started.

It is not often that one really has the opportunity to visit the landscape of a dream. Many little vignettes of Bikini-1969, will remain in my memory perhaps even longer than the original one of more than two decades ago . . . Bill Ogle sporting a green hat, gay with pink flower print, strolling nostalgically along a lonely beach on Eniiriku . . . Admiral Mustin gleefully picking up Japanese fishing floats which drift ashore in abundance . . . the soft air and balmy trade winds late in the evening . . . the sounds of rain in the night, the rustling palm fronds and the always audible roar of the surf on the reef . . . a chapel repaired and refurbished for use of the returning Bikinians by electrician "Dutch" Robertson who devoted his off duty time to this people-to-people Christian gesture . . . the flashing gold and iridescent purples of a mahi mahi caught in the lagoon and the incredible colors of the smaller fish in the coral gardens near shore. . . .

Bikini today is proof that some dreams do come true . . . . Magistrate Juda led his people away willingly "for the goodness of mankind." But Juda will not return.

He died four months before the announcement that the atoll would be returned to its people. ☸





Under a broiling sky the specially-instrumented aircraft, used by LASL in the Australian-based experiment last month, stands on its pad at Kirtland Air Force Base ready for a mission.

## LASL Team Conducts Australian-Based Airglow and Cosmic-Ray Mission

**A** scientific team from the Los Alamos Scientific Laboratory conducted an airglow and cosmic-ray mission on a series of flights out of Sydney, Australia, last month.

Neel W. Glass, J-16 group leader, was the scientific commander for LASL's mission.

Data gathered on cosmic rays and airglow—a faint, upper atmospheric light akin to the auroras—will add to scientific understanding in the specific areas of the structure of the upper atmosphere, the interaction processes of the upper atmosphere, electric field producing mechanisms, and geomagnetic field configurations.

The objectives of the mission were:

(a) To obtain data from an extended airglow latitude run, including equator crossings, in the Southern Hemisphere.

(b) To monitor an extended cosmic ray latitude run, including equator crossings, in the Southern Hemisphere as part of the continuing program of latitude and altitude surveys as a function of the solar cycle.

(c) To make a series of airglow surveys locally out of Australia to determine the location and character of conjugate photoelectron airglow enhancement in the Southern Hemisphere.

(d) To make an extended total magnetic field survey.

Although it has been studied for a number of years, the worldwide behavior of the night airglow is not well understood. One of the major obstacles to a detailed understanding is the difficulty of isolating the many variables which affect its behavior. Systematic measurements from a high flying jet

aircraft can provide a powerful tool for increasing the understanding since an appreciable fraction of the earth's circumference can be covered in a single night, and the attenuation of the lower atmosphere and the loss of data from the frequent cloud cover over many of the interesting regions of the earth can be avoided.

Cosmic ray measurements were planned for each flight of the mission. The flights to and from Sydney, Australia, were almost an exact repeat of flights made to Melbourne, Australia, in May, 1965—a time of about cosmic-ray solar minimum. This permitted a direct comparison of the data taken at these widely separated times in this solar cycle. There were two crossings of the magnetic equator, close to the previous crossings, which provided further observations as to

whether the equator shifts with the solar cycle, as has been suggested. Previous measurements, made by LASL scientists, indicated that the equator does not shift.

Flights out of Sydney in the southern wintertime period were desirable for two reasons:

(1) There is a calculated region of continuous photoelectron enhancement south of Sydney which represents the nearest equivalent situation in the Southern Hemisphere to that occurring over the Labrador-Puerto Rico route during the northern winter. LASL scientists have conducted similar missions over this latter route.

(2) The relative orientation of magnetic field lines and the sun permits a systematic survey of conjugate sunlight effects as a function of latitude with a minimum of perturbations from other effects over an area accessible from Sydney.

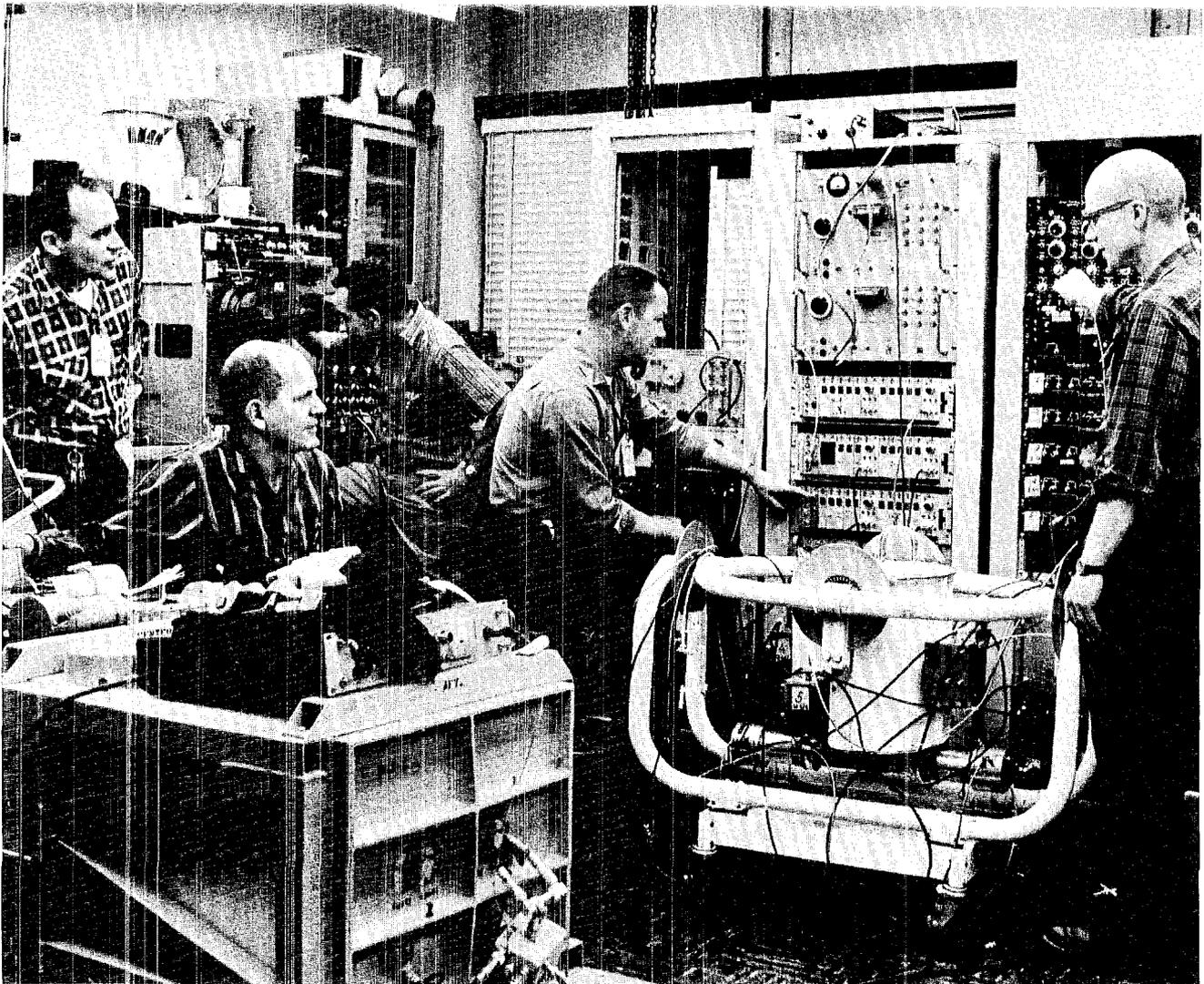
The plane used in the mission is a specially-instrumented NC-135 (modified Boeing 707 jet) flown and maintained for the Atomic Energy Commission by the U.S. Air Force. This plane, and two other similar ones, have been used for several scientific expeditions in the past several years. The aircraft are op-

erated out of Kirtland Air Force Base in Albuquerque.

LASL personnel involved in the experiment, in addition to Glass, included Robert W. Peterson, J-16 alternate group leader; Walter P. Wolff, J-8; Richard L. Wakefield, J-16; L. Dick Tatro, J-16; John H. Wolcott, J-16; Lucien M. Black, J-16; Edward I. Hall, J-8; William F. Carlson, J-17; Dwight Stephenson, J-8 assistant group leader; and Jim Wells, J-1.

A scientific group from Sandia Laboratories in Albuquerque also participated in the mission, conducting a number of experiments similar to those of LASL's. ✍

Instruments to be used in an airborne mission are checked out in a laboratory workshop by J-16 personnel Dick Tatro, Group Leader Neel Glass, Lucien Black, Richard Wakefield, and Alternate Group Leader Robert Peterson.





## “The Surface Science Show of the Year”

Interest in vacuum technology has probably never been so well demonstrated to the New Mexico Chapter of the American Vacuum Society (AVS) as it was recently in Los Alamos when the chapter, for the first time, combined its Annual Meeting and Technical Symposium with a short course.

The event, co-sponsored by the Los Alamos Scientific Laboratory, was “the surface science show of the year,” said Claude Winkleman, K-3, chairman of the New Mexico chapter who was responsible for the technical part of the program. Surface science, as it applies to vacuum equipment, is now included as a division of the AVS.

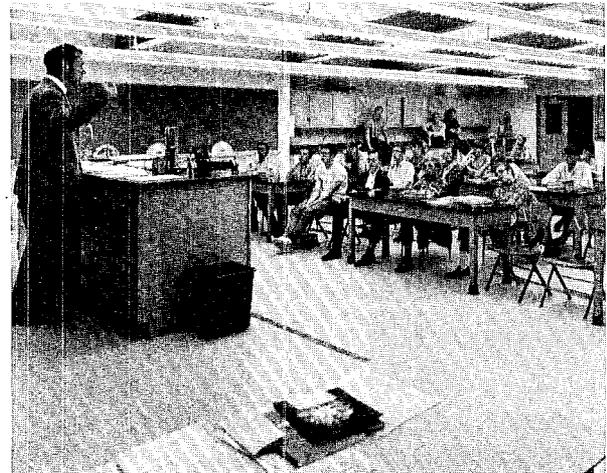
Some of the nation’s leading scientists in the field of vacuum technology were among the more than 200 attending the symposium, during which more than 40 technical papers were presented.

Among 72 persons completing the short course on vacuum technology were 35 staff members and technicians from the Laboratory, an equal number from the Sandia Corporation and two students from Los Alamos High School.

The course, the most elementary of a series of three offered by the Society, was directed by L. C. Beavis, a recognized authority in vacuum technology from Sandia, who was also the principal lecturer.

Karl Johnson, CMB-11, chairman of the New Mexico chapter’s Educational Committee, said applications for enrollment in the short course far exceeded expectations. He noted that more than 250 personnel from LASL alone had applied for enrollment. To resolve the problem of who would fill the 35 classroom seats reserved for the Laboratory, enrollment was limited to four employees from each division, based on the recommendations of division leaders. Winkleman and Johnson noted that the possibility of offering the course again later in the fall for LASL employees only is being investigated.

L. C. Beavis, Sandia Corporation, lectures during the short course on vacuum technology, left. Examining vacuum equipment furnished by commercial vendors, right, are Tracy Manes, standing, and Ken Battat, both of Los Alamos High School. High School students Emily Ranken, foreground, and Lynn Hayes, talk with an equipment manufacturer's representative, far right. Glenn Fishbine and Allan Treiman, bottom left, who were selected from the local high school to attend the short course, talk with Beavis during a break. Bottom right, Karl Johnson, K-3, gives an "Introduction to Vacuum" talk to a high school physics class.



Glenn Fishbine and Allan Treiman, students at Los Alamos High School, attended the three-day course under grants from the New Mexico chapter and were selected for the honor on the basis of outstanding classroom participation and interest in vacuum technology by Physics Teacher Robert Caswell. In the past, grants have been made available to students at the college level, Winkleman said, but because chapter officials felt there are greater opportunities for scholarships, grants and other types of assistance at that level, the awards were made, for the first time in the chapter's history, to high school students.

For successful completion of the course, Fishbine, Treiman and personnel from LASL and the Sandia Corporation will receive "Certificates of Completion."

More than 600 persons registered to see exhibits furnished by commercial vendors of vacuum equipment. The two chapter officials said many visitors were not connected with the Vacuum Society event and included other interested scientists from the Laboratory and about 100 students from four physics classes at the local high school.

Prior to the student visits, Johnson presented a short lecture, "Introduction to Vacuum," to each class at the school and entertained

questions so they would have a better understanding of equipment on exhibit.

The AVS was founded 16 years ago "to promote communication among people interested in vacuum science and engineering. This objective is fulfilled by sponsoring symposia and publications. Additional objectives are the promotion of education and research in vacuum technology and the establishment of standards for nomenclature, measuring techniques, and performance of vacuum equipment. These have been met by making educational films and by publication of vacuum standards."

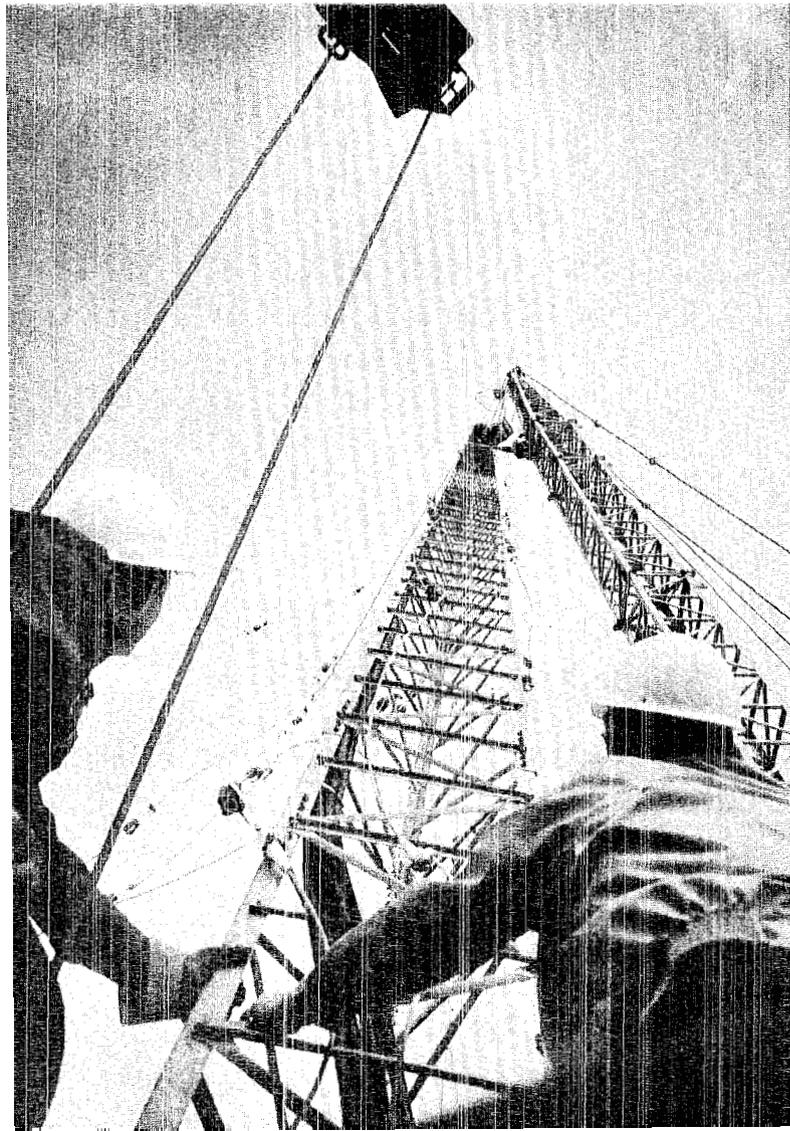




## Photo Shorts

By Bill Jack Rodgers

A group of foreign pilot trainees from Sheppard Air Force Base, Texas, on tour, are shown through the LASL Science Museum, top, by Tom Langhorst, PUB-2. Left, a radio tower dangling from the boom of a crane is steadied at its lower end by Zia workmen Herman Craig and Otis Sissel. It was installed to give increased antenna service for high frequency radio equipment maintained and operated by ENG-5. Bottom, CMB-1 Group Leader Charles Metz holds a plaque presented by Director Norris E. Bradbury, in recognition by the Laboratory of the group's outstanding safety record of having worked over one million man-hours without a lost-time accident.



# Nearly 5,000 Service Pins Awarded at LASL Since 1953

Nearly 5,000 pins, in recognition of years of service to the University of California, have been presented at the Los Alamos Scientific Laboratory since 1953.

Among University employees who have received service pins at LASL, Al Dyhre, former business manager, is the dean of them all. He is the only holder of a 35-year pin.

The 25-year award has been presented to 46 persons while 649 have been honored for 20 years of service. Pins for 15 years have been presented to 1,695 and the largest number, 2,751, has been in recognition of 10 years of service.

These figures include awards for employees who were eligible to receive them during last months' ceremonies. The most recent recipients numbered 158 of which seven were honored for 25 years of service; 52 for 20 years; 48 for 15 years and 51 for 10 years.

## 25 Year Pins

Honored for 25 years of service were John P. Balagna, Jr., J-11; Maxwell Goldblatt, CMF-4; George H. Moulton, CMB-3; James E. Runyan, N-1; Roderick W. Spence, N-DO; Vernon O. Struebing, CMF-5; Robert G. Sturgess, CMB-7.

## 20 Year Pins

Recipients of 20-year awards were John W. Barnes, J-11; Felix A. DePaula, GMX-6; Lena L. Diehl, GMX-3; Ralph E. Dorsey, J-12; Frank J. Dunn, W-1; James J. Dvorak, SP-3; Bertha G.

Fagan, C-4; Peter Fagan, GMX-4; Hillis J. Harrington, SD-5; Paul Hegler, J-6; Herbert M. Hutcheson, SP-4; Hugh J. Karr, P-14; Preston Keevama, SP-3; Edwin L. Kemp, Jr., P-16;

Harold E. Langley, GMX-8; Kenneth J. Leibee, SP-DO; Praxedes Lopez, GMX-3; Arturo Lucero, GMX-3; Matias Lujan, GMX-3; Edward Maestas, GMX-3; Jose A. Maestas, SP-4; Alonzo U. Maez, GMX-3; Henry Martinez, GMX-3; Juan A. Martinez, SP-3; Maria T. Martinez, GMX-7;

Pedro R. Martinez, SP-3; Andres Montoya, SP-3; Willie Montoya, SP-4; Willie N. Montoya, SP-4; William C. Moxley, SD-5; Manuel J. Naranjo, GMX-2; Robert W. Newman, J-DO; Hermando V. Ortiz, SD-DO; Paschal J. Pallone, SD-5; Juanita V. Pena, CMB-1; Kenneth Price, GMX-3;

Secundino O. Quintana, P-DO; Verdie L. Raper, GMX-3; Lillie Rico, GMX-7; Theodore G. Roybal, ENG-3; William J. Ruthven, SP-3; Luis G. Sanchez, SD-1; Tomas G. Sanchez, CMF-13; Kenneth J. Schowalter, SD-5; Pilar Serna, PER-4; Donald E. Stevens, P-1; Ernestine V. Stewart, GMX-7;

Eugene G. Szklarz, CMB-3; Paul Valdez, SD-4; Edward F. Will, SP-3; D. Lloyd Williams, H-4; Raymond Zinkowski, J-6/NTS.

## 15 Year Pins

Service pins in recognition of 15 years of service went to Voncille M. Armijo, J-11; Henry C. Beg, SD-1; Austin D. Bonner, GMX-6; Thomasita N. Cata, GMX-3; Charles Q. Clark, SD-1; Robert L. Cole, SD-5; William H. Cruise, SD-1; Adeline E. Damiano, CMF-9; Shirley N. Dresback, CMB-3; Jimmy C. Elliott, GMX-11; Carl A. Enloe, ENG-4; John R. Farmer, GMX-3; William J. Frankoski, J-7; Eldon H. Freidline, GMX-3;

Charles W. Fuller, J-7; Thomas Gardiner, C-8; Thomas B. Geelan, CMF-9; Manfred J. Gerardot, GMX-3; Martin L. Gursky, T-9; J. Wilfred Gutierrez, GMX-11; Ralph B. Hannemann, J-7; Eskild P. Hansen, SD-5; Paul O. J. Harris, SD-1; Emma M. Henderson, T-5; Lloyd A. Hewitt, SD-6;

John R. Hopkins, N-3; Ladislaus Kachelmeier, SD-1; G. Robert Keepin, N-6; Harvey J. Kellogg, SD-5; Wilbur A. Korte, SD-5; John D. LaMotte, CMB-6; Stanley P. Marsh, GMX-6; Vidal M. Martinez, N-DO; Joseph E. Marx, SD-1; Richard H. Moore, CMB-7; Darrel V. Nelson, SD-5; Emil Nordhaus, SD-5; Marjorie J. Peacock, P-12; Alfred T. Peaslee, Jr., T-2;

continued on next page



Taking nine of 15 prizes in competition at the 10th Annual Conference of the Industrial Photographers of the Southwest were six photographers from the Los Alamos Scientific Laboratory, three of which are shown here. At left is PUB-1 Photographer Bill Jack Rodgers who won second place in black and white technical photography and third place in color photography, on the job. Enriquez F. Ortega, D-8, was first in black and white entries, on the job, and second in color, off the job. Robert Martin, D-8,

took first places in color, off the job, and in black and white, off the job. Three other D-8 photographers winning awards were Victor Stevenson, second in black and white, off the job, and Arthur Williams and Robert Gordon, first and third slots respectively in the technical category. Martin was named president of the Southwest Association; Billy Claybrook, D-8, secretary; Robert Crook, D-8 group leader, board member.

## Service Pins . . .

*continued from preceding page*

Raymond A. Pederson, H-1; John T. Pulos, J-12; R. Manuel Salazar, Jr., SP-2; William H. Schweitzer, H-8; E. Luween Smith, SD-2; Eleanor B. Standring, D-2; Angie T. Van De Valde, PER-3; Eugene M. Willbanks, C-4; William H. Yeamans, SD-1.

## 10 Year Pins

Receiving 10-year pins were Marie D. Apodaca, N-7; Frank Babich, H-1; Cecilia M. Barrone, M&R; Clarence U. Benton, J-16; Harold E. Black, Jr., SD-1; Lois A. Dildine, D-2; David T. Eash, CMF-13; William T. Eberhardt, ENG-2; Clarence L. Farley, CMB-6; Malcolm V. Fraser, C-4; Garrison H. French, MP-2; Ralph J. Fries, N-1; Alfred P. Furnish, P-1; Thomas Harbert, Jr., GMX-4; Valgene E. Hart, MP-3; James J.

Hayden, ENG-6; Darryl F. Hayes, SD-5; Ernest K. Hodson, J-14; David L. Jardine, K-1;

M. Ruth Johnson, SP-10; Gloria M. Jordan, H-DO; Monnie L. Kirkpatrick, D-8; Louise R. Kohl, PER-2; Helen L. LaMonica, J-15; Willis D. Leatherwood, SD-5; Alvie L. McKnight, C-4; William A. May, Jr., GMX-3; Leston W. Miller, J-16; Walter F. Mohr, Jr., CMB-11; Marvin M. Mueller, W-7; Walter F. Neal, CMB-6; Barbara C. Powell, T-DO; Sara I. Prestwood, H-2; William H. Regan, PUB-1;

Nathan F. Reina, K-3; Dorothy E. Rothe, W-1; Esther Schuster, AO-4; Bernie A. Segura, GMX-3; Chester R. Smith, MP-3; Darryl B. Smith, N-6; Robert E. Stapleton, GMX-11; Richard M. Tisinger, W-7; Robert W. Turner, ENG-2; Edmund L. Van De Valde, CMB-6; Edward Velarde, GMX-3; George A. Velasquez, GMX-11; Michael S. Wertheim, T-DOT; Jesse G. White, Jr., GMX-7; Gladys H. Wood, GMX-7; Robert V. Workinger, J-8; Hairston G. Worstall, MP-3.

*Four from LASL  
Will Participate  
in AEC'S  
1969 Technical  
Scholarship Program*



Barrett Parsons



Michael Morris



William Goodwill



Robert Gillis

Four technicians from the Los Alamos Scientific Laboratory will work toward bachelor degrees for a full year under the auspices of the Atomic Energy Commission's 1969 Technical Scholarship Program.

They are Barrett Parsons, GMX-11; Michael Morris, H-1; William Goodwill, GMX-4; and Robert Gillis, MP-3.

Parsons, who received a one-year scholarship under the 1968 program, will continue his studies at the University of New Mexico in electrical engineering. Morris, the recipient of a half year of benefits under last year's program, will continue coursework in physics at Oklahoma State University. Gillis, who has been attending New Mexico State University since last fall, on leave from the Laboratory without pay, will continue his studies in

mechanical engineering under the program. Goodwill will attend classes at the University of New Mexico where he will continue work in electrical engineering.

The Technical Scholarship Program is now in its fourth year as a pilot project. It permits selected employees of AEC contractor laboratories, who are within two years of completing studies for their bachelor degrees, to study full time on full salary. The award includes the cost of tuition, books and other supplies and \$400 for dislocation expenses.

Each of the participating laboratories in the current program could recommend candidates for four man-years of education—four years which could be divided among candidates. On the basis of these recommendations, award winners

were selected by an AEC committee. Other participants were Argonne, Brookhaven and Oak Ridge National Laboratories, Lawrence Radiation Laboratories at Berkeley and Livermore, and Pacific Northwest Laboratory.

The recent scholarship winners bring to eight the number of LASL technicians named for the honor. Other previous recipients are John Pritchard, CMB-6; Robert Newell, MP-2; Edward Leach, formerly of P-2; Peter Olivas, GMX-8; and William Mathieson, GMX-3.

Leach has received the bachelor's degree and is now working toward the master's degree. He is a teaching assistant in the Chemistry Department at the University of New Mexico. Newell graduated in June of last year and has returned to MP-2 as a staff member. ❀

# Charles Kempter Named Honorary AIC Member

Charles P. Kempter, a physical chemist and crystallographer in Group N-1, has been named an honorary member of the American Institute of Chemists, and 26 other Laboratory staff members have been named Fellows.

Honorary membership is awarded to less than two per cent of the total living Institute membership and only to those "who by reason of service to the chemical profession, or to the public; and by professional accomplishment have attained unusual distinction in the chemical field." Kempter was cited for his scientific work and "as a chemist with professional concern for his colleagues who devised the Fellowship Nomination Program of this Institute."



Kempter and other LASL staff members received their awards at the 13th National Fellows Dinner in Santa Fe. Those named Fellows were Willard H. Beattie, W-7; Karl S. Bergstresser, CMB-1; William R. Daniels, J-11; George P. Ford, J-11; Walter V. Green, CMF-13; E. Arnold Hakkila, CMB-1; John E. Hockett, CMF-13; C. Gordon Hoffman, N-1; Eugene C. Kerr, CMF-9; Milton C. Krupka, CMB-3; Donald P. MacMillan, N-1; Joseph B. Mann, CMF-4; John R. Mosely, W-7; Lawrence J. Mullins, Jr., CMB-11; Rene J. Prestwood, J-11; Raymond N. Rogers, GMX-2; Prince E. Rouse, GMX-2; Thomas A. Sandenaw, CMF-13; James E. Sattizahn, J-11; Fred W. Schonfeld, CMF-5; George R. Shepherd, H-4; H. Louise Smith, J-11; Maynard E. Smith, CMB-1; John H. Sullivan, CMF-4; Paul Wagner, CMF-13; and John W. Ward, CMF-5.

Edward F. Thode, a LASL consultant on the staff of New Mexico State University, was also elected a Fellow.

The AIC confers this honor on selected chemists, chemical engineers and scientists or engineers with equivalent qualifications who are elected by the Institute's National Council.

## short subjects

**Robert A. Penneman**, CMF-4 alternate group leader, and **John F. Spalding**, head of H-4's Mammalian Radiobiology section, were two of a panel of 12 judges who selected winners of special Atomic Energy Commission awards at the 20th International Science Fair in Fort Worth, Texas.

The special AEC awards were presented to 10 student contestants with the most outstanding nuclear-related science projects.

Other awards were received by two Los Alamos High School students who entered exhibits in the science fair. **Chris Fullman**, 16, received honorable mention from the American Society for Metals and the American Dental Association for his "High Temperature Crystals, Their Growth and Use." **Debra Krikorian**, 18, received honorable mention from the American Psychological Association for her "Effects of RNA Transfer on Learning and Memory in Mice."



**Richard J. Kandel**, a former employee of Group W-8, has been appointed Chief of the Radiation, Isotope and Physical Chemistry Branch of the Atomic Energy Commission's Office of the Assistant Director for Chemistry Programs, Division of Research.

Kandel joined the AEC staff in the Office of the Assistant Director for Chemistry Programs in June, 1967.



Project Rulison, the second in a planned series of joint government-industry experiments to investigate the use of a contained nuclear explosion to enhance the recovery of natural gas from low-permeability gas formations, has been rescheduled for September.

The decision to reschedule the detonation of the 40-kiloton underground nuclear device was made by project participants after it was determined that necessary preparations to conduct the nuclear explosion could not be completed by May 22.

An article on "Cryogenics in Space Technology," by E. F. Hammel, Jr., CMF-9 group leader, has been published in a recent edition of "Scinteia," a Rumanian daily newspaper which frequently publishes articles by scientists on present-day scientific interests. A \$50 royalty check for the article was made payable to the Laboratory.

Charlsie E. Gregory retired May 6 after 24 years with P-1. She worked as a technician doing space electronics printed circuit work. Mrs. Gregory's husband, Charles, retired from GMX-3 in December of 1968. They plan to do extensive traveling in the Pacific Northwest. Eventually they will make their home in Albuquerque.

## The Technical Side

**Presentation at 1969 Particle Accelerator Conference, Washington, D.C., March 5-7:**

"Resonantly Coupled Standing Wave Accelerator Structures for Electron and Proton Linac Application" by E. A. Knapp, MP-3 (invited)

"Some Preliminary Observations on a Family of Linac Modes" by D. A. Swenson, E. A. Knapp, and G. R. Swain, all MP-3

**Presentation at IMOG Machine Tool Subgroup Maintenance Seminar, Bendix Corporation, Kansas City, Mo., March 18-20:**

"The Role of Technicians, Maintenance Engineers, and Mechanics in Machine Tool Work" by R. P. Jones, SD-2

**Presentation at seminar, Department of Aerospace Engineering Sciences, University of Colorado, Boulder, March 27:**

"Shock Tube Studies of Gaseous Combustion Rates" by G. L. Schott, GMX-7

**Presentation at symposium on Education for the Peaceful Uses of Nuclear Explosives, University of Arizona, Tucson, March 31-April 2:**

"Scientific Applications of Nuclear Explosions" by W. K. Brown, P-3, and G. A. Cowan, J-11

**Presentation at colloquium at Physics Department, New Mexico State University, Las Cruces, April 1:**

"Exact Classical and Quantum Theories of a Time-Dependent Harmonic Oscillator and of Charg-

ed-Particle Motion in a Time-Dependent Electromagnetic Field" by H. R. Lewis, P-18

**Presentation at colloquium, Physics Department, University of Alabama, Tuscaloosa, April 2:**

"Ion-Molecule Reactions for Energies Below 100 eV" by W. B. Maier, J-10

**Presentation at American Mathematical Society Meeting, New York, N.Y., April 2-5:**

"Equal and Almost Equal Weight Quadrature Formulas" by D. K. Kahaner, C-6

**Presentation at Physics Department Seminar, Auburn University, Ala., April 4:**

"Measurement of the Neutron Half-Life" by W. K. Brown, P-3

"Techniques Used in Neutron Cross-Section Measurements Made with Neutrons from Nuclear Explosions" by A. N. Ellis, P-3

**Presentation at regular colloquium for faculty and graduate students in physics, University of California, Riverside, April 4:**

"The Los Alamos Meson Factory—A New Tool for Basic Research and Practical Applications" by I. Rosen, MP-DO

**Presentation at symposium on Engineering Problems on Fusion Research, LASL, April 8-11:**

"Application of the NET-1 Network Analysis Program to Distributed Circuits" by G. P. Boicourt, P-16

"Capacitor Development for Scyllac" by G. P. Boicourt, P-16

"The Data Acquisition System for the Scyllac Device" by R. F. Gribble, P-15, D. Brown, P-1, J. W. Lillberg, G. A. Sawyer, and D. M. Weldon, all P-15

"The Design and Development of Cable Cartridges for Scyllac" by K. W. Hanks and G. P. Boicourt, both P-16

"The Development of Reliable, High-Voltage, Low-Inductance Cable for Scyllac" by G. P. Boicourt and E. L. Kemp, both P-16

"A Ferrite Loaded Piggy-Back Crowbar Gap" by R. F. Gribble, P-16

"The Final Design of Scyllac" by E. L. Kemp, P-16

"High Altitude Pulsed Plasma Power Supply" by C. M. Fowler and

continued on next page

## new hires

### C division

John H. Hancock, Mill Valley, Calif., C-4

### CMB division

Charles B. Ross, Jr., Rochester, N.Y., CMB-1 (Postdoctoral)

Tobias J. Romero, Leyden, N.M., CMB-14 (rehire)

### H division

Jon D. Hudspeth, Richland, Wash., H-1

### K division

Richard A. White, Hoquiam, Wash., K-4

### MP division

James D. Courtney, Los Alamos, MP-2

### P division

Robert L. Leydig, Fairhope, Pa., P-DOR

### W division

Philip R. Pellette, Brooklyn, N.Y., W-1

# the technical side . . .

continued from page 21

D. B. Thomson, both GMX-6, K. J. Ewing, GMX-3, R. S. Caird and W. B. Garn, both GMX-6

"High Current Joint Techniques" by R. S. Dike and W. H. Borkenhagen, both P-16

"High Power Technology Associated with Dense Plasma Focus Research" by K. D. Ware, J. P. Carpenter, P. J. Bottoms, A. H. Williams and J. W. Mather, P-7

"Impedance Matching the Plasma Focus Device" by J. P. Carpenter, K. D. Ware, P. J. Bottoms, A. H. Williams and J. W. Mather, all P-7

"Liquid Resistor Development" by R. A. Haarman, Eng-7

"Mechanical Design of a Quadrupole Injection Experiment" by R. W. Kewish and R. S. Dike, both P-16, J. E. Hammel and A. R. Sherwood, both P-17

"Precise Regulation of a 500 KW D.C. Generator with a 2,500 Ampere Series-Pass Transistor Bank" by J. McLeod, P-13, and J. L. Rand, ENG-7

"Q-Machine Hot Plate Development" by F. E. Wittman, P-13

"Scyllac Spark Gap and Trigger System Development" by R. F. Gribble, P-15, and C. F. Hammer, P-16

"Solid Dielectric Crowbar Switch" by D. L. Call, P-16

"Use of Explosive Generators to Power the Theta Pinch" by R. A. Damerow and J. C. Crawford, both Sandia Corporation, D. B. Thomson and R. S. Caird, both GMX-6, K. J. Ewing, GMX-3, W. B. Garn and C. M. Fowler, both GMX-6

**Presentation at meeting of the National American Chemical Society, Minneapolis, Minn., April 13-18:**

"Kinetics of the Oxidation of Plutonium (III) by Neptunium (VI)" by R. B. Fulton and T. W. Newton, both CMF-2

**Presentation at 53rd Annual Meeting of the Federation of American Societies for Experimental Biology, Atlantic City, N.J., April 13-18:**

"RNA Synthesis in Synchronized Chinese Hamster Cells" by R. A. Tobey and M. D. Enger, both H-4

**Presentation at seminar at University of Maryland, College Park, April 14:**

"Solar Wind Ion Composition and State of Ionization" by S. J. Bame, P-4 (invited)

**Presentation at University of Nevada, Department of Nuclear Engineering and the College of Education, Reno, April 14:**

"Neutron Cross-Section Measurements Using a Nuclear Explosion Source" by W. K. Brown, P-3

**Presentation at AIAA Structural Dynamics and Aeroelasticity Specialist Conference, New Orleans, La., April 14-17:**

"Two Dimensional Stress Wave Propagation in Thick Multilayered Cylindrical Shells" by B. P. Shafer, W-1

**Presentation at seminar at South Dakota School of Mines, Rapid City, April 17-18:**

"Chemistry of the Lanthanide and Actinide Elements" by T. K. Keenan, CMF-4 (invited)

**Presentation at conference on the Effective Use of Computers in the Nuclear Industry, Oak Ridge, Tenn., April 21-23:**

"The Effective Use of the Computer Storage Hierarchy" by T. L. Jordan and W. J. Worlton, C-DO

**Presentation at 50th Annual Meeting of American Geophysical Union, Washington, D.C., April 21-25:**

"Correlation Between Solar Wind Pressure and DST Level" by P. Verzariu, Johns Hopkins University Applied Physics Lab, Silver Spring, Md., I. B. Strong, P-4, and M. Sugiura, NASA, Goddard Spaceflight Center, Greenbelt, Md.

"Effects of Transient Electric Fields Upon Particle Distributions in the Magnetosphere" by E. W.

Hones, P-4, and J. G. Roederer, University of Denver, Colo.

"Electron and Proton Temperatures in the Disturbed Solar Wind" by S. J. Bame and J. R. Asbridge, both P-4, A. J. Hundhausen, T-12, and M. D. Montgomery, P-4

"The Evolution of a Double-Shock Structure in the Solar Wind" by A. J. Hundhausen, T-12, and R. A. Gentry, T-3

"Helium Abundance and Plasma Properties in the Solar Wind" by D. E. Robbins, NASA, Manned Spacecraft Center, Houston, Texas, A. J. Hundhausen, T-12, and S. J. Bame, P-4

"The Magnetospheric Substorm of August 25-26, 1967. Part 3: Observations in the Magnetotail by Vela Satellites" by E. W. Hones, S. J. Bame and S. Singer, all P-4

"Penetration of Solar Energetic Protons Into the Magnetotail" by S. Singer and M. D. Montgomery, both P-4

"Perturbations of the Solar Wind Near the Bow Shock" by I. B. Strong, J. R. Asbridge and H. E. Felthaus, P-4

"Plasma Observations Near the Bow Shock: Vela 4" by M. D. Montgomery, J. R. Asbridge and S. J. Bame, all P-4, and A. J. Hundhausen, T-12

"Simultaneous Measurements of Magnetotail Plasma with Pairs of Vela Satellites" by E. W. Hones, S. J. Bame and S. Singer, P-4

"A Solar Wind Model with Magnetically Inhibited Heat Conduction" by R. A. Gentry, T-3, and A. J. Hundhausen, T-12

**Presentation at Seminar, University of California at San Diego, Calif., April 22:**

"The Positive Isotope Effect in Superconducting Alpha Uranium" by H. H. Hill, CMF-DOT

**Presentation at American Nuclear Society Student Conference, University of New Mexico, Albuquerque, April 26:**

"Numerical Solution of the Reactor Kinetics Equations by Optimum Integrating Factors" by P. A. Secker, Jr., W-1

Carbon and Oxygen at 30 MeV" by J. F. Marshall, Xerox Corp., Rochester, N.Y., R. L. Burman, MP-6, and E. Nordberg, Wilson Lab., Cornell University, Ithaca, N.Y.

"Pion Production in Nucleon-Nucleon Collisions" by C. T. Grant, M. E. Schillaci, and R. R. Silbar, all T-9

"pp→d Pi<sup>-</sup> at High Energies" by R. R. Silbar and F. Uchiyama-Campbell, both T-9

"Resonance Neutron Capture Gamma-Ray Spectra of Cu" by W. E. Stein, P-DOR, B. W. Thomas and E. R. Rae, both Atomic Energy Research Establishment, Harwell, England

"The Stabilizing Effects of a DC Magnetic Field on the Dense Plasma Focus" by P. J. Bottoms, J. W. Mather, J. P. Carpenter, A. H. Williams, and K. D. Ware, all P-7

"Supercollimation of Negative Ion Beams with Apertures" by D. D. Armstrong, P-12, and H. E. Wegner, Brookhaven National Lab., Upton, N.Y.

"Theoretical Calculations of Complex Atomic Structure and Spectra" by R. D. Cowan, T-DOT (invited)

**Presentation at technical symposium and short course of the New Mexico Chapter of the American Vacuum Society, Los Alamos, April 28-30:**

"Determination of Surface Oxygen and Carbon by Helium 3 Bombardment" by B. K. Barnes, W. M. Sanders, and D. M. Holm, all K-1

"Improved Tee Connections for Vacuum Systems" by H. M. Ruess, K-1

"Molecular Beams from Long Parallel Tubes" by J. P. Brainard, K-3

"Monte Carlo Analysis of Specular and Surface-Diffusional Contributions to Flow from Knudsen Orifices" by J. W. Ward, CMF-5, R. L. Bivins, C-7, and M. V. Fraser, C-4

"Some Effects of a Temperature Gradient on Knudsen Effusion" by E. K. Storms, CMB-3

"The Surface as a Vacuum Parameter" by J. P. Brainard, K-3

**Presentation at Southern Area Research and Development Safety Symposium, Oak Ridge National Laboratory, Oak Ridge, Tenn., April 29:**

"Handling and Use of Cryogenics" by R. Reider, H-3

**Presentation at Space Science Seminar at the University of Denver, Colo., April 30:**

"The Plasma Sheet in the Earth's Magnetotail" by E. W. Hones, Jr., P-4

**Presentation at Colloquium at Loop College, Chicago, Ill., May 2:**

"Pulsars and Quasars: The Current State of Enlightenment and Confusion" by D. S. De Young, J-10

**Presentation on Channel 5, University of New Mexico, Albuquerque, May 2:**

"Cryogenics and Cryogenic Engineering" by F. J. Edesky, CMF-9

**Presentation at Second Annual Rocky Mountain Applied Mechanics Symposium, Air Force Academy, Colorado Springs, Colo., May 2:**

"Young's Modulus Measurements to 2,500°C by the Thin Rod Resonance Technique" by C. R. Saunders and J. W. Neudecker, both N-7

**Presentation at seminar, Physics Division, Oak Ridge National Laboratory, Oak Ridge, Tenn., May 2:**

"Recent Progress in the Study of Spontaneously Fissioning Isomers" by S. C. Burnett, P-DOR

**Presentation at American Ceramic Society Meeting, Washington, D.C., May 4-5:**

"Plane Stress Waves in Some Refractory Compounds" by J. W. Taylor and J. W. Hapson, GMX-6

**Presentation at colloquium at the University of Iowa, Iowa City, May 5, and at the State University of Iowa, Ames, May 6:**

"The Failure of Soft-Pion Techniques for Pionic Disintegration of the Deuteron at Threshold" by R. R. Silbar and M. E. Schillaci, T-9



Culled from the June, 1949, files of the Los Alamos Skyliner by Robert Porton

### **Snake Exhibit Brings Upsurge in Kit Sales**

Los Alamos citizens were edified or petrified, according to their natural predilections, when they viewed four rattlesnakes, two king snakes and one red racer in the window of the local drug store last weekend. All the reptiles were caught in the canyon of the Rio Grande about two miles downstream from the Otowi Bridge by a Zia Company electrical line crew. Thurman Gunter of the store reports that he has been obliged to order replenishments for his stock of snakebite first-aid kits since the reptiles went on display.

### **Amateur Radio Club Participates in Nation-Wide Test**

The Hill's radio hams took part in a nation-wide test of emergency equipment and operators last weekend. The local group used the lodge on the Sawyer's Hill ski run as the operating base and was a link in two state-wide directed emergency networks, using both phone and radiotelegraphy. Robert Freyman, emergency coordinator of the Los Alamos club, reported that for the first time on the two meter band, contact was made with Sandia Peak and Albuquerque groups. According to Freyman, this is the only band on which voice may be used 24 hours a day. In an emergency, this method may be operated at any time.

### **South Mesa Road Opens**

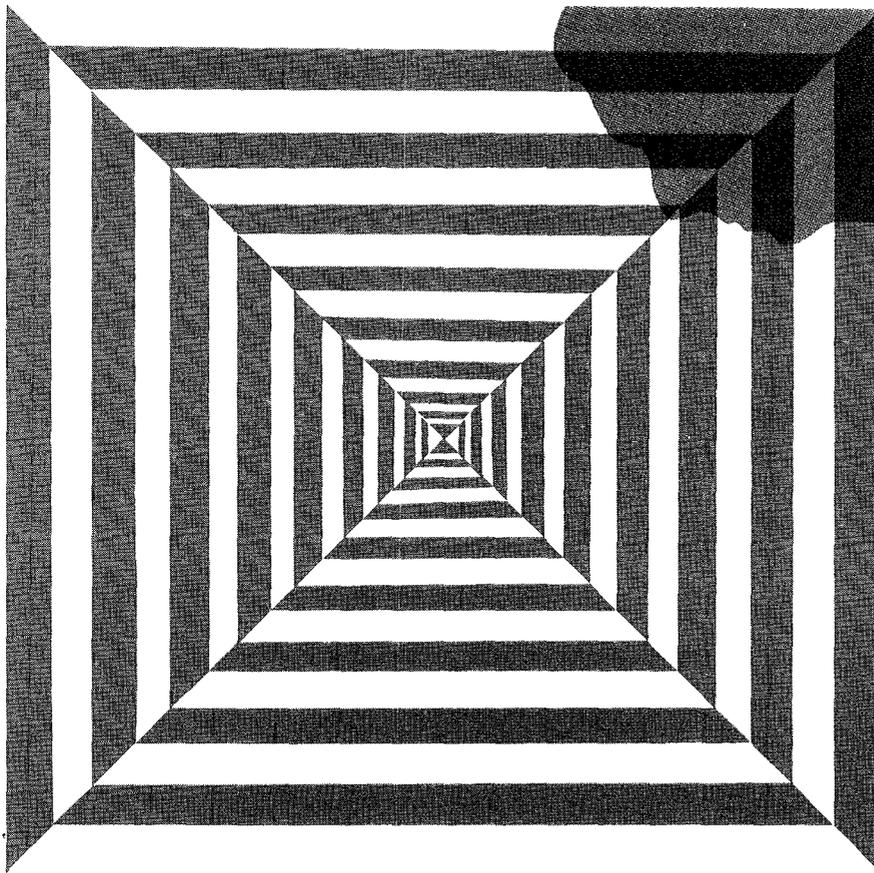
Local drivers will have a chance this weekend to see the new South Mesa Access Road for the first time since it was completed. Designed primarily to provide a high-speed direct route to the new White Rock suburb, it also eases the traffic congestion in the townsite proper.

### **Los Alamos Becomes County**

There was no band, no parade, no formal celebration, but instead a quiet, solemn sort of rejoicing, not unmixed with trepidation, as Los Alamos citizens became residents of New Mexico's 32nd and newest county. The first commissioners to hold office are Phillip Belcher, attorney, assistant in the Department of Classification and Security for the Los Alamos Scientific Laboratory; Frank C. DiLuzio, AEC administrator; and Cecil A. Badsgard, Zia Company craft superintendent for maintenance. The AEC will furnish space and equipment as well as the services of office and legal personnel until the new county gets on its feet. It is expected that the modest initial revenues will be sufficient to run the infant organization until it is able to collect normal revenues, largely from occupational, liquor and motor vehicle license fees.

Nancy, a monkey, has a knack for the unusual. Little more than a year ago she survived large doses of radiation and surprised scientists by giving birth to a completely normal offspring by the name of Chancy. Her claim to fame this time is Stephanie, whose birth occurred on Mother's Day.





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## profile

*of a deterrent*

Although much effort at the Los Alamos Scientific Laboratory is directed toward basic research and peaceful applications of nuclear energy, the primary mission of the Laboratory is the enhancement of national security through the development and engineering of nuclear weapons.

The hope of the Laboratory is for peace. It is our belief that the best guarantee of peace is appropriate force in the hands of those who truly want peace. The science of nuclear weapon develop-

ment has advanced far beyond the primitive designs of World War II. To meet the demands of this nationally important and exacting field requires a well trained and dedicated staff of physicists, chemists, mathematicians, engineers, and technicians.

A limited number of opportunities exist for highly qualified scientists and engineers in Los Alamos research programs. Interested individuals are invited to send resume to:

*Director of Personnel  
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