

THE ATOM

Los Alamos Scientific Laboratory

July, 1968

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THE ATOM

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CONTENTS:

- 1 APS Meeting
- 4 Radioactive Waste Disposal
- 9 LAMPF Users Meet
- 10 Glasstone Wins Compton Award
- 11 Keepin, Hansen Named ANS Fellows
- 12 Scientists and Mountains
- 14 "New Kid" on the Block
- 20 Retirements/ New Hires
- 21 Short Subjects
- 22 AIC Fellows
- 24 Tyler to Get Citation/Technical Side
- 27 20 Years Ago
- 28 New Professional Society/ What's Doing

Editor: Kenneth J. Johnson

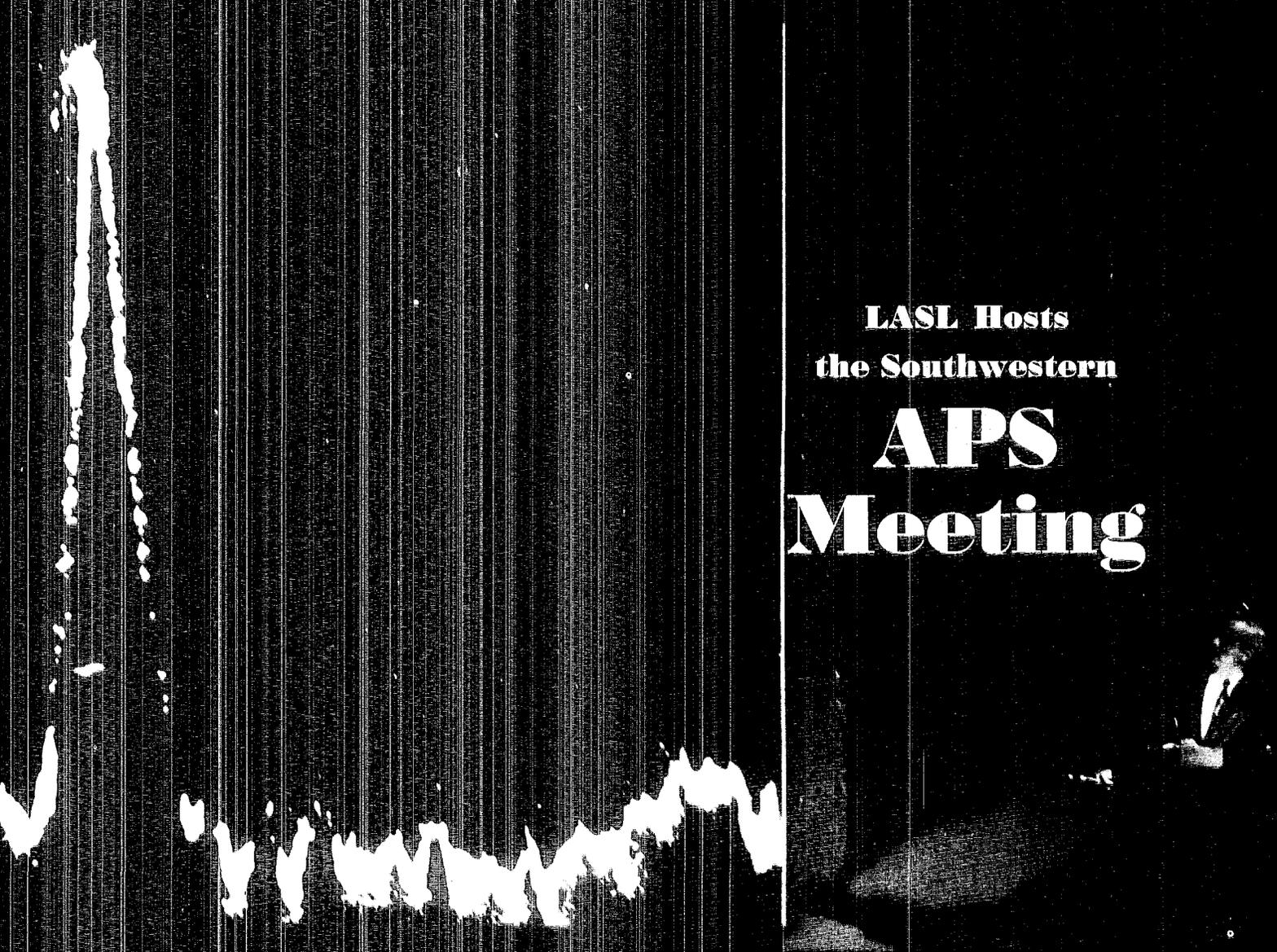
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COVER:

A colorful burst of fireworks deco-
rates the cover of this month's
Atom. At the bottom of the photo-
graph, taken by Pub-1 Photographer
Bill Jack Rodgers, are the lights of
Barranca Mesa.



**LASL Hosts
the Southwestern
APS
Meeting**

More than 400 scientists from throughout the United States and several foreign countries gathered in Los Alamos for the Southwestern Meeting of the American Physical Society last month.

During the three-day meeting 43 invited papers in 11 sessions and 232 contributed papers in 17 sessions were presented.

In addition, there was a general interest session, highlighted by a talk on "Pulsars," a newly discovered and controversial type of astronomical object, by Frank D. Drake, director of Cornell University's Arecibo Ionospheric Observatory in Puerto Rico. (Photo on this page)

While scientists listened to presentations and toured several LASL facilities, their wives toured Santa Fe and Taos and visited Bandelier National Monument. On the second evening a barbecue provided an opportunity for socializing.

Local commercial housing was limited. Accommodations for about 250 visiting scientists had to be obtained in Santa Fe, and transportation to and from the Los Alamos High School campus, where the meeting was held, was provided by the Laboratory.

Arrangements for the event were made by a local committee headed by John Manley, research advisor. Other members were Henry T. Motz, P-DO; James A. Phillips, P-14; and Robert Y. Porton, Pub-2.

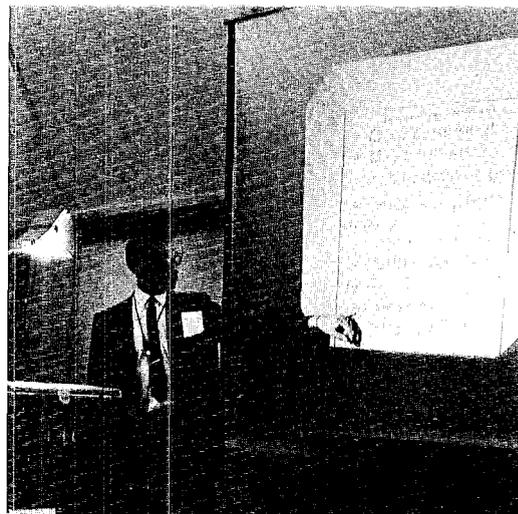
Aside from the large number of outstanding technical presentations, the event was significant in at least two other ways. It was the first time the Southwestern Meeting had been held in Los Alamos, and by number of attendees, it was the largest meeting ever hosted by the Los Alamos Scientific Laboratory.





Traffic was heavy at the registration desk the first morning of the Southwestern Meeting of the American Physical Society.

Daltro Pinatti, of Rice University presents his paper on "Super-conductivity and Magnetism."



Gesturing during an informal discussion between sessions is Bruce Burkheimer, P-17. Others from left to right, are James Phillips, P-14 group leader; Henry Motz, associate leader for P-division; and John Manley, research advisor.



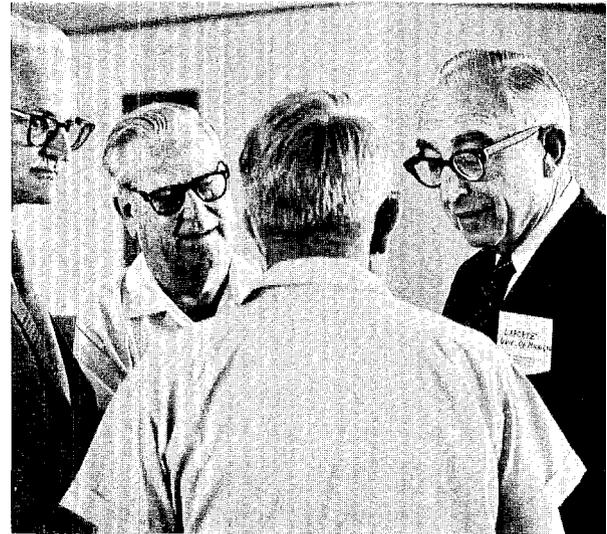
Two familiar faces returned to Los Alamos for the APS Meeting. They were those of the L. M. Langers. Langer, left, was employed by the Los Alamos Scientific Laboratory during the war years and is now with Indiana University. At center is Harold Argo, P-4 alternate group leader, and at right, John Brolley, P-DOR.

Jon Soest, College of William and Mary, left, and Eiichi Fukushima, CMF-4, found some privacy where they could discuss a presentation they were preparing for one of the sessions.





After the barbeque, Richard F. Post, Lawrence Radiation Laboratory at Livermore, found his fun in a Frisbee.



One of the more interesting combinations of people to attend the APS meeting was this group. C. W. Mautz of Gulf General Atomics, San Diego, Calif., left, was a student of John Manley, research advisor at LASL (with back to camera), who was a student of Professor Otto La Porte of the University of Michigan, right. Second from left, is Malcolm E. Ennis, W-8.



Providing scientists and their wives a chance to relax and socialize was a barbeque at the picnic grounds on North Mesa, climaxing the second day of the APS meeting.



It was a tiring three days--or at least Gabriel Allen of NASA's Lewis Research Center in Cleveland, Ohio, must have thought so.

Getting Rid Of Radioactive Wastes



The criteria that must be met at Los Alamos Scientific Laboratory to establish and operate a dump ground for solid radioactive wastes are stringent. But, they are necessary for the protection of persons working within the area and the general public, which could otherwise suffer from the harmful effects of a polluted environment.

Prior to the excavation of a new dump the United States Geological Survey is requested to examine the proposed site location and offer its recommendations before use of an area is authorized. Its representatives consider many factors, including seepage, ground water movement, geology, condition of underlying rock strata and climate.

It has been determined that the Los Alamos area is ideally safe for disposal operations because of its thick rock strata high above the water table. Its dry climate aids by minimizing seepage.

The history of the area also receives consideration. The removal of any unexcavated archaeological sites on federal lands is controlled under the U.S. Antiquities Act. The Laboratory, through its own archaeologist, is responsible for conducting salvage operations, preserving artifacts, and maintaining detailed records of findings at all historic ruins which might be obliterated by excavation or by other types of use.

Responsibility for the disposal of solid waste materials rests with Group H-1 of the health division. The present disposal site is on a mesa, within the Laboratory complex, known as Mesita Del Buey or Technical Area 54, on the north side of Pajarito Road. The mesa has been subdivided into dump areas, starting at the east end.

Within the dump area are huge

At left, contaminated solid waste materials are dumped in a disposal pit on Mesita Del Buey. The pit is sloped at the end so that the floor of the pit is accessible to trucks and maintenance equipment.



Gate to the dump area is kept locked, except when access is authorized by H-1. Signs warning of radioactive materials are posted at frequent intervals on the chain link fence that surrounds the dump area.

disposal pits and shafts, excavated by Zia Company labor and machinery. The pits are generally about 30 feet deep, 100 feet wide and 500 feet long, with a capacity of approximately 44,000 cubic yards. They are sloped at the ends to form ramps for trucks bringing in waste material and other machinery used in maintenance. Sections are designated by numbered panels.

All dump areas, past and present, are surrounded by chain-link fences and signs, warning of radioactivity, are posted on them at frequent intervals. Permanent survey markers are located at each corner.

Each layer of trash is covered with six inches of dirt. When the

pit is filled, it is covered with a minimum of three feet of dirt.

Trash that is highly radioactive is usually disposed of in a shaft. The shaft is a hole in the ground, three feet in diameter and 20 feet deep. A metal casing, one foot in diameter, is centered in the hole and surrounded with concrete. The floor is also concrete, one foot in thickness. When filled, the shaft is topped with a heavy concrete cap, virtually entombing all materials within.

The gate is kept locked when the disposal area is unattended and access is controlled by H-1. Each person entering the area is required to wear a film badge and carry a

continued on next page



Section, defined by the numbered panels at the top of the pit, and layer in which an article is buried is entered in the log book by C. O. Martinez, H-1.

wastes . . .

continued from preceding page

pocket dosimeter. Both measure amounts of radiation received by a person--if any.

All disposals are monitored and the location of everything buried is accurately recorded as to section and layer in either a pit or shaft. The location of pits and shafts are mapped by Eng-3.

Why is this information recorded? First of all, because it is important to future generations. Many of the contaminants have long half-lives. Plutonium, for example, has a half-life of approximately 24,000 years. Conceivably if this knowledge was not available, basements for homes, ditches for water and sewer lines, or other excavations could occur centuries from now where contaminants would still be active.

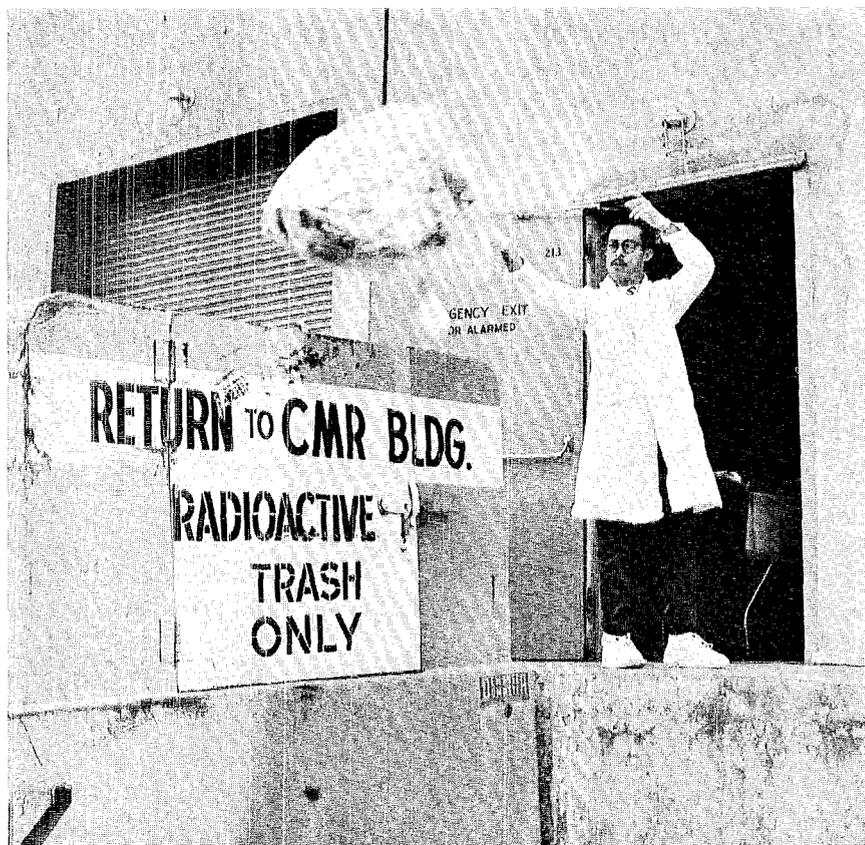
However, disposal sites are not permanently quarantined. One of the first dump sites in Los Alamos was excavated on DP Road in the early 1940s. It has since been paved over and is used for storage of vehicles, boats and trailers.

Another reason is to fulfill a requirement by the Atomic Energy Commission. A semi-annual report to the AEC includes information on the amount of material in the



A plastic bag, used to line a metal trash can is removed by Jose G. Martinez, Zia Company custodian. The bag is sealed and marked before disposal. At rear is Robert Geoffrion, H-1.

Packaged wastes are placed in a Dempster Dumpster by Jose Martinez. The dumpster's contents are later unloaded in the disposal pit.



dump area and the number of curies present. (A curie is a unit of measure of radioactivity).

Zia Company custodians collect much of the trash in laboratories as a matter of daily routine. They also package the material as required, before it can be accepted for disposal by H-1.

Two methods of packaging are used in the laboratories. By one method, trash is placed in cardboard cartons. When they are filled, the tops are sealed with two-inch masking tape. Each box is marked on the outside with date and location where the trash originated.

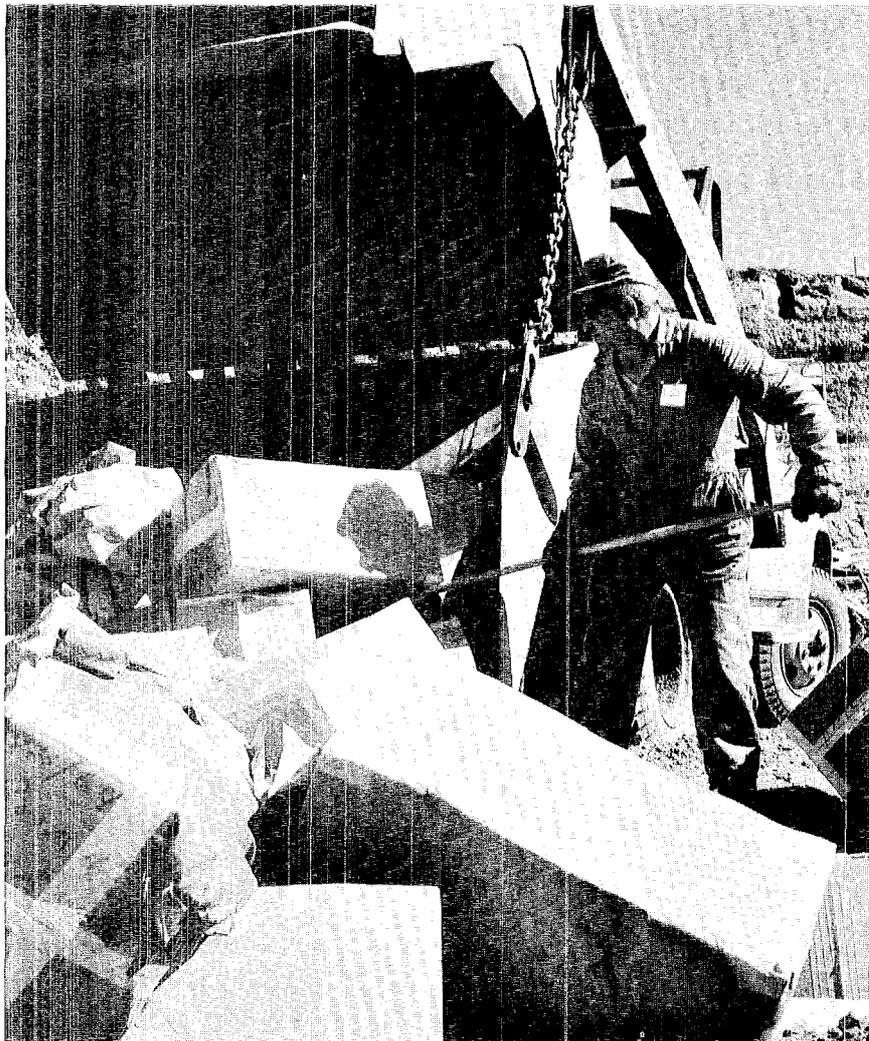
The second method of packaging involves the use of plastic bags. They are used to line metal trash cans. When a trash can is filled, the liner, with its contents, is removed, sealed and marked.

The packaged materials are placed in large metal containers (Dempster-Dumpsters) which are situated throughout the Laboratory. The dumpsters are marked with a six-inch yellow band around the top, and the words "RADIO-ACTIVE TRASH ONLY" are painted on the loading doors. When filled, the containers are hauled to the disposal pit and emptied.

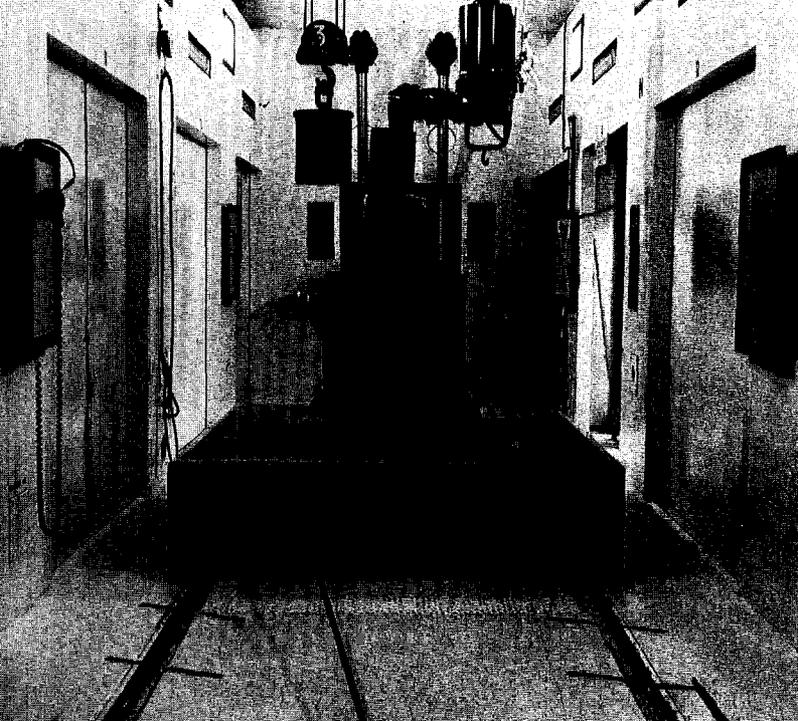
Because of the diversity of research at the Los Alamos Scientific Laboratory, there are many other types of contaminated waste materials that require equally diverse methods of handling for disposal.

In any case not routinely taken care of, the health physics representative of the area in which the equipment is used is contacted to determine whether or not it is contaminated. If it is not, it can be sent to salvage or used elsewhere at LASL. However, if the item is contaminated, a decision will be made by the decontamination section as to the feasibility of decontamination. If cost exceeds the value or usefulness of the equipment, disposal is recommended. The CMR building health physics section is

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Unloading packaged wastes from a dumpster in the disposal pit at Mesita Del Buey is Dionicio Montoya, Zia Company. Montoya uses a prod to move lodged box to avoid bodily contact with contaminated wastes.

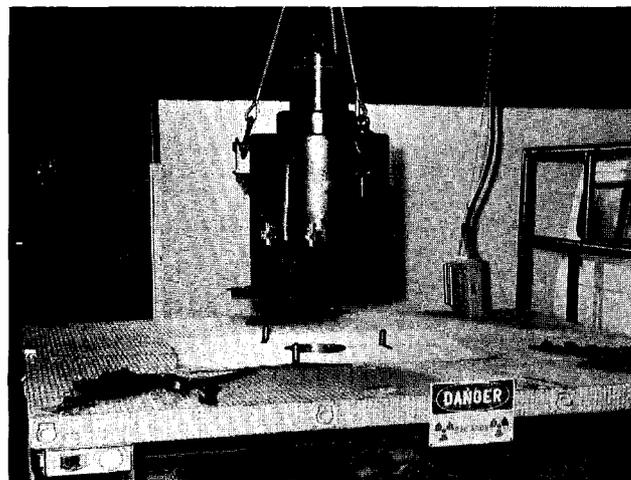


Extremely active liquid wastes must be handled in hot cells. Remote manipulators are used to place a container of trash inside a plastic bag in a shielded transport cask. The cask lid, left, is then emplaced. The sled on which the cask sets is drawn out of the cell and the cask is then loaded onto a transfer truck. (D-8 photo).

The cask is positioned on the bed of the transfer truck so that the compartment inside the cask is directly above a hole in the truck bed. (D-8 photo).



The transport cask is equipped with a removable bottom shield, shown close-up in this D-8 photo.



wastes . . .

continued from preceding page

then notified to make arrangements for delivery to the disposal area.

For items with property numbers, deemed "accountable" by the supply and property department, a form indicating the fate of the article must be completed.

Liquid wastes are processed at two sites at the Laboratory. They are converted to a semi-solid sludge and then placed in 55-gallon steel drums before being taken to a disposal pit.

Contaminated gases are filtered at the sites where they occur. The

filters are changed periodically and the contaminated ones are taken to the dump.

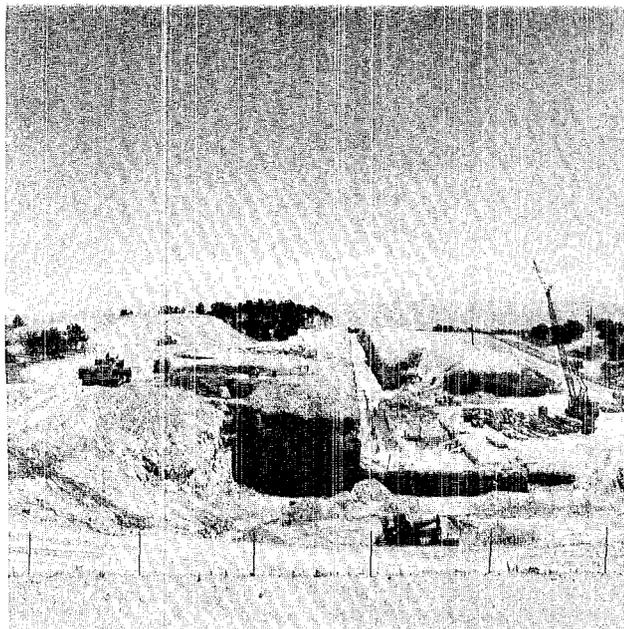
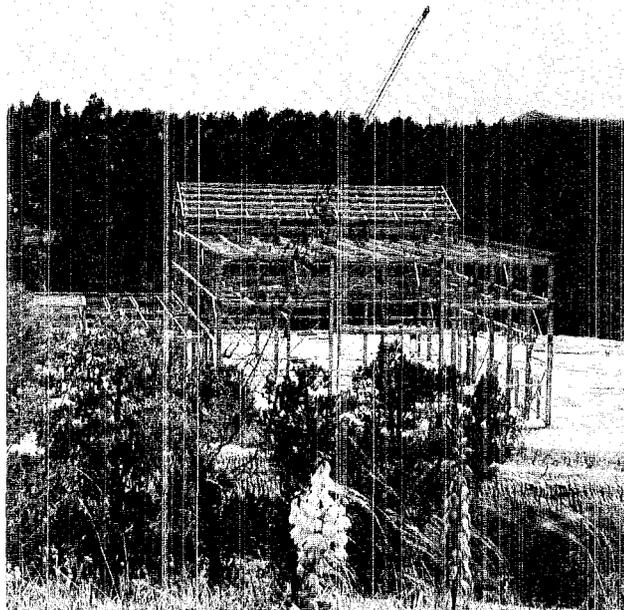
Occasionally there are extremely active liquid wastes that must be handled in hot cells. Remote manipulators are used to place the wastes in a metal container, seal the container, and then transfer it to a plastic bag inside a shielded transport cask.

The cask, equipped with a removable bottom shield, is positioned on the bed of a transfer truck so that the compartment in-

side is directly above a hole in the truck bed. The truck can be driven directly over a disposal shaft. When the bottom shield of the cask is removed, the waste material drops through the bottom and into the shaft.

These are the methods presently used for safe disposal of radioactive wastes at Los Alamos Scientific Laboratory; but as scientists find new and improved ways of using nuclear energy, new and improved methods for disposing of its wastes are likely to follow. ☸

LAMPF Users Meet



About 100 persons from Los Alamos Scientific Laboratory, other laboratories and educational institutions, met last month to discuss the proposed uses of the Los Alamos Meson Physics Facility.

During a question-answer period, (photo at right) Allan Scott, University of Georgia, standing left, asks a question of Louis Rosen, MP-division leader, at front. At the lectern is Harry Palevsky, Brookhaven National Laboratory.

On Mesita de Los Alamos construction is well underway for the first of two buildings of the facility. The 25,000-square-foot Equipment Test Laboratory, (upper left photo) scheduled for completion in September, is nearly ready for wall panels. Structural steel erection was almost finished when this photograph was taken in mid-June.

Foundation work for the Injector Building (lower left photo) and the Alvarez section which takes up the first 300 feet of the half-mile-long beam channel has begun. Approximately 6,200 cubic yards of concrete will be poured in this phase of the LAMPF project.

The LAMPF is a proton linear accelerator with more than 10 times the energy of any other machine of its type.

88

Glasstone Wins Arthur Holly Compton Award

Samuel Glasstone, an Atomic Energy Commission consultant at Los Alamos Scientific Laboratory for more than 16 years, was presented with the coveted Arthur Holly Compton Award for 1968 at the 14th annual meeting of the American Nuclear Society in Toronto, Ontario, Canada in June.

In a citation accompanying his award, Glasstone was honored for his "... distinguished contributions to nuclear science and engineering education. As the author of twelve major texts and reference books in the nuclear field, Dr. Glasstone has contributed significantly to the education of a generation of individuals now associated with nuclear science and engineering, and to the education and enlightenment of the general public. His texts on reactor theory and nuclear engineering are classics in the field. His book on controlled thermonuclear reactions is a definitive work on the subject. The source book on atomic energy which he authored is a most authoritative and useful general reference in the nuclear field. The reports and books by Dr. Glasstone on nuclear weapons effects have done much to advance the security of the United States. In all of his writings, Dr. Glasstone has demonstrated an extraordinarily broad-based scholarship and unique ability to express technical material in clear understandable terms. His unexcelled authorship has advanced the well-being of the nuclear profession and reflects most favorably on himself and on that profession."

The award was established in 1966 in honor of the late Arthur Holly Compton. It is given period-

ically for outstanding contributions in the fields of science and engineering which are germane to the interests of the Society.

The award was presented to Glasstone by Raemer E. Schreiber, outgoing president of the Society and technical associate director of the Los Alamos Scientific Laboratory.

Schreiber, in an address to the Society's members outlined accomplishments during the past fiscal year.

He was presented with a "Certificate of Appreciation" commending his work as president of the Society by incoming president Karl Cohen, general manager of Advanced Products Operations, General Electric Company, Sunnyvale, Calif.

James R. Lilienthal, assistant division leader at Los Alamos Scientific Laboratory for CMB and CMF divisions, and group leader for CMB-7, was installed as treasurer of the Society at its Toronto meeting.

The American Nuclear Society is a non-profit scientific, engineering, and educational organization founded in 1954. It regularly sponsors meetings where research papers are presented and it publishes these and similar papers in its several journals. Its more than 7,500 members include research scientists and engineers, corporation executives, university professors, physicians, students, and persons in public service.



James R. Lilienthal

Samuel Glasstone accepts the Arthur Holly Compton Award at the 14th Annual Meeting of the American Nuclear Society in Toronto, Ontario, Canada last month. Presenting the award is Raemer E. Schreiber, outgoing president of the ANS and technical associate director of the Los Alamos Scientific Laboratory. (Photo by Bob Masterson).



Keepin, Hansen Named ANS Fellows



G. Robert Keepin



Gordon E. Hansen

Elevation of two scientists from Los Alamos Scientific Laboratory to "Fellow of the American Nuclear Society" was announced at the 14th annual meeting of the Society in Toronto, Ontario, Canada in June.

G. Robert Keepin, N-6 group leader, and Gordon E. Hansen, N-2, were among 19 honored as "Fellows" at the meeting.

Keepin was noted "for outstanding contributions to the field of reactor kinetics, especially in applying the properties of delayed neutrons, and for encouraging international cooperation in atomic affairs."

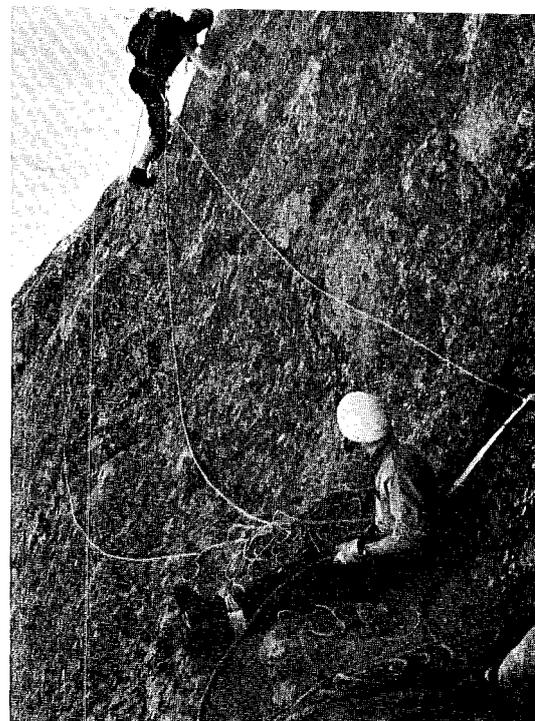
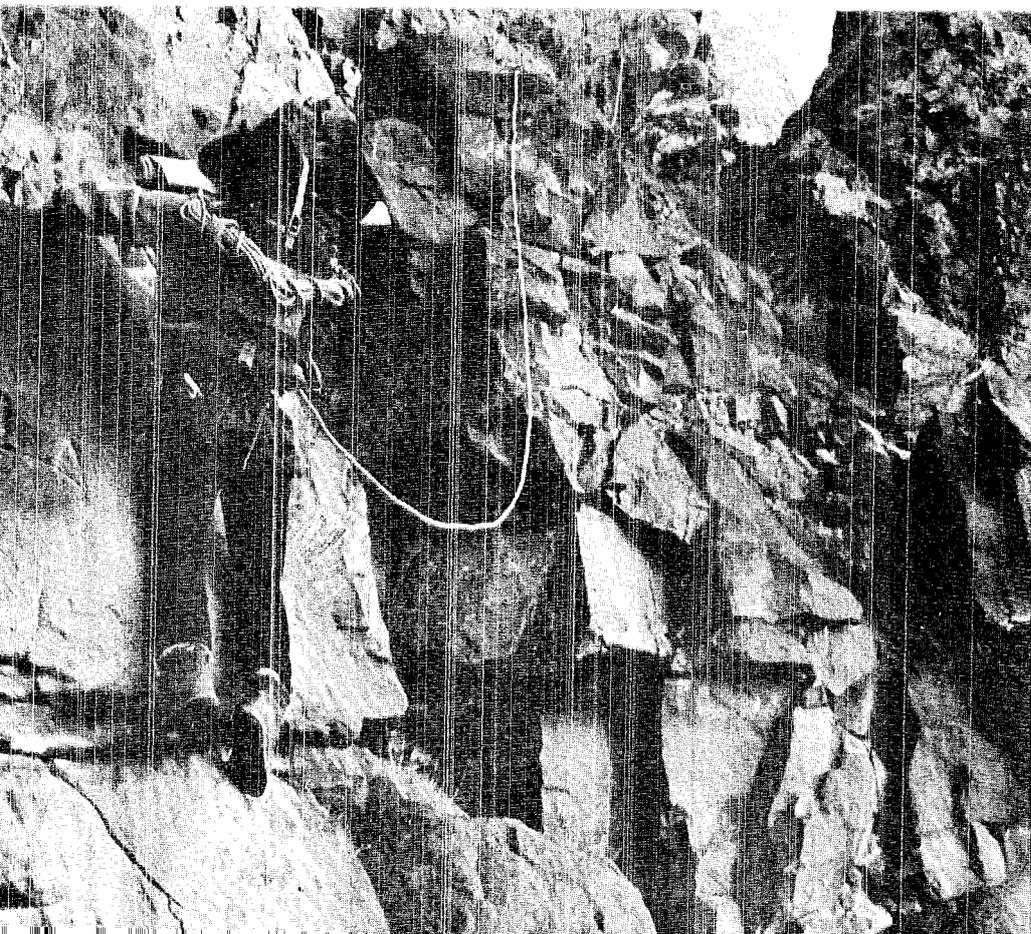
Hansen was honored "for important and sustained contributions to the physics of fast and intermediate reactors, and for his influence as an ever-willing adviser and teacher in the nuclear field."

The high token of professional esteem and recognition is reserved for acknowledged attainment in the nuclear field—by notable original research or invention; by technical leadership of substantial scope; or by outstanding leadership as a teacher.

Scientists and Mountains

Photos By E. C. Anderson

During a recent climb up New Mexico's Shiprock, Los Alamos Mountaineers, Inc. President E. C. Anderson took several photographs of his three companions—Tom Cromer, Larry Dauelsberg, and Doug Schuch. About halfway in the climb Cromer was photographed edging his way along this narrow ledge.



Traversing the "fin" on Shiprock is Dauelsberg, left, leader for the climb. A rope is tied to Cromer and to a piton in a rock, at right, as a safety precaution.

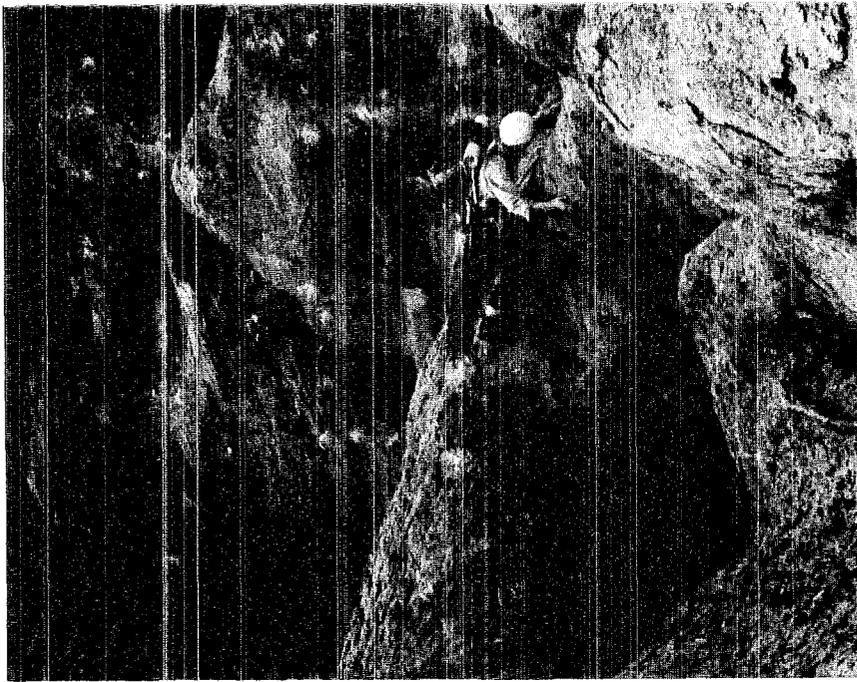
By Ken Johnson

A rugged group of Los Alamos Scientific Laboratory scientists will travel several hundred miles for the privilege of climbing a mountain.

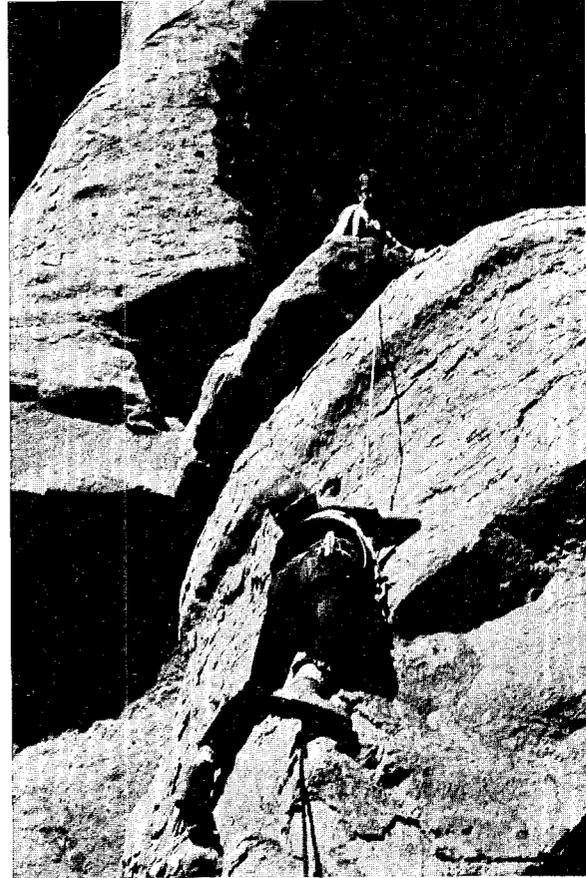
About 30 of them are members of a 15-year-old mountain climbing organization known as the Los Alamos Mountaineers, Inc. Teachers, housewives and students, numbering about 10, fill out the membership.

The members vary in experience, and for this reason, the mountains they climb vary in difficulty. Corporation President Ernest C. Anderson, H-4, said activities range from simple hikes to very technical and difficult climbs. Often times alternate routes up the same mountain can be found so that climbers can choose in accordance with their capabilities.

For the most part, mountain climbing is a weekend sport for



High up on the side of the mountain, Cromer reaches for a hand-hold in a narrow passage that leads to a "bowl" below the summit.



Now about 1,400 feet above the ground, Schuch climbs toward the summit. At the top is Cromer.

these people. It has taken them to many parts of New Mexico and Colorado, and as far north as the Tetons in Wyoming.

This year's activities started in March with the group's annual climbing school. "We have a number of first class climbers in this group and we use their experience and teaching abilities in conducting the school," Anderson said. Here, newcomers to the club learn the basic fundamentals of climbing on rock, ice and snow. They also pick up the language of the sport.

The school continued through April and in early May, graduation exercises were held. "Graduation exercises are three outstanding climbs," Anderson said. "They are the Shield and Knife-Edge of Sandia Mountain near Albuquerque and the Brazos Cliffs near Chama. They are not extremely difficult climbs, but are long and exposed," he said.

Eight more climbs are planned through October. Capitol and Hagerman Peaks in Colorado are sched-

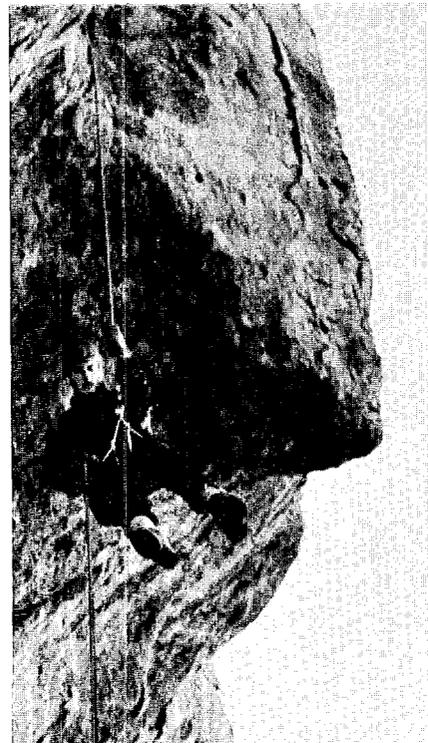
uled for early this month. Other Colorado mountains to be tackled are Blanca Peak, Crestone Needle and Peak, Wetterhorn and Little Bear. The Tetons in Wyoming and New Mexico's Shiprock and Brazos Cliffs are also on the list.

These mountains and many others have been climbed by some of the local mountainmen before. "We don't take on a mountain unless we have a leader who has climbed it before, or has thoroughly reconnoitered it," Anderson said. "Sometimes other clubs can provide the information we need."

Knowing the mountain is necessary to this group, especially when the climb is likely to be not only difficult, but hazardous. These people want to know in advance where they will need to use ropes, pitons, stirrups and other equipment to assure a safe climb.

Their respect for the mountains they climb is best expressed by their motto: "We don't want to be the best climbers in the world. We just want to be the oldest." ❁

Schuch begins the descent from Shiprock.





The “New Kid” on the Block

can be the lonliest kid in town. He is confused by his new surroundings, fearful of taking a wrong step, and anxious to put forth a good first impression.

A new employee is in a similar situation and that's where the orientation, training, and testing group (Per-5) of the Los Alamos Scientific Laboratory steps in.

After a new employe is hired at LASL, he is invited to attend one or more of several types of orientation programs administered by Ted Dunn, assistant personnel director, and Loyd Cox, Per-5 group leader.

In addition to the semi-annual General and Technical Orientation programs—which will be discussed in greater detail later in this article—a number of programs have been set up to satisfy particular needs. These include:

—Secretarial and Clerical Orientation: This program is conducted by Loraine Parten, Per-5, to acquaint such personnel with the variety of support facilities available at LASL with which they will come in contact in their day-to-day duties. It is held on a half-day basis for four morn-

ings, and includes talks and tours of service areas such as illustration, Pub, personnel, travel, wage and salary administration, accounting, the libraries, etc. Secretarial and Clerical Orientation is normally held six or seven times per year, depending upon the rate of hire. Also, usually twice a year, Mail & Records Group Leader Pat McAndrew presents a one-day program on material in the "Manual of Office Procedures."

—Summer Graduate Student Orientation: This is scheduled as early each summer as clearances and arrivals permit, and is a two-day program which includes a welcome from the director, a required security lecture, talks on LASL's current research programs, and supporting tours.

—Personnel Orientation and Security Lecture: The agenda for this program includes the required security lecture, talks on health and safety services at LASL by representatives of H-1, H-3, and H-5; and an informal presentation on the organization and administration of the Laboratory and the working environment. Currently this program is being given on a monthly basis.

—Special Security Lectures: These are provided for consultants, visiting short-term staff members, and other short-term hires, and are presented by Per-5 on an individual basis to accommodate AEC security regulations.

The modern-day General and Technical Orientation programs began in July, 1955. Prior to that time LASL conducted short orientations for new staff members and research assistants on topics such as personnel, wage and salary, housing, organization of the Laboratory and its history, etc.

"During the era of the six-day week we undertook orientation on a catch-as-catch-can basis," Dunn noted. Because many LASL personnel were at the Pacific Proving Grounds or the Nevada Test Site for long periods, the process of familiarizing new hires with the Laboratory was fairly sketchy with a formal program nearly impossible.

In July, 1955, formal General and Technical Orientation is limited to LASL staff members, the increasing diversification of LASL's mission into areas other than weapons, and because many of the fences encircling certain sites began to come down, it became possible to include more tours, and discussion of more topics, in the general or unclassified program. Initially, General Orientation was a two-day affair and the Technical, or weapons activities program, six days. Today the General is six days and Technical five, evidence of both LASL's growth and diversification.

At the present time attendance at Technical Orientation is limited to LASL staff members. Others may attend only upon written request by their division leader and approval by the director.

Invited to the General Orientation are all staff members, research assistants, and NERVA assignees; military, industrial, and visiting long-term staff members; those in the post-doctoral program; SCP 12's and above, and ASC-9's and above. Group leaders with division office approval can also arrange for certain of their employees who do not fall in one of the above categories to be invited to the General Orientation program.

Each General Orientation begins with an introduction to the history and purpose of the Laboratory by the director, or in his absence the technical associate director, and includes a short talk on special considerations. The "main course" consists of seven daily lectures by Samuel Glasstone on the fundamentals of nuclear energy and its controlled release. In his now-famous series, Glasstone weaves together information from the basic scientific and engineering disciplines involved in the weapons and other R&D programs at LASL—plus interesting historical tidbits.

His lectures are followed by daily visits to LASL sites representative of all the technical divisions. This serves as a backdrop for the Technical Orientation program which follows—four Glasstone lectures on nuclear weapons, tours of certain sites "behind the fence", and films depicting current and past J-division testing activities.

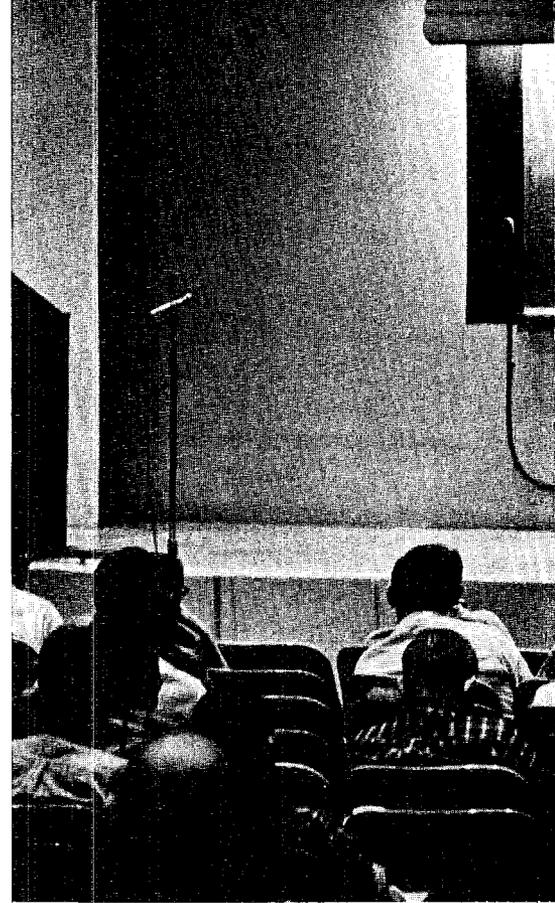
(The Glasstone lecture series originally began as part of the classified Technical Orientation and covered primarily the weapons program. The basic physics portion which is now covered in the General Orientation program was initially tied into the weapons research area. Until 1952 LASL had no major program of activity other than weapons development.)

In addition to the orientation programs, another Per-5 service is the testing of prospective and present LASL employees, when the need or desire is indicated.

These testing activities at the Laboratory started in 1953, Dunn said. To date, tests have been given regularly to secretarial and clerical personnel, technicians, and summer vacation replacements. In 1967 the testing office gave 3,892 tests to 1,063 people. The types of tests include clerical, numerical, verbal, space relations, dexterity, typing, shorthand, oral directions, mechanical ability and

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While serving the "main course" Samuel Glasstone speaks not only with his voice, but with his hands. Some of his hand gestures are shown in this interesting series of photographs taken during the General Orientation program this spring.



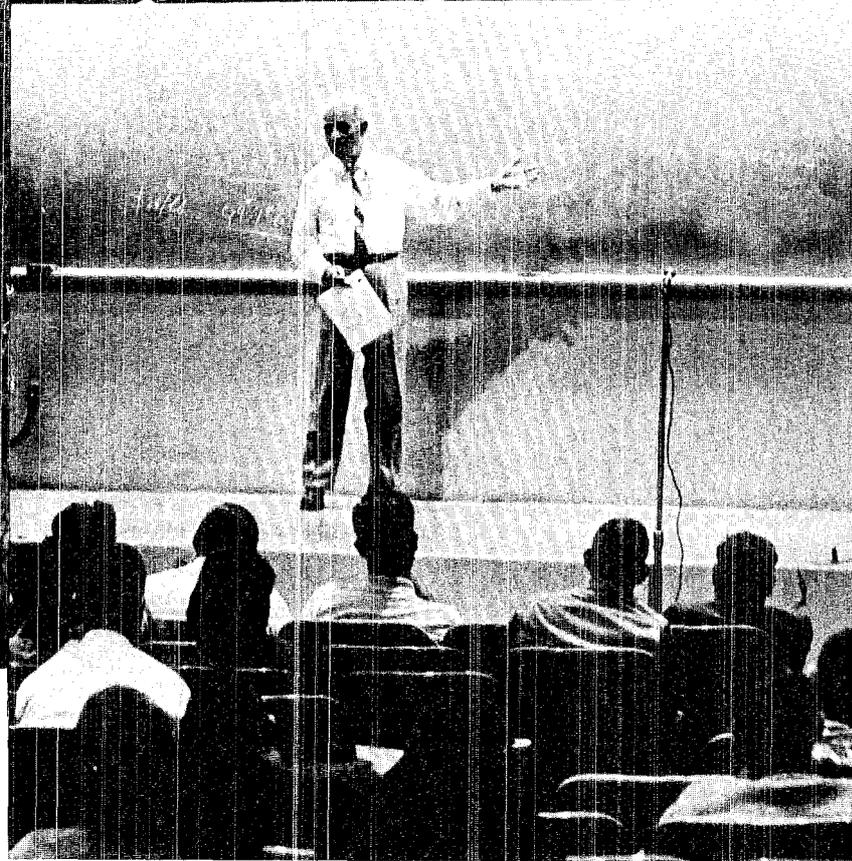
That's all there is to it.



This is important.

The class is beginning to get the idea.



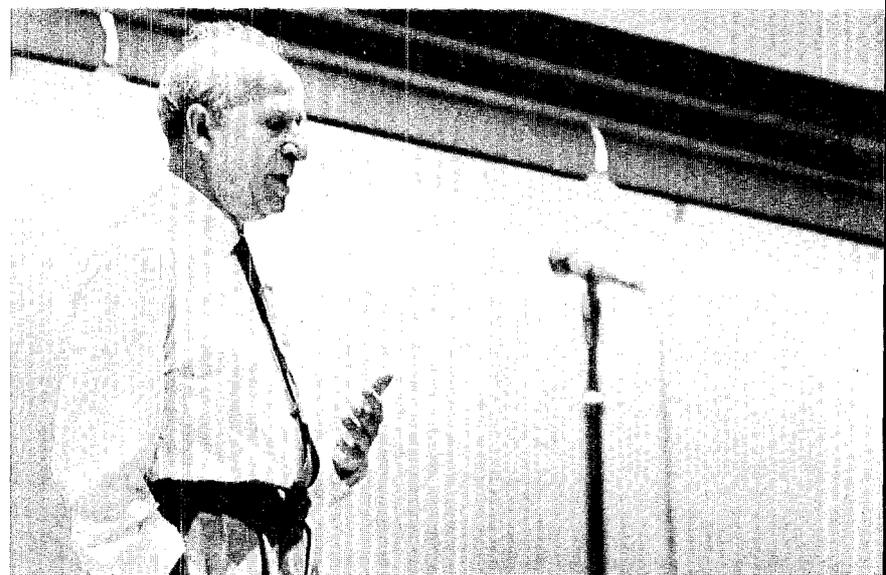


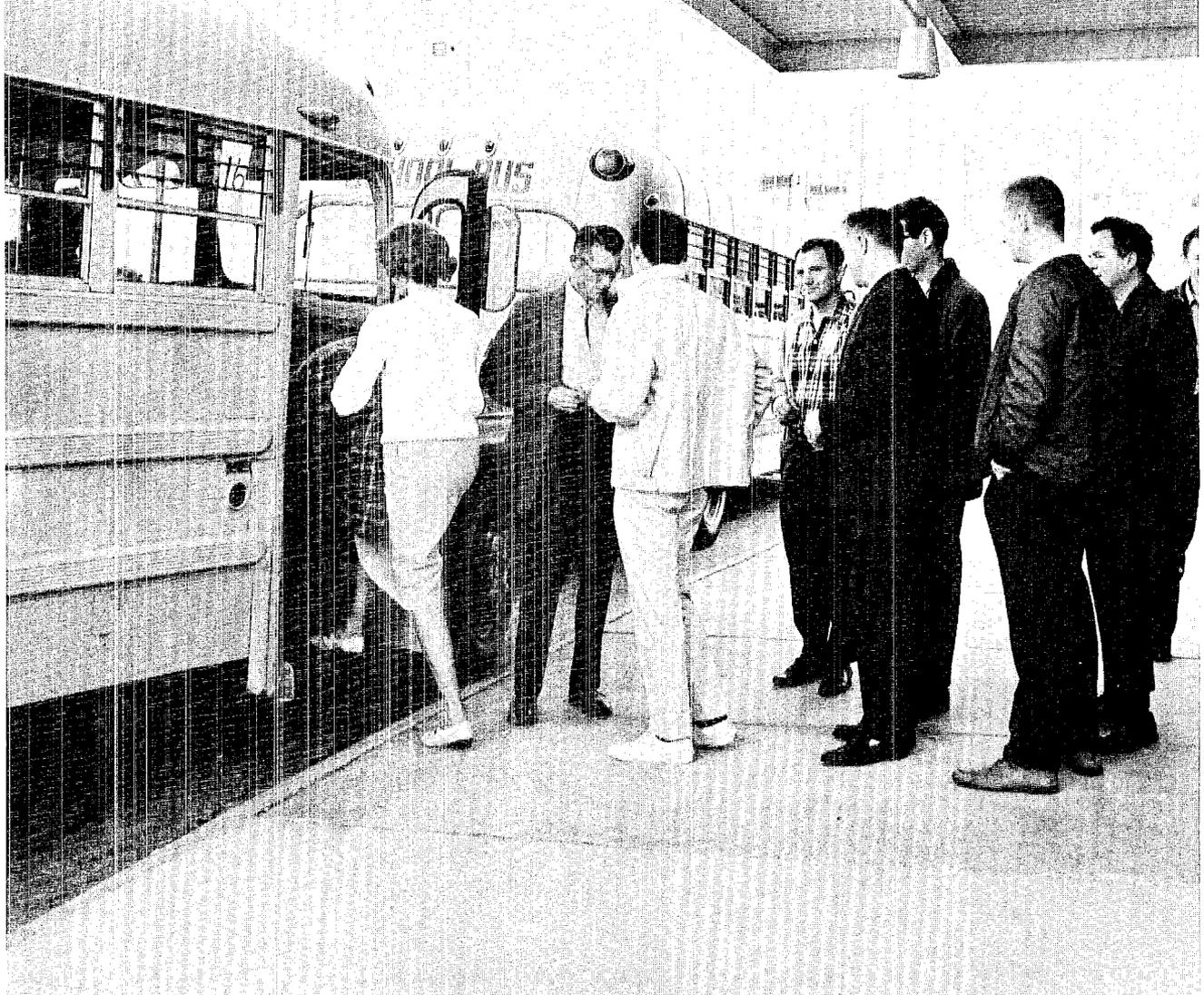
That's all for today.



A point is emphasized.

A new subject is introduced.





Assistant Personnel Director Ted Dunn checks clearance badges before members of a group board buses for a tour of LASL facilities.

The New Kid . . .

continued from page 15

aptitude, and general intelligence. Any number of these various types can be arranged to form a "test battery" to be administered to a prospective employe to test for the specific skills required for a certain job.

Dunn explains how the testing program at LASL was established:

"From 1953 to 1956 the personnel department selected different tests which looked pertinent to the skills required on LASL jobs, and tried them out on people in the Lab. We also obtained from supervisors performance rankings of their tested employes. Lots of tests or parts of tests didn't work out and we junked them, but where the tests were 'validated' by a reasonable correlation between

test results and performance on the job, a test battery was constructed to aid supervisors in selecting future employes. Test information is just one of the tools used, along with references, interviews, and the evaluation of previous experience and training, in the selection process. We hope it has been useful—many supervisors think so—and just recently we've been commissioned to begin a revalidation study of all our tests.

The third function of Per-5 is training, primarily academic training accomplished through the operation of the University of New Mexico's Los Alamos Graduate Center, which has been operated jointly with the Laboratory since 1956.

Lloyd Cox, Per-5 group leader takes a group on tour to the PHERMEX facility at LASL.



Through the years a total of 138 degrees have been earned by people who took a significant amount of their coursework at Los Alamos. This includes 18 bachelors, 91 masters, and 29 doctors.

Discounting a flurry of courses offered locally at the end of World War II when the mission of the Laboratory and its future were in question, academic training was started by LASL in 1948 with a number of extension courses offered at Los Alamos under the auspices of the University of California at Berkeley. In the fall of 1950 a few elementary courses were offered through University of New Mexico Extension. Graduate credit courses also began in 1950, a few in engineering and mathematics through UCLA, and one in chemistry through UNM. In 1951 the first graduate credit physics course was sponsored by UNM.

"It was quite an administrative jumble," according to Dunn. "We had undergraduate extension offerings from UNM, UCLA, and University of California at Berkeley. We had graduate credit programs in four different fields offered by separate departments at both UCLA and UNM." By 1953 the entire curriculum was under UNM, and four years later a subcontract was negotiated to establish the UNM Los Alamos Graduate Center.

An outstanding feature of the Graduate Center is the provision whereby an aspirant to the masters degree can fulfill all the requirements without leaving Los Alamos. A campus residency period at UNM is still required for the bachelor's or doctor's degree.

The Laboratory pays one-half the tuition for regular full or part-time employees who enroll in courses offered by the Grad Center, except for those who have lost their eligibility or are using their G.I. benefits. LASL allows residents in Los Alamos and the surrounding area to enroll in Grad Center courses of interest to them, but of course without subsidy.

In recent years Per-5 has used the Grad Center to sponsor technician training courses. Periodic surveys, including one just recently completed by Cox and Grad Center Director R. H. Williams, show that LASL technical supervisors rate highly the study of basic math, physics or chemistry subjects when answering the question: How does a LASL technician improve himself to prepare for advancement?" This method seems to provide the answer—giving the man the background in theory he possibly doesn't get on the job in the laboratory, or during technical institute training. Then he can take advantage of opportunities for increased responsibility on the job, or more schooling.

LASL's investment in the Grad Center seems to have paid off in several ways—recruiting attractiveness, technician development, and continuing education opportunities for the staff at all levels. A couple years ago, on the occasion of the Grad Center's "100th degree recipient," a study was made of all staff members who had received degrees . . . 72 per cent were still employed at

continued on next page

Four Laboratory Employees Retire in June

Four persons have retired at Los Alamos Scientific Laboratory.

Argyle D. McGillivray, Sr., process equipment shift expediter in GMX-3, retired June 14.

McGillivray joined Group GMX-3 in 1956 and has been with the group since. He and his wife, Esther, plan to spend the summer in Colorado and move to Kansas in the fall.

Dorothy W. Chambard, senior reproduction technician in D-9, retired June 28. Mrs. Chambard

joined the Laboratory in July, 1950, as microfile operator in Eng-1. Shortly thereafter she transferred to graphic arts, where she has worked since.

Her husband, LeMoyné, is on the State Public Service Commission in Santa Fe, where they now live and will continue to make their home.

James B. Newville, SD-4 machinist, retired June 28. He joined LASL in 1951. He has worked in SD-1, GMX-3, and SD-5. Newville and his wife, Fay,

plan to move to Carson, N.M.

Ralph K. Spotts, N-4 staff member, retired June 28 after more than 20 years at LASL.

He came to Los Alamos and the Laboratory in January, 1948. Spotts joined Group M-3, which later became Group W-3, and in 1956 he transferred to Group N-4. He and his wife, Marie T., plan to continue living in Los Alamos. Tentatively, he plans to go into a private electronics business here. Some travel is also foreseen.

new hires

MP Division

Billie F. Miller, Los Alamos, MP-DO (Casual)

John B. Sharp, Houston, Texas, MP-1
Maci M. Kelly, Los Alamos, MP-2

N Division

Barbara R. Seitz, Los Alamos, N-3

P Division

Rex G. Fluharty, Idaho Falls, Idaho, P-DO

John W. Lillberg, Butte, Mont., P-15

Shops Department

Raymond L. McCormick, Bisbee, Ariz., SD-1

William R. Achurch, Steelville, Mo., SD-1

Supply and Property Department

Mary Louise Mitchell, Clayton, N.M., SP-12

T Division

Jack Nachamkin, New York City, T-2
George O. Allshouse, McCleary, Washington, T-2

W Division

Frederick T. Seibel, Jr., Durham, N.C., W-8

CMB Division

Michael L. Courtney, Los Alamos, CMB-3

Gerald C. Swanson, Spokane, Wash., CMB-1

CMF Division

Charles L. Terrell, Pasco, Washington, CMF-13

D Division

Ercilia R. Mollahan, Espanola, N.M., D-8

Nancy L. Hastings, Los Alamos, D-10

Engineering Department

Jo Anne C. Campbell, Los Alamos, Eng-3

Joe E. Vasquez, Chimayo, N.M., Eng-3

GMX Division

Elsie R. Herrera, Espanola, N.M., GMX-1

Phillip H. Neal, Lafayette, Ind., GMX-3

Jon G. De Koker, Rochester, N.Y., GMX-7

James E. Wilmarth, Albuquerque, N.M., GMX-7

J Division

Karen E. Stillman, Los Alamos, J-11
Albert D. Miller, Idaho Falls, Idaho, J-11

Leon Forman, Boston, Mass, J-16

Jim A. Whitfill, Canyon, Texas, J-15

James A. Baran, Cleveland, Ohio, J-14

James A. Wells, Stamford, Texas, J-DO

Albert J. Lieber, Phoenix, Ariz., J-12

K Division

David D. Clinton, Los Alamos, K-1
Raymond E. Alcouffe, Seattle, Wash., K-1

Thomas J. Hirons, Adrian, Mich., K-1

Mail and Records

Jose F. Gallegos, Alcalde, N.M.

The "New Kid"...

continued from preceding page

LASL in R & D positions. This equated with an annual termination rate of less than six per cent, compared to more than six per cent for all staff members during the same period.

Other programs processed by Per-5 include the PR&T leaves, Advanced Study program, un-

dergraduate co-op program with NMSU, and the Technical Scholarship program.

Thus, Per-5 runs the gamut from informing the new hire to handling the paper work for a Ph.D. candidate— all part of the services associated with its name of orientation, training and testing group. 

short subjects

David Hall, K-division leader, and **Hugh Paxton**, N-2 group leader, have been re-appointed as members of the Atomic Energy Commission Atomic Safety and Licensing Board Panel for Fiscal Year 1969.

Paxton was to be a member of the board conducting a public hearing July 1 in Athens, Ala. to consider an application of the Tennessee Valley Authority for a permit to build a third nuclear power unit at its Browns Ferry Nuclear Power Station near Decatur.

Hall will serve at a hearing in Greeley, Colo. July 16 on the Public Services of Colorado's Fort St. Vrain nuclear power plant to be built near Platteville.



Gerold H. Tenney, technical advisor at LASL on nondestructive testing, attended the Conference on Nondestructive Testing and Control in the Field of Nuclear Metallurgy and Technology in Saclay, France June 24-26.

Tenney was an Honorary Committee member of the conference and chairman of one of the technical sessions, at which he presented the paper "On Various Nondestructive Testing Activities of the Los Alamos Scientific Laboratory," authored by himself, and **Neville B. Edenborough**, **H. J. Fullbright**, and **T. G. Gregory**, all of GMX-1.

He met with the president of the International Committee and other members of the German Society for Nondestructive Testing in Hamburg June 27-28 for preliminary discussions on the Sixth International Conference to be held in Germany in May 1970.

In London he met with **I. M. Barnes**, honorary secretary of the Non-Destructive Testing Society of Great Britain June 29, and was to meet with **Roy S. Sharpe**, chief of the British Nondestructive Testing Research Centre in Harwell July 1.

Stan M. Ulam, who retired from Los Alamos Scientific Laboratory in 1967 after 23 years service, has been given a joint appointment as professor of biophysics in the University of Colorado School of Medicine.

Ulam, often called "the father of the hydrogen bomb" now heads the department of mathematics at CU.

At LASL, he was a group leader in T-division in 1946 and in 1957 became a research advisor in the director's office.



L. D. P. King, Rover Flight Safety Office, has been named by LASL Director Norris E. Bradbury to take responsibility for arranging for colloquium and staff member meeting speakers. He succeeds **John Manley**, research advisor, in performing these duties.



Harold M. Agnew, weapons division leader at Los Alamos Scientific Laboratory, and **Frank C. Di Luzio**, area manager for the Atomic Energy Commission in Los Alamos from 1952 to 1957, have been named to the Aerospace Safety Panel of the National Aeronautics and Space Administration.

Di Luzio is currently president of the Reynolds Electrical and Engineering Co., Inc. (REECo.), performing test support services at the Nevada Test Site. REECo. is a subsidiary of EG&G, Inc., of which he is vice president.



Four U. S. patents recently made available for public use by the Atomic Energy Commission are inventions of Los Alamos Scientific Laboratory employees.

They are the Cryogenic Phase Separator, invented by **J. H. Fretwell**, CMF-9, and **H. K. Jennings**, P-9; Method of Preventing Segregation During Casting of Composites, **R. E. Riley**, and

continued on next page

short subjects

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H. Sheinberg, both of CMB-6; Overvoltage Protection Circuit for Condenser Discharge System, **A. E. Schofield** and **R. O. Holm**, both P-14; Preparation of Metal Carbonates by CO₂-Pressurizing Anhydrous Metal Acetates, **E. H. Head**, CMF-2.

Another patent—Magnetic Focusing of X-Ray Tubes and System for Operating—was also released for public use. Five former LASL employees are named as the inventors. They are: **L. G. Parratt**, **T. R. Cuyendall**, **K. I. Greisen**, **L. T. Finlayson**, **F. Reines**.



Charles R. Canfield, personnel director of the Los Alamos Scientific Laboratory, and **Richard H. Williams**, associate professor of electrical engineering and director of the Los Alamos Graduate Center, University of New Mexico, have been appointed to the State Advisory Committee on Scientific, Engineering and Specialized Personnel.

Announcement of the appointments was made by General John P. Holley, state director of Selective Service.

Purpose of the committee is to make advisory recommendations to the state director concerning Selective Service deferments.



AtomFair '68 International, the annual exhibit of the nuclear industries, will be held concurrently with the International Conference on the Constructive Uses of Atomic Energy in Washington, D.C. the week of Nov. 10 at the Sheraton Park Hotel.

AtomFair will host NucleArt '68, the third exhibition of art works by amateur artists working in the nuclear community.

Eight LASL Chemists Named AIC Fellows



Frederick J. Edeskuty



Francis N. Hayes



Darleane C. Hoffman



Charles E. Holly, Jr.



Allen C. Larson



Charles F. Metz



Edward I. Onstott



Adam F. Schuch

Eight more chemists at Los Alamos Scientific Laboratory have been elected Fellows of the American Institute of Chemists.

The AIC confers the honor on "chemists or chemical engineers who have achieved full maturity in the professions as evidenced by record of outstanding scientific accomplishments or by having attained positions of distinction or responsibility."

Those receiving the honor are Frederick J. Edeskuty, CMF-9; Francis N. Hayes, H-4; Darleane C. Hoffman, J-11; Charles E. Holly, Jr., CMF-2; Allen C. Larson, CMF-5; Charles F. Metz, CMB-1; Edward I. Onstott, CMB-8; and Adam F. Schuch, CMF-9.

They follow in the footsteps of 10 other LASL chemists elected in 1966. They were Robert D. Fowler, CMF-DO; Thomas K. Keenan, CMF-4; William E. Keller, CMF-9; Joseph A. Leary, CMB-11; Robert N. R. Mulford, CMF-5; Clayton E. Olsen, CMF-13; Sherman W. Rabideau, CMF-2; Leslie M. Redman, D-6; Glenn R. Waterbury, CMB-1.

Prior to that there were only three—Charles P.

Kempton, N-1, Robert B. Gibney, CMF-13, and the late Herbert Ungnade, GMX-2. Kempton is also a member of the AIC's National Membership Committee.

The AIC was founded in 1923 to elevate the professional status of chemists and chemical engineers. One of its committees proposed the establishment of the National Science Foundation in 1941 and was an active supporter of the bill creating it in 1946.

In addition to the "Fellow" citations the AIC annually confers a Gold Medal award for "noteworthy and outstanding service to the science of chemistry of chemical engineering or the profession of chemist or chemical engineer in the U.S."

The organization also grants "Honorary" memberships for distinctive achievements in the chemical field. Such a membership was granted to Glenn T. Seaborg, chairman of the Atomic Energy Commission who has held professional AIC membership since 1949. Seaborg was a member of the committee that nominated the Laboratory's most recent AIC Fellows.

Former AEC Manager Tyler to Get Citation

Carroll L. Tyler, former manager of the Atomic Energy Commission's Office of Santa Fe-Directed Operations at Los Alamos, will be the recipient of a special citation July 16.

The citation recognizes Tyler's outstanding contributions to the nation's nuclear weapons program during the critical years following World War II. It will be presented by AEC Commissioner James T. Ramey at 4 p.m. in the Physics Analytical Center Auditorium.

Tyler retired from the U.S. Navy to accept the appointment of manager of the AEC's new office in July, 1947, when budgets for the Los Alamos Scientific Laboratory were uncertain and military versus civilian control was being debated. He held the position until February, 1954.

The Santa Fe Office, responsible for nuclear weapons research, development, testing, production and storage, later became the Albuquerque

Operations Office. Prior to its inception, duties of the Santa Fe Office were conducted by the Manhattan Engineer District.

One of his first responsibilities was that of an \$80 million program to rehabilitate and expand the Laboratory and to build a \$75 million community complex.

He set up a New England-type town meeting in the absence of local vote and civil government, which served until 1949 when Los Alamos County was established—the first step toward local government.

He strongly supported thermonuclear research at LASL and a program for testing weapons in the United States, which resulted in establishing the Nevada Test Site in 1951. He helped set up a site on Eniwetok Atoll and later the Pacific Proving Grounds, including Eniwetok and Bikini Atolls, for remote testing.

The Technical Side

Presentation at Colloquium, Catholic University of America, Washington, D.C., April 18;

"Numerical Simulation of Coaxial Plasma Discharge" by R. L. Morse, P-18

Presentation at Colloquium, Northwestern University, Evanston, Ill., May 1:

"Experimental Program with LAMPF" by Louis Rosen, MP-DO Seminar at Argonne National Laboratory, Chemical Engineering Division, Argonne, Ill., May 3:

"KIWI-TNT" by W. R. Stratton, N-2

Seminar at Santa Fe Prep and High Schools, Santa Fe, N.M., May 3:

"Nuclear Science and Technology" by D. M. Barton

Colloquium at New Mexico State University, Las Cruces, N.M., May 9:

"Theoretical Calculation of Atomic Energy Levels and Spectra" by R. D. Cowan, T-DOT.

Colloquium at Physics Department, University of Vancouver, British Columbia, Canada, May 9:

"Columba—A Fast Z-Pinch" by J. A. Phillips, P-14

Annual Meeting of the American Industrial Hygiene Association, St. Louis, Mo., May 12-17:

"Evaluation of Several Filter Media, Cartridges and Respirators Against Radon Daughters" by E. L. Kaufman, State Health Dept., N.M.; and D. A. Bevis and E. C. Hyatt, both H-5

Presentation at the Nuclear Engineering Department, University of Illinois, Urbana, May 13:

"UHTREX" by F. P. Schilling, K-5 Seminar at the University of Denver, Colo., May 15:

"Structure and Bonding of Lithium-Rhodium-Hydrides" by L. B. Lundberg, K-2

Extemporaneous talk at IBM Laboratory, Burlington, Vt., May 15:

"Analysis of Surface Impurities Using Auger Electron Spectroscopy"

by B. D. Campbell, CMB-8 Seminars at the University of Denver, Colo., May 16; and the University of Puerto Rico, Mayaguez, P. R., June 17:

"Computer Prepared Stereo Drawings of Hydrogen-Like Electron Densities" by D. T. Cromer, CMF-5 Presentation at the University of Colorado, Dept. of Aerospace Engineering, Boulder, Colo., May 16:

"A Nuclear Reactor System Dynamics Study" by H. B. Demuth, K-4

Presentation at the Physics Department, The University of Sheffield, England, May 16:

"Measurement of the Neutron Scattering Structure Factor in Liquid ^{36}Ar " by J. L. Yarnell, P-2

Proton Linear Accelerator Conference, Brookhaven National Laboratory, Upton, N.Y., May 20:

"Introductory Talk for 1968 Proton Linear Accelerator Conference" by Louis Rosen, MP-DO

Presentation at the Advanced Physics Class, Los Alamos High School, May 20:

"Cryogenics and Cryogenic Engineering" by F. J. Edeskuty, CMF-9
Atomic Energy Commission Computer Information Meeting, Los Alamos, May 20-21:

"Hydrodynamics of Chemically Reacting Flow" by C. L. Mader, T-5

"The History of Computing" by W. J. Worlton, C-DO

"Large Scale Computing in Weapon Development" by T. N. K. Godfrey, T-2

"LASL'S CCF" by Paul E. Harper, C-DO

United States/United Kingdom Libby-Cockcroft Plutonium Information Exchange, Harwell, England, May 20-22:

"Thermodynamic Properties of Plutonium Ceramics from Mass Spectrometric Vaporization Studies" by R. A. Kent and J. A. Leary, both CMB-11

"Thermodynamic Properties of Plutonium Carbides and Nitrides by Electromotive Force Techniques" by G. M. Campbell and J. A. Leary, both CMB-11

"Differential Thermal Analysis of Plutonium Oxides, Carbides, and Nitrides" by J. G. Reavis and J. A. Leary, both CMB-11

"High Temperature Heat Content and Heat Capacity of Uranium Dioxide-Plutonium Dioxide Solid Solutions" by A. E. Ogard and J. A. Leary, both CMB-11

"Synthesis and Fabrication of (U, Pu)C and (U, Pu)N Solid Solution Fuels" by M. W. Shupe, R. L. Nance, A. E. Ogard, and J. A. Leary, all CMB-11

Lecture in Industrial Hygiene Course at Harvard School of Public Health, Boston, Mass., May 22:

"Industrial Hygiene in Nuclear Industries" by H. F. Schulte, H-5

Presentation at Boeing Scientific Research Laboratories, Seattle, Wash., May 23:

"The Classical and Quantum theory of Time-Dependent Electromagnetic Fields" by H. R. Lewis, P-18

Presentation at Battelle Memorial Institute, Columbus, Ohio, May 23-24:

"Characterization of Powders: Measurement Methods, Data Inter-

pretation, and Applications" by H. D. Lewis, CMF-13

Presentation at Institute of Electrical and Electronic Engineers dinner meeting, Los Alamos and Albuquerque Subsections, Holiday Inn, Albuquerque, May 24:

"Does Freezing Kill?" by R. S. Thurston, W-4

Second International Conference on Thermionic Electrical Power Generation, Stressa, Italy, May 27-31:

"Advances in Heat Pipe Technology" by G. M. Grover, J. E. Kemme, and E. S. Keddy, all N-5

National Instrument Society of America Aerospace Symposium, Boston, Mass., June 3-5:

"Considerations involved in Automation of Test Facilities" by B. W. Washburn, J-18

"Turbopump Vibration Measurements at Cryogenic Temperatures" by B. W. Washburn, J-18

"Conditioning of Digital Sampled Data Spectra" by B. W. Washburn, J-18

Presentation at Meeting of the Southern California Chapter of the Health Physics Society, Los Angeles, Calif., June 6:

"Health Physics Aspects of Nuclear Weapons Incidents" by W. H. Langham, H-4 (Invited Talk)

Fourteenth Annual Meeting of the American Nuclear Society, Toronto, Ontario, Canada, June 9-13:

"Liquid Jet Super Flux Reactor (LJSFR)" by L. D. P. King, Dir. Off.

"Analysis of an Initial Value Problem for the Neutron Transport Equation with Delayed Neutrons" by W. L. Hendry and G. I. Bell, both T-DOT

"Reactivity Values from the LASL Cross-Section Tape Library" by C. B. Mills, T-DOT

"Magnetic Diffusion in a Vortex Gas Core Nuclear Rocket Engine" by S. A. Dupree (Purdue University, Lafayette, Ind.) and H. A. Sandmeier, T-DOT

"The Dynamic Characteristics of a Sodium Oxide Plugging Indicator" by C. C. McPheeters and J. C. Biery, both K-2

"Possibilities and Advantages of Using Negative Pions in Radiotherapy" by L. Rosen, MP-DO (Invited)

"Measurement of Absolute Delayed Neutron Yields from 14 MeV Fission" by C. F. Masters, M. M. Thorpe, and C. B. Smith, all N-6

"Unreflected Plexiglas-Graphite-Uranium Critical Measurements" by J. C. Hoogerterp, N-2

"Attenuation of Fast Neutron Biological Dose in Nonhydrogenous Shields Followed by Thin Hydrogenous Shields" by D. J. Dudziak, K-1

"Measurement of the Critical Mass of a Water-Reflected Plutonium Sphere" by W. U. Geer and D. R. Smith, both N-2

"Critical Experiments in UHTREX" by Byron M. Carmichael, K-1

"Fission-Product Decay from Fast Fission of ^{239}Pu : Addendum" by M. E. Battat and D. J. Dudziak, both K-1

"Calculated and Experimental Flux and Power Distributions in UHTREX" by J. C. Vigil, R. J. LaBauve, and J. L. Meem, Jr., all K-1

"Mass Transfer of Oxygen in Sodium Cold Traps" by C. C. McPheeters, K-2

"Plutonium-238 for Biomedical Applications" by L. J. Mullins and J. A. Leary, both CMB-11

"Fabrication of Ceramic Components for Use in Plutonium Electro-refining" by S. D. Stoddard and D. E. Nuckolls, both CMB-6

Presentation at the American Institute for Aeronautics and Astronautics Fourth Propulsion Joint Specialist Conference, Cleveland, Ohio, June 10-14:

"Status of the Los Alamos Nuclear Rocket Program" by F. P. Durham, N-DO

"Scale Model Tests of a Nuclear Rocket Exhaust Scrubber" by Keith Boyer, J-DO; C. A. Fenstermacher, J-18; E. A. Bryant, J-11; and Karl Meier, K-3.

Presentation at 12th Annual Transformation Meeting, Grossinger, N.Y., June 11-14:

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the technical side . . .

continued from preceding page

"Transformation and Recovery from U.V. Damage in a U.V.-Sensitive Mutant of Hemophilus Influenzae" by B. J. Barnhart, H-4

Retiring President's Address at American Nuclear Society Meeting, Toronto, Ontario, Canada, June 12

"The Imp and Mr. Nuclear" by R. E. Schreiber

Symposium on Physics and Chemistry of the Upper Atmosphere, Waltham, Mass., June 12-13:

"Reactors of N_2^+ with N_2 " by W. B. Maier, II, J-10

Presentation at National Annual American Society of Mechanical Engineers Aviation and Space Division Conference, Beverly Hills, Calif., June 16-9:

"Total Emissivity Measurements by the Heat Pipe Method" by J. E. Deverall, N-5 (Invited)

"High Performance Heat Pipes" by J. E. Kemme, N-5 (Invited)

Health Physics Society Annual Meeting, Denver, Colo., June 16-20:

"Direct Radiation Environmental Measurements of a High Energy Release (2.7×10^{12} watt-sec) Rover Reactor Utilizing a 360° Open-Well Shield" by A. J. Ahlquist, H-8

"A Theoretical Model for Lung Tumor Risk from Inhaled Radioactive Particles" by P. N. Dean and W. H. Langham, both H-4

"Biological Response to Small Discrete Highly-Radioactive Sources. I. Observations on Gastrointestinal Transit, Histological Change, and Tissue Deposition in Beagles Fed One-Half Curie $^{238}\text{PuO}_2$ for Six Months" by C. R. Richmond, J. E. London, J. S. Wilson, all H-4, and J. M. Langham, H-DO

"II. Development of Microlesions in Rat Lung Tissue from $^{238}\text{PuO}_2$ Microspheres Injected Intravenously" by C. R. Richmond, H-4, and J. M. Langham, H-DO, and R. S. Stone, Medical Dept., University of New Mexico

"The Multisphere Neutron-Monitoring Technique" by D. E. Hankins, H-1

"A Study of Selected Criticality-Dosimetry Methods" by D. E. Hankins, H-1

"Investigation of a Bubbler Tritium Sampler" by A. M. Valentine, H-1

"Some Health Physics Aspects of a Nuclear Weapon Incident" by W. H. Langham, H-4

Presentation at International Federation of Information Processing/International Federation for Automatic Control Symposium, Toronto, Canada, June 17-19:

"Programmable Machinery: A Programming Concept for Computer Control" by R. F. Thomas, Jr., T-5

"Computer Control of the Los Alamos Linear Accelerator" by H. S. Butler, R. A. Gore, and D. T. Van Buren, MP-1

American Physical Society Meeting, Los Alamos, June 17-19:

"New Measurements of the Fluorescence Efficiency of Air Under Electron Bombardment" by P. L. Hartman, LASL consultant with Cornell University.

"A Branching Law for the Adjoint Tensor Operators in $U(n)$ " by L. C. Biedenharn, and J. D. Louck, T-9

"One-Dimensional Elastic-Plastic Calculations for Aluminum" by C. L. Mader, T-5

"Numerical Study of a Coaxial Accelerator" by T. D. Butler, T-3, and R. L. Morse, P-18

"Theoretical Calculations of the d-, f-, and g-electron Transition Series" by D. C. Griffin and K. L. Andrew, Purdue University, and R. D. Cowan, T-DOT

"The Formation and Transport of a Saturation 'Shock' in a Ferromagnetic Conductor" by D. A. Baker, P-18, and L. W. Mann, T-5

"Study of Coaxial Snowplow

Discharge" by Ivars Hennins and John Marshall, both P-17

"Plasma Production by a Coaxial Gun" by John Marshall and Ivars Hennins, P-17

"Measurement of Plasma Density Outside the Plasma Column in a Theta Pinch by Means of a CO_2 -Laser Interferometer" by H. Herold and F. C. Jahoda, P-15

"Observation of Kurskal-Shafranov Modes on a Theta-Pinch Plasma Column" by E. M. Little, W. E. Quinn, and F. L. Ribe, all P-15

"Coordinated Measurements of Plasma Density and Cooperative Light Scattering in a Theta-Pinch Plasma" by Mark Daehler, G. A. Sawyer, and K. S. Thomas, P-15

"Plasma Convection, Concentration and Heating by Flux Annihilation" by A. A. Newton, P-15, and John Marshall, P-17

"Polarization of Tritons Scattered from Helium" by D. D. Arfstrong, P-12, and P. W. Keaton, Jr. and L. R. Veaser, P-DOR

"Transition State Spectra of ^{234}U , ^{238}U , and ^{240}Pu from (d, pf) and t, pf) Measurements" by H. C. Britt, P-DOR (Invited)

"OPE Mechanism in Backward pd Scattering" by M. E. Schillaci, R. R. Silbar, and V. Franco, all T-9

"Vacuum Polarization Interaction Between Protons and Effective Range Parameters" by J. E. Brolley, P-DOR

"Majorana Depolarization Effects in a Polarized Ion Source" by G. G. Ohlsen, P-DOR

"Study of the $D(d, d)D$, $D(d, p)T$, and $D(d, n)^3\text{He}$ Reactions with Polarized Deuterons" by E. M. Bernstein, V. S. Starkovich, G. G. Ohlsen, P-DOR; and W. G. Simon, University of Wyoming

"Particle Losses in Quiescent Cesium Plasmas Due to Resonant Charge Exchange" by H. Dreicer and D. B. Henderson, both P-13

"Flash Radiographic Studies of Shock and Detonation Waves" by D. Venable, GMX-11

"Electron Excitation Functions of Neon" by F. A. Sharpton, R. M. St. John, C. C. Lin, all University of Oklahoma, and F. E. Fajen, J-10

"Excitation of Nitrogen by Electrons: The Lyman-Birge-Hopfield System of N_2 " by R. F. Holland, J-10

"Electron Excitation Cross Sections of H_2 " by F. E. Fajen, J-10 and C. C. Lin, University of Oklahoma

"Reactions of $^{16}N_2^-$ with $^{14}N_2$ " by W. B. Maier, II, J-10

"Dynamics of the Plasma Sheet in the Earth's Magnetotail" by E. W. Hones, Jr., P-4 (Invited)

Presentation at Twenty-Second AEC Metallography Group Meeting, San Diego, Calif., June 18-21:

"Qualitative Metallography of Uranium-Plutonium Mixed Carbide Fuels" by J. H. Bender, K-2

"Electro-Mechanical Polishing of Some Refractory Carbides Containing Graphite" by T. I. Jones, CMB-6

"Cathodic Vacuum Etching with Hydrogen" by R. D. Reiswig, CMF-13

"Current Metallographic Practices on the Plutonium-rich End of the Plutonium-Hafnium Phase Diagram" by Virginia G. Shadden and C. C. Land, both CMF-5

"The Metallographic Preparation and Microscopic Examination of a Molybdenum Uranium-Dioxide Cermet Fuel" by D. R. Schuyler and T. G. Gregory, both GMX-1

Presentation at Joint Working Group 22 (Atomic Weapons Research Establishment) Classified Meeting, Aldermaston, England, June 18-21:

"Rare Earth Additions to Uranium and Uranium Alloys" by G. E. Jaynes, Jr., CMB-6

Presentation at Seminar—CCR Euratom, Ispra, Italy, June 20:

"Carbon Diffusion in Some Refractory Carbides," by T. C. Wallace, CMB-3 (Invited)

Presentation at Sixth Plansee Seminar, Reutte, Austria, June 24-28:

"The Chemical Diffusion of Carbon in Group III-B Carbides" by R. J. Fries, N-1

"Carbon Diffusion in the Carbides of Uranium" by T. C. Wallace, C. L. Radosevich, W. G. Witterman, and M. G. Bowman, all CMB-3



Taken from the files of the July, 1948, Los Alamos Times by Robert Porton

Decision Causes TIMES to Suspend Publication

The AEC management has ordered the **Los Alamos Times** to discontinue publication, effective with the issue of July 29. The action came following the receipt of rules by the Joint Congressional Committee on Printing which would bar the newspaper from carrying advertising and from printing pictures except with prior approval. Concurrently with the order for suspension, it was announced that office space would be rented to any or all newspapers satisfying requirements of adequate facilities and services to furnish a paper for the Project.

To Complete Otowi Bridge This Month

The new Otowi bridge over the Rio Grande should be completed within 30 days, a spokesman of the State Highway Department estimated today. At the same time, Santa Fe County has announced that it will begin grading work soon from Otowi to the Pojoaque cutoff. The road is said to shorten the distance between Los Alamos and Santa Fe by 12 to 15 miles.

Be Good, Fido

Wayward pooches, burros, cats, parrots or other pets make their owners subject to prosecution, according to information from United States Attorney, C. Craig Hosmer, federal prosecutor for the Project site.

According to the ruling, owners of dogs and other pets which are allowed to damage property or annoy others are subject to prosecution in the United States Commissioner's court.

Hosmer stated that under normal circumstances pet owners will receive one warning from the town section police. If the owner fails to act upon the warning, a complaint will be issued upon the signed statement of at least two separate householders who agree to testify at the prosecution.

Plans for Expansion of Commercial Section

Business facilities to be soon realized and future plans for expansion of the commercial section of Los Alamos were outlined by T. B. Jenson, AEC Operations Chief, this week. Today, Jenson revealed, the population at Los Alamos is 8,200 and planning is being carried on for an estimated 12,000 resident population by 1951. He stated that the average salary for all employees at Los Alamos is \$3,317.47, highest of any community of comparable size.

New Professional Organization is Called International Metallography Society, Inc.

A new international organization, of interest to those in the fields of optical and electron metallography, ceramography, petrography, micrography, and allied sciences, has been founded and incorporated under the name of International Metallography Society, Inc.

The Society's journal entitled *Metallography: An International Journal*, is expected to begin publication on a quarterly basis this summer.

"Present founding members feel such a society has long been needed in our scientific community in conjunction with a journal that will af-

ford direct communication in these fields between scientists and technicians throughout the world," stated K. A. Johnson, CMB-11, one of three founders and secretary of the Society.

The other two founders are J. H. Bender, K-2, president of the organization; and F. L. Cochran of Gulf General Atomics, who is vice president.

Johnson said that a membership drive is underway. A total of 31,000 invitations to join have been mailed, including 8,000 to foreign countries. The secretary reported that as of June 17 more than 400

paid memberships had been received—about 20 per cent of which were from foreign countries. "We are receiving 10 to 20 new memberships daily," Johnson added.

The first annual technical meeting of the Society is scheduled for Nov. 11-13 in Denver. Closing date for acceptance of papers to be presented at the meeting has been set for Aug. 15.

In conjunction with the meeting will be a photo contest. Johnson stated that deadline for entries is Oct. 15. A grand prize of \$1,000 will be awarded and first prizes of \$100 in optical, electron and color divisions.

what's doing

OUTDOOR ASSOCIATION: No charge, open to the public. Contact leader for information about specific hikes.

Thursday, July 11, evening hike, Ken Ewing, leader, 8-4488.

Saturday and Sunday, July 13 and 14, Jawbone Ridge, Marlene McKee, leader, 2-4988.

Saturday, July 20, Santa Fe Baldy, Herb Vogel, leader, 672-9832.

Thursday, July 25, evening hike, Don Hoard, leader, 672-3356.

Wednesday, July 31, evening hike, Dibbon Hagar, leader, 2-6209.

DON JUAN PLAYHOUSE: Outdoor theater between Los Alamos and Santa Fe near San Ildefonso Pueblo. Tickets, \$2, at box office, at Decol's in Los Alamos and the Centerline Shop in Santa Fe. Curtain time 9:15 p.m.

Friday and Saturday, July 12 and 13—"A Wind Between the Houses," by Maurice Hill.

Friday and Saturday, July 19 and 20—Two one-act plays: "The Collection," by Harold Pinter, and "No Exit," by Sartre.

Friday and Saturday July 5 and 6—"Under Milkwood," by Dylan Thomas. (Also on Friday, July 26, and Saturday, July 27).

SANTA FE THEATRE COMPANY, perform-

ing in the Greer Garson Theatre, Santa Fe. Second season, June 18-Aug. 24. Performances Tuesdays through Saturdays. For information call 982-6511.

July 2-13—"The Imaginary Invalid"

July 16-27—"The Birthday Party"

July 30-August 10—"Spoon River Anthology"

MESA PUBLIC LIBRARY EXHIBITS: Month of July—

Art Exhibit:

Paintings by Mrs. Katherine Skaggs

Case Exhibit:

Summer activities for teenagers and trails up mountains

NEWCOMERS CLUB: Meeting, Wednesday, July 24, 7:30 p.m., Los Alamos National Bank. Representatives from various local clubs and organizations will explain their activities. Used book sale at this time also. Call Mrs. Jerry Morgan, 662-5486, for further information.

PUBLIC SWIMMING: Los Alamos High School pool. Adults, 50 cents; students 25 cents.

Monday through Friday, 2 p.m. to 6 p.m. and 7 p.m. to 10 p.m.

Saturday and Sunday, 1 p.m. to 6 p.m.

SANTA FE OPERA: Tickets available at Los Alamos Building & Loan, beginning June 19, on Mondays, Wednesdays and Fri-

days from 10 a.m. to 1 p.m. Curtain time at 9 p.m.

Tuesday, July 2—"Madame Butterfly"

Friday, July 5—"The Magic Flute"

Saturday, July 6—"Madame Butterfly"

Wednesday, July 10—"The Magic Flute"

Friday, July 12—"Madame Butterfly"

Saturday, July 13—"La Traviata"

Wednesday, July 17—"La Traviata"

Friday, July 19—"The Elixir of Love"

Saturday, July 20—"The Magic Flute"

Wednesday, July 24—"The Elixir of Love"

Friday, July 26—"Der Rosenkavalier"

Saturday, July 2—"The Elixir of Love"

Wednesday, July 31—"Der Rosenkavalier"

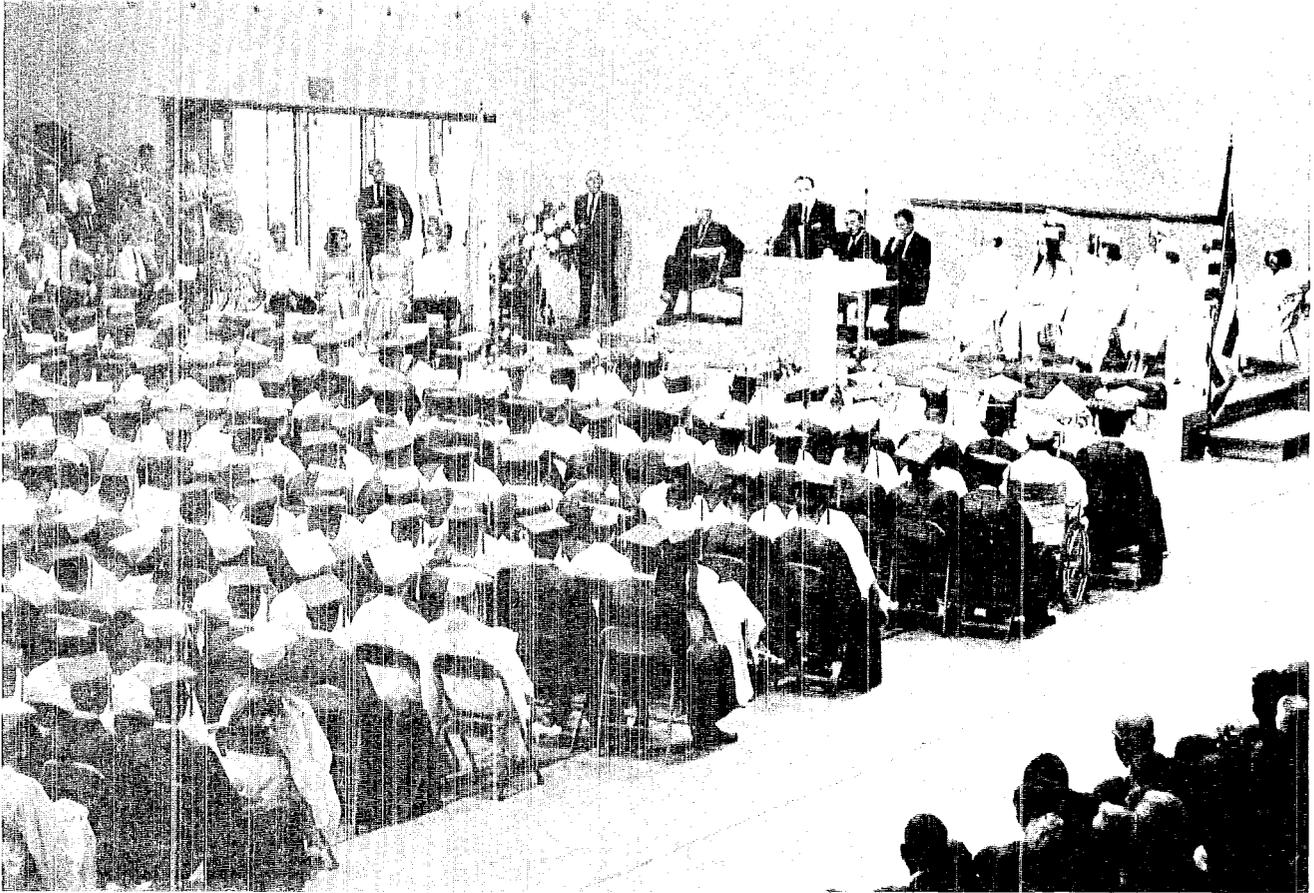
YOUTH OPERA LECTURES: Open to the public, 7:30 p.m., The Lodge.

Monday, July 1, Mrs. Doyle Davis on "The Magic Flute"

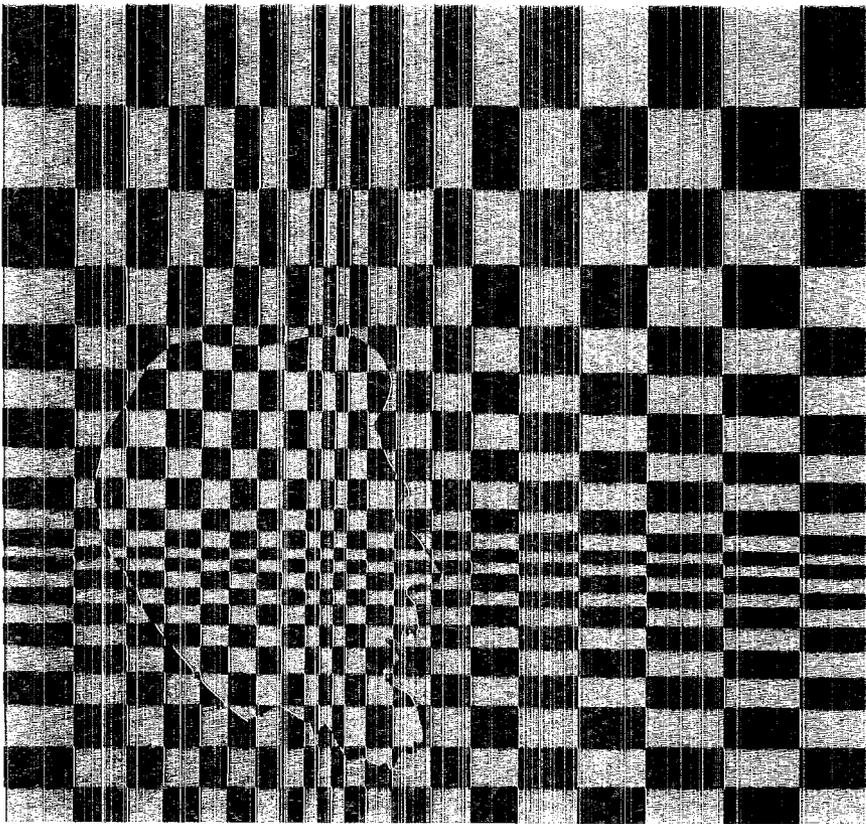
Sunday, July 14, Miss Mary Fowler on "The Elixir of Love"

Sunday, July 21, Mrs. Doyle Evans on "Der Rosenkavalier"

SCUBA TRAINING: 1968 Scuba training and practice sessions begin the latter part of July at the Los Alamos High School. Basic skills of scuba necessary for safe diving will be taught. Contact the Los Alamos Sportsmen's Club for further information, or C. B. Mills, chairman, water sports.



Three hundred and eight graduates and an overflow crowd of parents and well wishers filled Griffith Gymnasium early last month for Los Alamos High School commencement exercises. Dr. Earl C. Bolton, University of California vice president for administration, was the main speaker for the evening. Ten graduates, all girls, seated on the platform were specially honored for academic excellence.



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profile

*of a
research effort*

The Los Alamos Scientific Laboratory in support of its programmatic effort expends a substantial portion of its time and energy conducting basic research. The ratio of its scientists and engineers who hold the Ph.D. degree to its total research staff is greater than one in three.

Basic research is carried on in the following areas: elementary particle physics, space physics, neutron physics, meson physics, atomic and molecular physics, reactor physics, plasma physics, molecular and cellular biology, cryo-

genics, physical chemistry, inorganic chemistry, fluid flow phenomena, hydrodynamics, magneto hydrodynamics, materials science, and others.

Theoretical and experimental physicists and chemists, chemical, mechanical and electrical engineers, biochemists and mathematicians, and specialists in other disciplines participate in this activity.

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
Division 68-II*

