

SANDIANS who recently earned PhD degrees under the Doctoral Study Program are, clockwise from left, Sam Varnado (7261), Ron Andreas (1221), Olden Burchett (5225), Dirk Dahlgren (1715), and Don Schueler (2633).

## Five Sandians Earn PhD Degrees Under Doctoral Study Program

Five more Sandians have returned to the Laboratories after earning PhD degrees recently under Sandia's Doctoral Study Program.

Ron Andreas of Division 1221 of Exploratory Systems Department II earned his PhD degree in electrical engineering at the University of New Mexico. Title of his dissertation was "An Approach to Suboptimal Feedback Control." Ron earned his MS in EE from the University of Kansas in 1963. He received his BS there in 1961. He has been at Sandia six years.

Olden Burchett, supervisor of Material Sciences Research Division II 5225, earned his doctor of engineering degree in engineering mechanics from the University of Oklahoma. Title of his dissertation was "An Evaluation of a Laterally Confined Isothermal Test Technique to Estimate the Shock Behavior of Low-Strength Materials." Olden received his MS in mechanical engineering from Oklahoma State University in 1960 and his BS there in 1957. He has been at Sandia six years.

Dirk Dahlgren of Defense Technology Studies Division 1715 earned his PhD degree in mathematics from the University of New Mexico. Title of his dissertation was

"Adaptive Nonlinear Prediction and Convergence Rates." He earned his MS degree in mathematics at the University of Wisconsin in 1962 and his BS in mathematics and physics there in 1961. He has been at Sandia five years.

Don Schueler of Microelectronics Division 2633 earned his PhD degree in electrical engineering from the University of Nebraska. Dissertation title was "Electroreflectance Studies of Thin Semiconducting Films by Ellipsometry." Don had previously attended the University of Nebraska, earning his MS and BS degrees there in 1963 and 1962. He has been at Sandia five years.

Sam Varnado of Advanced Development Division 7261 earned his PhD degree in electrical engineering from the University of Texas. Title of his dissertation was "Theoretical and Experimental Study of the Spatial Coherence of Laser Radiation and Its Application to Underwater Detection Systems." Sam earned his MS degree in electrical engineering from the University of New Mexico in 1965 and his BS in electrical engineering from Mississippi State University in 1963. He has been at Sandia Laboratories four years.

### Committee Announces Plans

## Contribution Plan Drive Starts Oct. 6

Sandia's Employee Contribution Plan (ECP) committee is wrapping up plans this week for the forthcoming campaign. Committee chairman Lou Berry (5500) indicates that the goal of the drive will continue to be a fair share (one hour's pay per month) contribution from all employees.

"We will concentrate on increasing the percentage of participation," Lou says. "Currently some 1130 employees are not members of the plan."

Basic message of the ECP campaign will be told to all employees through a series of group meetings. The meetings will start Monday, Oct. 6. All employees will receive letters from the ECP committee.

Sandians will contribute a total of \$291,397 to ECP this year on pledges made a year ago. Eighty-two percent of the total goes to the 29 agencies which make up the Albuquerque United Community Fund. The remainder is distributed on a percentage formula (based on a community fund raising performance) to eight national health or welfare organizations.

Average gift of the 5705 Sandians who contribute to ECP is \$51. There are 2845 employees who contribute a "fair share" each month. Some 118 Sandians contribute one percent or more of their annual salary.

Jack Merillat (3120) is deputy chairman of the ECP committee. Members are John Cavanaugh (4131), Hank Willis (3130), Tony Chaves (4615), Mike Robles (4116), Marion Jacot (3251), Marty Martegane (3520), William Riggan (2614), James Mc-

Clure (1652), Gordon Troyer (5438), Henry Welch (4517) and Robert Wilde (1213). Lorella Salazar of Community Relations Division 3433 is the ECP executive secretary.

## Harvey Mehlhouse New WE President



Harvey Mehlhouse has been elected president and chief executive officer of Western Electric to succeed Paul Gorman, president since 1964, who is retiring.

Mr. Mehlhouse, now executive vice president in charge of WE manufacturing and engineering operations, joined the company in 1929 as an engineer. He spent three years at Sandia, from 1952 to 1955, as superintendent of manufacturing, planning and inspection.

After Sandia, he became general manager of the Merrimack Valley Works and later was elected a vice president. In 1965 he was named executive vice president in charge of corporate staff activities and, in 1967, he assumed his present post. Mr. Mehlhouse is a director of Bell Telephone Laboratories, Sandia Laboratories, Teletype Corporation and the MFB Mutual Insurance Company.

# SANDIA LAB NEWS



VOL. 21, NO. 19, SEPTEMBER 12, 1969

### DADS Research Tool

## Data Acquisition Display System Serves Area V Reactor Complex

The capability of acquiring and processing large amounts of experimental data rapidly is frequently of great importance in carrying out advanced research and development projects.

The new Sandia Area V Data Acquisition and Display System (DADS) is designed to do this in support of experimental activities involving a number of radiation sources: two pulsed reactors, four high X-ray sources, several optical lasers, and a gamma source.

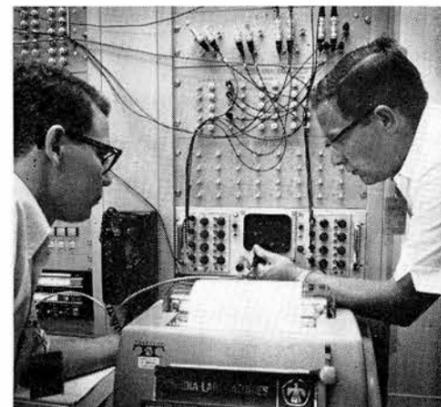
Advantages of the system are immediate availability of processed data, less duplication of equipment, and new methods for testing. DADS saves time for researchers and insures maximum use of the facilities, important because many of the radiation sources are in high demand.

The system includes an EMR 6130 computer and auxiliary equipment such as a card reader, line printer, magnetic tape unit, disc file, console teletypewriter, analog-to-digital and digital-to-analog converters, graphic display units, and a one millisecond interval timer. Station consoles — which are relatively portable — can be located at the various facilities and collect the raw data directly from the experiment as it is underway.

"Until five years ago, such a system wouldn't have been possible," says Ric Davis of Device Physics Research Division 5112, the project engineer for DADS. "The equipment didn't exist then."

Jack Wirth (now 8340) initiated the project three years ago. Extensive system programming was done by Rich Berlind, Jim Krone and Larry Ellis (all 9425). Lucien Van Blaricum (9217) specified, designed, and integrated the various components of the display subsystem. Lee Kefauver (5112) coordinated the activities associated with fabrication of Sandia-designed hardware.

This is how it works. The researcher — using Fortran language — writes a program for his experiment. When he's ready to run the experiment, he uses a station console to "call" the program from the computer's disc-file library, where it is stored. The program instructs the computer to take data directly from the experiment and immediately display a graph of the results on an oscilloscope. The experimenter can use a "light pen" to request the display of a specific value, an expanded graph, or a tabular listing of the data. There's also a provision for "editing" a graph by moving selected data points.



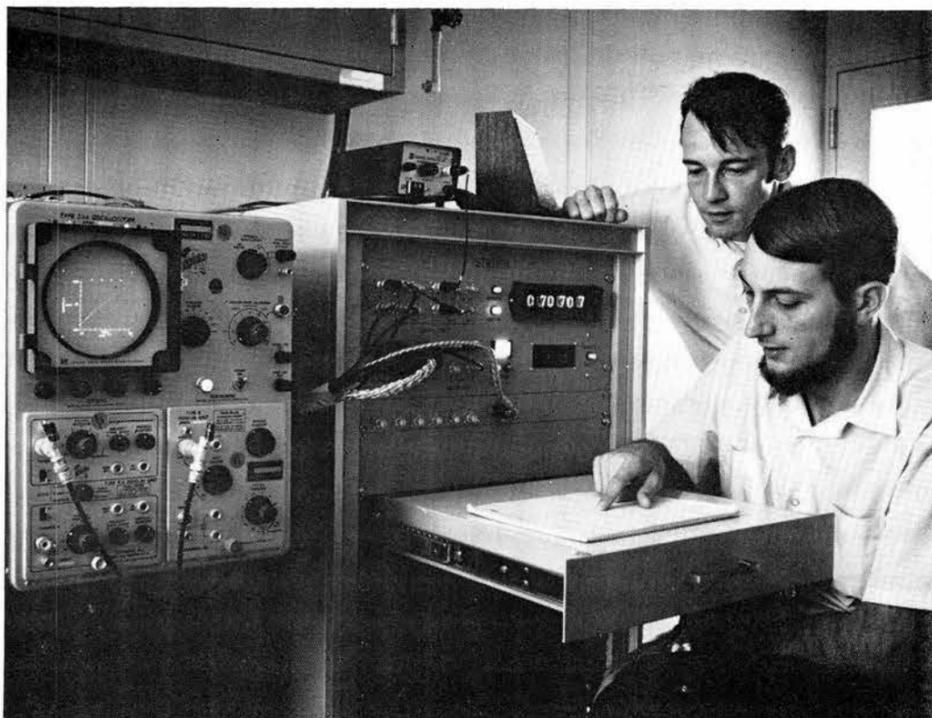
RICH BERLINT (9425) and Lucien Van Blaricum (9217) are shown at the computer console checking the use of a "light pen" with a graphic display unit. The new Data and Display System (DADS) at the Area V reactor complex saves time for both researchers and facilities.

The system can automatically control the experiment, if desired. The whole process allows an experimenter to acquire large quantities of data rapidly and eliminates the time delay in submitting data to a centralized data processing facility.

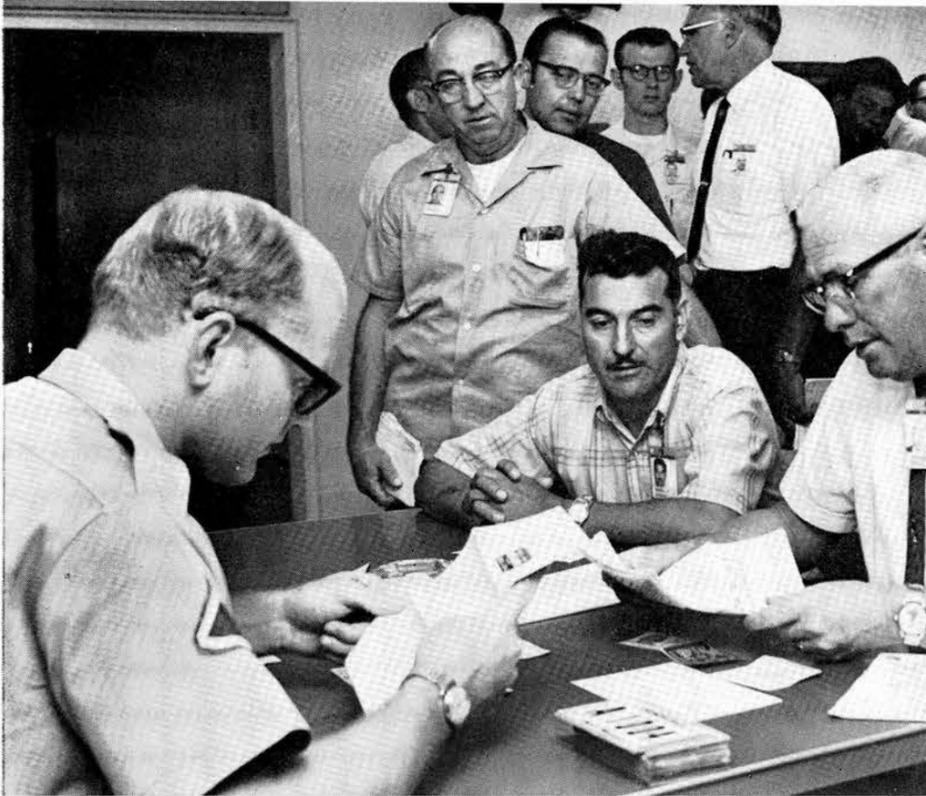
DADS is designed to accommodate up to 31 station consoles (more than one could be located at each facility). Four are currently planned and two of these are already in operation. Data conversion resources are connected to the stations via patch panels to allow allocation of the equipment according to varying demands. Programs can also be readily transferred between stations, giving additional flexibility to the system.

Area V scientists and engineers feel that DADS gives them freedom to concentrate on analysis and interpretation of the data rather than on data-taking itself. Ric Davis predicts that "DADS capabilities will open the door to different experimental techniques as well as techniques which were previously impractical because of their complexity."

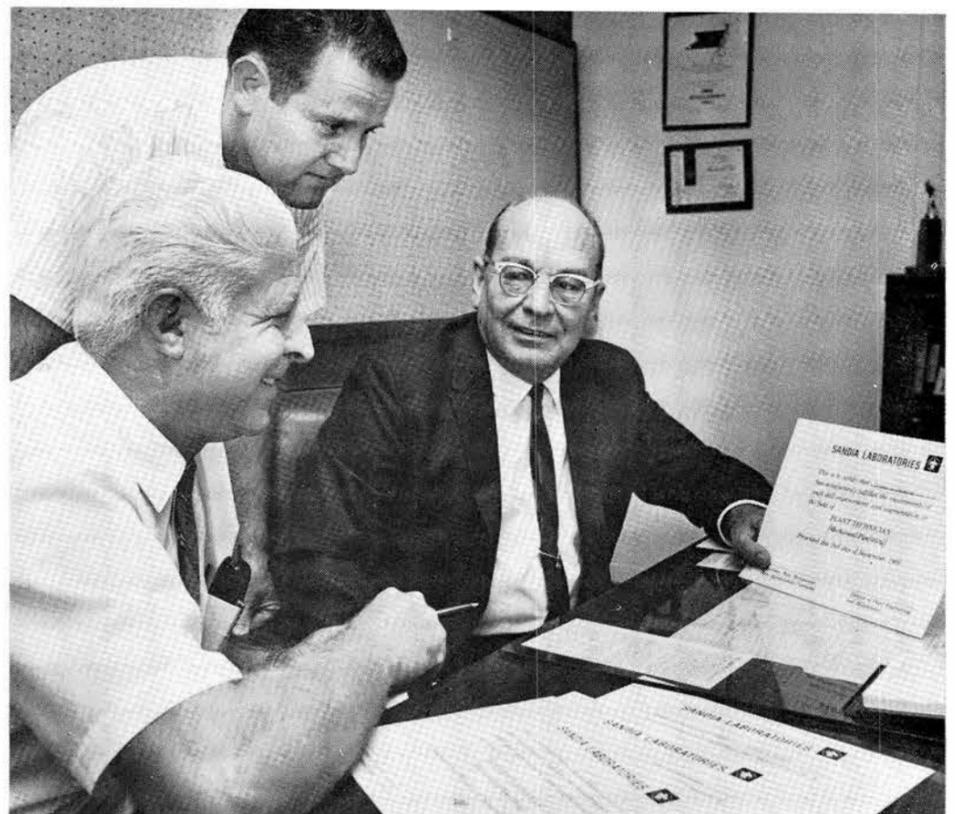
In recent weeks, the system has been demonstrated to members of various Sandia organizations, other AEC/DASA facilities, and universities; their response has been very favorable.



DISPLAYING PROCESSED DATA in a matter of seconds after raw data is acquired from the experiment is an important feature of a new Area V computer system. Project engineer Ric Davis (right) and Lee Kefauver (both 5112) evaluate the performance of the system at the first remote laboratory station.



**NEW AUTO DECALS** are required for employees bringing cars onto Sandia Base. The Provost Marshal's office has set up a number of stations within the tech area to facilitate registration. Four desks will be open next week. They are: Bldg. 802, lobby, through Friday, Sept. 19; Bldg. 880, NW entrance, Rm. 2, Monday through Friday; Bldg. 836, south entrance, Monday through Wednesday; and Bldg. 6584, Rm. 34, Area III, Thursday and Friday. Applicants should have the completed vehicle registration card, Sandia ID card, valid driver's license, proof of ownership or certificate of state registration, and proof of minimum insurance coverage. The car must have a valid license plate and safety sticker. Additional forms can be picked up at the desks.



**CRAFT SKILL IMPROVEMENT** program has been completed by 74 on-roll Sandians. The seven-month training program was begun following establishment of an apprenticeship program in the plant maintenance area last winter. Robert Hopper (right), director of Plant Engineering & Maintenance 4500, and Lloyd Chapman (4518), chairman of the Joint Apprenticeship Committee, sign certificates to be presented to the 74 plant technicians. At center is Bill MacDowell (4513), secretary of JAC. The craft skill improvement program was developed to train technicians in some of the newer equipment and to broaden their capabilities and responsibilities.

## Take Note



Jim Griscom, an electrical engineer in Division 2453, recently received a MA degree in secondary education from the University of New Mexico. His earlier BS degree in electrical engineering was also from UNM.

Jim has been at Sandia 15 years.

## Tech Writers Present Course At UNM Community College

For the seventh year, the University of New Mexico Community College will offer a Survey of Technical Writing and Publishing during the fall semester.

Instruction is provided by members of the Albuquerque Chapter of the Society of Technical Writers and Publishers, many of whom are Sandia tech writers and editors.

The lecture series includes information about preparing brochures, instruction manuals, proposals, reports and specifications. Employment and career opportunities available to qualified technical writers, editors, and illustrators, and possibilities for free-lance writing in technical fields will also be discussed.

The class will meet in Mitchell Hall from 7-9 p.m. on Mondays for 12 weeks starting Sept. 15. Tuition is \$20. For further information call Don Emrick (7615), tel. 264-4972.

## Researchers Participate in International Ferroelectric Meet

Sandia was well represented at the Second International Meeting on Ferroelectricity, held in Kyoto, Japan, Sept. 4-9.

George Samara (5132) presented his invited paper "The Effects of Hydrostatic Pressure on Ferroelectric Properties." Cecil Land (5153) was chairman of a session on Nonlinear Optics and Optical Properties and presented a paper, "Optical Properties of Ferroelectric Ceramics." Co-author was Gene Haertling (2317).

Two additional papers will be included in the published proceedings of the meeting: "Ferroelectric Field Effect Studies at Low Temperatures" by John Crawford (5153), and "High Field Polarization Reversal in Polycrystalline Ferroelectrics" by Ralph Plumlee (5153).

The meeting was sponsored by the In-

ternational Union of Pure and Applied Physics, and 10 foreign countries were represented. Japan and the United States have been leaders in this field for the past 10 years; however, Russia has been making significant progress and presented many papers.

Following the Kyoto meeting, Cecil Land was among eight speakers invited to participate in a Symposium on Applications of Ferroelectrics in the Fields of Electronics and Opto Electronics, which will be held Sept. 13 in Tokyo. This meeting is sponsored by the Japanese Society of Applied Physics. His paper for this symposium is "Electrooptic Ceramic Storage and Display Devices."

## Authors

D. M. Schuster (5314) and R. P. Reed (5163), "Fracture Behavior of Shock-Loaded Boron-Aluminum Composite Materials," Vol. 3, JOURNAL OF COMPOSITE MATERIALS.

C. E. Gray (3311) and D. D. Davis (New Mexico State University), "Deoxymetallation Reactions of Group IV Organometallics," No. 18, pages 1-4, JOURNAL OF ORGANOMETALLIC CHEMISTRY.

J. F. Banas (1733), Comments on "Optimization of Discrete-Time Systems with Combined Modulation," Vol. AC-14, No. 2, IEEE TRANSACTIONS ON AUTOMATIC CONTROL.

M. E. Daniel (2442), "Unijunction Transistor Model for Computer Circuit Analysis," Vol. SC-4, No. 3, IEEE JOURNAL OF SOLID-STATE CIRCUITS.



Nicholson

Brockway

## Deaths

Howard Nicholson, a staff member in Budget Division 4142 died Aug. 25. He was 48.

He had been with Sandia Laboratories more than 18 years.

Survivors include his widow, a son and a daughter.

Vern Brockway, supervisor of Maintenance Section A 4512-1, died Sept. 7 after a lengthy illness.

He had been at Sandia since May 1949. Survivors include his widow and two children.

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U.S. CONGRESSMAN MANUEL LUJAN addressed 130 Youth Opportunity Trainees at ceremonies recently which marked the close of the fifth summer Sandia has participated in the pro-

gram. After a summer of temporary work at the Laboratories, the students have returned to school. From left are Diana Martinez, Congressman Lujan, Cornelius Foster and Pat Baca.

**LEAP Details**

# Chairman Announces 1969 Fund Drive at Livermore

Details of the new contribution program LEAP (Livermore Employees' Assistance Plan) have been announced by Bob Norvill (8233), chairman of this year's campaign. A week-long fund drive starts at SLL Sept. 29.

Bob says that a target of 100 percent employee participation has been established by the campaign committee as the Sandia goal. "Total participation is the key to a successful drive."

"For the first time Sandians have the opportunity to contribute to a plan which includes local and national health and welfare agencies in addition to those in the United Bay Area."

"Since some of these are local, providing service to people in our community, and others are national with broader goals, employees will have the satisfaction of knowing that they have really given 'once for all'."

The LEAP program was developed because many Sandians felt that there were worthy causes which were not a part of UBAC and, with this in mind, an employee study committee headed by Bob was formed to recommend a plan which would more nearly meet the wishes of the majority.

Under the new plan, employees may authorize regular payroll deductions which will be accumulated as a fund to benefit the agencies selected by the contribution plan committee. Agency selection and fund allocation are based on services offered by the agencies and their need for support. Each agency receives a percentage of the total fund contributed. Beneficiaries of the 1969 fund will be eight non-UBAC agencies as well as UBAC with its 180 members in the five-county Bay Area.

The percentage allocations are as follows:

	Allocation %	
LOCAL AGENCIES		12
1. Nursery School Scholarship Fund	2.5	
2. Livermore-Amador Valley Emergency Fund Center	2.5	
3. Cerebral Palsy Center for the Bay Area	2.0	
4. Valley Memorial Hospital Equipment Fund	5.0	
NATIONAL AGENCIES		8
5. American Cancer Society	4.0	
6. Alameda County Heart Association	2.0	
7. Muscular Dystrophy Association	1.0	
8. Northern California Kidney Foundation	1.0	
UNITED BAY AREA CRUSADE RESERVE (To be distributed at year end according to specific participating agency needs.)		79
		1
<b>TOTAL</b>		<b>100</b>

A contribution of \$12 or more on an annual basis qualifies an employee for membership in LEAP. While the committee encourages payroll deduction, a cash contribution is acceptable.

Members will receive a LEAP lapel pin indicating their participation in the plan. They will also receive a window sticker indicating this support for use in their homes. Both will bear the LEAP emblem

designed by John Daniel of Technical Art Section 8233-2.

In addition, a "Fair Share" pin will be given those earning less than \$10,000 a year who give one hour's pay per month and to those earning \$10,000 or more who give one percent plus their annual earnings.

The contribution plan committee, made up of employee representatives, will administer the Plan and apportion the monies raised annually.

Further details of the Plan are described in a booklet which will soon be distributed to all employees at Sandia Laboratories Livermore.

Profiles of the local non-UBAC agencies selected for support in 1969 follows:

**Livermore-Amador Valley Emergency Fund Center**

Organized in 1967 by members of the local community, the Emergency Fund Center has three purposes: to assist individuals and families in emergencies; to provide clothing, household articles, furniture and appliances to low income families at minimal cost through the operation of thrift store centers; and to assist with job information, educational opportunities, and other charitable work.

**Nursery School Scholarship Fund**

The NSSF was founded in 1962 to place disadvantaged children in cooperating nursery schools. The organization is incorporated under the name of Community Association of Pre-School Children (CAPE). This year about 40 children in five schools in the Livermore area are receiving nursery school education through the Fund. Tuition for nine months is about \$150 per child. The fund is financed by contributions from local organizations, businesses, and individuals, and the administration is handled by unpaid volunteers.

**Cerebral Palsy Center**

The Center in Oakland helps Bay Area victims of cerebral palsy to help themselves assume a productive and meaningful place in society. Services include physical and occupational therapy, speech therapy, medical and vocational evaluations, family welfare services, adult education, recreation, and sheltered workshop and vocational services.

**Valley Memorial Hospital Equipment Fund**

The fund is being established for the purchase of special equipment at Valley Memorial Hospital in Livermore, equipment to serve the health needs of all citizens of the local area. Monies this year are designated to be applied toward the purchase of an additional bedside station for the cardiac therapy and monitoring system located in the Hospital's intensive care unit. Total cost for the station is approximately \$2500.



LEAP EMBLEM—Chairman of LEAP Bob Norvill (8233), right, and Herman Armijo (8222), a member of the contribution plan committee, hope that every employee will take the big "LEAP." The emblem will appear on the lapel pin and sticker given to those who participate in the program.

# LIVERMORE NEWS

VOL. 21, NO. 19

SANDIA LAB NEWS

SEPTEMBER 12, 1969

## Population and Pollution Control Subject of Sept. 23 Colloquium

Problems related to population and to pollution control will be discussed at the Sandia Laboratories Livermore Colloquium on Sept. 23. The speaker will be Prof. John H. Thomas of Stanford University, who is known for his interest in human population problems, environmental deterioration and conservation.

Prof. Thomas is associate professor of biological sciences and curator of the Dudley Herbarium at Stanford. In addition he is curator of botany at the California Academy of Sciences in San Francisco. He has been associated with Stanford since 1949 in various capacities including assignments as a research associate at the Arctic Research Laboratory in Pt. Barrow, Alaska, and as a lecturer in biological sciences. Prof. Thomas received his Bachelor of Science degree from California Institute of Technology and his Master's degree and Doctorate from Stanford.

The author of several publications on biological and botanical subjects, Prof. Thomas is a member of the Society for the Study of Evolution, American Association for the Advancement of Science, American Institute of Biological Sciences, and Sigma Xi.

Tickets will be required for admission. Curtis Franklin (8153) is host.

## J. N. Deverman Earns PhD Degree



Jerone Deverman, Systems Research Division I 8324, recently received his PhD degree in mathematical statistics from Purdue University. His doctoral dissertation was entitled "A General Selection Procedure Relative to the t Best Populations."

Jerry received his BS degree in 1960 and his MS degree in 1962, both in mathematics, from Purdue University. He was employed at Sandia Laboratories Albuquerque during the summers of 1963 and 1964 as a statistician in the reliability organization. Subsequently, he served two years as a captain in the U.S. Army, assigned to the Joint Chiefs of Staff, Joint Task Force Two, at Sandia Base, N.M.

Since joining Sandia Laboratories Livermore in September 1968, Jerry has been involved in weapon systems analysis.

He is a member of the Institute of Mathematical Statistics and presented a paper based on his PhD research at the annual meeting of the IMS held in New York City Aug. 19-22. He is also a member of the American Statistical Association.

## Supervisory Appointment



SHIRLEY CARSON to supervisor of Keypunch Section 8322-3, effective Aug. 16.

Since joining Sandia Laboratories Livermore in January 1969, Shirley has been a keypunch operator in Computer Operations Section 8322-1.

Previously, Shirley was employed for 11 years by the Caterpillar Tractor Co., in Decatur, Ill. As coordinator of keypunch operations in their Data Processing Section for 8 of the 11 years, she was responsible for work distribution, assisted in training newly hired keypunch operators and taught new data processing applications to keypunch personnel.

She also worked for two and one half years as a keypunch operator in the Driver's License Division of the State of Illinois.

Mrs. Carson, her husband John, and two young daughters live at 661 Tina Way in Livermore.

## Take Note

Reduced admission tickets are available from Employee Benefits for Sandia Days at Marine World in Redwood City (Ralston Avenue exit off Bayshore Freeway), Saturday and Sunday, Sept. 27-28. The admission ticket covers all featured live shows and includes a guided boat trip. Marine World is open from 9:30 a.m. to 6 p.m.



**FIRST MACHINIST APPRENTICE GRADUATES AT SLL**—Tom Cook, Vice President 8000, front left, presented a copy of the "Machinist's Handbook" to journeyman machinist Andy Cardiel (8223), front center, the first employee to graduate from the machinist apprenticeship program established at Sandia Laboratories Livermore in 1966. The four-year program consists of 8000 hours of on-the-job training and 575 hours of related in-

struction at Chabot College. Others present at the ceremony included (from left) Bill Stadnisky, senior business representative, International Association Machinists and Aerospace Workers, District 115; Ed Loque, business agent, IAMAW, Local 284; Hilt DeSelm, Director of Staff Services 8200; Frank Bacon, apprenticeship consultant, State of California Division of Apprenticeship Standards; and union steward Walt Young (8223).

# Sandia Laboratories Apprentice Classes Graduate



**LEFT**—Twelve plant maintenance technicians received certificates of completion from the New Mexico State Apprenticeship Council for having completed requirements of an apprenticeship program. They are, from left seated: Andrew Kersey (4513), Forney Carpenter (4518), Amos Aire (4513), Henry Austin (4511), Tony Gallegos (4513), and Raymond Morey (4511). At rear standing next to Department 4510 Manager Robert Flaxbart are: Manuel Lucero (4513), John Hatcher (4511), Glenn Haycock (4518), Alphonse Jiron (4511), and receiving a certificate from 4500 Director Robert Hopper is Woodrow Glasscock (4511). Not present, Joe Wynn (4511).

**LOWER LEFT**—Being congratulated by 4200 Director R. J. Hansen are machinist apprentice graduates (from left): Tom Hobart, Leo Webb, Ed Shoaf, and (seated) Bill Wanger (all 4253). At Hansen's left is Homer Messenger (4213), vice president of the Metal Trades Council.

**BELOW**, electronic skills acquired by newly-graduated apprentices are demonstrated to Mr. Hansen. The graduates of the electronic apprenticeship program are, from left: Ernie Montoya (4233-3), Rosendo Saavedra (4231-1), and Rudolph Lewis (4231-1).



## Recent Medical Studies Offer More Bad News for Smokers

By S. P. Bliss, M.D.  
Medical Director — 3300

There's always something new—and bad—in the field of smoking. A recent medical bulletin issued by the American Heart Association and the American Cancer Society had a number of interesting new (and bad) findings about smoking.

A recent medical study has shown that various forms of dental disease seem to be connected with smoking. Inflammation of the gums and destruction of the supporting bony tissue with actual loss of teeth is much more frequent among smokers than non-smokers.

A startling statistic for women who still have their own teeth is that women who smoke have twice as great a chance of developing advanced periodontal disease—with the loss of teeth, even all teeth, between 20 and 30 years of age—as non-smoking women. Also, the chances of being toothless between ages 30 and 59 are twice as great for men who smoke as for non-smokers.

One startling fact came out in another study that spells bad news for pipe and cigar smokers. With respect to cancer of the lung, the figures for non-inhaling pipe and cigar smokers seemed pretty good; that is, cancer of the lung does not occur more often in non-inhaling pipe and cigar smokers than in the non-smoking public. Now it was known that cancer of the lip and tongue are more frequent in pipe and cigar smokers and there's nothing in the new study to contradict this. But evidence indicates that cigar smokers run a greater risk, by a factor of 13, of developing kidney cancer than non-smokers. For cigarette smokers, kidney cancer occurred five times more often than in non-smokers. Cigar smokers were also noted to have increased risk for developing urinary bladder cancer.

Some clues to the reasons why smoking causes damage have also been suggested by one of these new studies. The study in-

dicates that the three factors of humidity, blood vessel spasm and thickening in lung tissue might—all working together—be part of the basic mechanism behind the relation between cigarette smoking and respiratory disease.

The entire airway system is dependent on proper humidity of the inspired air. The nose functions as the principal humidifier of the inspired air and, in smokers, this is largely bypassed by inhaling through the mouth. The filtering action of the cigarette and the combustion of the tobacco itself further reduce the humidity of the air breathed in.

Blood vessel spasm—caused by nicotine—also adds to the dryness of the mucous membranes. One of the end results of this drying of mucous membranes is the condition known as pulmonary fibrosis, one of the major culprits in emphysema.

Another disturbing study was reported from Michigan where the exposure of children to tobacco was investigated. The study compared the number of acute illnesses of children in homes where there was parental smoking with the number of illnesses in homes where the parents did not smoke. Preliminary reports suggest that the rate of acute illnesses, mostly of the respiratory tract, among smokers' children was significantly higher than among non-smokers' children.

So, the next time you light up, give some consideration to others in your vicinity, especially in confined areas. Better yet, don't light up at all.

### Sympathy

To B. J. Hussey (3524) for the death of his step-mother in Dayton, Ohio, Aug. 29.

To Chuck Bloyd (7250-E) for the death of his mother-in-law on Sept. 7 in Lincoln, Nebr.

## Retiring



Arthur Gregory, a stockkeeper in Self-Service Stores Section 4613-3, is retiring Sept. 30, after more than 17 years at Sandia. During that time he has worked in reclamation and mechanical inspection and has been in his present job about six years. During WW II he served four years in the Air Force and before that time had been a farmer.

"Sandia is a fine place to work," Arthur says. "We have all kinds of benefits, but the best as far as I'm concerned is the early retirement. I'm taking advantage of early retirement because for 30 years I haven't missed a day's work and now I'm ready to quit working and enjoy myself. Sandia makes this possible, and I can sure get in a lot of fishing and hunting during those extra years."

Arthur and his wife are going to return to his home in Richland, Mo., where his mother and two sisters live. "I'm going to buy 5 or 10 acres, build a house, plant a big garden and hunt and fish," he says. His address will be General Delivery in Richland, but he says he will be living just six miles off Highway 66—"and I know lots of Sandians will be traveling that route. I'll be happy to see anyone who wants to stop and visit."



Tom Wallace, a staff assistant in Special Devices Division 2614 of the Nucleonics Department, will retire the end of this month after 23 years with Sandia Laboratories. Tom has been in the electronics field just about 40 years. Before joining Sandia in August 1946, he operated his own radio service shop in Amarillo and, in the civil service,

worked on aircraft communications during WW II.

Tom and his wife have two married daughters—one living in Las Cruces, N.M., and the other in Albuquerque. His son-in-law, Kyle Williams, also works at Sandia in Division 4252. The Wallaces have four grandchildren.

Tom's retirement plans include volunteer church work, a little visiting around the state, and some type of part-time employment. "I may continue to work in electronics," Tom says, "but after 40 years of it, I just might try something else."

## New Great Books Discussion Groups Forming in City

Want to revive the ancient and stimulating art of discussing ideas? In an age of electronic environment, there are those who still enjoy reading and talking about what they have read.

The Great Books Foundation, a non-profit educational organization, is currently forming a number of new discussion groups within the city. Participants in the groups meet for two hours every two weeks to explore the meaning of a previously selected "great book."

The discussions are conducted by volunteer leaders who have completed an eight-week leader training course sponsored by the Great Books Foundation. No special educational qualifications are necessary to join a group—only the desire to participate and a willingness to read the selection in advance.

For additional information, contact Dave Judd (7251), tel. 264-3805.

### Congratulations

Mr. and Mrs. Bruno Morosin (5131), a daughter, Michele, Aug. 19.

# Supervisory Appointments



**MARK DAVIS** to manager, Metallurgy Department 5530, effective Sept. 1.

Mark came to Sandia as a staff member in the metallurgy group in 1963. His work has involved electronic welding and joining techniques and, lately, studies of stress corrosion and cracking of uranium alloys. He was promoted to supervisor of the Metallurgy Division in 1968.

Before coming to Albuquerque, he did graduate work in high temperature metallurgy at the University of California in Berkeley. Mark has BS and MS degrees in metallurgical engineering from that school.

He is chairman of the local chapter of the American Society for Metals and is a member of the American Institute of Mining, Metallurgical and Petroleum Engineers, and the American Welding Society.

Mark, his wife Diana, and their three children live at 1512 Cedar Ridge Dr. NE.



**HAP STOLLER** to manager, Composites Research & Development Department 5310, effective Sept. 1.

Hap joined Sandia at Livermore in 1963. He was assigned to the Applied Mechanics Division where he was involved with development work and project support in aerodynamics and gas dynamics. He later transferred to Livermore's Analytical Division.

In 1967, Hap moved to Albuquerque as supervisor of what is now Exploratory Systems Division II 1222.

Before coming to Sandia, he worked for two and a half years at Hydronautics Inc., Rockville, Md., in fluid mechanics research. He also has worked in aerodynamic design at General Dynamics/Astronautics in San Diego.

Hap received a Bachelor of Engineering Science in mechanical engineering at Johns Hopkins University and an MS in aeronautical engineering at the University of Maryland. He has also done graduate work at the University of California.

He is a member of the American Institute of Aeronautics and Astronautics, Pi Tau Sigma, and Tau Beta Pi.

Hap, his wife Nancy, and their two children live at 8205 Harwood Ave. NE.



**GLEN KEPLER** to manager, Organic Materials Research and Development Department 5510, effective Sept. 1.

Glen hired in at Sandia as a division supervisor in 1964. He headed what is now Physics of Organic Solids Division 5113 where the effects of high energy radiation on organic solids are being investigated. He has been with that division until his present promotion.

Before joining Sandia, he was a technical staff member at DuPont where he did studies relating to organic crystals and organic semiconductors.

Glen has a BS in physics from Stanford University and MS and PhD degrees, also in physics, from the University of California at Berkeley.

He is a member of the American Physical Society and the American Association for the Advancement of Science.

Glen, his wife Carol, and their four children live at 9004 Bellehaven NE.



**JERRY HOOD** to manager, Radiation Effects and Semiconductor Devices Department 2650, effective Sept. 16.

Jerry joined Sandia in 1956 as a staff member in an electronic components group where he studied radiation effects and worked on development of semiconductor devices.

He took a year's leave of absence in 1965 to do graduate work at UNM. He returned as a member of the Radiation Effects on Electronics Components Division and in 1967 was promoted to supervisor of the Radiation Effects Division 2635.

Jerry has three degrees in electrical engineering: a BS from the University of Oklahoma, and an MS (which he earned under the Educational Aids Program) and PhD from UNM.

He is a member and chairman of the local chapter of IEEE.

Jerry, his wife Norma, and three children live at 13113 Turquoise Ave. NE.



**TOM GREEN** to supervisor, Theoretical Atomic & Molecular Physics Division 5234, effective Sept. 1.

Tom came to Sandia in 1963 as a staff member in the division of which he has now been named supervisor. His work has involved theoretical studies and calculations of collisions between atoms and molecules.

Tom taught physics at the university level for 12 years before joining Sandia. He was an instructor for two years at Columbia University and taught at Wesleyan University, Conn., for 10 years. He left with the rank of associate professor.

He also was a staff member at LRL for one year.

He has a BS in physics from Case University, Cleveland, and received the Doctor of Science from the University of Geneva, Switzerland, where he held an Albert Gallatin Scholarship.

A veteran of WW II, Tom was a radar technician in the Pacific theatre during 1944-46.

He is a member of the American Physical Society, the American Association of Physics Teachers, the American Association for the Advancement of Science, and Sigma Xi.

Tom and his wife Margot have four children and live at 700 Morningside Dr. SE.



**JOHN FREEMAN** to supervisor, Plasma Theory Division 5241, effective Sept. 1.

John joined Sandia in 1964 and worked briefly in the Advanced Data Systems Development group before transferring to the Magneto Physics Research Division. A few months ago, he joined the Plasma Physics Department. He has been involved in theoretical work related to plasma physics and explosive flux compression devices.

He has a BS in EE from MIT, and earned both MS and PhD degrees in EE at UNM. His Master's work was done under Sandia's Technical Development Program.

He is a member of the American Physical Society.

John and his wife Margaret live at 610 Solano Dr. NE.



**WARD HUNNICUTT** to manager, Plant Engineering Planning & Budgeting Department 4550, effective Sept. 1.

Ward, supervisor of Field & Plant Operations Engineering Division since 1965, joined Sandia in 1950. He worked in structural design before being promoted to section supervisor in 1959.

Ward's division has been concerned with the construction work performed by Sandia purchase order contractors and AEC contractors. The division is also charged with fire protection and operations engineering responsibilities. He has a BS degree in general engineering from North Carolina State University. He is a registered professional engineer in New Mexico. He served in the U.S. Navy during WW II.

Ward, his wife Peggy, and their two sons live at 6409 Natalie NE.



**ED HOLLAR** to supervisor, Electro-Optical Division 5522, effective Sept. 1.

A Sandian since 1962 when he joined Materials & Processes Division, Ed has been involved in metal sealing and joining studies and, more recently, in thin film bonding and coating work.

Before joining Sandia, he was physicist in vacuum technology for the Midwestern University Research Association, an organization that was designing high energy accelerators.

He has an AB degree in physical science from Kansas State Teachers College and an MS in physics from the University of Wisconsin. He also has done two years of post-MS work at Wisconsin.

He is a member of the American Physical Society, the American Association for the Advancement of Science, and the American Vacuum Society.

Ed, his wife Carma, and their three children live at 7200 Pickard NE.



**ROBERT WEAVER** to supervisor, Plastics Section 4222-2, effective July 1.

Bob joined Sandia at Livermore in 1957 and worked there for 12 years, primarily as a specialist in honeycomb materials. He arrived in Albuquerque this month and will be in charge of the Plastics Development Laboratory.

Before joining Sandia, Bob worked for 12 years in the pulp and paper industry in Washington.

He has a BS in chemical engineering from Washington State University and an MS — which he earned going to night school — in natural science from San Jose State University.

During WW II, Bob was a Lieutenant in the Army Engineers and served in the Middle East from 1943-46.

Bob and his wife Helen have three children. They have not yet established their permanent residence in Albuquerque.



24-CARAT cuts are assured with this diamond band saw in Ceramics Lab. One of two such recently-acquired instruments, the saw can make repeated cuts accurate to within two thousandths of an inch (.0002"). Ceramics, quartz glass, carbon, or any other extremely hard material can be cut with ease by the 118-inch long diamond-coated band. A unique feature of

the tool is that the blade does not come into contact with the blade guide but rides on a cushion of water, thus preventing wear and promoting accuracy. Blade pictured above is coated with 200-mesh diamond grit (about .002" thick). Other meshes can be used. Tom Spindle (4222-1) is the operator.

## Speakers

R. O. Easterling (1643), "Discrimination Intervals for Percentiles in Regression," 129th meeting of the American Statistical Association, Aug. 22, New York City.

L. W. Gruenberg (5151), "The Resistive Transition in Type II-Superconductors," International Conference on Superconductors, Aug. 26-29, Stanford, Calif.

R. H. Dungan (5332), "Structural Desiccants from Molecular Sieves," American Ceramic Society Meeting, Sept. 15, Baltimore.

C. J. Miglionico (5522), "Electron Fractographic Study of the Uranium Alloy, Mulberry," 2nd annual meeting of the International Metallographic Society, Inc., Sept. 8-10, San Francisco.

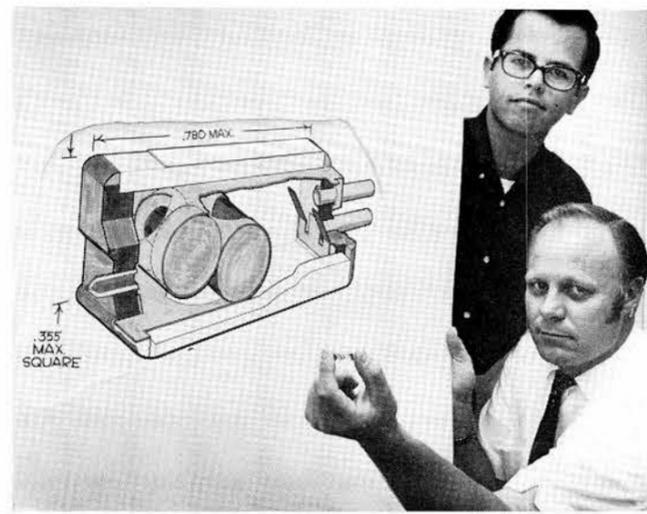
D. R. Parker (3311), "Air and Water Pollution from Kraft Pulp Processing Plants," Highland Kiwanis Club, Aug. 26, Albuquerque.

# Rolamite Laboratory

Sandia's new Rolamite Laboratory is now complete. The facility's mission is to develop a fabrication technology for devices using the rolamite principle, first disclosed at Sandia in late 1967.

The Lab is located in the west end of Bldg. 839 and is operated by the Development Shops 4200 organization. The Lab works closely with component development organizations.

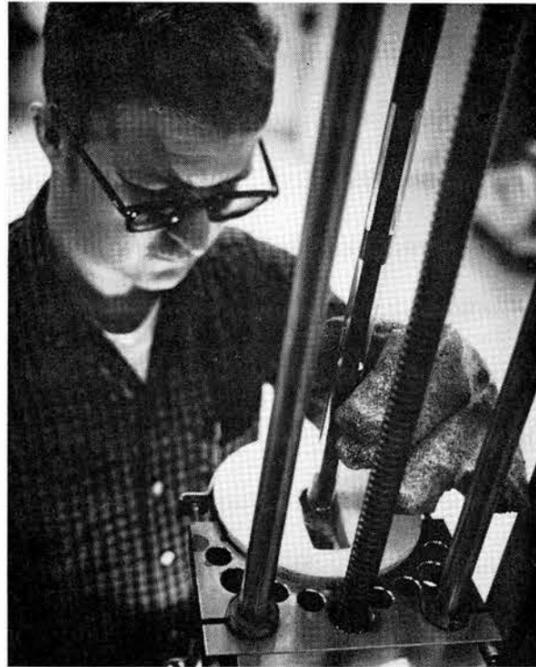
In addition to rolamite development work, the Lab has supported several organizations in the development of chemical etching techniques for other electromechanical devices.



ENLARGED DRAWING shows detail of a tiny rolamite acceleration-sensing switch. The "force-bias" feature of the band holds the rollers in place until a pre-determined acceleration force causes the rollers to move, operating the switch. Fred Duimstra (2321), rolamite project group leader, holds the switch while Doug Schuler (2321), rolamite design engineer, displays the drawing.



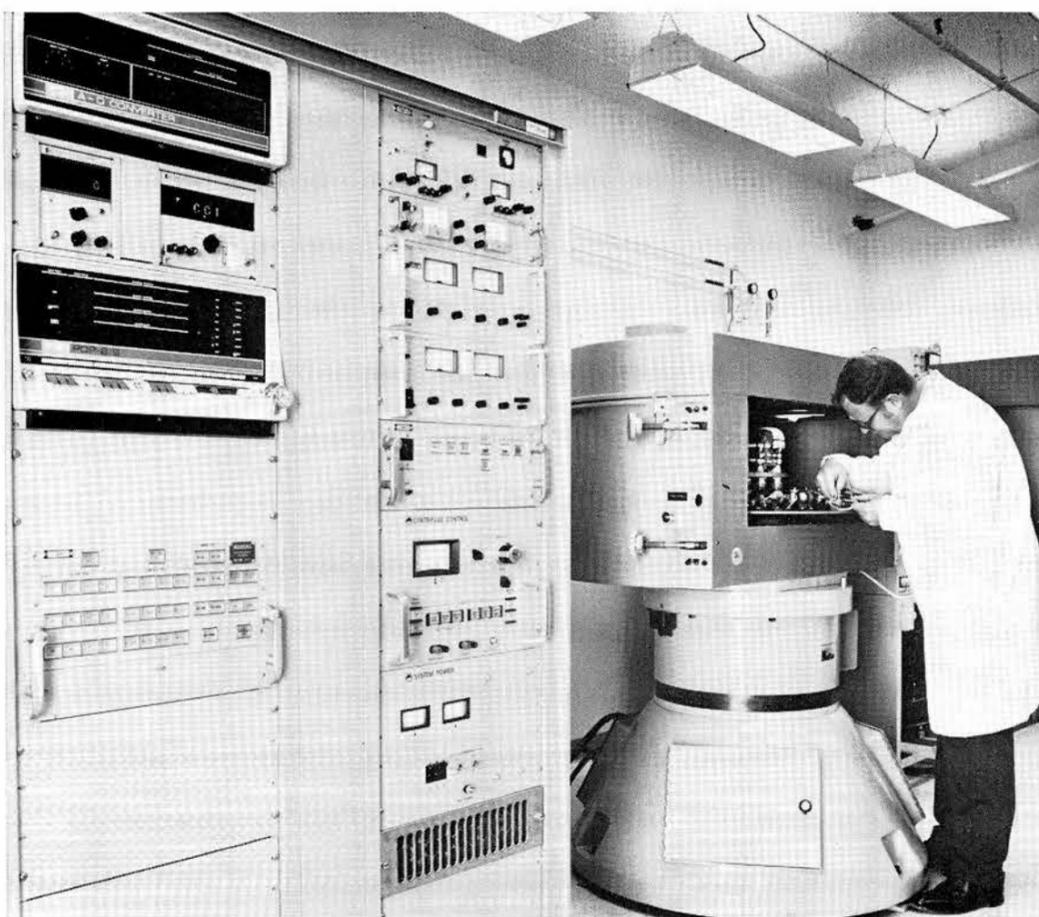
ROLAMITE BANDS are produced from 10-times oversize drawing prepared by Precision Graphics Section 7653-1. The large negatives are photographically reduced to size by Printed Circuitry Lab Section 4221-1 and then the image is transferred to metal and etched in the Rolamite Lab. Tom Cleveland (4222-3) compares negatives with finished set of metal bands.



LARRY McCOLLUM (4221-4) operates a furnace in which rolamite glass case material is formed. The system was developed by Ron Snidow and K. D. Boultinghouse of Scientific Glass Lab Section 4221-4.



VERNA CLARK (4222-3) assembles rolamite switches at a clean bench location in the Rolamite Lab. A complete rolamite fabrication technology has been developed and transferred to outside suppliers for production of rolamite switches.



PT-1504, a programmed centrifuge testing machine, is loaded with rolamite switches by Bill Roche (4222-3). The machine can test eight units simultaneously. The centrifuge can be accelerated from 0 to 100 g's in six-tenths

of a second. The tester can duplicate most acceleration and deceleration loads that a rocket payload would see from launch to re-entry. The tester was designed and developed by Glenn Elliott (2454).



BEN GARDINER, supervisor of the Rolamite Laboratory Section 4222-3, displays finished models of a rolamite acceleration-sensing switch.

## Service Awards

### 20 Years



George Dixon  
4545



Adelina E. Lucero  
4135



Stan Reynolds  
9211



Malcolm Snyder  
4211



Luke Vortman  
9111

### 15 Years



James Collier  
7422



Lyle Diamond  
7634



George French  
7615



Doris Galloway  
9415



Maxine Gatlin  
3232



Carthel Henry  
4614



Larry Horner  
7414



Robert House  
9231



Calvin Jackson  
3520



Vernon Kerr  
9134



Robert Pedersen  
2491



George Peterson  
9251



Sherry Smith  
8155



William Stoppotte  
2624



Harry Wheeler  
7521



Norman Zirwas  
7512

### 10 Years

Sept. 26-Oct. 9

Aurelio Teta 2491, Charles De Moss 4221, Dorothy Jones 4152, Stanley De Vault 3351, J. D. Creek 7424, David Chavez 5162, and Celso Padilla 4614.

## Leisurely Vacation for the Endres? Grandparents Prefer Mtn. Climbing

A quiet, restful vacation with the children and grandchildren for Carl and Marjorie Endres? Not quite! Following a recent three-day back-pack trip into the Olympia Peninsula with their three daughters, two sons-in-law, and five grandchildren (the youngest is three and a half), Carl (7521) and Marjorie (1723) promptly attempted to climb 14,410-foot Mt. Rainier.

The Endres, their daughter Fay Endres Pullen and her husband Kent, attempted the two-day climb to the summit of one of the highest peaks in the continental U.S. early last month. They started the ascent from Paradise Valley at 5500 feet altitude and climbed to the 10,000-foot Camp Muir on the first day. "We left at 2 a.m. the next morning to try to reach the top. However, at about the 12,000-foot level, we lost the trail and by the time we found it there wasn't enough time left to reach the summit and return," says Carl.

The climbers carried 30 to 40-pound packs as far as Camp Muir. On the last leg of the climb, however, they carried only essential equipment and emergency rations. "We also had to take flashlights since much of the climbing was done in the darkness of early morning," says Marjorie.

Since Mt. Rainier is glacial, it was necessary to use ice axes, crampons and ropes. Because of the glaciers and the many crevasses the climb is considered dangerous. The Endres said that only a few days before two climbers perished after falling into a crevasse.

"We got interested in climbing through our daughter who, as a graduate student at the University of Washington, took formal climbing lessons. When we visited her two

years ago we climbed Mt. Olympia," says Marjorie. "Of course, we have also done lots of hiking on the trails in New Mexico," she added.

Both Marjorie, a programmer, and Carl, a project leader in the component shop, are undaunted by their failure to reach their objective. "Now it's a challenge to get to the top," says Carl. "We're going back next year to finish the job."



DASH FOR THE TOP of 14,410-foot Mt. Rainier began from Paradise Valley. The mountain, one of the highest in continental U.S., is visible in background. Carl (7521) and Marjorie (1723) Endres were accompanied on the two-day climb by their daughter Fay Pullen (center) and their son-in-law Kent.



ARCTIC LANDSCAPE on the slopes of Mt. Rainier. The many glaciers and crevasses make the climb difficult and dangerous. The party managed to reach the 12,000-foot level and Carl vows to go back next year and finish the climb.

## Events Calendar

Sept. 12-21—New Mexico State Fair, Albuquerque.

Sept. 12-14—YWCA charter bus trip to Canyon de Chelly. For information, tel. 247-8841.

Sept. 13—North Peak hike, Sandia Crest north along the rim. N.M. Mountain Club, leader Hans Baerwald, tel. 298-1526.

Sept. 19—Feast day and dances, Laguna Pueblo.

Sept. 26-27—Broadway production of "Cabaret." UNM Popejoy Hall.

### SHOPPING CENTER

#### CLASSIFIED ADVERTISING

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

#### RULES

1. Limit: 20 words
2. One ad per issue per person
3. Must be submitted in writing
4. Use home telephone numbers
5. For Sandia Laboratories and AEC employees only
6. No commercial ads, please
7. Include name and organization
8. Housing listed here for rent or sale is available for occupancy without regard to race, creed, color, or national origin.

#### FOR SALE

##### MISCELLANEOUS

- 10-SPEED boy's bike, 1 yr. old, many accessories, 1/2-price. Palmer, 298-7161.
- WHIRLPOOL WASHER, \$100. Hulan, 255-0220.
- 12' ALUMINUM BOAT, \$100; Sear's joiner 4 1/2" blade, 1/2 hp motor, wooden stand, \$80; 3 hp Evinrude "light twin" outboard motor, \$75. Everett, (1) 636-2544.
- MOTORCYCLE, '66 BMW, 10,000 miles. Griscorn, 299-3755 evenings.
- CAMERA, Argus C3, 35mm, flash attachment, leather case, \$15. Grear, 282-3166.
- ONCE FIRED 20 ga. plastic shotshell cases, 2c ea. Erickson, 299-6824.
- SMITH & WESSON model 41, .22 lr, 7 3/4" bbl., new, \$105; Goodyear Polyglas studded snow tires, Chev. wheels, \$80 pr. Bennett, 268-5157.
- AKC Pomeranian female puppy, 8 wks. old, excellent pedigree; 40 lb. practice bow. Stuart, 265-7315.
- SPEAKER COLUMN, 5' tall w/ 2 12" plus 1 10" speakers, good for P.A., \$35. Schreiner, 268-4159.
- TWO dining room chairs, suitable for antiques as accent chairs, \$5 ea. Oglesby, 344-6331.
- GERMAN SHORTHAIR POINTER pups, whelped July 11, from excellent hunting stock. Holland, 898-3118.
- STUDENT VIOLINS: one full size, one 3/4 size. Copeland, 344-1133.
- 4 USED TIRES, 7-35 x 14, \$5 ea. Miller, 5308 Constitution NE, 255-8993.
- BEAGLE PUPS, AKC, temp. shots, 9 wks. old. Lincoln, 282-3817.
- WHITE, trick riding & roping saddle, all steel saddle tree, new sheepskin lining, all rigging intact, \$125. Cook, 265-5027.
- LUBER-FINER, oil filter, model 200S, \$20. O'Bryant, 268-9049.

GE DELUXE DRYER, \$75; GE Frost-Free Refrigerator, \$75; Slenderette machine, \$50; blond cocktail & end tables, \$35. Jones, 265-6234.

ROCKY MOUNTAIN Lark Combo Organ, solid-state, portable, 37 keys & five stops. Dunn, 255-9213.

SIGNATURE (Ward's) auto. washing machine, 2 spds., 2 cycles, 3 water temps. combination. Letourneau, 299-6119 after 5:30.

BABY LINE "Combo Crib," used 6 mos., \$20. Bishop, 299-8782.

4 EA. SPINNER TYPE hub cap for '63-'64 Mercury. Sample, 296-1771.

BSA 441 motorcycle, 7000 miles, 1 yr. old; 3-yr.-old Shetland gelding. Chacon, 7415 Guadalupe Tr. NW.

AKC miniature Schnauzer puppies, 14 wks. old, 1 male, 1 female. Smaier, 256-7035.

GE 21" table model TV, B&W, \$50. Marsh, 243-2767.

GE MANGLE, dbl. front doors w/windows; bookcase dbl. bed. Duimstra, 299-9278.

TRUMPET, Olds Ambassador B w/case, \$50. Plumlee, 282-3224.

STRING BASS 3/4 size, best offer over \$200, includes cover & bow. Ray, 299-1253 after 6.

21" table model Hoffman TV, \$50. Meissen, 8406 Los Arboles Ave. NE, 298-2822.

10'x47' HOUSE TRAILER at Conchas Dam north dock, not fancy but comfortable accommodations for 8 persons, price negotiable \$2000-\$1800. Woodall, 296-5228 after 5:30.

SKIS, Head Giant Slalom, 215cm, P-Text bottoms, Miller bindings, \$70 w/bindings, \$45 without. Roache, 268-4686.

TRUMPET, GUITAR, make offer. Tiefs, 299-2763.

STRATORESTER recliner, green nylon, \$15. Dieter, 255-8056.

'66 YAMAHA 100cc twin motorcycle, extras, \$195. Honeycutt, 299-7544.

DISHWASHER, Lady Kenmore, \$100, new cost \$250; trumpet w/case, \$20. Lemmon, 296-5824.

MOTORCYCLE, '69 Mojave 175cc, \$240. Hermanen, 296-3705.

TRANSISTOR VHF aircraft band converter, 108 to 136 megacycles, \$15. Ezell, 268-4845.

YOUTH BED, complete, \$15; metal springs for twin bed, \$5; AM/FM tuner pre-amp., 20-watt ultra-linear amplifier power supply, \$35. Bassett, 898-1840.

TONY LAMA CUSTOM made boots, size 7C. Water Buffalo, dark brown, worn once, cost \$49, sell for \$35. Tinsmith, 877-5132.

CHILD'S western saddle, \$20; halter & bridle for pony or burro, \$7.50; or all for \$25. Nelson, 264-1674.

TWO BICYCLES both 20", 1 boy's, 1 girl's, \$10 ea.; 352 cu. in. Ford V8 engine, complete except for generator, \$40. Frasier, 299-6933.

DANISH MODERN COUCH: 4 chrome wheels for Volkswagen; 50' of 12-in flexible duct. Campbell, 268-8445.

DINETTE SET, yellow, chrome legs, 36"x52" oval table, 11 1/2" leaf, 4 chairs, cost \$106.55, sell for \$50. Stark, 8212 Pickard Ct. NE, 299-5953.

PIANO, Gulbransen upright, just recently tuned, \$150. Riggins, 299-7778.

DOUBLE dresser w/mirror, full size bed w/box springs & mattress, color blond, all for \$80. Raybal, 299-9647.

'69 MOTORCYCLE, 125cc, \$160; auto. washer, \$10. McFall, 298-1552.

FASCINATION pool table (bumper pool), professional, slate top, \$100; couch, foam rubber cushions, modern, tweed cover, \$50. Syme, 298-9167.

EXTENSION SPEAKERS: 2 enclosed 12" extension speakers (Phillips), \$25 for both. Prasthofer, 299-1093.

FREE, 4 small dog puppies & 1 kitten; for sale, 25-unit rabbit cage. Shoemaker, (1) 865-9809.

TENT, 12'x12', \$15; power mower, reel type, \$5; bunk beds, \$60; 2 doors, 31 1/2" & 36", both \$20; Oval Early American rug, \$10. Dickason, 299-8125.

9 CU. FT. refrigerator, 40-50 lb. freezer capacity, \$40. Williams, 299-9150.

ELECTRIC crn opener; B&W portable GE TV in maple stand w/legs, looks like console. Michele 243-5174.

'67 HONDA CB450, mirrors, crash-bar, windshield, luggage rack, w/back rest, & '68 carbs, \$750. King, 298-2991.

CAIRN TERRIER PUPPY, AKC reg. (\$50; Eico 720 xmtr, \$45; HQ 129X recr., \$75; DX35 xmtr, \$35. Hansen, 898-3251.

9 GOLF CLUBS, 2 iron thru pitching wedge, Wilson Billy Casper, leather reminder grips, \$30. Edwards, 296-2745.

ENFIELD 30-06, \$35; Mauser 8MM, 4X scope, \$50; Polaroid 95B complete, \$25; want .22 pump rifle or pistol. Zaluga, 344-1564.

TWO SNOW TIRES: 8.25x14, Uniroyal 4-ply nylon, \$15; one Plymouth-Dodge wheel for 8.25x14 tire, \$3. Winter, 296-3584.

ESTATE LIQUIDATION BY Co-Executor: furniture, piano, household items, sale on Sat., Sept. 20, 9 a.m. to 4 p.m. only, 1309 Las Lomas. Hueter.

WINDOW 6'x4' aluminum frame, \$20; 6' sliding glass door (latch needs replacement), \$15. Sprague, 299-2830.

GARAGE SALE: 2008 Algodones NE, 1 1/2 yr. old dishwasher, baby clothes, many other things. Cronin, 298-8871.

AKC REG. German Shepherd puppies, 8 wks. old, quality pets & show dogs, healthy, guaranteed. Lemke, 256-0188 or 298-8868.

TOY POODLE, male, silver, very small, 3 1/2 lbs., 1 1/2 yrs. old, champion background. Shipley, 298-2433.

FANCY PIGEONS & Go-Cart w/o engine. Reimholz, 299-5107.

PUPS, Australian Shepherd, 8 wks. old, free. Scott, 242-7339 after 5:30.

COLT HUNTSMAN .22 cal. autoloading pistol, new in box, \$60. Svensson, 344-7700.

MOTORCYCLE: '68 Yamaha 250 Scrambler, \$450 firm. Stone, 256-0905.

GO-KART frame, controls & engine; non-professional type w/stubborn engine, \$20. Shepherd, 299-9066.

MAGNAVOX STEREO, 3 yrs. old, \$150; Honda 90 trail bike, '69 model, 600 miles, \$300. McDonald, 299-9269.

#### CARS & TRUCKS

'56 FORD wagon, 292 V8, AT, \$125. Shock, 877-3728.

'59 FORD station wagon, 2-dr., white, OD, \$400. Claghorn, 298-2043.

'63 PONTIAC station wagon, PS, PB, AT, \$495. Bemis, 296-1305.

'69 AMX, \$200 cash & take over payments or will consider older car in good condition for equity. Savage, 247-2098 between 9:30 a.m. & 3:30 p.m.

'59 BUICK 4-dr. HT, powered, \$325. Sullivan, 344-8585.

'68 FORD Fairlane 500, \$2400, 2-dr. HT, fast back, AC, PS, 289 engine, 18 mos. full guarantee. Roeder, 296-5975.

'63 PEUGEOT 404, 4-dr. sedan w/sunroof, 70,000 miles, 5 new tires, \$550. Smith, 299-6873.

'66 GRAND PRIX, one owner, extras, \$1600. Wischmann, 298-7386.

DUNEBUGGY, '65 VW engine, fiberglass body. Kingsley, 299-1226.

'65 KARMAN GHIA, std., R&H, low mileage, \$1250; or '59 Chev. 2-dr. std., 6-cyl., \$250. Saxon, 296-3883.

'60 JEEP station wagon, 4-wd, will trade for car of equal value. Kavet, 299-1793.

'65 DODGE 9-pass. station wagon, full power & air, NADA wholesale \$1190, sell for \$1175. Benson, 268-9727.

'58 EDSEL Ranger. Lacher, 296-5936.

'57 MERCEDES Benz, 4-dr. sedan 300 automatic, recent transmission overhaul, \$1300. Mahaffey, 265-0798.

#### REAL ESTATE

1605 Georgia NE, 3-bdr. & den, brick w/hw floors, electric built-ins, sprinklers, 30-yr. FHA loan, 6 3/4% loan bal. \$20,800, \$26,000. Montoya, 265-9642 after 5.

LOT in Glenwood Hills on cul-de-sac, 1/2 acre, all utility assessments paid. Randall, 299-0372.

SANDIA PARK, 3-bdr., LR & DR each w/fp, 1 3/4 baths, dbl. garage plus separate garage, 1 3/4 acres, \$30,000. Mullendore, 282-3173.

MOUNTAIN A FRAME CABIN w/screened porch, 4 acres pinion & juniper, 25 miles northeast, \$5500 your terms; some 2-5 acre tracts. Stueber, 299-2414.

MOBILE HOME LOT at Meadow Lake, landscaped, fruit trees, chain fenced, utility shed & all utility hook-ups on lot, ready to move in. Lerke, 296-3236.

SOUTHWESTERN COLORADO, 34 acres on Highway 151, electricity, phone, paved access, 1/2 Ponderosa, 1/2 cleared, \$5500, title insurance. Hutchison, 298-2077.

MOSSMAN 4-bdr., den & swimming pool, many extras, \$6500 equity & assume 5 3/4% loan, \$25,000 total. Cooke, 5908 Natalie NE.

3 BDR. brick, SE hsrts, 1400 sq. ft., 1 3/4 baths, new carpet, LR DR, redwood, Indsppl., sprinklers, screened patio, dbl. garage, 6 3/4% VA. Henderson, 268-6384.

HOLIDAY PARK, 3-bdr., 1 3/4 baths, den w/fp, dbl. garage, landscaped, \$4700 down, assume 5 3/4% loan, \$149 mo. Tassia, 299-6096.

3-BDR., 1 3/4 baths, carpeting, 4 1/2% loan, below FHA, payments \$100 mo. Parker, 299-6654.

#### FOR RENT

3-BDR., 1 bath, AC, central heat, range, drapes, carpet, walled yard, attached garage, very clean, Los Altos area. Patterson, 243-6219.

#### WANTED

MOTHER needs baby sitter at home 6:45-3:15, no housework, other children are welcome, area Constitution & Juan Tabo NE. Morrow, 299-0512.

SADDLE SCABBARD for bolt action rifle w/scope, barrel length 22 inches or longer. MacDougall, 299-8496.

16MM SILENT or sound projector. Schwoebel, 268-6440.

ALL STEEL car top carrier bars which latch onto rain gutter. Baxter, 344-7601.

'59 BUICK SHOP MANUAL. Ezell, 268-4845.

SMALL FRUIT PRESS. Magnuson, 296-3650.

BABY SITTING in my home, before and after school, Zuni School district. Barton, 255-5491.

BABY CRIB in good condition. Caskey, 296-6372.

RIDE from 4600 block Douglas MacArthur NE to Area I. Neiswander, 344-4745 after 5:30.

BABY SITTING in my home, near Hawthorne Elem., day or night, ages 3-6, have preschoolers for companionship. Tapia, 299-3685.

#### LOST AND FOUND

LOST—Black Raleigh bicycle, lt. brown cigarette case w/Chesterfields, Rx glasses w/black & grey frames. LOST AND FOUND, tel. 264-2757, Bldg. 610.

FOUND—Man's raintop in plastic case, long white lab coat, tan nylon zipper jacket. LOST AND FOUND, tel. 264-2757, Bldg. 610.



IT'S GOT TO BE GOOD, if this comely appraiser of Coronado Club's chuckwagon roast beef says so. Connie Myers (3511) is talking about Club's buffet to be spread for tonight's social hour. Special prices on refreshments have been extended to 9 p.m.

### Coronado Club Activities

## Three Swinging Social Hours Set

This month the Coronado Club features three swinging Friday night social hours. Big news is the decision of the Board of Directors to extend the special prices on refreshments to 9 p.m.

Now social hours start right after work on Fridays, the buffet is served from 6 to 8 p.m. and the band plays for dancing from 6 to 9 p.m.

At 9 p.m., the TGIF crowd moves to the main lounge where Pat Reich and piano entertain with a sing-along until midnight.

Tonight the Club's famous chuckwagon roast beef will be spread while Gappy Mestas and orchestra make the happy music. The buffet costs \$1.75 for adults, \$1.50 for kids.

## Sandia Safety Signals



You won't. He may.

Don't let someone else's passing fancy get you in trouble. Wherever you drive, drive defensively. Always...

Watch out for the other guy.

Published to save lives in cooperation with The Advertising Council and The National Safety Council.

On Friday, Sept. 19, Frank Chewie will play for dancing while the southern fried chicken will be the buffet feature.

Max Madrid returns to the bandstand for the Sept. 26 social hour. Mexican food will be spread for the buffet.

In the meantime, the mid-week social hour continues on Tuesday evenings from 5 until 8 p.m. Pat Reich and piano entertain.

### Theatre Night

Hiss the villain, cry with the pretty girl who can't pay the rent, and cheer for the hero on Saturday, Sept. 27, when the Club presents the "Great Western Melodrama" as entertainment for a dinner dance.

The play will be performed by the Albuquerque Melodrama Theatre starting at 8:30 p.m. Dinner (sirloin steak with the works) will be served starting at 7 p.m. Phil Graham will play for dancing from 9:30 p.m. until 12:30. Cost is \$3.50 for members, \$4 for guests. Make your reservations early.

### Teen Dance

Tomorrow night teenage sons and daughters of Club members will dance (?) to the music of "The Wedge" starting at 7:30 p.m. The band will be plugged in and amplified until 10:30 p.m. Tickets (25 cents for members, 50 cents for guests) should be picked up by member parents tonight.

### Director Assignments

The newly-reorganized Board of Directors has determined areas of responsibilities for the coming year. Members with suggestions or comments should contact one of the following:

Bob Banks (5100), president; Bill Weinbecker (4254), vice president; Chet Fornero (4335), secretary; Howard Romme (4117), treasurer; Bill Bickley (AEC), Club improvements; Pete Gallegos (2352), swimming; John Nakayama (1514), indoor recreation; Max Newsom (1213), entertainment; Howard Shelton (3134), membership; Don Graham (3432), publicity. Jack Merillat (3120) is the Sandia representative. Don Dickason is the AEC representative.

### Bridge

Duplicate Bridge meets Mondays at 7 p.m. Ladies Bridge will meet Thursday, Sept. 18, at 1 p.m.

## Dick Holland, Errol EerNisse Authors Of New Piezoelectric Design Book

Piezoelectric device technology has undergone spectacular growth in the past 10 years, both from the standpoint of the variety of components and their sophistication. A new book, "Design of Resonant Piezoelectric Devices," by Dick Holland (a Sandia consultant) and Errol EerNisse, supervisor of Device Physics Research Division 5112, discusses some of these changes.

The volume is the 56th in the MIT Research Monograph Series, designed to present information about significant pieces of research larger in scope than journal articles but normally less ambitious than finished books.

The work was initiated by Dick when he first came to Sandia as a summer hire in 1964. At that time Sandia had underway a research program to replace semiconductor circuitry with piezoelectric ceramic counterparts to increase radiation tolerance of various systems without significantly increasing component size or weight. However, in many instances, mathematical techniques were inadequate for designing complex devices.

Dick came up with a new theoretical design approach, which he later expanded as the subject for his doctoral dissertation at MIT. This became the first two chapters of the book. In late 1966, Dick and Errol began working together on basic mathematical techniques and problems of complementary nature which are the framework for the rest of the book.

With approval of Sandia's Book Publishing Committee, the men were able to devote regular work hours to writing the book. This is one way in which the Laboratories encourages qualified members of its staff to contribute to technical fields.

Primary subjects of the book are improved mathematical techniques for de-



Dick Holland

Errol EerNisse

signing new forms of older piezoelectrics (like filters and transducers), and entirely new piezoelectric component applications, such as memory devices, electrooptic and elastooptic devices, logic elements, FM discriminators, and high precision thermometers.

"Many of these devices have been built in large part by engineers working by trial and error with the limited theoretical tools of the 1940's," the authors note. With this in mind, the authors focus on basic principles and theoretical techniques, rather than particular configurations, and explain as often as possible how an engineer can apply these new principles and techniques to real design problems.

"We visualize the book as a reference book for engineers," Errol says. "When the need arises for a graduate course on this subject, the book would be suitable as a textbook."

Acknowledgement is given to technical or administrative support received from Cecil Land (5153), Ira McKinney (5153), Bert Roark (1741), Hans Baerwald (retired Sandian), Otmar Stuetzer (1220), Dick Claassen (2600), and Prof. J. R. Malcher of MIT.

## Sandia Painters Happy—New Tape Saves Effort, Time and Money

It's a little thing. But little things add up. This one is going to save Sandia Laboratories some \$8200 annually.

The cost improvement action, initiated by Ron George, supervisor of Painting and Sheet Metal Section 4513-3, involves using a new metal-adhesive tape to mark crosswalks and to stripe parking lots. The new product costs just over seven cents per linear foot but takes significantly less time to apply when compared to the old tedious method of painting the stripes by brush.

In addition to the initial savings in labor costs, the new material has a life

expectancy of 18 months compared to three months for painted stripes.

"It's easier to lay down," Ron says, "and it looks better. We don't have to wait for the paint to dry. The street is usable immediately."

Before using the metal tape throughout the area, Ron ran tests to determine that the product would hold up through continued use. The tape does, in fact, adhere better to street surfaces after heavy traffic.

"It works," Ron says, "and it saves us time. We'd rather paint other things than streets anyway. This was always a chore."



PAINTERS Wayne Phelps, left, and Ted Ortega (both 4513-3) demonstrate ease with which new metal tape can be used to mark Sandia crosswalks and parking areas. Use of the tape instead of conventional brush painting will save the Laboratories \$8200 annually.