Here at Sandia, in the high desert country of New Mexico, are some of the most advanced and useful hydrodynamic research and development facilities in the country.

In Area III, Systems Environmental Testing Department 9330 is finding out what happens when a high-speed projectile strikes and travels through water.

The program, being conducted for Exploratory Systems Development 1200, is studying the phenomenon called cavitation — the formation of gas and vapor-filled voids around a projectile as it impacts and travels through water. This pocket remains in varying forms with the missile as it travels at high speeds fully submersed.

Project leader for the test program is Al Stephenson (9335).

For the past two years, Al and the men of Area III have conducted hundreds of tests in three hydrodynamic facilities — the water jet, the water tunnel and the water impact facility.

Results of the tests have enabled engineers to design a full-scale projectile launched from an aircraft which enters the water at high speed and continues in a stable (as opposed to erratic) trajectory maintaining high speed throughout its underwater travel.

"Understanding the cavitation process was the key to the design of the prototype," Al says. "And we're still learning more about cavitation and hoping to further improve the performance of this as well as other projectiles."

"When a projectile strikes the water surface, some of its kinetic energy is transferred to the surrounding water pushing it aside. Air rushes in creating the original cavity. The pressure inside the walls of the air-filled splash becomes less than that exerted by the water it is entering — this causes the walls to contract and the cavity is sealed off. This closure is a function of the entry angle and velocity of the projectile, its geometry and weight, and the pressure of the atmosphere above the water.

"Velocity, weight, shape and pressure are important factors in determining the later behavior of the cavity. Since the trajectories

(Continued on Page Three)
Afterthoughts

Who Says Doctors Aren’t Funny?--From the medical column in Union Carbide’s Nuclear Division News: “Q. Is a Carbide employee subject to dismissal if he contracts a venereal disease? A. No, he is not subject to dismissal unless he is caught catching the infection while at work.”

***

The Times That Try Men’s Souls--The 300 or so members of the Sandia Bicycle Association are viewing with consternation the relentless progress of that seven-foot fence going up around the Base. Seems that the opening in the old fence at the NE corner of the Base, which cyclists used to avoid traffic, will not be incorporated in the new fence. This gives the cyclist the opportunity to compete with traffic at Wyoming, Rubank or Gibson, and that’s like playing Russian roulette with a single-shot gun. Newly elected SBA president Billy Thorne (5162) is mulling over the problem.

***

About That Solitary Drinking--Couple of issues ago we discussed the Labs’ alcoholism program and included a quiz that one hospital uses “...in helping a patient decide whether he’s an alcoholic.” One “yes” answer to any of the 20 questions “...is a definite warning,” according to the framers of the quiz. One reader, however, takes strong exception. To the question “Do you drink alone?” he writes “Yes! Bull! What if you live alone?” He’s got a point.

***

The Human Comedy--“Were it not for the presence of the unwashed and the half-educated, the formless, queer and incomplete, the unreasonable and absurd, the infinite shapes of the delightful human tadpole, the horizon would not wear so wide a grin.”

Frank Moore Colby (1865-1925)

Sandia Co-Sponsors Metallurgical Conference

An international conference on “Metallurgical Effects at High Strain Rates,” held Monday through Thursday this week at the Hilton Inn and attended by 120 people, was co-sponsored by Sandia Laboratories and the Metallurgical Society. Dick Rohde (5531) was conference chairman. The program included speakers from England, New Zealand, Sweden, Canada, and Brazil, as well as from this country.


A volume of the conference proceedings will be compiled and edited by J.R. Holland (5335), B.M. Butcher (5133), C.H. Kerns (5165) and R.W. Rohde (5531). It will be published by Plenum Publishing Company.

Sympathy

To Lillian Bowers (4152) on the death of her mother-in-law in Florida.

To Virginia DeWitt (1001) on the death of her father in Bevier, Mo., Jan. 25.

To Anthony Veneruso (1213) on the death of his father in New York, Jan. 8.

Variable Annuity Unit Value

<table>
<thead>
<tr>
<th>Month</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>1.894</td>
</tr>
<tr>
<td>Average</td>
<td>1.873</td>
</tr>
<tr>
<td>1972</td>
<td>1.738</td>
</tr>
</tbody>
</table>
After Death, Give Life

Emotionally, all of us are convinced of our own immortality — the “I’ve been alive for as long as I can remember” syndrome. Intuitually, however, we’re aware that, while life spans are increasing, death is inevitable. And most of us would derive some satisfaction from the knowledge that we could be useful after death (as well as before).

Hence the appeal by the University of New Mexico’s School of Medicine to donate your body now so that after death you can help further medical education and research.

Macabre though it may sound, medical schools need bodies — bodies are textbooks of anatomy for the people who will serve the nation’s health needs during their professional careers. And today there are not enough bodies to meet the need.

Some facts may help you decide. No expenses to family or estate are incurred in donation (unless special arrangements are desired). On the other hand, no payment per se is made for a body. The University does assume expenses directly related to embalming by a funeral home and transportation of a body from any point within the state.

The University refuses few donations. Diseases, for example, do not generally destroy the usefulness of a body; in fact, a disease may make a body especially valuable for research. And the donation of specific organs, such as kidneys or eyes, to an appropriate organization does not preclude donating the remainder of the body to the University.

If you wish, a conventional funeral or memorial service may precede the donation. The mortician involved would confer with the University to arrange for embalming and shipment. These expenses will be paid by the University, but expenses connected with the actual funeral or memorial service would be paid by family or estate. When the medical school has no further use for the body, the University arranges for its final disposition by cremation or burial at no expense to family or estate (unless transportation or other special arrangements are desired).

Any interested Sandian (or any adult New Mexican residing within 100 miles of Albuquerque) may donate his body to the UNM medical school. Forms are available in the LAB NEWS office. One copy goes to the University, the others to those people — physician, clergyman, next-of-kin — who would likely be the first to know of the death.

Continued from Page One

Underwater Travel — Area III Style

and stability of water-entry projectiles are influenced by the behavior of the cavities around them, a knowledge of cavity shape as a function of time is required for optimum missile design and for the possible control of the cavity behavior.

“The original air-filled cavity becomes vapor-filled as the projectile continues to penetrate the water. Actually,” AI says, “a number of vapor cavities are formed rapidly and are ripped away during further penetration.”

High speed film exposed during tests in the hydrodynamic facilities shows these violent cavity changes and provides some of the needed data. Pressure transducers and strain gages complete the instrumentation.

The water impact facility is a vertical tank 14 ft. in diameter and 22 ft. deep. Ten camera ports and underwater illumination are provided. Various size air guns can be mounted atop the tank to fire the projectiles into a submerged target made of layers of lead foil, ensolite and plywood. Projectile velocities up to 900 fps can be attained, and it is possible both to spin the projectile about its longitudinal axis and to simulate angular entry.

The water jet facility, a prototype design, has been one basis for design of the larger water tunnel. It still is used for testing and it can create a water stream traveling at 450 fps for 400 milliseconds. The test section is 5.8 inches in diameter and models are 3/8-inch in diameter.

The larger water tunnel consists of three 625 cubic feet tanks, two for compressed air and the third for water. The compressed air drives the water from its tank through the nozzle section and into the six-inch diameter test section. Maximum flow rate is 650 fps. The tank contains 4500 gallons of water, enough for about 3000 linear feet of testing, or at 600 fps about five seconds of testing time is available.

Dave Schafer is supervisor of Division 9335. Others in the group operating the water facilities are Milt Stomp, Bob Middlesworth and Dewey Bolton at the water impact facility and Wilson Payne and Terry Demaree at the water tunnel facility. Photometric support is provided by Division 9312 and facility design by Division 9334.
Larry Watkins Awarded Master's Degree Under OYOC

Larry Watkins has returned to the Laboratories after receiving a Master of Science degree under Sandia's One-Year on-Campus (OYOC) Plan, a part of the Graduate Education Program. Under the OYOC Plan, bachelor-level, technical people can study full time while in residence for one academic year at an approved university.

Larry, who works in Instrumentation Development Division 8342, was awarded his MS degree in electrical engineering from Stanford University. He received his BS degree in physics from Fisk University in Nashville, Tenn., and joined Sandia/Livermore in August 1971.

Speakers


Vocational Educators Visit Livermore Labs

Members of the California Industrial Education Association from Alameda and Contra Costa Counties recently visited Sandia Laboratories livermore. Purpose was to acquaint the vocational educators with some of the latest equipment and technology used at the Laboratories with a view to the educator’s roles in student counseling, course planning and instruction.

Among the Sandia people who talked to the visitors were (from top in photos) electronic fabrication supervisor Rus Richards (8421-3), data processing supervisor Don Benton (8411), model shops supervisor John Bryson (8421), Jim Boehmke of the joining laboratory (8422), and machine shop supervisor Jay Jost (8421-1). Scriv Scrivner (8400) was sponsor, while Jerry Maloney (8432) and Bill Jamieson (8235) served as coordinators for the visit and tour. Special arrangements were made by Benefits Division 8236.

Sympathy

To Bobbie Balanda (8232) on the death of her mother-in-law in Webb City, Mo., Jan. 10.

To Grace Campbell (8264) on the death of her mother in Sonora, Jan. 12.

To Bob Facer (8136) on the death of his mother in Pocatello, Idaho, Jan. 2.


To Bill Gordon (8177) on the death of his father in Phoenix, Ariz., Dec. 27.
Rancho el Valle — Original Livermore, Pleasanton Site

This is the fifth and final article by Herbert Hagemann, an eighth-generation Californian, on the early history of the Livermore/Amador Valley.

During the Mexican administration of Alta California, four large land grants were made in Valle de San Jose, known today as the Livermore/Amador Valley. Rancho San Ramon went to Jose Amador (LAB NEWS, July 21, 1972), Rancho Las Poctas to Robert Livermore and his partner Noriega (LAB NEWS, Oct. 27, 1972), Rancho Santa Rita to Jose Pacheco, and Rancho el Valle de San Jose to four Bernals, two brothers and two sisters — Agostin, Juan Pablo, Dolores Bernal y Sunol, and Pilar Bernal y Pico. The Bernal grant consisted of some 64,000 acres, encompassing what is now half of Livermore on the east, including Pleasanton, and stretching south and west over Sunol Valley and its surrounding hills.

Immediately after the secularization of Mission San Jose in 1834, the Bernals had applied for the grant in Monterey. Formal title to Rancho el Valle was given in 1840.

Greatest asset of the Rancho was its vast cattle herds. However, meat was not a saleable item — rather, the wealth was in the hides, tallow, and bones which were hauled to the coast in carts and there loaded on ships destined for various parts of the world. By 1850 the herds were estimated to contain 25,000 head.

Antonio Maria Pico and his wife Pilar sold their quarter interest in Rancho el Valley to Antonio Sunol in 1842 for 150 head of cattle. In 1848, Sunol sold the same interest to his brother-in-law Juan Pablo Bernal for $4,000, making the price at the time about 25 cents an acre. Juan Pablo’s one-half interest covered some 32,000 acres including the present site of Pleasanton and the west half of Livermore. South Livermore Avenue follows the old boundary line which extended across the entire Valley.

The original owners did not live on the land but resided in San Jose, the center of Spanish California culture. The two Bernal brothers and Sunol, however, built separate establishments as headquarters for their cattle ranching activities. Agostin’s is still visible on Foothill Road west of Pleasanton, Sunol erected two adobes at Sunol near Arroyo de la Laguna, and Juan Pablo’s establishment was on Santa Rita Road where Amador High School is located. Not until the late 1840’s did the owners become concerned about the influx of American settlers on their land and the threat to their cattle herds and the stability of land titles.

Agostin was the first to take action, in 1848, by constructing a two-story adobe which is still standing near Castlewood Country Club. At that time, Amador was residing at San Ramon (today’s Dublin), Livermore was living at Rancho Las Poctas and Pacheco had erected an adobe for his major domo, Francisco Solano Alviso, to the north on Foothill road. Sunol, in 1850, sent his son Jose to live in one of the adobes at Arroyo de la Laguna. On returning late one afternoon, Jose found squatters had taken possession of his house. When he ordered them to leave, the intruders killed him and fled. Jose’s place was later taken by his younger brother Narciso.

Juan Pablo Bernal, having acquired a new son-in-law — John Kottinger — in 1850, gave the newlyweds 4500 acres of land south of Arroyo del Valle, including a large part of present-day Pleasanton, and here Kottinger erected a two-story adobe fronting today’s Main Street. In 1852, Juan Pablo constructed his home in the “wilderness” on Santa Rita Road.

Times were turbulent and with the discovery of gold in the Sierra, Americans and foreigners came in droves to California. The Bernals and Kottinger took advantage of the situation by driving cattle to the gold fields where they sold them, taking gold in payment. The return journey was always hazardous because of bandits who were eager to relieve the travelers of their gold-filled saddle bags.

It is reported that the Bernals were able to keep more of their original holdings than any of the other Spanish pioneer families in central California. Today some portions of the Rancho are still in the hands of Bernal descendants.

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This is the fifth and final article by Herbert Hagemann, an eighth-generation Californian, on the early history of the Livermore/Amador Valley.
ERHIE SANCHEZ (7542) sits with some very attentive boys and girls in the Duranes Head Start Center. Ernie is a member of Economic Opportunity Board that recommends funding for Center.

Labs Man Helps Community

Ernie Sanchez is lead man in the rapid service print shop (7542) at Sandia, but he fills another role in the outside world. Ernie is one of 36 people serving on something that bears the grand but not particularly informative title of Economic Opportunity Board. Now any outfit supposedly run by a committee of 36 people has some staggering built-in problems, and Ernie was apprehensive about joining EOB last summer when he was invited to do so by Governor King. But you don't get personal invitations from the governor every day, so Ernie joined the Board and undertook to find out what it does.

In the half year or so since joining EOB, he has found that the Board is deeply involved in many activities affecting the poor people of Bernalillo County.

Neighborhood Service Centers: the eight Centers are places that a poor person can turn to for help with specific problems, e.g., what to do about a contaminated water supply, or for guidance on the best way to deal with the exigencies of modern life.

Community Advisors: people who assist residents in poverty areas in the formation of neighborhood associations whose aim is the upgrading of their homes and neighborhoods.

Head Start Centers: six of these Centers give preschool youngsters from poverty areas care and education which enable them to better cope with primary school.

Health Start: a program to provide medical, dental, and psychological help to poor children.

Function of EOB is to consider the problems of poverty and to recommend programs, such as those listed above, for funding by the federal government. For Ernie the EOB job consists chiefly of leg-work — visiting the Centers to gain first hand knowledge of their operation. "Inevitably, there's a fair amount of bureaucracy when you start spending federal funds," Ernie notes. "And now federal funding has become uncertain. But I've seen what the money does — it helps people who are poor help themselves."
Albq Citizens vs Albq Air

(Part Two)

Statistics can lead or mislead. Those which follow hopefully will lead Sandians to an understanding of their role in our town's unrelenting smog drama.

The 1970 census reveals how Bernalillo County residents get to work:

<table>
<thead>
<tr>
<th>Mode of Transportation</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drive private car</td>
<td>90,000</td>
<td>80%</td>
</tr>
<tr>
<td>Ride in private car</td>
<td>9,700</td>
<td>9%</td>
</tr>
<tr>
<td>Bus</td>
<td>2,700</td>
<td>2%</td>
</tr>
<tr>
<td>Walk</td>
<td>5,200</td>
<td>5%</td>
</tr>
<tr>
<td>Bicycles, etc.</td>
<td>3,300</td>
<td>3%</td>
</tr>
<tr>
<td>Work at home</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Because work locations are scattered throughout the county, neighbors generally do not work near each other, and the lone ranger figure probably under 75% is thus hardly surprising. We at Sandia work with 6000 or so fellow employees, and we all have a neighbor or two who works at Sandia.

Sandians as a group do their bit for pollution too: they all drive to work in solitary majesty everyday. Some married couples working here have an arrangement in which each drives a car, which has to be the height something.

One concludes that Sandians can afford the 12 to 30 cents per mile it costs to operate an automobile these days (see box). What's bad about the practice is what's shown in the table. (From the 1970 Annual Atmospheric Emissions Inventory for Albuquerque/Bernalillo County.)

<table>
<thead>
<tr>
<th>Source</th>
<th>Emissions (tons/year)</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transportation</td>
<td>301,173</td>
<td>72.3%</td>
</tr>
<tr>
<td>Unpaved Roads</td>
<td>98,143</td>
<td>23.5%</td>
</tr>
<tr>
<td>Industrial Operations</td>
<td>5,394</td>
<td>1.3%</td>
</tr>
<tr>
<td>Refuse Disposal</td>
<td>3,037</td>
<td>1.0%</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>494</td>
<td>0.2%</td>
</tr>
<tr>
<td>Totals</td>
<td>416,829</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Transportation sources are the chief villain. And the automobile is the worst offender of the group:

<table>
<thead>
<tr>
<th>Mode of Transportation</th>
<th>Emissions (tons/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gasoline Combustion</td>
<td>272,989</td>
</tr>
<tr>
<td>Diesel Engine Combustion</td>
<td>7,987</td>
</tr>
<tr>
<td>Fuel Evaporation</td>
<td>7,040</td>
</tr>
<tr>
<td>Fuel Handling Evaporation</td>
<td>6,178</td>
</tr>
<tr>
<td>Jet Engine Combustion</td>
<td>1,673</td>
</tr>
<tr>
<td>Aircraft Combustion</td>
<td>1,223</td>
</tr>
<tr>
<td>Rubber Tires</td>
<td>491</td>
</tr>
</tbody>
</table>

The automobile thus accounts for more than 90% of the emissions from all transportation sources. And it's the auto that creates the problem with unpaved roads. But let's look at the junk we inherit from all that gasoline combustion:

<table>
<thead>
<tr>
<th>Source</th>
<th>Emissions (tons/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon Monoxide</td>
<td>249.873</td>
</tr>
<tr>
<td>Hydrocarbons</td>
<td>17,652</td>
</tr>
<tr>
<td>Nitrogen Oxides</td>
<td>988</td>
</tr>
<tr>
<td>Particulate Matter</td>
<td>815</td>
</tr>
<tr>
<td>Sulfur Oxides</td>
<td>611</td>
</tr>
<tr>
<td>Other</td>
<td>272,989</td>
</tr>
</tbody>
</table>

Half of these agents are invisible, and that representing highest concentration is not only beautiful but odorless — yet CO is one of the deadliest gases. What you can't see can do you in. Normally, cars supply only 20% of our energy but cause 60% of our total pollution and 90% of our urban pollution. As the publication AMERICAN ENGINEER puts it, "It would be hard to imagine anything on such a large scale that seems quite as badly engineered as the American automobile."

Changing Times for November '72 says this (below) is what it costs to run a medium price ($3640) car for five years: Depreciation, insurance, and other normal operating expenses are reflected in the figures.

<table>
<thead>
<tr>
<th>City</th>
<th>Miles/yr</th>
<th>Total Cost per Mile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dallas</td>
<td>22.5</td>
<td>29.54</td>
</tr>
<tr>
<td>Oklahoma City</td>
<td>25.4</td>
<td>28.70</td>
</tr>
<tr>
<td>Denver</td>
<td>28.3</td>
<td>27.66</td>
</tr>
</tbody>
</table>

Generally set for sea level operation. At our altitude these vehicles, unless properly adjusted, are less effective. Manufacturers don't even bother to install high-altitude jets, a simple measure, in the carburetors of cars destined for this area, and the use of these jets can reduce fuel consumption by 20%.

Tune-ups are important. Properly tuned (plugs, points, and, for newer cars, emission control) will save money at the gas pump, and pollution is minimized. Even when properly tuned, the older car still pollutes more than a recent model. And we've got lots of old cars.

Next: What happens when you breathe polluted air; the federal Clean Air Act; a look at what other cities, Albuquerque, and Sandians can do to carefree breathing.

Letter to the Editor

From: Grover W. Hughes - 9474
Subject: Article in Jan. 26 issue, "Albq (sic) Citizens vs Albq Air"

I would like the privilege of your attention to a few comments on the subject article. The thrust of the article was clearly intended to encourage car pools evidently a worthwhile goal, but I wish to point out that the author failed to follow his own logic, of "putting the blame where blame is due," as he says. It is surely evident that the real problem is too many people, rather than too many cars, per se. The author quotes Pogo as saying, "We have met the enemy and he is us." I have met the enemy and he is other people. The author says Sandians do not carpool: "It was hard to imagine anything on such a large scale that seems quite as badly engineered as the American automobile." We should change it for the better.

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Annual Meeting

Probably the largest annual stockholders meeting in New Mexico was held Jan. 25, 1973, when approximately 800 members of the Sandia Labs Federal Credit Union gathered at the Coronado Club for the 25th Annual Meeting.

Donald Wagner of Livermore was elected a new member of the Board of Directors; re-elected to the board were W.W. Olheiser, Bill Bristol (CU Manager), and Ralph Hamps; Vincent Arroyo and Charles Lumpkin were elected members of the Credit Committee.

Included in President Bill Prekker’s report was the announcement that interest rates on loans for second mortgages, mobile homes, boats, travel trailers, and most campers have been reduced. The table below shows the changes.

Door prizes, portable color TV sets, went to Melvin Johnson (9334) and Art Trujillo (5645).

Board of Directors Officers

Elected officers are: president, Earl Simonson; vice-president, Clarence Sandy; secretary, Joe Miller; and Bill Bristol, treasurer. Other board members: W.W. Olheiser, Joe Maldonado, Bill Prekker, Alan Pope, Donald Wagner, Ralph Hamps, and Karl Waibel.

Committee chairmen appointed: Supervisory Committee, R.C. Butler; Executive Committee, Bill Bristol; Operations Committee, Ralph Hamps; Education Committee, Bill Prekker; Building Committee, Joe Maldonado; and Data Processing Committee, R.L. Turner.

Interest Rate Changes (Now in effect)

<table>
<thead>
<tr>
<th>Loan Type</th>
<th>Previous</th>
<th>Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>Second Mortgages</td>
<td>9.6</td>
<td>8.4</td>
</tr>
<tr>
<td>Mobile Homes</td>
<td>9.6</td>
<td>8.4</td>
</tr>
<tr>
<td>Boats</td>
<td>9.6</td>
<td>8.4</td>
</tr>
<tr>
<td>Current year &amp; 1-year old</td>
<td>10.8</td>
<td>9.6</td>
</tr>
<tr>
<td>2-4 years old</td>
<td>10.8</td>
<td>9.6</td>
</tr>
<tr>
<td>Over 4 years old</td>
<td>10.8</td>
<td>9.6</td>
</tr>
<tr>
<td>Campers</td>
<td>9.6</td>
<td>8.4</td>
</tr>
<tr>
<td>Current year &amp; 1-year old</td>
<td>9.6</td>
<td>8.4</td>
</tr>
<tr>
<td>3-4 years old</td>
<td>9.6</td>
<td>8.4</td>
</tr>
<tr>
<td>Over 4 years old</td>
<td>9.6</td>
<td>8.4</td>
</tr>
<tr>
<td>Travel Trailers</td>
<td>9.6</td>
<td>8.4</td>
</tr>
<tr>
<td>Current year &amp; 1-year old</td>
<td>10.8</td>
<td>9.6</td>
</tr>
<tr>
<td>2-4 years old</td>
<td>10.8</td>
<td>9.6</td>
</tr>
<tr>
<td>Over 4 years old</td>
<td>10.8</td>
<td>9.6</td>
</tr>
</tbody>
</table>

Existing loans which qualify will automatically be reduced to the new rates effective Feb. 1. So that you need not apply for the lower rate. There will be no increase in the interest rate for existing loans on campers over four years old.

Second Mortgage Loans

Are you using your credit to the best advantage? Many members may not be aware that the Credit Union makes second mortgage loans. If you have considerable equity in residential property and are considering a fairly large expenditure, why not drop in and discuss a second mortgage loan.

CU Bulletin Board

As part of its normal audit procedure, the Supervisory Committee recently mailed statements to members with account numbers from 3000 to 3999, 5000 to 5999, and 10,000 to 10,999. If your account number is in any of these series and you have not received your statement, please notify R.C. Butler (4364), Committee Chairman.

Take Note

A circular from UNM describes a non-credit course which starts March 22 and which may be of interest to many Sandians. Called “Recreation Vehicle—Know How,” the 12-hour 6-week course will discuss “… maintenance, operation, driving techniques, woman’s role in camping (sic), safety procedures … and equipment.” Travel trailers, campers and motor homes are the subjects. Cost is $18, and we have one circular in the LAB NEWS office if you’re interested, or you can call Bill Naylor at 277-2931 for details.

Phil Owens (7616) attended the Annual Winter Meeting of the National Society of Professional Engineers at Salt Lake City on Jan. 10-13. He delivered a report to the National Board of Directors in his role as chairman of the N.S.P.E. Pension Improvement Committee.

Randy Maydew (5620) has been appointed to the American Institute of Aeronautics and Astronautics (AIAA) Missile Systems Technical Committee. By organizing national meetings in conjunction with ARPA, ABMDA, SAMSQ, and other agencies, the Committee provides a forum in which government and industry representatives discuss the development and operation of tactical and strategic missile systems.

Sandians hold down half the 1973 officer positions in the American Ceramic Society, New Mexico Section. The new chairman is Gary McVey (5154); vice-chairman is Haskell Steinberg, LASL; treasurer is Robert Eagan (5334); and secretary is Mike Tokar, LASL.

The Museum of Albuquerque on Yale Blvd. SE is going to be a popular stop for ballooning enthusiasts. The current exhibit, Hot Air Ballooning, provides close-up look of a balloon and its trappings, as well as barographs and flight photographs. The exhibit will be on display until Feb. 25.

Tickets for the 1973 Golden Gloves Regional Tournament, scheduled Feb. 15-17 at the Civic Auditorium, may be purchased at VFW Post 401, 4510 Lomas Blvd. NE, according to Bill Foy (9312), junior vice commander of the post and Golden Gloves publicity chairman. Prices are 50 cents for students, $1 general admission, $1.50 reserved and $2 ringside.
Deaths

Hubert Fox, a traffic analyst in Traffic Section 4362-2, died Jan. 18 after a short illness. He was 57.

He had worked at Sandia Laboratories since August 1963. Survivors include his widow, a daughter and a grandchild.

Donald Wanner of Materials Analysis Division I 5521 died Jan. 31 after a short illness. He was 48.

He had worked at Sandia since September 1950.

Survivors include his widow, a daughter and two sons.

JUNK • GOODIES • TRASH • ANTIQUES • CREAM PUDDINGS • HOUSES • HOVELS • LOST • FOUND • WANTED • & THINGS

Miscellaneous

EXCELLENT E DUCATION Laboratory: Friday mails paper to week of next issue. A minimum of 12 weeks will be accepted for publication. Deadline: Friday at 5 p.m.

No phone calls.

Must be accompanied by writing.

For Science Laboratories and ABC employees, a minimum of 10 weeks is required. No phone calls.

Include name and organization.

Microfilm copies of past issues available in the office.

Ceramic Engineer or French Lawyer?

Bob Eagan in Musical Comedy Can Can

Bob Eagan, a ceramic engineer in Division 5334, is appearing in a colorful supporting role in Cole Porter's musical comedy Can Can. As French barrister Paul Barriere, Bob investigates illegal performances of a new "inflammatory dance" in Montmarte, notorious after-dark section of Paris.

Staged by Albuquerque's Kimo Theatre and featuring Charles Woodall and Katherine Counsell in its leading roles, Can Can will play six performances at the Kimo Theatre downtown.

Special rates for opening night, Friday, Feb. 16, are available to Sandia/Kirtland personnel. Tickets may be obtained at the Recreation Center across from the Base Gym, Bldg. 20-226, Kirtland East.

SOUTHERN TRASH

TWIN BED mattress & box springs, Beauty Rest, new, set 2, $35 ea. McIntire, 268-6145.

AMERICAN TRADITION sleepers. 4 Antique clocks, take all for $250. Flowers, 281-4358.

PUPPYS free to good homes, Shepherd-cross, 6 wks. old. Female, $35; male, $35. Magnesia, 434-8344.

METAL SHELVES, 4 wide by 1 high up to 10 high. Chavez, 294-3604.

FILIGREE WOOD PANEL, 4x8 room divider. $20. Johnson, 298-1011.

TRAVEL TRAILER, 14', 3-burner gas range w/oVen, oven. Excellent condition, $550. Bircher, 268-0726.

BIRDOCK, 255-7957.

SPEECH WASH, as is, $10. Peterson, 298-1230.


POMERANIAN, Male, reg., papers, color, 7 1/2 yrs. Old. Chev, 296-353.17.

STEREO headphones, Nova 10 w/ cushion earpads. Lt. vinyl headband. 2 1/2 full range transducers in ea. side. (For response from 50 to 15,000 cps, 8-16 ohms impedance, 1/4. $7. Chavez, 268-1067.


TIMPEE built utility box for 1-ton truck. 6x9x9. Dyer, 259-5511 after 5.

Desk, all wood, dark finish, full size, top equals 37x60. Harstad, 298-6551 after 4.


INSTALLMENT Allison 260, 320, 260, 250. 10 lbs. each. $60. Siegel, 299-9539.

268-4430.


PORT, dishwasher, $50; gas; electric. May wish to sell to conditioners, 10,000 BTU, $120. 5000 BTU, $75. Brandon, 298-1496.

TRANSPORTATION


70 BUICK WILDCAT, 310 cu. in., 4bbl carb. 13,000 miles, $1,200. Ram, 299-206.

570 HONDA FOUR, 70 model, 6800 original miles. Grant, 294-6350 after 6:30.

67 VW BUG, $250. Devlin, 281-3112.

24 SCOUT pickup, 4-wd, new tires, $500. Penders, 266-0017, 8-5 or 898-1258 after 5.


1958 FORD 8N, owner, 7400 miles, V8, std. trans. Floyd, 298-3149.


1977 DODGE Coronet 440, tan, AC, AT, one owner. Fiestler, 298-2060.

1957 PONTIAC Catalina, AT, PB, 450 cu. in. engine, one owner, $1600. Ramley, 344-5072.

1970 SIMCA 4-dr. wagon, w/ case & 2 hand. $100. dinerette restaurant, 1971, 4 mos. old. $110. O'Reilly, 298-1011.

1979 POLARIS 4-dr. , AT, PS, 44000 miles, orig. owner. Schamaun, 298-5192.

1970 VW BUS, new engine & up-hoistery, extra insulation in side walls, Eiffel service record, snow tires, extra wheels, campsite paint. Atkins, 298-5762.


68 DODGE pickup D-100, 250 CID, 6-cyl. 1/2-ton, 4-1/2, $1350. Siegel, 589-5939.

68 CHEVROLET w/ case & radio. $1100. Graham, 344-1582.


4-1/2- ton pickup, old, good, removable sides, $350. Roache, 268-4686.


1977 HONDA FOUR, 70 model, 74,000 miles, orig. owner. Grant, 298-206.


1974 CHEVROLET 4-dr. , AT, PS, 44000 miles, orig. owner. Schamaun, 298-5192.


1977 HONDA FOUR, 70 model, 74,000 miles, orig. owner. Grant, 298-206.


1974 CHEVROLET 4-dr. , AT, PS, 44000 miles, orig. owner. Schamaun, 298-5192.


1977 HONDA FOUR, 70 model, 74,000 miles, orig. owner. Grant, 298-206.

Bring the Crew!

CORONADO CLUB ACTIVITIES


KIDS KARNIVAL — Saturday, Feb. 17, 11 a.m.-3 p.m. Fun, Games, Prizes, Cartoons, Clowns, Hot Dogs, Lots of Goodies, Ten Tickets to Midway, 35¢. The kids will love it.

SOUL SESSION — Saturday, Feb. 24, from 8:30 to 12:30, Scorpio on Bandstand. With Big Rock and Roll. In lounge. Feb. 23, Barbara Lou Springman and the Countrymen, Guests Christopher and Yolanda in Lounge.

Sanado Meets Feb. 13

Sanado Women will meet Tuesday, Feb. 13, for luncheon and a musical program. Frances Robertson and Pat Robison, high school choral directors and members of the Albuquerque Civic Light Opera, will present selections from popular Broadway musical comedies. Reservations should be made today with Mrs. George Horne.

IN SPORTS

Events Calendar

Feb. 10 — Broadway Hit, "Story Theater," 8:15 p.m., Popejoy Hall.
Feb. 10 — NM Ski Touring Club, exploratory trip. Gulf Mart, 7:30 a.m.
Feb. 11 — Great Plays on Film — "Macbeth," 7:30 p.m., Popejoy Hall.
Feb. 11 — NM Mt. Club, snowshoe hike on Sandia Crest, Western Skies, 8:30 a.m.
Feb. 14 — Albuquerque Arts Council Meeting, short color film and open meeting, 7:30 p.m., Convention Center.
Feb. 14 — Albuquerque Symphony Orchestra, 8:15 p.m., Popejoy Hall.
Feb. 14 — ASUNM Lecture Series, J.B. Rhine, parapsychologist, experiments in ESP, 8 a.m., Student Union Ballroom.
Feb. 15 — ASUNM Lecture Series, Anais Nin, novelist, 9 a.m., Student Union Ballroom.
Feb. 16 — UNM Chamber Orchestra, third concert, 8:15 p.m., Keller Hall.
Feb. 17-18 — Albuquerque Children's Theater, "House at Pooh Corner," play; "Wedding Party," ballet, 7:30 and 3:30 p.m., Popejoy Hall.
Feb. 17 — NM Mt. Club, Indian Petroglyphs near Moriarty, Western Skies, 8 a.m.
Feb. 19 — Audubon Wildlife Film Series, "Sky Island; Arizona's Chiricahua Mountain Range," 7:30 p.m., Popejoy Hall.
Feb. 20 — ASUNM Lecture Series, William Friedken, Director ("The French Connection"). film clips to be shown with lecture, 8 p.m., Popejoy Hall.
Feb. 21 — Special meeting of Albuquerque Arts Council to discuss and define proposal for a Bicentennial Arts Center complex to be built in or near Albuquerque, 7:30 p.m., downstairs Convention Center.
Feb. 22 — Basket Ball: UNM vs Colorado State; Feb. 23 — UNM vs Wyoming, 7:30 p.m., Arena.
Feb. 25 — NM Ski Touring Club, 15-km cross country race at Chama, call 256-7085.

Coronado Club Announces Transportation Trip to Europe for June 5-26

A transportation only trip to Europe is scheduled by the Coronado Club June 5-26, according to Bud Wheeler (3251), club travel director. The group will land in London, June 6, and pick up in Paris June 26. The price is $288. Two optional guided tours are available as part of the arrangement Bud says. For an additional $807, you can spend 20 days in Scandinavia or for $707, tour Europe. Call Bud on ext. 5656 for details.

In the meantime, only 20 seats remain on the Malaga, Spain, package scheduled May 17-25. If you are interested, you must sign up right away. A $100 deposit is due at the Club office now.