

Insulin Pump — Answer For Diabetics?

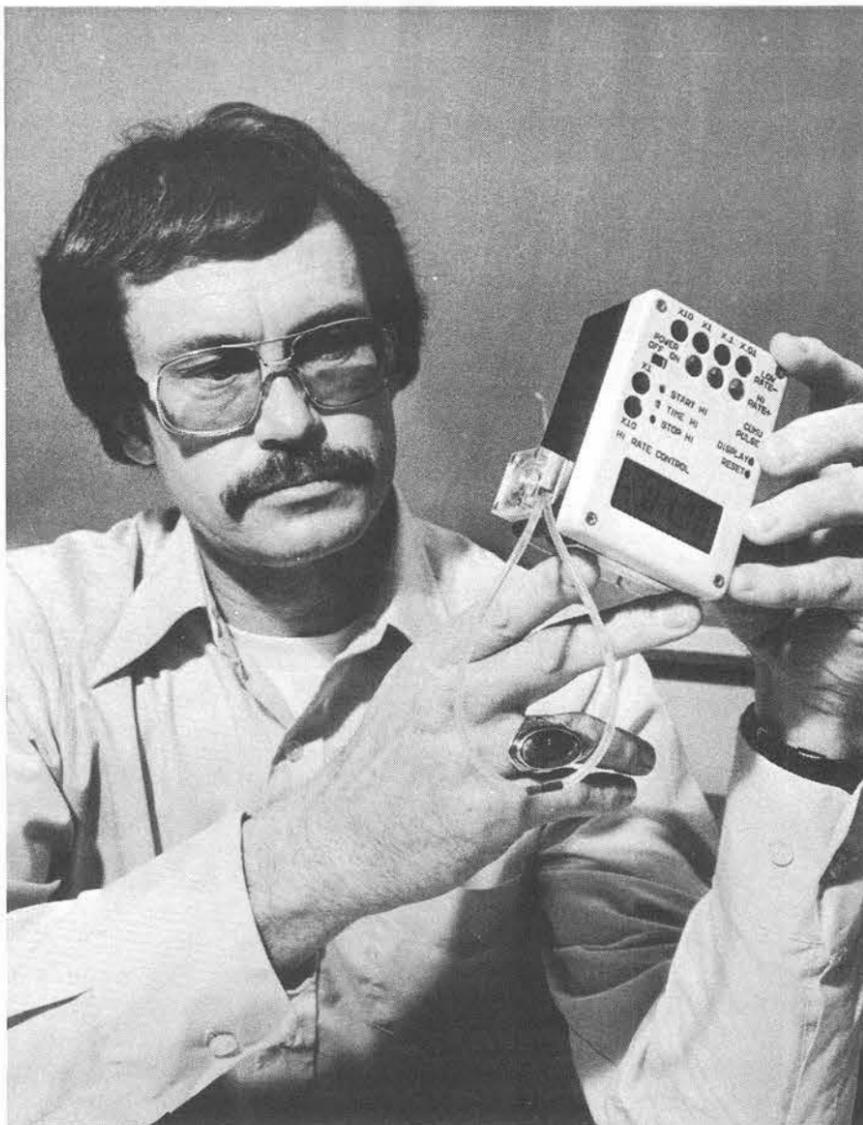
A cooperative program between physicians at UNM's School of Medicine and scientists at Sandia is bringing diabetic patients a step closer to being able to have normal insulin levels.

Research has been underway for the past year by the two groups to develop a miniature insulin pump that could ultimately lead to a system to be implanted in the abdominal area to release exactly the right amount of insulin into a diabetic patient.

Last spring, the UNM/Sandia team used an external insulin delivery system to produce normal insulin levels in a diabetic patient. The system took over the function of the pancreas, releasing the insulin in amounts and at times predetermined by the physician or patient. This insulin delivery system, developed at Sandia, used a commercial pump and custom electronic controls. About 10 patients have now used the external "bionic pancreas" in various forms and achieved normal plasma insulin levels.

"The limiting factor that stopped our research last June was the pump," says Dr.

(Continued on Page Six)



FOR DIABETICS — Jerry Love (2335) holds model of insulin pump to be carried by diabetic that would meter predetermined amount of insulin into diabetic's system over 24-hour period. Future versions would be smaller and implantable within the abdominal area. Jerry performed electronics design work on the pump. UNM's School of Medicine and Sandia are collaborating on project.

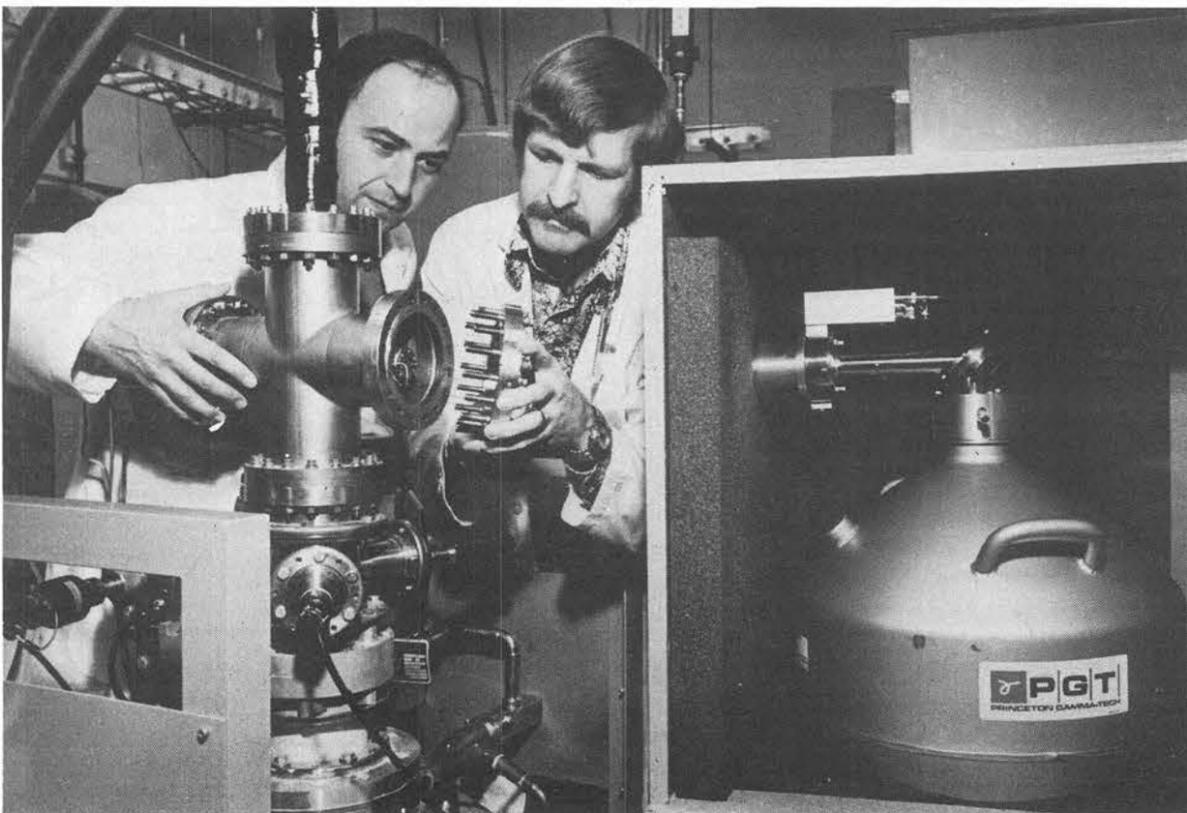
LAB NEWS

VOL. 31, NO. 4

FEBRUARY 23, 1973

SANDIA LABORATORIES • ALBUQUERQUE NEW MEXICO • LIVERMORE CALIFORNIA • TONOPAH NEVADA

Positron Annihilation — A New Test Technique



POSITRON MACHINE — Wil Gauster and Jim Banks (both 5111) prepare setup in positron annihilation experiment. Positron source and environmental chamber is at left while detection instrumentation is at right. Using positrons, microscopic defects in metals can be detected.

A Sandia researcher has produced a dramatic demonstration of the practical application of an esoteric physics phenomenon to a difficult problem of the real world. He is Wil Gauster of Ion-Solid Interactions Division 5111 (recently promoted to head SLL Division 8347), and the technique which he has utilized provides a means to sensitively detect and evaluate radiation damage in metals — always a matter of great concern in the field of nuclear reactor safety.

The phenomenon of interest here is termed "positron annihilation." From Van Nostrand's *Scientific Encyclopedia* we learn this about the subatomic particle:

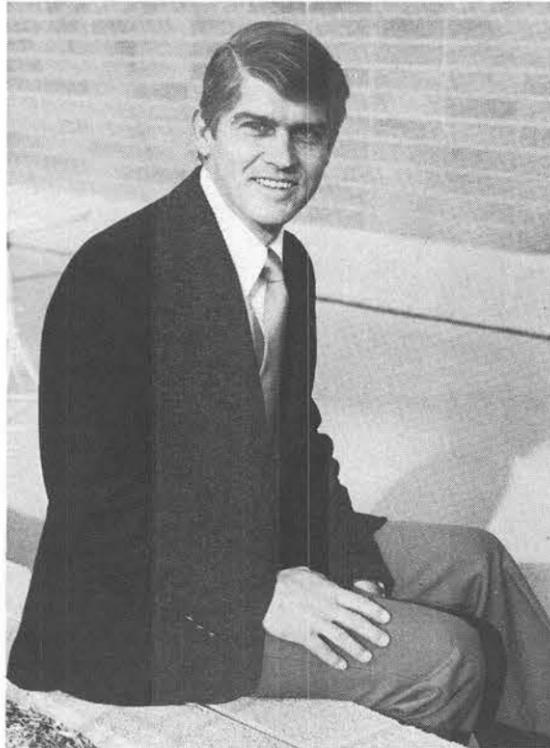
"POSITRON. A positively charged electron. It possesses all the same properties as the more common negatively charged electron except for the positive charge. Positrons are found experimentally as products in the beta decay of neutron deficient nuclides. . . . In the environment in which we live, the lifetime of a positron is quite short, since every positron sooner or later combines with a negatron and the two particles are annihilated in the interaction . . ."

It is the penchant of the positron to com-

(Continued on Page Four)



GLEN OTEY (4440)



BOB REUTER (5523)



WIL GAUSTER (8347)

Supervisory Appointments

GLEN OTEY to manager of Light Water Reactor Safety Department 4440, effective Feb. 1.

At SLL since 1966, Glen was promoted to supervisor of a project engineering division in 1969 and, two years later, transferred to systems development. He worked in the nose-tip recovery vehicle program and was concerned with nose tip rain erosion tests. In 1976 he left the Labs to obtain a PhD in ME from U/C Davis under Sandia's DSP program. Since returning last August, he has supervised Advanced Components Division 8442.

Glen's BS degree in nuclear engineering is from Mississippi State and his MS in ME is from Tulane. He is a member of AIAA. A Navy pilot for five years and a member of the Naval Reserve since 1960, Glen was awarded the Navy Commendation Medal in 1973 as commanding officer of a helicopter squadron at Alameda Naval Air Station.

Off the job, Glen enjoys tennis and bicycling. He and his wife Barbara have two grown children, one son in high school and a grandson. They have purchased a home in Four Hills.

BOB REUTER to supervisor of Applied Mechanics Division III 5523, effective Feb. 1. Since joining the Labs as a staff member in 1968, Bob has worked in the areas of weapon components, mechanics of composite materials and the analysis of fluid/structure interaction. More recently, he has been associated with wind and solar energy programs. Bob's newly created division will provide technical support of programs relating to wind and solar energy, transportation, weapon components and testing.

Bob earned BS, MS and PhD degrees in theoretical and applied mechanics from the University of Illinois. He is a member of the American Academy of Mechanics. Bob's woodworking hobby has resulted in two additions to his home and a number of pieces of furniture. On summer weekends he, his wife Vicki and three children enjoy sailing. They live in the NE heights.

WIL GAUSTER to supervisor of Physical Research Division 8347, effective Feb. 1. Since joining SLA as a physicist in October 1966, Wil has studied thermal and mechanical properties of solids, performed research with lasers and electron beams, taught Sandia's materials technology course and set up experiments to detect radiation-caused defects in metals through the phenomenon of positron annihilation. During 1974-75 Wil was a guest scientist at the Nuclear Research Establishment in Julich, West Germany. Since returning to SLA he's continued the positron annihilation studies, setting up a larger lab; and he has been chairman of a scientific committee that is conducting muon spin rotation experiments at LASL's meson facility.

Born in Austria, Wil has been in the U.S. since 1950. He earned a BS in applied physics from Harvard and a PhD in physics from the University of Tennessee. He is a member of the American Physical Society. Wil and his wife Norma and their two sons enjoy traveling and outdoor activities. The Gausters have purchased a home in Livermore.

Events Calendar

Feb. 23-24 — "The Wiz," Broadway musical, 8:15 (Sat. matinee, 2:15), Popejoy, 277-3121.

Feb. 23-25, March 2-3 — "Spring's Awakening," Rodey Theatre, UNM, 8 p.m. (matinees on 2/25 & 3/3), 277-4402.

Feb. 25 — Music Vespers Series: Sweden's "Fresk String Quartet"; March 4 — Norman Luboff Choir, 4 p.m., First Methodist Church, 243-5646.

Feb. 27 — Cultural Program Series: Dizzy Gillespie & Quintet, Popejoy, 277-3121.

Feb. 28 — Vladimer Koheinzsky, pianist, Popejoy, 277-3121.

March 2-3 — NMSO with pianist Jeffrey Swann, 8:15 p.m., Popejoy, 265-3689.

March 3-4 — Annual Spring Antique & Modern Gun Show, Albuquerque Convention Center; sponsored by N.M. Gun Collectors Assoc. (bring guns — buy & trade), doors open 8 a.m.

March 6 — "The Mini-Countries of Europe," Kiwanis travel film, 7:30, Popejoy.

Congratulations

Mr. and Mrs. Ray Chavez (3155), a daughter, Feb. 7.

Mr. and Mrs. Tom Plummer (3642), a daughter, Leighann Chantal, Jan. 20.

Mr. and Mrs. Ken Nowotny (2532), a daughter, Kimberly Elizabeth, Feb. 7.

Sympathy

To Paul Silva (3618) on the death of his sister in Gallup, Feb. 5.

To Rosalie Crawford (1) on the death of her husband in Albuquerque, Feb. 16.

To Harold Barnett (2166) on the death of his mother in Phoenix, Feb. 9.

LAB NEWS

Published every other Friday

SANDIA LABORATORIES

An Equal Opportunity Employer

ALBUQUERQUE, NEW MEXICO
LIVERMORE, CALIFORNIA
TONOPAH, NEVADA

Editorial offices in Albuquerque, N.M.

Area 505 264-1053

FTS 475-1053

ZIP 87185

In Livermore Area 415 422-2447

FTS 532-2447

john shunny is editor

&

don graham ass't. editor

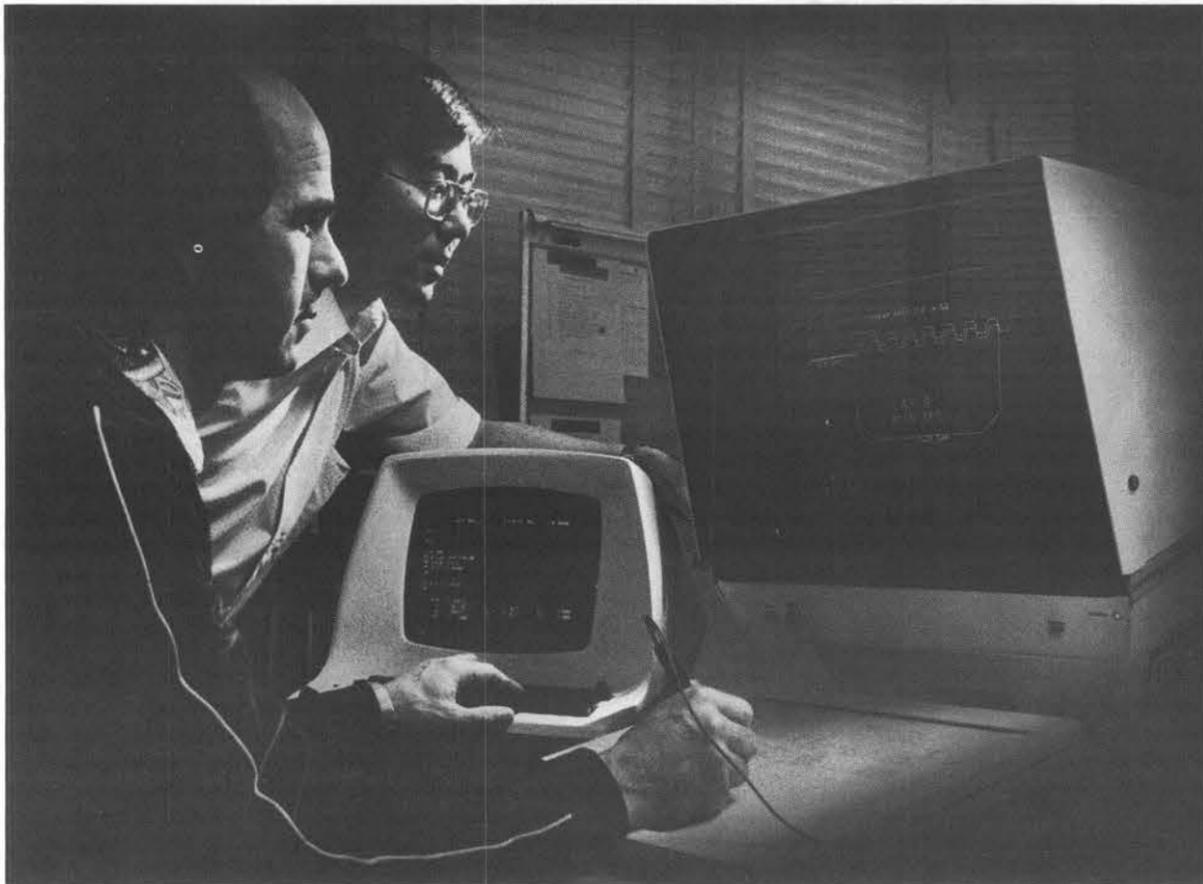
chuck cockelreas & norma taylor write

bill laskar does picture work

bruce hawkinson & lorena schneider report livermore.



If the disquieting thought ever crossed your mind that your pharmacist might have as much trouble deciphering the doctor's hand-written instructions on a prescription as you do, take heart. A new system has been proposed in which the name of the medication, its strength and the amount to be dispensed will be written as usual. The directions, however, will be specified by four arabic numbers rather than Roman or apothecary numerals. The four digits will indicate the number of tablets to be taken after breakfast, lunch, dinner and at bedtime.



DESIGNING BY COMPUTER — Vern Byfield (8274) uses an electronic pen and a keyboard to modify a design on the CRT to engineer Howard Hirano's (8441) satisfaction. The CADDs system offers a wide range of graphic options to the designer.

CADDs: Powerful Design Tool

Create a picture, according to axiom, and it's worth a thousand words. Create a picture in a computer-aided mode and it's worth much much more.

That's the premise underlying CADDs (Computer-Aided Design Definition System) that makes it a powerful tool for design at SLL.

Fundamental to Sandia's effort in weapon system development is the engineering design process, which is characterized by three closely meshed but separately administered activities: design analysis, detailed design/drafting, and model shop/production agency fabrication. From concept to finished product, these separate activities play a role in the final design of a myriad of parts and assemblies. All share one design tool — a three-dimensional geometric data base of each part.

Today, with CADDs, a common 3-D geometric data base is captured and stored as each part is created by the designer/engineer. CADDs enables the designer to sketch ideas on a CRT, edit with an electronic pen, develop a promising design in detail. He can manipulate, rotate, change, magnify, generate perspective views from any angle, calculate dimensions and clearances between parts. Electrical design work is accelerated by immediate display of selected electrical components and symbols. In printed wiring board design, the automatic routing of circuit paths is available upon command. Photo-plotter tapes and numerically controlled (NC) drill tapes may also be generated.

"CADDs is a highly flexible tool in the design process," says Fred Eichert, supervisor of CADDs Division 8274. "It can perform many functions quite rapidly. But remember: CADDs is a tool that expands what the designer can do — it's not his or her replacement."

In operation, the designer sits at a terminal in front of a CRT and a command table, with display console and keyboard at one side. Commands are sent via the keyboard or by touching the appropriate square on the command table with an electronic pen. The pen is used for sketching the desired geometry on an electronic tablet, which simultaneously displays it on the CRT.

Active drawings are stored in the disc storage which is connected to a minicomputer. Drawings of whatever is on the CRT are available via on-line, high-speed plotters.

Sandians with major responsibilities in the CADDs area are Bruce Koopmann (on loan from 8333), systems programming; Hanloy Quock (also on loan from 8333), APT systems programming; and, from 8274, Bruce Affeldt, operations; Vern Byfield, mechanical applications; Al Elsea, electrical applications; Terry Bersie, electrical design; and Jim Hachman, mechanical design.

Speakers

Jack Dini and Rudy Johnson (both 8312), "Optimization of Gold Plating for Hybrid Microcircuits," and Arnie Andrade (8424), "Data Acquiescence Systems Applied to Printed Wiring Board Measurements," American Electroplaters' Society Seventh Plating in the Electronics Industry Symposium, Jan. 16-17, San Francisco, CA.

Bob Bradshaw (8312), "Development of a 310 Stainless Steel Alloy for Sulfidation Resistance," Conference on Erosion Corrosion of Materials in Coal Conversion Systems, National Association of Corrosion Engineers, Jan. 24-26, Berkeley, CA.

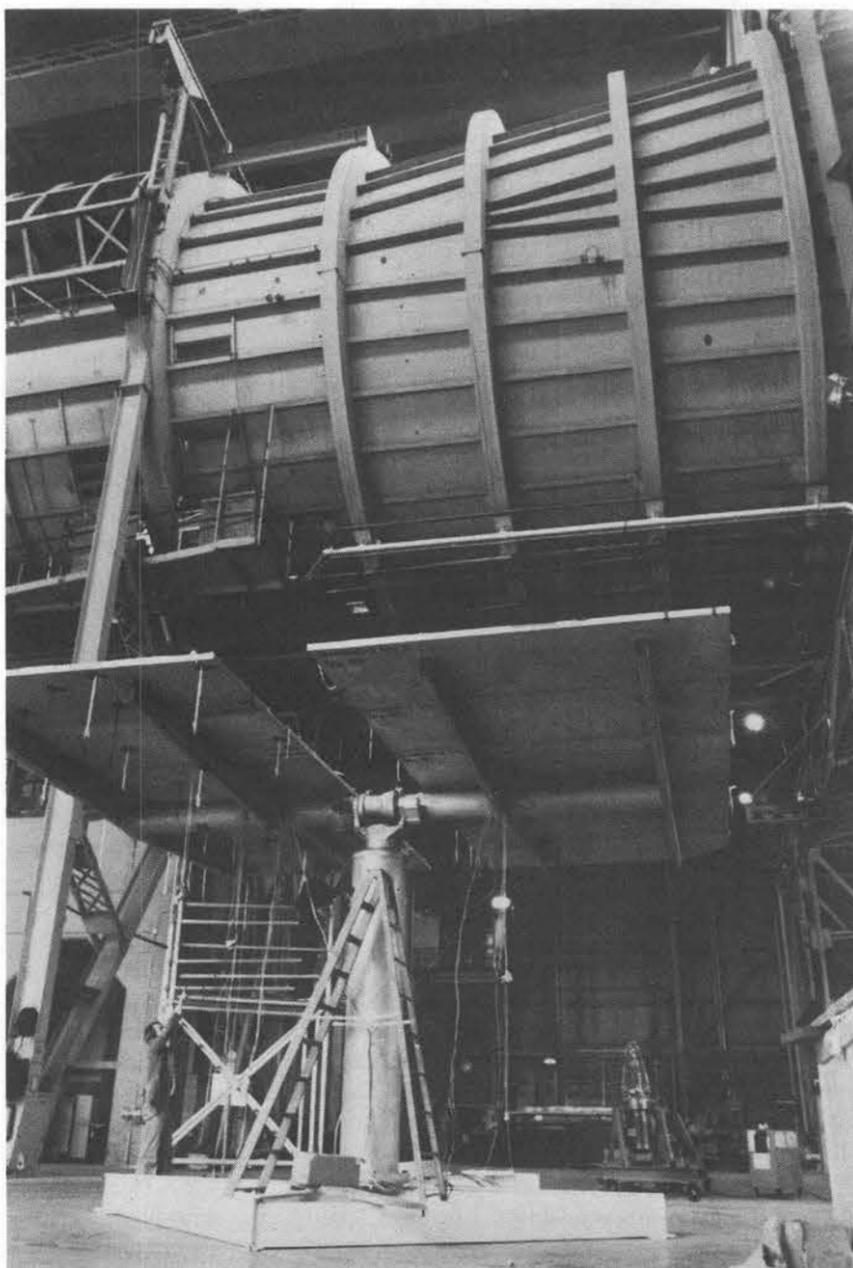
LIVERMORE NEWS

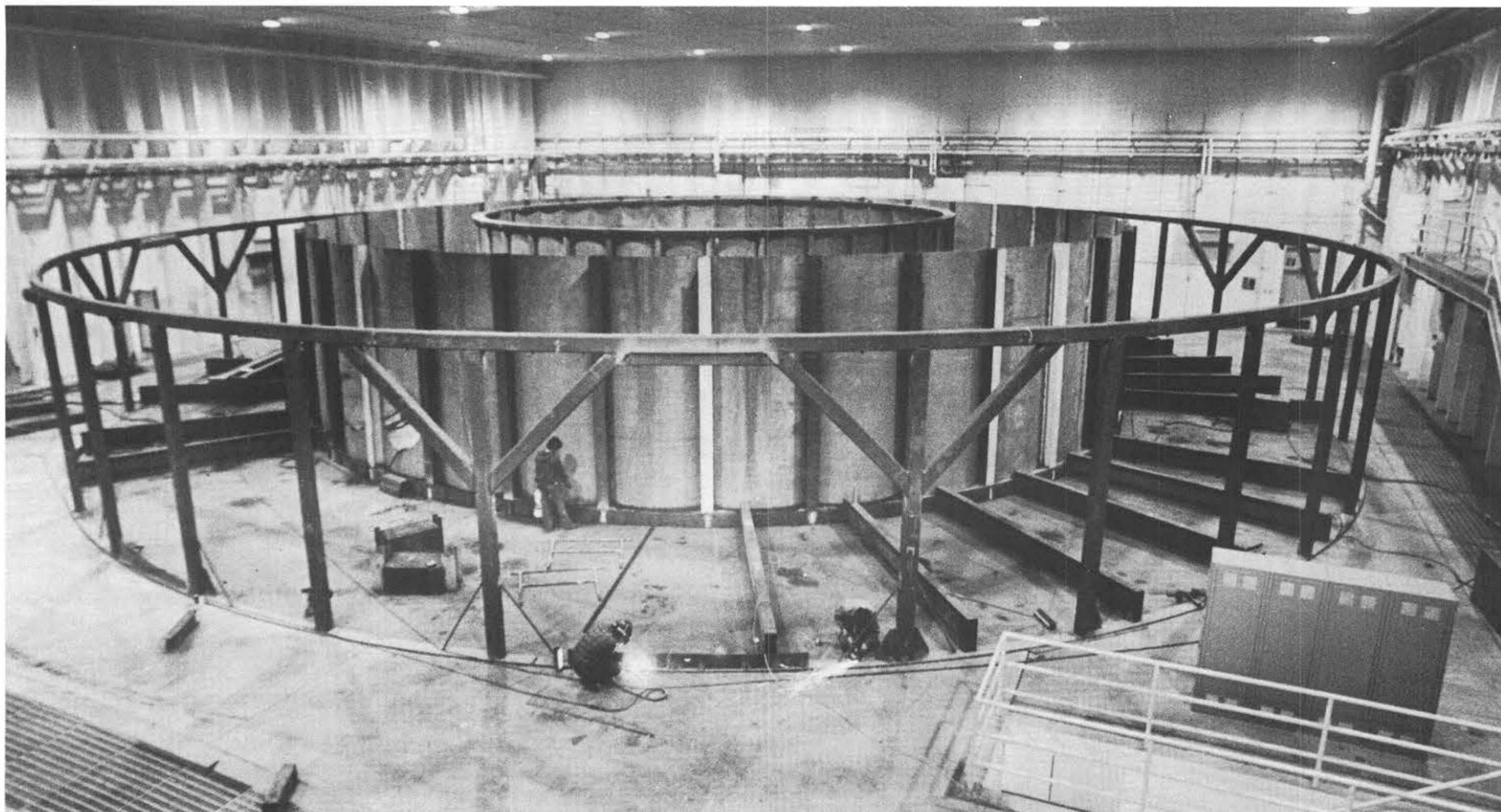
VOL. 31 NO. 4

LIVERMORE LABORATORIES

FEBRUARY 23, 1979

BLOWHARD — Steve Peglow and Don Osmund (both 8451) ready a McDonnell-Douglas heliostat for the NASA/Ames wind tunnel at Moffett Field. In a variety of tests, the heliostat met design specifications, withstanding a wind velocity of 50 mph while deployed in an operational mode and of 90 mph while in a stow mode. The heliostat is similar to those planned for the 10 MWe Central Solar Receiver System near Barstow.





E-Beam Update

E-BEAM FUSION FACILITY construction progresses. Gerry Barr (left), supervisor of Pulsed Power Projects Division 4251, inspects steel framework of the floor which will support the giant accelerator. Above, workmen weld steel beams which form the walls of the two insulating tanks — the outside tank to hold 300,000 gallons of transformer oil, the inner tank, 150,000 gallons of de-ionized water. Marx generators within the outside tank will store 4.2 million joules of energy. In operation, the accelerator will pulse this energy, compressing it from 600 nanoseconds to 45 nanoseconds and beam it upon a tiny fusion target. The accelerator is scheduled to be operational in the summer of 1980. Construction of the facility is about 65 percent complete, and Gerry reports "We are on schedule. Installation of the electrical components starts June 1." Occupancy of the supporting laboratory and office building (Bldg. 980), to house Departments 4240 and 4250, starts next month.

Continued from Page One

Positron Annihilation — New Test Technique

bine with an electron and achieve mutual annihilation, thereby giving rise to two high energy x-rays, that is the basis of the technique Gauster is using to observe radiation damage in metals. The damage characteristically is produced in the form of microscopic voids — called "vacancies". Such vacancies and clusters of vacancies are produced by high-temperature neutron irradiation.

Using any of several radioactive isotopes as a positron source, Wil has shown that measurable characteristics of positron annihilation radiation change as a function of increasing defect concentration in a metal sample. He explains: "A vacancy in the metal contains electrons that have different momenta from those in a nondefective volume. The positrons seek out the vacancies and annihilate with the electrons there, and we can detect the resulting radiation. Our instruments establish not only the presence of the vacancies or other defects but also give us quantitative information about them."

Other kinds of damage are also detectable, for example that incurred by mechanical deformation in metals, such as fatigue damage.

The implications of this nondestructive testing technique are significant. In reactor technology, with safety being paramount, much reactor hardware is replaced at a very early stage because the true condition of the material is unknown — therefore, the rule of extreme conservatism with respect to safety applies. Using the positron annihilation testing technique, it should be possible to accurately characterize the integrity of reactor pressure vessels and other hardware on a continuing basis, replacing them only when needed. At present, a reactor component that develops a leak may require that the reactor be shut down. Had the damaged area been earlier detected, repair or replacement could have been accomplished during a scheduled shutdown period. Thus it may be possible to realize major economies through use of this technique.

Further, aside from the nuclear reactor field, positron annihilation testing shows much promise in those areas where metal fatigue is of concern. Wil refers, for example, to the flexing of an aircraft wing. "This is normal — they're supposed to flex," he says. "But at some point microscopic damage may begin

to develop in the structural members — they're still a long way from failure and, with positron annihilation, we could detect this early damage and take appropriate steps."

Still under development as a testing technique, positron annihilation is the subject of several papers by Wil and other Sandia investigators: Bill Wampler (5111), Wendell Jones and Jim Van Den Avyle (both 5835). Jim Banks (5111) was instrumental in building up the experimental apparatus at Sandia.

* * *

The application of the phenomenon of positron annihilation to a practical problem — testing for defects in metal — is a classic illustration of how a discovery made during basic research can have totally unpredictable consequences. The positron was predicted in theory almost 50 years ago, and the particle was first identified in a physicist's cloud chamber in the early 1930's. But only in the last 10 years has it been recognized that positron annihilation in solids is sensitive to defects in those solids. The transfer of this knowledge from laboratory to working world thus took some four decades.

feed back

Q. Does the bus company have a grudge against the Eubank-Sandia riders? I rode the old greenie buses for over a year with one breakdown in that time. Since the new buses have appeared there have been at least 4 breakdowns.

A. If you rode the old "greenie" buses for over a year with only one breakdown, you indeed were leading a charmed life. These buses were purchased in 1950 and were older than some of their drivers when disposed of in 1976. At the time of their replacement, the fleet of 58 "greenies" was averaging 88 road failures per month exclusive of flat tires.

The bus you now ride is one of 52 placed into service in July 1976 and, along with you, the transit shop supervisor is disappointed with the frequency of the new fleet's breakdowns, about 40 to 60 per month. These buses are the newest available; there are none available to rotate.

Jeff Gammon, Chairman
Sandia Employees Transportation Committee

Q. Having spent a great deal of time and effort to earn a Ph.D., I feel that I deserve the professional title of "Dr."

Why don't we use these titles at Sandia?

A. The practice of not using professional titles within Sandia Laboratories has been followed almost continuously during the past 25 years. Although there is no written policy, the practice became firmly entrenched during the administration of the late (Dr.) James W. McRae, who served as president of Sandia from 1953 to 1958. He was a strong advocate of informality and believed that titles were of interest mainly to one's peers and that since professional people were well known to each other within Sandia, we should only use them in outside contacts, mainly in professional circles.

A *Lab News* story which describes the work of Jim Brown (5106) is changed in the news release sent to outside media to *Dr.* James Brown, Physical Research Division, etc. Titles are also used in external correspondence, biographies, signed articles, etc.

The degree of formality observed in addressing one another in a given organization is a matter of choice. "Mr.," "Mrs.," "Miss" or "Ms." are customarily used within Sandia when a first-name relationship is considered appropriate. The proper respect is thus accorded, without drawing attention to the differences in educational attainment of individuals.

K.A. Smith — 3100

*Q. Could Sandia Medical incorporate a "health hazard" appraisal in our regular medical exams? This was described in *Readers Digest* and is based on statistical studies of various health risks.*

A. Thanks for your inquiry and reprint from the *Reader's Digest* regarding "Health - Hazard Appraisal." I have forwarded the article to and have discussed it with the other Sandia physicians. Basically, we utilize this technique on our physical examinations. For example, if someone has an elevated cholesterol, is a heavy smoker, does not

exercise, etc., comments are made at the time of the examination.

All of us are in agreement that we would like to keep such an appraisal individualized. Certain types of personalities may be unduly alarmed by formalized print-outs. The impact can be quite devastating, and we really prefer to discuss these factors on an individual basis. Frequently, in individuals who have a number of high risk factors, we may schedule return appointments and discuss in more detail the changes in life style that may be necessary. Philosophically, I also object to a "cut and dried" approach as the computer can only give us a statistic. I have seen too many exceptions to such an approach.

In addition, there are disagreements as to the weighing of some risk factors, and as new information becomes available, they change. We would like to retain this flexibility.

I wish I could believe that a computer printout is all it takes for people to change their life styles, but I have seen individuals smoke *after* one lung was removed for cancer or up until the day they die of their emphysema. Our emphasis is to develop programs aimed at changing these life styles, and we just have to keep plugging away.

If you wish, after your next examination or if you have had one recently, we will be more than happy to discuss all of the factors and give you a reasonable estimate of your status.

Paul B. Mossman, M.D. — 3300

Q. Why doesn't Sandia contract with local technical report writing companies to prepare unclassified documents? It would often be faster and less expensive. Sandia's own tech. writing department has an unacceptably long turn-around time.

A. It's true that on occasion Sandia's report composition schedule may be several weeks behind, but there is seldom any delay in writing assistance per se. To alleviate the overloaded composition situation, we have, since last March, contracted services of an Albuquerque firm.

As we gain experience with our ATEX text editing system (which can now transfer Lexitron and PDP-11 tapes if properly formatted), we expect to shorten composition times considerably.

K.A. Smith — 3100

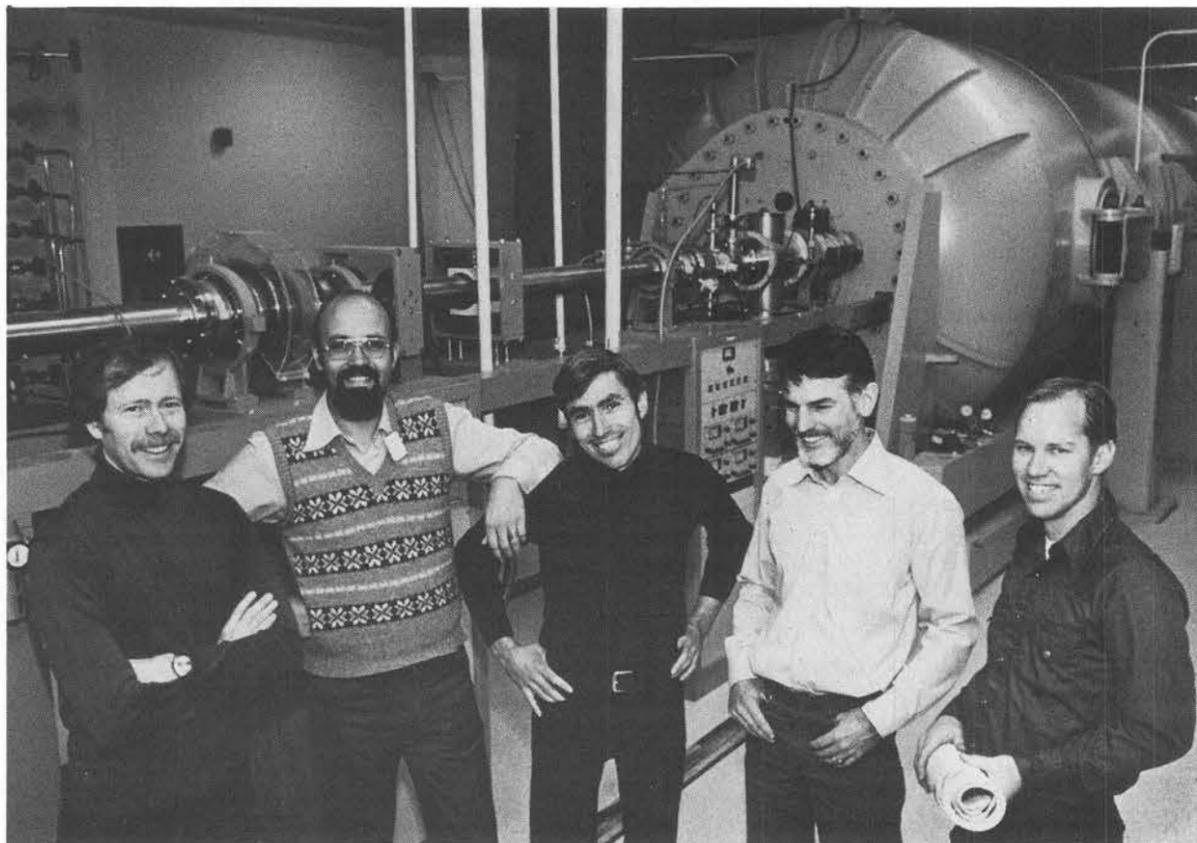
Q. According to a recent newspaper article, a new Federal Energy Guide encourages the four-day work week as a means of energy conservation.

Has Sandia considered the four-day week?

In 1974, Plant Engineering analyzed various energy conservation possibilities including a four-day work week. At that time it was estimated the savings in heat and electricity would be insignificant — probably less than 1%. The heat, lights, cooking, etc., would operate about the same number of hours because the total work hours would be the same. We currently turn off as much equipment as possible during non-work hours.

We do not know how the use of home energy and automobile gasoline would work out. It's conceivable that most people would drive more miles on an extra day of leisure than the round trip distance from home to the Labs. Energy conservation is more a matter of personal commitment than gimmicks, as witness the still large number of single-occupant cars commuting to the Labs despite the inducements for carpooling or riding buses.

R.W. Hunnicutt — 3600



GERMAN SCIENTISTS — From the Max Planck Institute for Plasma Physics in Munich, Germany, come Joachim Roth and Bernhard Scherzer (2nd & 4th from left) to spend two weeks at Sandia Labs working in the Radiation & Surface Physics Research Department 5110 on the fusion materials program. With them, at left, Bob Blewer (400), recently returned from a year at the Max Planck Institute, Tom Picraux, head of Ion-Solid Interactions Division 5111, and Jimmy McDonald (5111).

Stress Junkies Lead Hectic Lives. And Short.

A recent *Washington Post* article on exercise makes an interesting point:

"It is becoming generally recognized that, along with biological and environmental factors, a particularly aggressive, ambitious and competitive behavior pattern . . . confers an additional coronary-disease risk of more than 30%. There is also evidence suggesting that precisely such persons are engaging in the strenuous exercise crusade with the same sense of urgency and competitiveness, the determination to run that extra mile or go that extra lap in the pool or prove some other point . . . For many such individuals . . . the activity is only the recreational expression of the same attitudes which are at least partly responsible for the very heart disease they believe exercise will prevent."

They can't let go. They drive and flagellate themselves whatever the activity, whether it be work or play. They can't even take off from a traffic light that's just turned green without trying to get ahead or beat someone. Tragically, they have no sense of their own plight.

Stress makes life interesting. When our emotions are engaged, the victory on a tennis court is all the sweeter, or the sense of accomplishment when you've completed important work is all the more pleasurable. If it weren't there, we'd probably have to invent stress just to elevate life to something more than a vegetable state.

But we Americans will never have to purposely devise occasions of stress. From childhood on, our culture urges us to compete, to get ahead, to be better than the next guy. It's a culture that can put men on the moon,

but it leaves generations of stress-ridden individuals in its wake.

Medically, it's clear that chronic and acute stress ravages the body. Our body chemistry responds to a stressful situation, for example in its release of adrenalin in a tense or frightening situation. And most of us have experienced a stomach-churning moment in anticipation of some important event. On an occasional basis, these reactions are normal and healthful. But as a way of life, stress will wear us out. Medical literature points out a number of early warning symptoms of excessive stress: not being able to think creatively, to conceptualize or evaluate your own performance. Some emotional signs of stress are feeling irritated, not getting along with people, feeling people are against you.

The single most prominent indicator of excessive stress is depression. It starts out with being tired, gloomy and irritated, and progresses to not sleeping, weight change, a lack of energy, moodiness.

So what do we do about this unhappy state?

It's simplistic to say "avoid stress," but the fact is that the most common cause of a reaction to stress is our attempting to do too much within the resources and time at our disposal. Look at your life. Are you at the point of distraction with a schedule that hangs over you like a sword? Then back off. Change jobs if need be.

Exercise has come to be recognized as a counter to stress. It can be running, but it can also be less demanding pursuits — walking, biking, swimming. Or it can be something competitive like tennis or racketball. But don't defeat the purpose in any of these by reverting to a no-holds-barred approach.

And learn to relax, which is not as simple as it may seem. From the Dept. of Psychiatry at UNM's School of Medicine we've received

a recipe entitled "How to Relax." Here are techniques recommended for reducing tension:

Breathing — Inhale through your nose, exhale through your mouth. Become aware of your breathing. Allow your exhale to be slow and easy. As you breathe out, say the word 'one' silently to yourself. Repeat this for several minutes, thinking 'one' on each slow exhale. Imagine that with each slow exhale the tension is leaving your body. When you finish, sit quietly for a few minutes, at first with your eyes closed and later with them open.

Letting Go — Unfocus your eyes, look down, open your mouth slightly, let your lower jaw hang loose, drop your shoulders, and let your chest collapse. Breathe slowly and smoothly.

Shaking — With your arms hanging loosely at your sides, begin by shaking your hands. Then let the vigorous vibration move up to include your arms and then your shoulders. Feel both arms vibrate energetically and rapidly. Then let the shaking slowly subside and feel the tingling throughout your body.

Imagery — Close your eyes and go off on a mental trip to a pleasant, peaceful place where you feel relaxed, safe and free of worries or concerns. Stay there several minutes and savor the experience. You can imagine this trip to your restful retreat whenever you feel tense or anxious. It is your private tranquilizer."

Try to become a practicing, dedicated, hard-liner relaxer. If it helps, work at being a better relaxer than the other guy. It's drugless, non-surgical, safe, has no negative side effects, and you'll feel better. • js

Continued from Page One

Insulin Pump — Answer for Diabetics

Philip Eaton, UNM professor of medicine and chief of endocrinology at Bernalillo County Medical Center. "We had gone as far as we could with commercially available pumps. We needed a pump that could release a low flow of insulin, that was tiny enough to be implantable, and that was totally dependable."

Bill Spencer, now director of Systems Development 8100 at SLL but formerly head of the Microelectronics Directorate 2100, commented on the job of making such a pump. "To meet pump requirements, we worked out a new concept. Our new pump consists of a peristaltic head that's driven by a rotary solenoid motor. The peristaltic head has a unique roller system that pushes insulin through a tube leading from the insulin reservoir to the patient. The motor itself is highly efficient and reliable and was developed at the Labs for a weapons control system, making the insulin pump project a striking example of technology spinoff — from a military to a medical purpose."

Besides pump and motor, the present delivery system — about 2x3x4 inches — contains electronic circuitry, controls, and a battery. Future versions are expected to be smaller. Here are the system's important features:

— a programmable, uniform, and reproducible delivery rate.

— a delivery rate independent of temperature, pressure (atmospheric or venous), body position, or motion.

— low power requirement giving battery lifetimes of several years.

— a fail-safe feature designed to halt flow in event of a malfunction.

"Sandia has just delivered the first of the new insulin delivery systems," Dr. Eaton reports. "Now we can continue our animal trials using the new system. And the internal administration of insulin in humans has already been approved by the Human Research Committee of the UNM School of Medicine."

Next month, two papers on these developments will be presented at the New England Bioengineering Conference. The Sandia paper will discuss the rotary solenoid pump while that from UNM will cover the insulin work.

Implications of an implantable insulin delivery system are far-reaching. Diabetics are estimated to number five percent of the world's population, with some 10 million in the United States alone. While subcutaneous insulin injections control the disease, the control is far from complete, and blindness, kidney failure, and other serious complications are among the consequences of diabetes. In fact, diabetes ranks third as a cause of death in this country.

Insulin delivery system development was prompted by medical data which suggest that the better the control of blood sugar through proper insulin dosage, the fewer the complications from the diabetic condition. Ideally, the diabetic receives only that amount of insulin needed — less during exercise and sleep periods, more following meals. Currently, however, the diabetic usually takes insulin in one daily injection, and the diabetic's system throughout the day is characteristically over or under the optimum insulin level.

The insulin delivery system overcomes this problem by being programmed to deliver insulin over a 24-hour period in varying amounts on a regular basis. And if the diabetic sits down to a big meal, he can adjust the insulin delivery electronically for this change in his regular dietary program.

Drs. Eaton, Dave Schade, and Phil Day at the School of Medicine are principal medical contributors to the insulin pump program. At Sandia, a number of people have worked on the insulin pump project. Besides Bill Spencer, they are Gary Carlson (2151), project coordinator; Jerry Love (2335), design of electronics; and Ruben Urenda (2324), electromechanical elements. Earlier in the project, B.D. Shaffer (4719) and Wayne Corbett (2116) did work on, respectively, the rotary solenoid pump and electronic controls.

Retiring



Dick Koppel (1171)



Bob McConkie (2532)



Felix Padilla (3425)



Homer Messenger (1485)



Len Mahuron (2651)



Irene Dodson (1485)



Charles Maase (2426)



Ken Sarason (4311)



Mac Suazo (3417)



Fred Brown (3417)



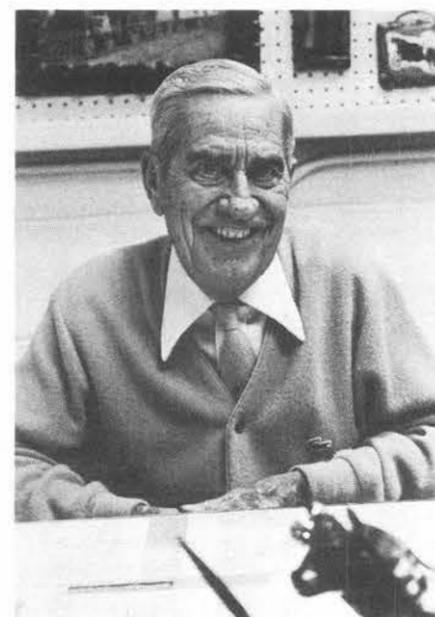
Kay McDonald (2632)



John Piper (5623)



Alfredo Trujillo (3425)



Bill Elskes (3611)

Iwo Jima To Become Japan Military Base

"TOKYO (UPI) — Japan has announced its plans to turn the island of Iwo Jima, where more than 4,500 American marines were killed in one of World War II's fiercest battles, into a key strategic military base by 1983."

This was the headline and beginning of a recent newspaper story that had a special meaning for Bob Jaramillo (1474). As a Marine gunnery sergeant, Bob fought on Iwo, saw many friends killed and was himself seriously wounded. Iwo marked the end for Bob of a career in the Marines that had begun when he enlisted in the palmy, pre-war days of 1938.

We talked with Bob about his war experiences and also with Dick Cash (3432) who, in one of those coincidences that wartime brings, served with Bob in the 22nd Marine Regiment of the 6th Marine Division and took part with him in the fight for the island of Guam in July 1944. Both were also wounded in that campaign.

Bob's most vivid memory of personal combat is of the pivotal battle for the island of Midway.

"I was at Pearl Harbor when the Japanese hit us. We were helping clean up the mess after the attack when it was decided that Wake Island had to be reinforced. So they scraped up all the Marines in the area — many had had their ships sunk from under them — and got us set for Wake. But that fell, and it looked like Midway was next.

"We got there (Midway) in February of '42 and went to work immediately to strengthen its defenses. As it turned out, the big fight over the island — which had been a Pan American Clipper stop — didn't take place until June.

"I was firing a .50 caliber machine gun. You know, those enemy fighter planes came in so low you could make out the faces of the pilots. After their attack, they had to return to their carriers to load up again and that's when our planes caught them — sitting on their decks."

Bob remained on Midway until the end of 1942.

Dick, meanwhile had joined the Marines and took training in San Diego and New Zealand before embarking upon his first campaign: Bougainville.

"That's where I came of age and realized that a man could get killed in this business. I was in a 37 mm outfit that was supposed to shoot up tanks, but that place was so rainy and muddy the tanks couldn't operate. We got switched to machine guns.

After Bougainville, Dick was transferred to Bob's outfit (the 22nd Marines) which was in training on a now pacified Guadalcanal for the invasion of Guam. That invasion, in July 1944, saw them both wounded. Dick's account of his injury has a certain humor:

"The planes came in from behind us with their engines turned off, then they gunned them and dropped their bombs on us. I could see the bombs falling and then I was hit by shrapnel.

"What was it son?" the doc on the hospital ship asked. 'A Jap mortar?' 'No sir, a U.S. Navy dive bomber,' I replied. He turned



BACK in '39, a parade wasn't a parade without a company of Marines decked out in full dress. Bob Jaramillo (1474) marches with this group in Seattle, Washington. That's Bob (below) enjoying the beach in the early '40's. He and Dick Cash (3432), leaning on jeep, were in the same Marine outfit during the Pacific campaign in WW II. They're shown today, more than three decades later, at Navy & Marine Training Ctr. in Albuquerque, Dick on the left, Bob on the right.



and wrote in the record 'Jap mortar'."

"You were wounded twice, weren't you?" Bob asked Dick.

"Not really. On Okinawa I got hit on this finger and tried for a second Purple Heart so that I could get rotated home. But I couldn't squeeze out enough blood and they said 'no'."

Neither man has any nostalgia for



combat.

Bob: "The longest journey in the world is that from the ship to the beach. After you're on the beach you're too busy to be fearful — and you have no way to go back."

Dick: "The memories hurt more now. War is killing. You wonder — 'How many fathers did I kill?' It's not a pleasant thought."

•js

Take Note

The 19th annual ASME Symposium, set for March 15 and 16, takes on a big subject: Geological Disposal of Nuclear Waste. It will be held at UNM in the Physics Lecture Hall and is co-sponsored by the New Mexico Section of ASME and UNM's College of Engineering. Olden Burchett (5521) is Symposium Chairman. For those planning to attend, advance registration is encouraged and should be completed no later than March 9.

* * *

"Design Innovations in Breeder Reactor Development at Clinch River" is the title of the colloquium to be given Wednesday, Feb. 28, at 10 a.m. in Bldg. 815 (outside the Tech Area). Lochlin Caffey, director of the Clinch River Plant, is the speaker.

* * *

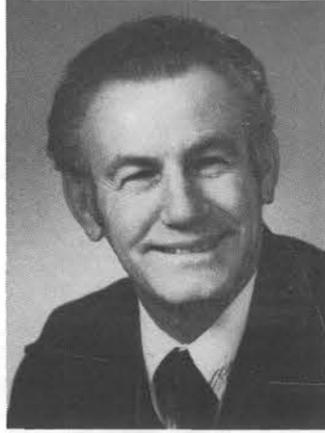
Bob Nellums (4715), a recent Harvard Business School grad, dropped by the LAB

NEWS office with a provocative question, aimed chiefly at other recent graduates recently employed: "Should you be income averaging?" Bob is talking about income taxes, and he wrote up some considerations that may affect a number of Sandians: "Employees whose income increased substantially between 1974 and 1978 might consider Federal Income Tax Form G which permits taxpayers to report average income. As a rule of thumb, this procedure should reduce tax liability if 1978 income exceeds by a factor of 1.2 the average of the taxpayer's income for the years 1974 through 1978. Several qualifications are necessary, the principal one being that the taxpayer either has not been claimed as a dependent of someone else (e.g. a parent) since 1974 or, alternatively, that the taxpayer has been out of school for at least six months in each of four tax years since the taxpayer's 21st birthday."

MILEPOSTS

LAB NEWS

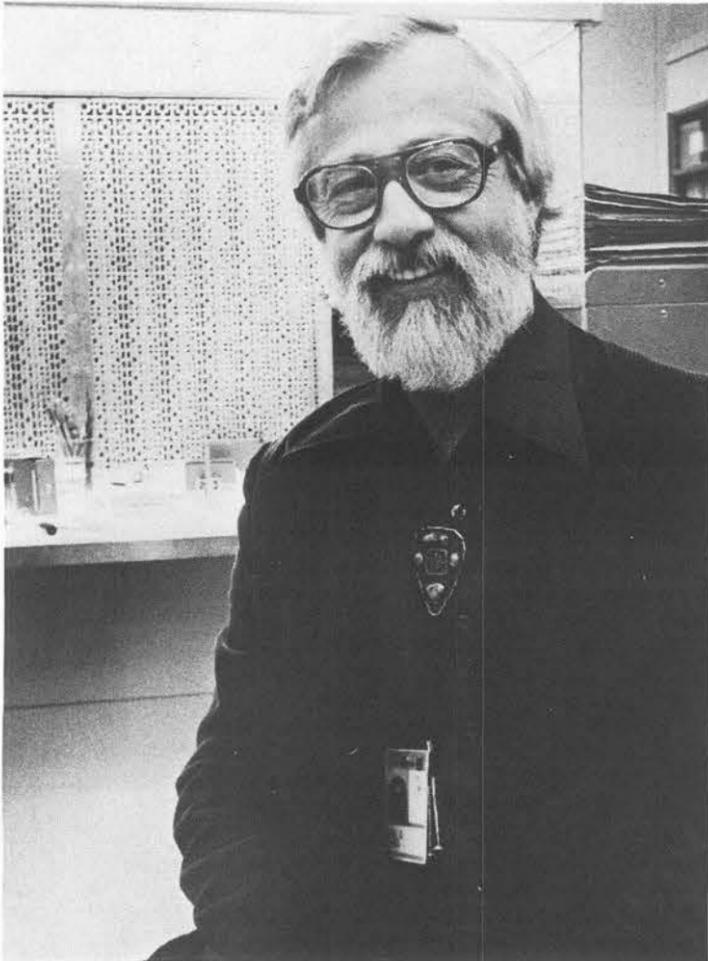
MARCH 1979



John Seuser - 8423 20



Dick Siebenforcher - 3213 20



Paul Jones - 2328 20



Tom Cordova - 3441 15



Jerry Wackerly - 8213 20



C.A. Davidson - 5522 25



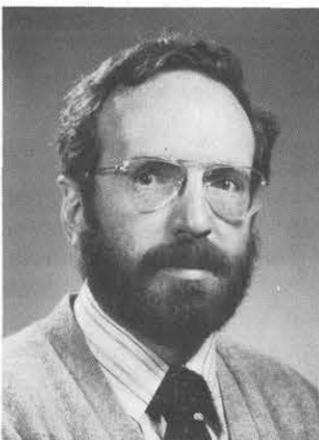
Ron Amaral - 8465 15



Robert Male - 1127 30



Mort Lieberman - 5458 10



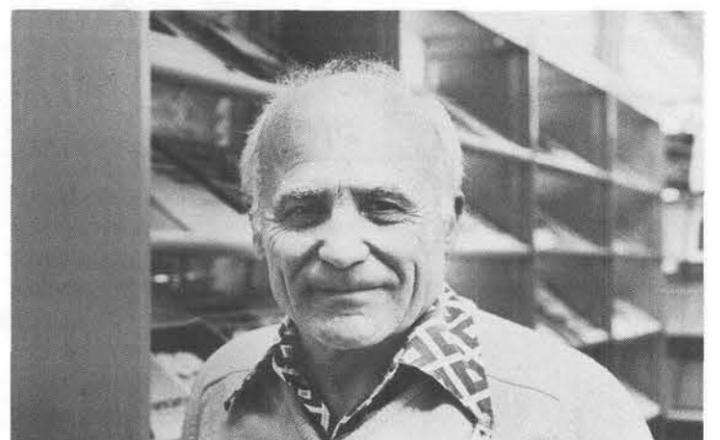
David Bennett - 4414 10



Albert Ayotte - 3613 10



Mike Soderstrand - 8465 10



Earle Paxton - 3144 25



William Brady - 3411 25



Trudy Martin - 8161 20



Larry Garrison - 3244 15



Lorraine Stamer - 8266 15



Ted Simmons - 8423 10



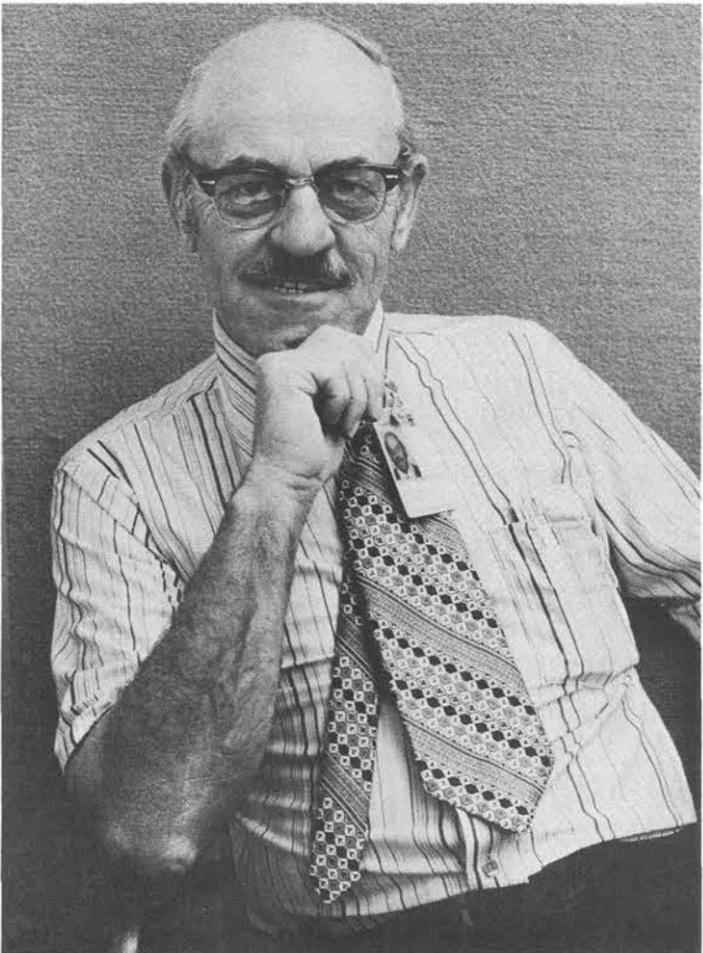
Lawrence Hermesmeier-1759
10



Marty Gordon - 8257 10



Ron Snidow - 1471 20



Chuck Freund - 3743 25



Tom Barger - 1522 10



Hermenes Baca - 3614 15



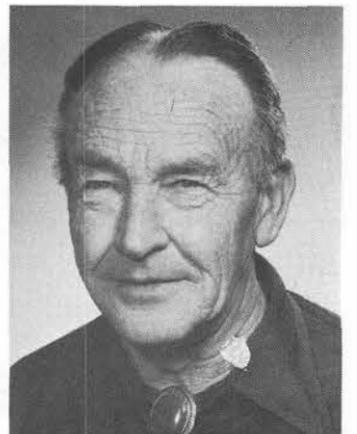
Glen Kepler - 5810 15



Ernie Vigil - 3425 15



Marcella Samuelson - 3423
30



Roger Anderson - 2452 25



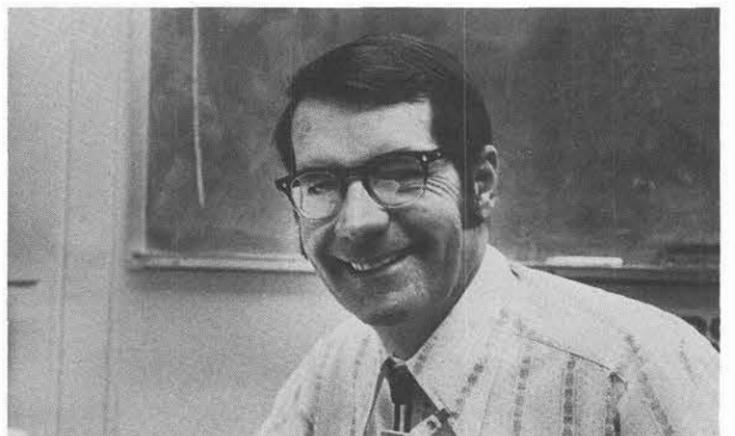
Helen Finley - 2145 10



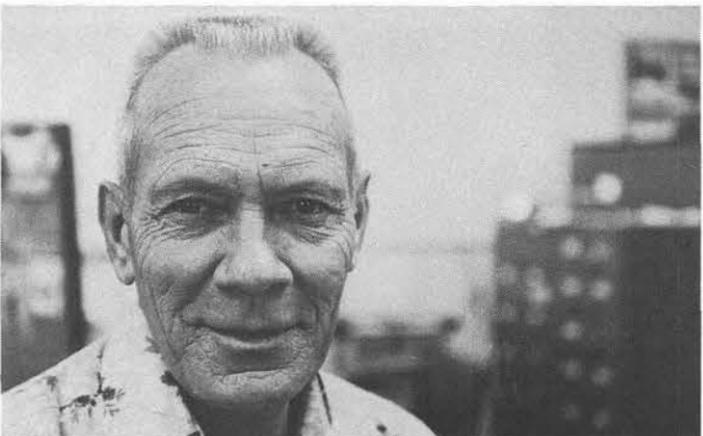
John Williams - 2626 20



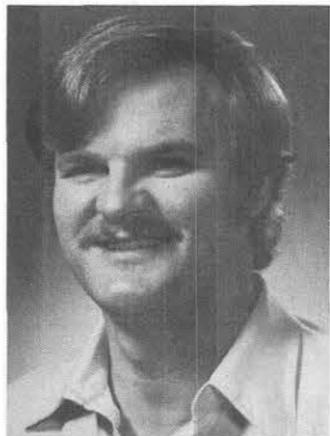
Floyd Braaten - 1473 10



Roy Diesing -5621 20



Lewis Pearl - 3432 25



Gary Schuster - 2155 10



Joe Williams - 1711 15



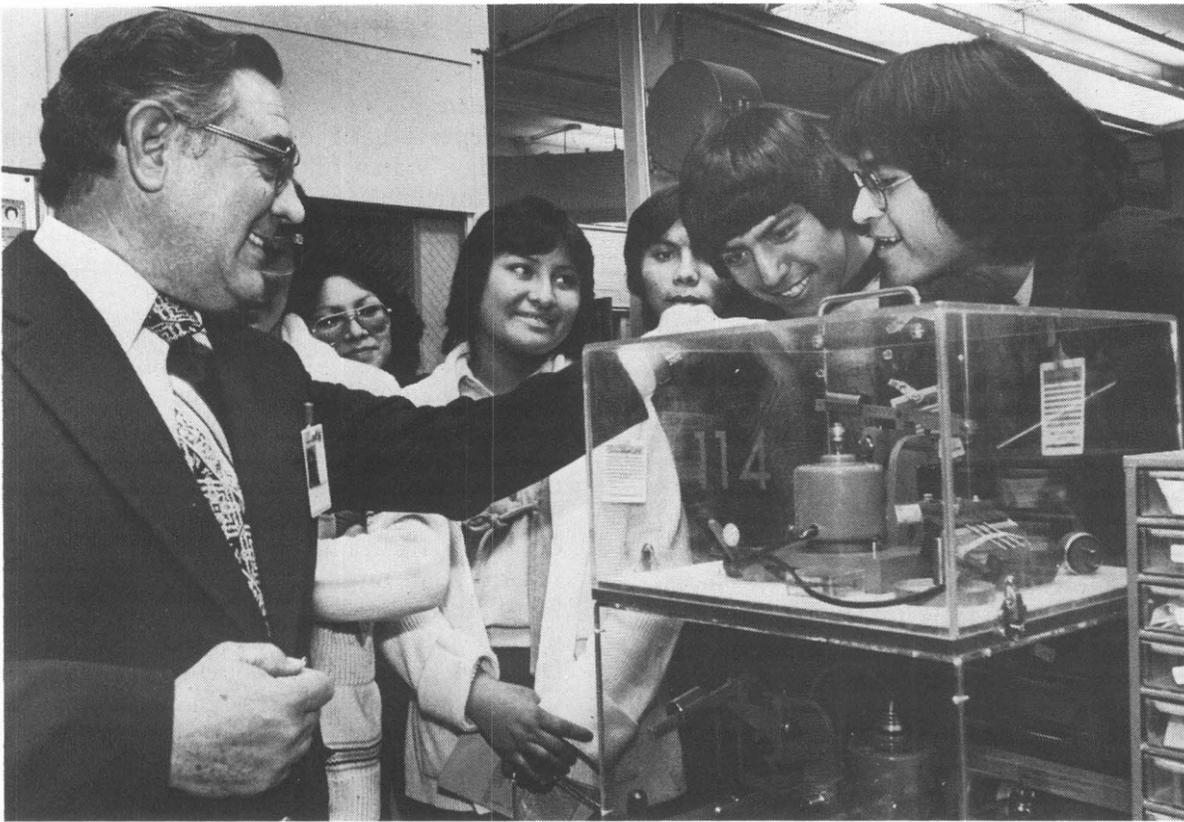
Betty Pimental - 8333 10

Bus Notes

Jeff Gammon (3741) of the Employee Transportation Committee reports some new developments on Louisiana Blvd. bus service. On March 5, the Louisiana bus will be changed from regular service to peak-hour service; principal difference is that this bus will leave the Tech Area at 4:40 p.m. (instead of 4:50), thereby insuring connections for westbound passengers who wish to transfer to the Constitution, Indian School, Menaul and Candelaria buses.

In addition, also on March 5, a new bus (probably a mini) will provide service between Louisiana and Central and the KAFB Parade Ground (F and 5th Sts.). It will enter the Base on Gibson and make runs every 30 minutes between 6:55 a.m. (1st run from Central), and 5:40 p.m. (last run from F and 5th Sts.). This bus is scheduled to make connections at Central with both east and west Central buses, as well as the Louisiana-Central bus operating between Central and Osuna.

Schedule information on all buses to Sandia will soon be available at the Bldgs. 802 and 892 commuter information displays. Racks will be installed and a supply of current schedules made available.



TOURING — From Zuni High School this group of young people visited Sandia and here are being shown around the Machine Shop by Horace Montoya (1485). Students also toured Electronic Fabrication Lab.

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

CLASSIFIED ADVERTISING

Deadline: Friday noon prior to week of publication unless changed by holiday. Mail to: Div. 3162 (814/6).

RULES

1. Limit 20 words.
2. One ad per issue per category.
3. Submit in writing. No phone-ins.
4. Use home telephone numbers.
5. For active and retired Sandians and ERDA employees.
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.

TRANSPORTATION

- '75 MARK IV, full power, low mileage, \$6950. Perryman, 294-6113.
BICYCLE: Peugeot U08, \$85. Hopkins, 881-2817.
'79 FORD VAN, 2700 miles, AT, AC, PB, 8-track AM-FM, Cruise-Control, etc., loaded, \$7800. Schumpert, 821-0225.
'74 DODGE 1/2-ton pickup, 6' bed, insulated camper shell, low mileage, \$2500. Neel, 821-4270.
'69 VW, \$800. Ruvolo, 296-1316.
TRACTOR, Farmall-H, hydraulic pump & reservoir, good rubber, new paint, \$1200. Risse, 299-5002.
'70 AUDI, 100LS, white, 4-spd., 34 mpg, 6000 miles since major overhaul. Hall, 299-0009.
'63 CORVAIR 4-dr., orig. owner, SR tires, \$1500. Kerr, 299-7527.
CJ-2A WILLYS, 4-cyl., 4x4, \$900. Schalles, 1-864-6618 after 6.
'77 GRANADA, green, 4-dr., V8, AT, PS, AC, AM/FM stereo, luxury decor group, Cruise Control, low mileage. Burgess, 296-4254.
'75 HONDA CB360T, low mileage, shop manual, '79 license, \$650. Rozelle, 298-0396.
BOYS 10-spd. bicycle, \$55. Benson, 268-3586.
'74 CHEVY PICKUP, 1/2 ton, 3/4 ton suspension, LWB, PS, PB, new 454 engine & trans. in Nov. '78, \$2500. Morano, 266-9825.
'75 CHEVY Nova 2-dr., 3-spd., 6-cyl., PS, AM-FM Panasonic radio, \$2800. Lovato, 243-0195.
'76 MONARCH 4-dr., 302 V8, AT, AC, PS, white, tan vinyl roof, 23,000 miles, \$3695. Verardo, 255-6385.
'67 PLYMOUTH stn. wgn. w/AC, PB, PS, \$400. Gerwin, 881-0028.
'74 DODGE Charger, 318 V8, reg. gas, AC, AT, PS, PB, AM/FM, cassette stereo, white vinyl top. Leonard, 884-8566.
'75 MONZA Town Coupe, 4-cyl., AC, AM/FM stereo, power tilt steering, new

Michelin radials, low mileage. Robinson, 296-2753.

- '68 DODGE Dart, AT, slant 6 engine, under 94,000 miles. Korak, 296-1165 after 6.
'77 CAMERO LT, silver, 20,000 miles, AT, AC, PS, AM-8 track, \$5500. Bell, 281-1711.
'74 DODGE Coronet custom, 318 engine, AT, AC, PS. Davis, 294-0139.
'74NOVA custom hatchback, AT, AC, PS, PB, V8, less than 30,000 miles, \$300 below book at \$2250. Jones, 881-1918.
'74DATSUN pickup w/camper shell & boot, 4-spd., 46,000 miles, \$2100. Falacy, 293-2517.

MISCELLANEOUS

- HEATHKIT OSCILLOSCOPE: R.F. signal generator; stereo amplifier, 10 watts; AM-FM stereo tuner. Fuller, 294-3089.
DISHWASHER, Whirlpool Supreme 400, under-counter type, used 2 1/2 years, \$150. Davis, 821-8388.
5-12.00-15 4 ply Armstrong SD-200, 80% tread, \$200; 4 10.00-15 4 ply Firestone All Terrain, 70% tread, \$160. Richter, 281-3160.
TYPEWRITER, Royal Custom II port., w/case, \$45; slide projector, 35mm, w/2 trays, Bell & Howell Semimatic headliner 303, \$45. Cano, 296-6955.
96" COUCH, brown velour, \$250. Tierney, 294-5828 after 6.
'75 17' TRAVEL TRAILER, fully self contained, 2 butane tanks & spare, sleeps 6, \$3000. Villegas, 344-1074.
STOVE, elec., Wards Signature, 30" wide, both top & bottom oven, 4-burner. Marchi, 299-8516.
SLIDING PATIO DOORS, 6'x6'8", \$50; maple bed, \$20. Gallegos, 865-4024.
GARAGE DOOR OPENER, remotely controlled, needs some work, \$40. Horton, 298-4449.
STEREO EQUIPMENT: Marantz 2010 receiver; Garrard turntable; Drake TR-22 w/full set of crystals. Burns, 293-5547.
'78 17 1/2' CAVALIER travel trailer, fully self contained, rear bath, \$3995, trades considered, used 7 days. Ludwick, 296-6447.
51' CHAIN LINK FENCE, 4' high, including 3'-wide gate, 6'-wide gate, 6 posts, pipe top; you remove, I'll help, \$115. Stuart, 299-9190.
ASHLEY WOOD BURNING heater, auto. controls; fireplace glass Heat Screen; 2 pull-type fireplace screens. Waldorf, 836-0642.
750x17" WHEELS & tires, 8-hole pattern for GM pickups, make offer. Hymer, 298-2232.
GOLF CARTS: Play-Day deluxe, \$15;

Bag-Boy, \$15; large 14-club bag w/built-in protector tubes, \$15. Holmes, 292-0898.

- M-78 BROWNING 6mm, 4-12x, \$400; 45 ACP target, \$250; Sako 17/222, 3-9x, \$400; spoked rims, \$50 pr. Schalles, 1-864-6618 after 6.
SELF-CLEANING wall oven, white GE, \$75. Shane, 884-7925.
AMATEUR radio equip. Greenway, 299-8540.
BICYCLE, ladies 3-spd., English made, \$17.50; adjustable bed frame on casters, \$10; beginners golf set & bag, \$30. Stang, 256-7793 after 5.
GUITAR, 6-string acoustic, "Ventura," make offer. Marquez, 344-6654 after 5.
FRIGIDAIRE stove, elec. self-cleaning, avocado, bought new in Oct. '77. Kane, 821-4217.
24' STAR CRAFT travel trailer, AC, forced air heat, completely self contained, Reese's equalizer hitch. Smith, 299-1981.
WASHER & DRYER, Kenmore, white, both w/3 cycles, dryer is elec., \$40 ea. Sutherland, 266-1734.
REFRIGERATOR & freezer combination, 17 cu. ft. Frigidaire, \$200; 7 1/4" circular saw, Black & Decker, \$20. Slesinger, 299-4626.
TRAVEL TRAILER, 17' Aristocrat, fully self contained, \$3300. Shenk, 296-6015.
3 NAVAJO RUGS; 3/4 wide mattress & box springs, \$15; white porcelain bathroom sink, \$8. Peterson, 256-7514.
SERVICE MANUAL for '73 Volvo 164; Chilton's Repair & Tuneup Guide for Volvo 2, 1970/73, Series 142, 144, 145, 164, 1800, \$5 ea. Mead, 294-2298.
BOOK SALE: Feb. 24, 9 a.m.-4 p.m.: some antiques, Readers Digest condensed, tech., adventure, exploring & gen. interest. Scranton, 12249 Cordova NE.
SHAG RUGS: oval, gold, 6'x12' & 3'x5', pads, both for \$75. Thorne, 255-4875.
HAIG ultra irons, 2-P.W., 1974, \$75. Longcope, 821-8423.
TURNTABLE, auto., synchronous motor, 2 plug-in heads, Empire 888 & Shure M44-7, \$60. McConnell, 255-2488.
CAMPER, 10', '66 Travel Queen, side dinette, heater, stove, dbl. sink, Portolet. Zottnick, 299-6339.
WEDDING & ENGAGEMENT RINGS w/1/4kt. diamond. Graham, 293-7302, 5-7 p.m.
4-DWR DESK, 16"x48", \$25; Volvo hitch, '73 or earlier, \$30; heavy duty

EAZ lift equalizer hitch, \$50. Sasser, 298-1439.

- STARCRAFT tent camper, \$995; drum set, \$50; 4 8.00x16.5 tires w/6000 miles, \$25 ea. Asselin, 299-9270.
TIRE, wheel, 10-15 Gran Prix, multi-trac on 8" wide chrome wheel, fits Ford, Dodge, 5-hole, 40% tread, \$35. Cook, 869-6921.
'73 11' PILGRIM CAMPER, fully equipped, 4 new hydraulic jacks, water cooler, \$1800. Maese, 832-4751 (Moriarty) or Robert Maese, 296-0507, 8-5.
DISHWASHER, Sears Lady Kenmore, \$100 or best offer. Graeme 266-8561, M & F before 1, other days after 4.
RCA COLOR TV, '76 19", used 6 mos., \$275. Bronson, 881-1790.
VIDEOTAPES, 4-hr., blank, VHS format, \$18 ea. Barnard, 256-7772.
COUCH, \$30; swivel rocker, \$25; baby crib, \$20. Falacy, 293-2517.
AIRSTREAM BAMBI travel trailer, fully self contained, 16 1/2', \$2800. Davis, 294-0139.
PIANO, Kimball, artist console, cost \$1695, asking \$1095, 2 years old. McBride, 293-5459.
TRASH BAGS are no more at LAB NEWS. Our supply has run out. South Hwy. 14 Village Project will continue to sell used books.

REAL ESTATE

- SHARE PURCHASE & RETIRE: 160 acres private land surrounded by Nat'l Forest, SW Utah, ideal solar heating, gardening. Maak, 294-3207.
40 ACRES, Taos County, \$215/acre, \$8600 total, secluded, near Nat'l Forest, lightly wooded, terms. Olson, 268-2227.
TAYLOR RANCH AREA: 3-bdr., 2 1/2 baths, FR, formal DR, fp, new custom drapes, city view, landscaped, walled back yard. Sanchez, 897-0779.
RESIDENTIAL LOT, NE Heights, Harwood & Gen. Patch, approx. 1/3 acre. Moss, 298-2643.

FOR RENT

- SANDIA MTN. HOME: 7-rm., 1 1/4 baths, sunken tub, sleeping loft w/skylight & sundeck, view, furnished, \$375, avail. March. Hawkinson, 447-4763 Livermore.
BEACH HOUSE at Sea Ranch, 1500 sq. ft., swimming, golf, tennis, sauna, hiking, beach tide pools, \$160/weekend, \$460/week. Battleson, 462-1840 Livermore.
SKI CHALET near Taos Ski Valley, deluxe accommodations, fully equipped kitchen, sleeps 8. Peet, 294-1250.
OLD TOWN ADOBE, 120 yrs. old, 2000 sq. ft., 3-bdr., 2 baths, fp, vigas, 1/2

acre, \$625/mo., lease. Gardner, 247-8474.

- NEW 2-bdr. apt., major appliances, furnished, near Sandia bus route, \$290/mo. O'Bryan, 293-4621.
MAUI VACATION RENTAL: 1-bdr., deluxe condominium, ocean view, excellent beach, \$180/week. Schmedding, 821-5999 in Abq., or 447-5182 in Livermore.
LG. 2-bdr., 1 1/2 baths, carpeted, drapes, refrig., stove, new paint, NE location, \$350 plus DD. Miller, 255-1324.
HOUSE IN NE (Eastridge area), avail. between 8/1/79 & 9/1/80, will consider renting partly furnished. Reif, 299-2665.
3-BDR., fp, AC, carpeted, garage, washer/dryer hookup, landscaped, near shopping centers, available immediately. Kelly, 268-2235 after 6.
3-BDR. HOUSE, near Sandia HS, includes all appliances, \$450/mo., available March 1. Renken, 296-9713.
TAOS SKI VALLEY CHALET, luxury 3-bdr., 1 1/2 baths, sleeps 10, fully equipped kitchen, ski to lifts. Marion, 294-8256.
2-BDR. new apt., fully carpeted, custom drapes, refrig., range, dishwasher, \$225/w/6-mo. lease, NE area, Lomas/Chelwood, Ulibarri, 296-5816 or 821-9026.

WANTED

- USED SKI RACK for '76 Nova. Dickey, 821-7292 after 5.
USED baby bed & high chair. Cordova, 344-3110 after 5.
STUDIO II Radio Shack video game, made by RCA; please indicate condition & price. Hoice, 821-7590.
DOG HOUSE, MEDIUM SIZE, CHEAP. Bell, 281-1711.
WHEELBARRROW, 4-5 cu. ft.; 2 tires, G78-15. Hall, 298-8617.
SANDIANS interested in joining new Tanoan C.C. (2 miles east of Wyoming & Academy). Longcope, 821-8423.
MATTRESS & BOX SPRINGS for youth bed, odd size needed, between 33"x66" and 36"x70". Feibelman, 242-1946.

LOST AND FOUND

- LOST — Thin gold bracelet, dk. brown sunglasses, 10-string silver heishi, Triumph car key, green stocking cap, Rx sunglasses w/dk. plastic frames, man's black leather/grey knit glove.
FOUND — Bunch of keys on holder w/turquoise stone, currency, 2 keys w/yellow plastic tab inscribed "Combustion Federal Credit Union," black/grey Rx glasses, small pocket knife. LOST AND FOUND, Bldg. 832, 264-1657.

New Travel Packages Announced

HAPPY HOUR TONIGHT sees veal cordon bleu on the buffet, Smoothie on the bandstand. Next Friday, March 2, Happy Hour will feature lobster tail or filet mignon on the buffet menu, Shalako playing for dancing. Call the Club office, 265-6791, by midweek to reserve your buffet tickets. Remember, your discount ticket (from your Club calendar) is good for \$2.50 toward buffet cost.

TICKETS might still be available for tomorrow's Chinese New Year celebration if you call the Club office right now. The menu is a super Chinese special, Top Hats play for dancing and Guru Deep Kahalsa demonstrates karate. Members pay \$7 for tickets, guests \$8.

VARIETY NIGHT Saturday, March 3, is a good time for families. Super sandwiches are available at 6 p.m., the movie starts at 7. "Follow Me Boys," starring Fred MacMurray, is the feature film. It's free to members.

THE WOLFPACK meets Tuesday, Feb. 21, at 7:30 for a gymnastics exhibition by Rusty Mitchell, UNM gymnastics coach, and a film. The group invites prospective members — drop by for free beer, cokes or popcorn.

THE WOLFPACK also travels to El Paso for the Lobo/UTEP game. Go by charter bus, stay at the Holiday Inn Downtown, see the game, party both ways on charter bus. It's set March 2-4 and it costs \$65 (double occupancy) for Wolfpack members, \$75 for nonmembers. Call Pro Padilla, 4-3462, for more info.

TRAVEL DIRECTOR Ed Neidel has a handful of brand-new travel packages

FRIDAY	SATURDAY
23 — HAPPY HOUR BUFFET Veal Cordon Bleu Adults \$5.20 Under 12 \$2.60 SMOOTHIE	24 — CHINESE NEW YEAR Members \$7 Guests \$8 TOP HATS
2 — HAPPY HOUR Lobster Tail or Filet Mignon Buffet Adults \$6.95 Under 12 \$3.45 SHALAKO	3 — VARIETY NIGHT "Follow Me Boys" Sandwiches 6 p.m. Movie 7 p.m. FREE TO MEMBERS

available to Club members. He can fix you up with all kinds of trips to Hawaii at prices starting at \$199 for air fare only from LA or a super deluxe five island 15-day luxury tour for \$1545. There are all kinds of options in between at very reasonable prices, very good accommodations. People interested should attend a meeting next Tuesday, Feb. 27 in the Eldorado room. Or see Ed in the Club lobby tonight between 6 and 7.

Ed also has options on a "go anytime, go as you please" tour of Britain. Or see Europe — up to 20 days in Scandinavia — with many extras for many-bucks savings.

You can also sign up for a seven day travel package to the Mexican resort city of Cancun on the Caribbean side of the Yucatan peninsula. Ed says the ocean there is transparent, great for snorkeling, and that the Mayan ruins of Chichen Itza are fascinating. A pre-trip meeting featuring slides by Bob Donohoe (1126) is set Thursday, March 1, at 7:30 in the Eldorado room.

SINGLES MINGLE right after work Friday, March 2, with their standard party — good food, good music, good company — in the Eldorado room. The group plans a super bash honoring St. Patrick on March 16. Mark your calendar now.

TRAVELOGUE NIGHT Wednesday, Feb. 28, features traveler Norm Smith (1763). Norm spent a month in the Soviet Union covering 10,000 miles of landscape from Moscow to Siberia. He will show slides and tell you about it. The show starts at 7:30 p.m. in the ballroom, and it's free.

THE CORONADO AQUATIC CLUB for youngsters through high school age is accepting new members for the upcoming spring and summer program. No prior swimming experience is required. For more information, call Dave Waymire, 4-1175, or Jim Morley, 4-8041.

Benson Memorial Triathlon Established

The Triathlon of Albuquerque, set for its third running on April 8, will memorialize a Triathlon participant who recently died. He is Jay Benson who, at the time of his death in January, was supervisor of Experiments Division 1112.

Sponsored by the Coronado Club, the Triathlon is a unique athletic event in which competitors first bicycle ten miles, then run five miles, then conclude with a quarter-mile swim. There are no breaks between phases, and the winner is the person with the shortest elapsed time between the beginning of the biking phase and the conclusion of the swimming phase.

Fun & Games

Table Tennis — Bob Giersberg at the C-Club reports that a tournament will be held on Saturday, March 10, with play starting at 8:30 a.m. Novice, beginner and advanced divisions are offered. Entry fee is \$3, and entry forms should be picked up from Bob at the C-Club by March 7.

* * *

Weightlifting — Three Sandians placed high in last month's Chuck Hughes Memorial Powerlifting Meet, held in Albuquerque. Richard Cernosek (1254) took first in the 242-pound weight class, lifting a total of 1575 pounds in three events (squat, benchpress, deadlift). His deadlift and total set new state records. Dan Jurgill (2455), competing for the first time, took the lead in the 165-pound class with a total of 1035 pounds. And David Douglass (5831), also competing for the first time, took third in the 165-pound class with a total of 785 pounds.

* * *

Skiing — A few openings remain on the Ski Utah trip, March 10 to 15. The group will be hitting Snowbird, Alta, and Park City. Bob Butler is the contact, 4-3126 or 299-5626.

Touring skiers will make a strenuous tour tomorrow, Feb. 24, on the Winsor Trail, traveling from the campground near Cowles to Spirit Lake and return. Rendezvous at Goodwill at 7 a.m. On Sunday, March 4, Sandia's Kathie Hiebert leads tourers on Aspen Vista, a scenic trail in the mountains above Santa Fe. Meet at Goodwill at 8 a.m.

* * *

Volleyball — The professional version is coming to Albuquerque in May with the advent of the Albuquerque Lasers. They'll play at the Civic Auditorium, taking on the Tucson Sky, Denver Comets, San Jose Diablos, San Diego Breakers, Orange County Stars, Seattle Smashers and Santa Barbara Spikers (but not all on the same night). The difference between pro and amateur volleyball is like, well, the difference between lightning and the lightning bug (as Mark Twain might have said). LAB NEWS has ticket information.

* * *

Golf — Over 250 past and new members are anticipated in the men's Sandia Golf Assn. this year. They'll play in three scratch leagues, two handicap leagues, a match play tournament and 14 other tournaments. Play will be at five local and two out of town courses. Membership is open to Sandia and DOE employees, as well as retirees. Al Kaping (3733) and Paul House (3155) are president and VP respectively. Contact Paul on 4-6941 for membership information.

