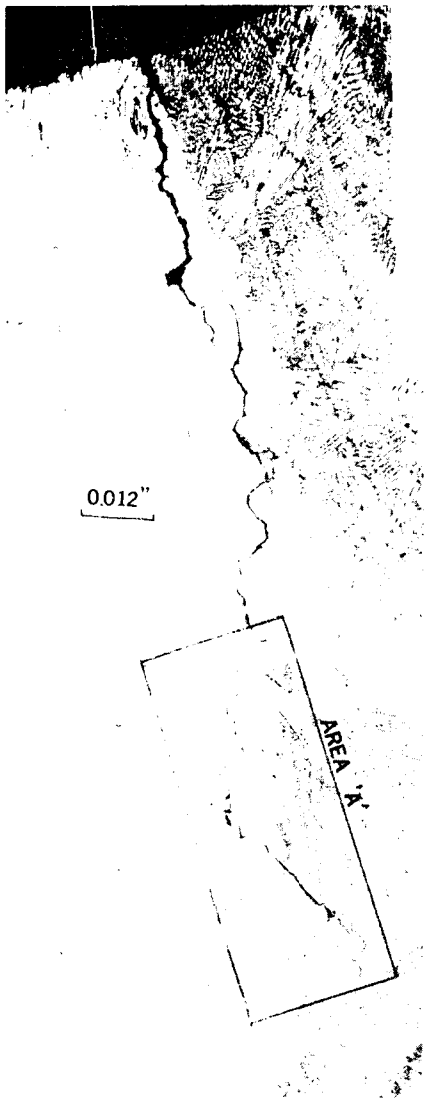


Hot Cell Ready for Business

"I love seeing how things break!" says Carl Czajkowski. Given that, Czajkowski has an ideal job in the Materials Technology Division of the Department of Nuclear Energy (DNE). He does failure analysis of nuclear power plant components, on request from the Nuclear Regulatory Commission (NRC).

Recently, Czajkowski's job was made a lot easier, with the acquisition of a new facility, a hot cell in Bldg. 801. With the hot cell, Czajkowski's group can more easily handle radioactive components.

Actually, the hot cell is not new. It was built in 1958 for the Metallurgy and Materials Sciences Division, but



Photomicrograph of a crack in a sample of isolation condenser piping from a New Jersey nuclear power plant. The crack started on the inside surface of the pipe and ran parallel to the weld contour before entering the weld (Area A).

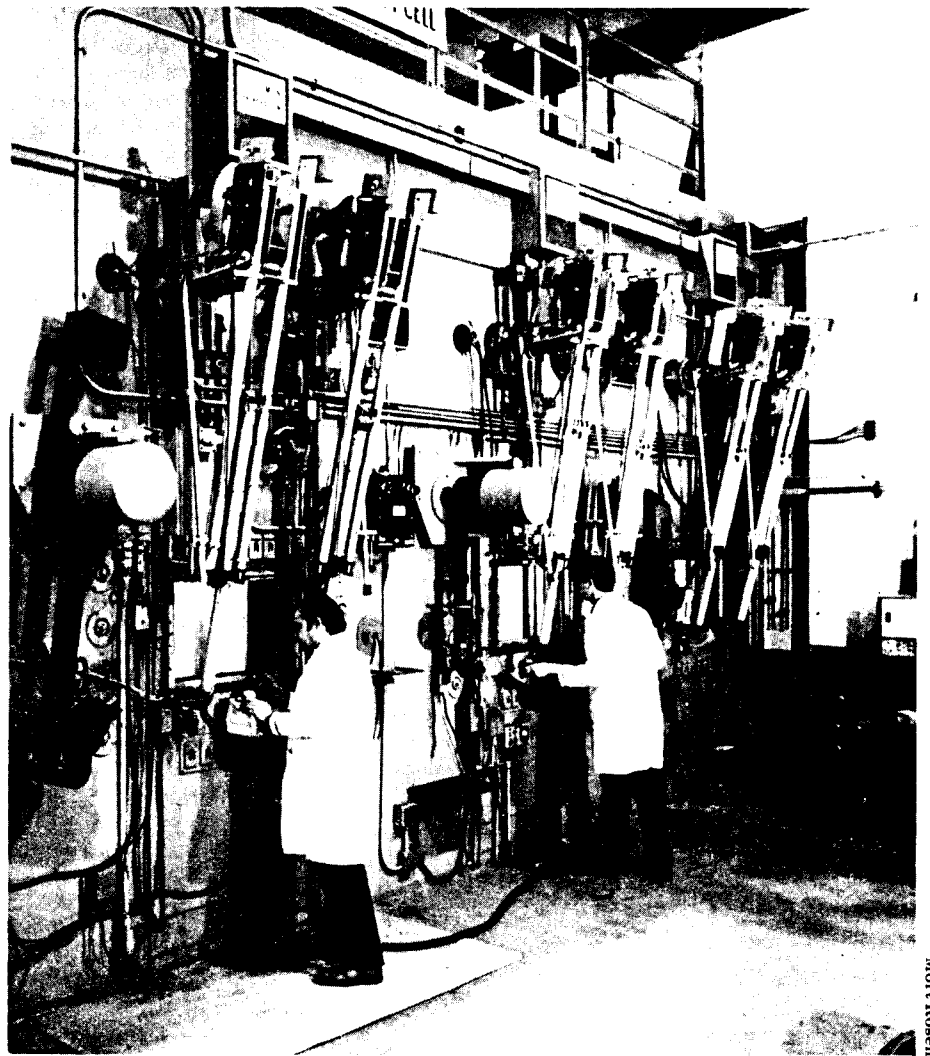
have been evaluated, although not all components were radioactive. Typically, the sequence of events leading to BNL goes like this: Something malfunctions at a nuclear power plant; the utility reports to the NRC, giving its own evaluation of the cause of trouble; the NRC decides it needs another evaluation; and BNL, as an independent laboratory, is asked by the NRC to do the job.

BNL's work begins when the utility sends a sample for analysis. In many cases, the problem is a crack in the material caused by stress and a corrosive environment. Using manipulators to work the various tools in the hot cell, the sample is cut into smaller pieces, which are then polished to mirror smoothness and etched with acid to bring out structure. Fracture faces are examined with the scanning electron microscope and cross sections of the crack are studied with an optical microscope.

Responsive to a utility's time schedule, Czajkowski's team, which is just himself, Gerlach and Graeser, can do a failure analysis in as little as a week's time, depending on prior commitments and necessity. That includes determining the cause of the failure, evaluating its effect on the material, and doing a historical survey of that particular problem, to check for any pattern. Also potentially part of a failure analysis procedure is a chemical analysis of the sample and tensile testing to check the material's mechanical properties.

One sample recently evaluated was an isolation condenser pipe from a New Jersey nuclear power plant. An isolation condenser is a backup unit that removes heat in an emergency. Routine ultrasonic tests at the plant had indicated that stress corrosion cracking in the material had extended into welds. Czajkowski's team confirmed those tests and also concluded that the welds were susceptible because they contained too low an amount of ferrite. Czajkowski notes that newer regulations call for more ferrite in welds, which have prevented further incidents.

Closer to home, an analysis was done of a sample from BNL's High Flux Beam Reactor, as part of a series of inspections to evaluate the condi-



From left, Vincent Angeloro and Louis Gerlach at the renovated hot cell in Bldg. 801.

tion of that reactor's components. A shroud, or casing, for an irradiation chamber was inspected for signs of corrosion and tested for tensile strength and ductility. Results showed the component to be in satisfactory condition.

This BNL group has been doing failure analysis work since 1980. Before they had the hot cell, they were restricted to doing non-radioactive samples and those that were only mildly radioactive and could be safely handled with proper clothing and equipment. Now the group can handle most anything.

Czajkowski says reassuringly that in almost all of the problems they have analyzed, the component failures have been of the "leak before break" variety, a safety factor designed into nuclear plants. In no instance has the public's health and safety been jeopardized.

— Mona S. Rowe



Carl Czajkowski focuses the scanning electron microscope, which is dedicated to failure analysis of radioactive materials.

BNL Lecture Nuclear Safety

Currently, there are some 85 nuclear power plants producing electricity in the U. S., and another 50 are under construction. These operating plants account for 13% of our electrical power needs and will produce 18—20% by the early 1990s. However, given this



James Guppy

expanding role, the future for the generation of electricity via nuclear power in this country remains cloudy.

In his lecture, "Nuclear Power Plants: The Next Generation," Nuclear Engineer James Guppy will focus on nuclear safety and will touch on the institutional and financial aspects of nuclear power which make the whole picture so complex. The lecture will be given on December 12 at 4:30 p.m. in Berkner Hall.

Specifically, Guppy will talk about how future plants might be designed so as to be safe and still remain competitive economically. He says the two key technical ingredients for nuclear power plant safety are assurance of neutronic shutdown (bring the power down), and adequate provisions for decay heat removal. New designs feature more reliance on inherent physical processes such as gravity and natural convection, on material properties such as magnetism, and on the utilization of systems that require little or no electrical power or operator actions. He will give examples of new designs for water, sodium and gas-cooled reactors. Guppy

will also describe the role which the Department of Nuclear Energy plays in assessing these systems.

James Guppy is Group Leader of Code Development, Validation and Application in the Department of Nuclear Energy. The group is responsible for developing and applying large computer codes to simulate potential accidents involving entire reactor systems from light water reactors to advanced reactors. Guppy has been with the Laboratory since 1975. Before coming to Brookhaven he was a senior engineer at Westinghouse PWR Systems Division and at Westinghouse Advanced Reactors Division. He also spent two years as an engineer at Interatom, West Germany, and the summers of 1967 and 1969 at the Jet Propulsion Laboratory. Guppy received his Ph.D. in nuclear engineering from the University of Arizona.

All those interested in getting together after the lecture are invited to go with the lecturer to a restaurant off-site. If you want to be part of this group, call George Rabinowitz, Ext. 7637.

had sat idle in recent years. Realizing its value to his work, Czajkowski began gathering the financial backing needed to renovate and reactivate the facility. He credits Associate Director Vincent O'Leary, DNE Chairman Herbert Kouts, Deputy Director Martin Blume and Materials Technology Division Head John Weeks with putting together the necessary money to refurbish the old hot cell, at a fraction of the cost of a new facility.

In-house repair work also added to the savings. The hot cell's six mechanical arm manipulators were repaired by Barry Karlin, now a technician at the National Synchrotron Light Source. Division technicians Louis Gerlach and Ron Graeser put back in working order or installed a number of machining tools, such as metallurgical polishing wheels, a lathe and a fatigue/tensile tester. Much of the rewiring of these devices was done by building electrician Vincent Angeloro.

The cell was ready for work six months ago, and since then, components from eight different reactors

Unwinding a Twister

Joanne Simpson, head of the Severe Storms Branch of the Goddard Laboratory for Atmospheric Sciences at the NASA/Goddard Space Flight Center, will speak on "Tropical Tornadoes and Waterspouts" at 3:30 p.m., December 14, in the Hamilton Seminar Room.



Joanne Simpson

Edward F. Taylor

In her lecture, Simpson will discuss results of a combined observational, laboratory and cumulus simulation study of the nine waterspouts identified during the GARP Atlantic Tropical Experiment. "Because of their greater frequency and accessibility and the revealing signatures waterspouts produce on the sea surface, we have undertaken waterspout research with a long-run objective of learning more about tornadoes," says Simpson.

Simpson is the first woman in the world to receive a Ph.D. in meteorology. She obtained that degree in 1949 after strong opposition from the then all-male meteorology establishment. Now, some 30 years later, that situation no longer exists for female students, and Simpson, herself, has been recognized as one of the country's top meteorologists. In 1979, she received the NASA Exceptional Scientific Achievement Medal for her pioneering research on the evolution of clouds and storms. And, in 1983, the American Meteorological Society bestowed on her its highest honor, the Carl-Gustaf Rossby Research Medal.

A luncheon reception will be held for her at noon on December 14 at Berkner Hall, Room A. Those interested in attending should make reservations by calling the cafeteria at Ext. 3541. The cost is \$10.

Card/Key Combo

It turns out that some employees are detaching BNL Vehicle Registration Cards from BNL vehicle keys. This causes much confusion as to which key belongs to what vehicle when the vehicle is being serviced at the Motor Pool. The card not only contains the vehicle number, but also important information necessary if problems arise. So remember to leave the card with the key.

Equipment Demo

AMP Special Industries will conduct an interconnection product seminar and trade show in Room B, Berkner Hall, on Friday, December 14 from 9:30 a.m. to 3:30 p.m. Among the topics to be discussed will be surface mount and square package technology, fiber optics, shielding and filters, IDC, and AMP action pin connectors for solderless back planes. GA's and samples will be available.

Dental Plan Enrollment Opens

As of today and until December 28, regular employees working 20 or more hours per week may enroll in the AUI Dental Assistance Plan. Coverage will become effective January 1, 1985. Dental Assistance Plan applications and payroll deduction authorization forms will be sent to all employees not presently enrolled. To enroll, send the completed application and form to Personnel, Bldg. 185, before December 28.

For non-orthodontic dental expenses, the AUI Dental Assistance Plan pays a maximum of \$1,000 benefits per calendar year for each individual. The plan covers three categories of dental service:

- **Prevention & Diagnosis:** For services including routine oral exams, cleaning and scaling and x-rays, the Plan covers expenses from the first dollar spent to a maximum stated in a payment schedule.

- **Basic & Major Dentistry:** After an individual pays the first \$25 of covered expenses during a calendar year, restorative, endodontic, periodontic and prosthodontic dental work, and oral surgery are reimbursed according to a schedule of allowances. The maximum deductible for any family is \$75 per year.

- **Children's Orthodontia:** Fifty percent of reasonable and customary charges for orthodontic services for dependent children are paid up to a lifetime maximum of \$1,000 per child.

To continue this benefit while controlling increasing health care costs, the Lab is offering the dental plan as an option. Those employees who wish to enroll are required to share the cost of the plan by paying a premium.

Coverage	Weekly	Monthly
Employee only	\$0.92	\$ 4.00
Employee & one dependent	1.85	8.00
Employee & two or more dependents	3.69	16.00

In addition, employees insured under the AUI Medical Insurance Plan must increase their major medical deduction to \$200 per year (\$500 per family), and those enrolled in the BC/BS HMO Plan will be required to pay the difference between the current AUI Medical Insurance Plan and the plan with a \$200 deductible.

Employees who sign up for the Dental Assistance Plan will be required to participate until the next enrollment period, January 1, 1987. Present eligible employees not electing coverage at this time must wait until this period to be able to participate.

Employees currently enrolled in the dental plan will have their coverage automatically continued unless they complete a termination form, which is available at Personnel, by December 28. For more information, call Personnel, Ext. 2877 or 7516.

On Site

Q: In the area of the new Parcourse, there are numerous remains of prior structures, probably dating from the military base days. What was located in that area?

A: In the days of WWI, there were barracks and mess halls for five battalions and, in the eastern half of the area, part of the main parade ground. The structures were demolished or auctioned off after the war, and, in 1921, the camp became the Camp Upton National Forest. In the 1930's, it was reforested by the Civilian Conservation Corps. In World War II, there were no structures built west of Upton Road. In 1948, two towers — a 460-foot giant named Ace and a 160-foot companion called King — were erected to collect climatological information. In 1981, they were replaced by a new 280-foot meteorology tower, dubbed Ten. Today, remnants of the large, concrete pillars that once held the cables in place can be seen on the Parcourse.

Want to Feel Like a Winner?

Nowadays, people often pledge their hearts, livers, kidneys and other parts of the body to be used after their deaths in transplants, to help save other lives. But all too often, people fail to pledge something that can be of use to another only if given while the donor is still alive — their blood.

Unlike other types of transplants, blood transfusions have become routine, and many people simply assume that if they need blood, it will be there. Fortunately, however, there are other people who make no such assumptions, who give enough blood to assure a generally adequate supply. But they can't do it alone, especially during holiday and vacation periods, when festivities and accidents combine to place blood supplies at critically low levels.

BNL's Winter Blood Program is aimed at avoiding such severe blood shortages. This year's drive, chaired by Len Emma, will be held on Tuesday and Wednesday, December 18 & 19, between 10 a.m. and 3 p.m. Anyone between the ages of 17 and 66, who weighs at least 110 pounds and is in good health, can help save up to five lives with a single donation. Simply call program coordinator Elaine Zukowski, Ext. 3334, to schedule your donation.

When you arrive at the gymnasium to fulfill your pledge, you will automatically become eligible to be in a drawing for a \$60 gift certificate for dinner for two at the Old Inlet Inn in Bellport. Five prizes will be awarded, but even if your name isn't drawn, you ought to feel like a winner. That's the general consensus shared by BNL's most frequent donors, some of whom shared their views on giving blood.

Jesse Becker (AGS) — I've given twice a year since about 1967. I'm also on call with some of the local hospitals, because I happen to have a negative type of blood which is more in demand.



I think it's only about 8% of the population that has this type of blood, so I feel obligated to give. If the time ever comes when I or my children need blood, hopefully we won't have a problem. It's such an easy thing to do. I can appreciate why people hesitate or are afraid the first time. But if you come down to view it once, you'll see that there are a lot of people participating, it's not a painful process, and it moves at a good pace, usually an hour and you're out.

James Goode (Safety & Emergency Services) — I am planning to give blood. I give every time the Lab has its drive and once in a while on the outside. I've probably given about five or six gallons. I know that, if, God forbid, something happens to anyone in my family, they'll need blood themselves. So that's why I give and why others should give — they could save a person's life by giving blood, and it might be one of their relatives. And it's so easy. The worst part is the little prick of the finger during the preliminary examination.



Give Blood!

Karen Adelwerth (Photography & Graphic Arts) — I never gave until I came to the Lab, and I was extremely nervous the first time, which was about three years ago. I was terrified of the unknown. But it was fine. The people running the drive go out of their way to make you comfortable. Since then, I've given at each drive. I was turned down once because I was on antibiotics, and I was disappointed. Basically, I give because you never know when someone is going to need it. A lot of people say that if they need it, they'll call their friends, they don't need blood from strangers. But if you're in a car accident in the middle of the night and you need blood badly, you'll want to know it's there.



Al Mahlmann (Plant Engineering) — I find it a very simple thing to do, and it's extremely valuable to the people who need it. Last summer when I went to give blood, they wouldn't take it, but I'm going to try again now. I've been giving for thirty years or more, maybe 50 pints or so altogether, and that's the first time they wouldn't take it. But that's a side benefit of the whole thing, in that you get at least a little bit of a medical screening. I just wish more people would give because there's not much to it, and it's so worthwhile.



—photos by Horton

Evergreen Leaf Loss

The term "evergreen" is not synonymous with "ever-leaved." Evergreens do lose their leaves, but they do not lose all their foliage at one time, so they remain ever-green.

According to the Cooperative Extension Association of Suffolk County, evergreen leaf life ranges from one to six years, depending on the species of the plant. As new leaves or needles are produced each year, some of the inside ones die and fall to the ground. Among evergreens that drop one-year-old foliage are laurel, holly, white pine and arborvitae. Trees that retain green needles from upwards of three years are spruce, fir, hemlock, yew (Taxus), and the pines.

Whether annual leaf or needle drop is noticeable can depend on the past and current growing seasons. For example, during a rainy summer, most plants grow heavy foliage. But if the next summer is dry, there will be a light growth which will not hide or camouflage old yellowing leaves.

A year or two after evergreens are transplanted, the effects of normal leaf or needle drop may be more striking. Those planted in wet or poorly drained soil will often show an abnormal amount of leaf yellowing on inside branches. And if transplanted trees are not watered enough during a dry summer, leaf or needle drop may be earlier and more severe than normal.

BROOKHAVEN BULLETIN

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WIS Dinner Meeting

Ecologist Karen Blumer will speak at a joint meeting of the BNL Women in Science and the Stony Brook chapter of AWIS, on December 13 at 6:30 p.m., in Room A, Berkner Hall. Blumer, who is currently doing research on the effect of forest fragmentation on bird communities, will speak on "Women in Ecology: Are They Publishing or Perishing?" Prior to the lecture, members may gather for dinner in Room A at 5:30 p.m.

In Stormy Weather

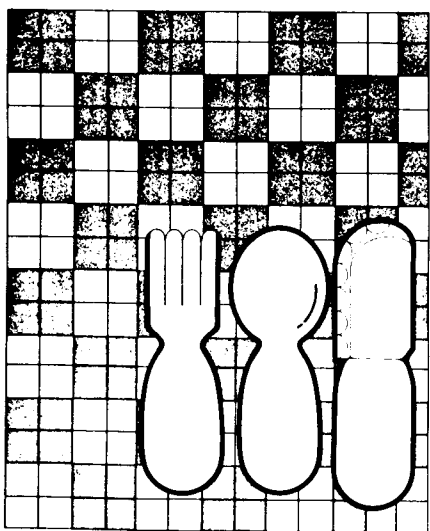
The following radio stations have agreed to carry announcements regarding Laboratory closings and delayed openings in the event of storm conditions:

Station	Area	AM	FM
WCTO	Smithtown	---	94.3
WBLI	Patchogue	---	106.1
WLIX	Islip	540	---
WHLI	Hempstead	1100	98.3
WBAB	Babylon	1440	102.3
WLNG	Sag Harbor	1600	92.0
WALK	Patchogue	1370	97.5
WRIV	Riverhead	1390	---
WRCN	Riverhead	1570	103.9
WSBH	Southampton	---	95.3

Public Sale Of Motor Vehicles

Thirty-three vehicles, located at Warehouse T-87, are available for public sale. Inspection will be permitted from December 10 to December 14 during the hours of 9 a.m. to 4 p.m., except Saturday and Sunday.

This will be an informal competitive bidding and forms may be obtained at Bldg. T-87. Bids will be opened on December 20. For further details, call Ext. 2302.



A GUIDE TO RESTAURANTS

A listing of restaurants in the BNL area.

A guide to restaurants in the BNL area is now available to visitors, and may be obtained at the Public Relations Office in Building 134. Departments and divisions may also want to keep a supply on hand for visiting researchers. The guide, which was originally compiled by Sandy Edwards and Elaine Lowenstein for AGS use, has been reprinted in an easy-to-read format, and should prove useful to Laboratory guests who are not familiar with local restaurants.

NYC Train Trips

The Hospitality Committee is planning two group railroad trips to the city in the next two weeks. One is a special on Saturday, December 15, leaving at 8:31 a.m. Round-trip fare is \$6.50. The second is a regularly scheduled trip on Wednesday, December 19, leaving at 7:55 a.m. The round-trip fare is \$5.00. Children under five years ride free. All departures are from the Patchogue LIRR station.

Fares for both trips must be received no later than Thursday, December 13. Refunds will be made only if cancellations are received by the Monday morning preceding the trip.

To reserve a ticket, send your fare through the U.S. mail to BNL, P.O. Box 322, Upton, New York 11973. Checks or money orders should be made payable to BNL, and put the date of the trip, your telephone number and BNL life number on the check. Do not send cash. Tickets will be given to you on the train.

Arrivals & Departures

Arrivals

Kelby K. Chan NSLS
Lawrence T. Hoff AGS
Michael F. Jacobellis AGS
Katsumi Kobayashi Biology
Anthony Tanza AGS

Departures

This list includes all employees who have terminated from the Laboratory, including retirees:
Tae-Moon Ahn DNE
Evelyn P. Gause DNE
Stanley V. Lekach DNE
Smith G. Pearsall S&ES
Rolf O. Stark Central Shops
Anita C. Wilton Medical

Winter is Coming

All Laboratory vehicles have been prepared for the season; heaters have been checked and antifreeze has been added. The Automotive Maintenance Shop requests that no water be added to cooling systems except in emergencies. If such an emergency occurs, notify the shop so that antifreeze can be added to ensure continued protection.

Cafeteria Menu Week Ending December 14

Monday, December 10	
Spinach egg drop soup	(cup) .65 (bowl) .85
Beef stroganoff on egg noodles	2.20
Cheese omelet & 1 veg.	2.00
Hot Deli: Knockwurst & kraut	(bread) 2.00 (roll) 2.20
Tuesday, December 11	
Beef barley soup	(cup) .65 (bowl) .85
Beef liver & onions w/1 veg.	2.00
Corned beef and cabbage	2.10
Hot Deli: French bread pizza	2.10
Wednesday, December 12	
Split pea soup	(cup) .65 (bowl) .85
Seafood Newburg on rice	2.25
Beef & broccoli stir fry on rice pilaf	2.20
Hot Deli: French toasted ham and cheese club	2.35
Thursday, December 13	
Minestrone soup	(cup) .65 (bowl) .85
Barbecue spare ribs & 1 veg.	2.10
Cheddar steak w/1 veg. & mushroom gravy	2.10
Hot Deli: Italian meatball hero	2.20
Special: Top your own hamburger - 1/2 lb. ground beef w/choice of toppings	2.20
Friday, December 14	
Seafood chowder	(cup) .65 (bowl) .85
Breaded chicken breast & red skinned potatoes	2.20
Fish 'n chips	2.05
Hot Deli: Clam boat	2.15
Christmas Hams for Sale - smoked-hams, bone-in, approx. 17 pounds. Price \$2.00 per lb. plus tax.	
ORDER NOW. LIMITED SUPPLY - Ext. 3541	

BERA News

Holiday Special

Everyone is invited to attend the Theater Group's special holiday meeting at 8 p.m. on Friday, December 14, in Berkner Hall. Janet Sillas and friends will open the program with a presentation about the Lucia Festival of Sweden. Other entertainment will include readings of seasonal stories and poems, plus musical numbers from the BNL Choral Group and the Friends of the Arts Renaissance Singers. Refreshments will be served and bakers are invited to bring some homemade goodies as well.

At The BERA Store

Film Service: Processing and merchandise.

Tickets: New York Islanders, Metropolitan Opera, UA Theatres Discounts and Magic Kingdom Membership Cards.

Sales: Assorted greeting cards and Cooking Exchange cookbooks.

Redemption Center: For BERA Participation Awards.

The store is located in Berkner Hall, Ext. 3347, and is open from 9 a.m. until 1 p.m., Monday through Friday.

Reminder - Drop off your contributions for the "Toys for Kids Drive" now through Friday, December 14, at the BERA Store.

Cooking Exchange

On Wednesday, December 12, the Cooking Exchange invites you to join us in an old-fashioned "Cookie Exchange," from 12:30 to 2:30 p.m. at the Recreation Building.

Bring in a few dozen (the quantity is up to you) of your favorite holiday cookies and exchange them for those brought by others. When you go home, you will have different kinds of cookies to share with family and friends this holiday season.

The Cooking Exchange is open to all Lab employees, their families and guests. Babysitting will be provided at 50¢ per child. For information, call Dee Polychronakas at 744-3578.

Motorcycle Club

There will be a meeting on Monday, December 10, 5:15 p.m., at the Recreation Building.

Volleyball

Standings

C League	
Screwballs	10-2
Tigers	9-3
Quirks	5-7
Captain Midnight	4-8
Couples	4-8
Craw	4-8
Open League	
Phoenix	12-0
Odds and Sods	7-5
Team 6	6-6
Rowdy's Radicals	5-7
Half Lives	4-8
Generic	2-10
A League	
Dinkers	13-2
Teddy Bares	9-6
Up Fagrats	9-6
Semi Tough	8-7
Mixed Ups	4-11
Nuts and Bolts	2-13
B League	
Phoubars	14-1
TNT	13-2
Fossils	7-8
Set-Ups	5-10
Chungas Revenge	4-11
Servers	2-13



Sharon Isbin

Guitarist Here Next Week

Classical guitarist Sharon Isbin will perform at Berkner Hall on December 13 at 8:30 p.m. The concert is open to the public.

Isbin began her studies in Italy. As a young artist, she proved her talent by winning top prizes at the Guitar '75 International Competition in Toronto, the Munich International in 1976 and the 1979 Queen Sofia in Madrid. Now in her twenties, she tours the world, performing solo concerts and appearing with orchestras.

Her program will include a lute suite by J. S. Bach, a Spanish dance by Enrique Granados, and music of Brazil and Venezuela.

Tickets for the concert will be sold at the door. General admission is \$8; students and those over 65 are \$5; and those under 18, \$3.

Ski Weekend

The BNL Singles Club is sponsoring a ski weekend to Gore Mountain, Lake George, N.Y., on February 22 to 24. The trip includes round trip on a deluxe motorcoach; two nights at the Ramada Inn, which has an indoor pool, hot tub and disco; two buffet breakfasts; one prime rib dinner; and a three-hour open bar that Saturday. The cost for four per room is \$131 each plus \$23 tax/service; for three to a room, \$136 each plus \$24 tax/service; two per room \$144 each plus \$24 tax/service. A deposit of \$50 is due by December 12, with the balance due by January 15.

If 20 people sign up for this trip, the bus will pick up at the Lab. For more information or reservation forms call Doris, Ext 7610.

Gym Closing

In addition to the times noted in last week's Bulletin, the gym will be closed on December 14, 15 and 16.

Bowling

Purple League

High games were bowled by Ed Meier 213, Mike Foran 209, Ted Erickson 208, Bob Jones 203, Vito Manzella 200, Annamarie Spira 193.

White League

Lee Barberich had a 233, Ken Asselta 216/203, Jim Griffin 210, Kathy Griffin 202, Caryl MacDougall 187, Sharon Smith 187.

Red/ Green League

T. Holmquist rolled a 254, R. Larsen 234/224, N. Combatti 233, J. Ferrante 226, K. Riker 222/213, E. Meier 221, H. Marshall 203, N. Parrinello 202, K. Asselta 201, J. Marsh 201, J. Carroll 201, G. Meinken 200.

