BROOKHAVEN BULLETIN
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BROOKHAVEN NATIONAL LABORATORY

Timely Visit From UN Official

The visit was planned months ago, but the timing turned out to be significant: On January 14, the eve of the United Nations (UN) deadline for Iraq to withdraw from Kuwait, UN Under-Secretary-General Yasushi Akashi (right) came to BNL to learn about the Lab's international safeguards and arms control verification programs. At Brookhaven, the Technical Support Organization (TSO) in the Department of Nuclear Energy (DNE) provides technical research and development in systems for nuclear safeguards and arms control verification for the U.S. Department of Energy (DOE).

Accompanied by Laura Clerici (second from right), a political advisor to the U.S. Mission to the UN, Akashi, who is the UN's Department of Disarmament Affairs, learned how TSO has been involved in international safeguards R&D and technical analysis since 1968 when the division was formed. The arms control verification program, which began at BNL in 1988, includes work on verfication systems for recent and future treaties, such as the Chemical Weapons Convention currently being negotiated in Geneva at the Conference on Disarmament.

Discussing these subjects with Clerici and Akashi are, (from left) Joseph Indusi, DNE Associate Chairman and TSO Division Head; James Lemley, TSO Group Leader; Robert Bari, DNE Deputy Chairman; Jane Monhart, Acting Manager, DOE Area Office; David Gordon, TSO Deputy Division Head; Walter Kato, DNE Chairman; and Nicholas Samios, BNL Director.

New Scintillation Cocktail Leaves No Mixed-Waste Hangovers

WANTED — Conventional scintillation cocktail users to try new, tested, nonhazardous product that successfully measures radiation in samples without leaving a mixed-waste end product. Contact Len Emma, S&EP, Ext. 3334.

A scintillation cocktail may conjure up visions of flashy champagne-with-something or an extra-dry martini.

But to many people at BNL, a scintillation cocktail is used to determine the amount of radiation in a substance. Simply add a particular fluid to the sample and measure the scintillating flash given when radioactivity is present.

"The difficulty with scintillation cocktail solvents such as toluene or xylene," said Leonard Emma, Head of the Hazardous Waste Management Section in the Safety & Environmental Protection Division (S&EP), "is that they are hazardous chemicals. So, once they become radioactively contaminated, they become mixed waste. And mixed wastes are a headache to dispose of properly.

"Now," Emma continued, "there are nonhazardous products commercially available that measure radiation levels while containing no chemical ingredients listed as hazardous by the Environmental Protection Agency [EPA]."

Emma explained that mixed hazardous chemical and radioactive waste has to comply with regulations from several different government agencies, which is why its disposal is complicated and extremely expensive. In contrast, used nonhazardous scintillation fluids are subject only to regulations on radioactive waste.

To evaluate the several environmentally benign scintillation fluids now available, Joseph Steimers, a chemist in S&EP, tested eight products designed for use with aqueous samples.

Said Steimers, "To do the tests, we used a Packard Tri-Carb Liquid Scintillation Analyzer, Model 2250CA, in both the normal and low-level, high-sensitivity counting modes. We were looking for counting efficiency and background count rates to get detection limits for tritium similar to what we had already. Other considerations were moderate price, and a manufacturer with a good record for quality and reliability."

Joseph Steimers, seated at the Liquid Scintillation Analyzer, demonstrates to Leonard Emma (back, left) and Frank Marotta that using the nonhazardous scintillation cocktail does not compromise counting efficiency.

Photos on this page by Roger Stoutenburgh.

Steimers found that Packard Instrument Company's Ultima Gold XR meets these requirements.

"For environmental samples, we have to be able to trace minute quantities of tritium, so a very high efficiency is required," Steimers said. "I found that in certain cases Ultima Gold XR's efficiency was a little lower — closer to 40 percent counting efficiency where before we had 45 percent — but this made no really significant change in our detection limit."

Another advantage of Ultima Gold XR, Steimers said, is that its extended range capability has still not changed its composition from that of Ultima Gold, which has EPA approval. And all of these nonhazardous fluids are, of course, safer for researchers to use.

Once it was established that Ultima Gold XR is the most effective of the products tested, S&EP's Safety Coordinator Frank Marotta had it put into Lab stock. He also suggested that it could be tried out in the Reactor Division and in the Biology Department. So, it is now being tested there as well.

Said Emma, "By publicizing the advantages of Ultima Gold XR, we are hoping that all Lab staff will start to use this scintillation cocktail fluid rather than the hazardous fluids.

"This is one example of how a new technique can be both safer for researchers and also resolve a complicated waste problem," continued Emma. "I believe that BNL can make similar improvements in other areas. We are constantly looking out for creative ideas, and any thoughts that may help improve safety for Lab personnel and the environment are welcome." — Liz Seubert

Korean Science Students at BNL

As part of their tour of universities and science institutes in the United States and Japan, 12 South Korean high school students — all winners of their country's National Student Contest of Mathematics and Science — stopped at BNL on January 14.

Held annually in South Korea, the contest is sponsored by the Korean Ministry of Education, Seoul National University and the Joogang Daily News, with the financial support of the Samsung Group. The purpose of the students' grand tour following their winning was not only to show them the actual operations of laboratories and research facilities, but also to let them interact with scientists in different fields.

Pictured at Brookhaven's PETT VI facility, the student winners listen as BNL Senior Chemist Joanna Fowler discusses the positron emission transaxial tomography research under way in the Lab's Chemistry and Medical Departments.

This talk followed an overview of the Lab's history and accomplishments given by Mark Sakitt, Assistant Director for Planning & Policy, and a tour of the National Synchrotron Light Source led by Science Associate Nicholas Gmur. Acting as the students' translator for their half day at Brookhaven was Physicist Yong Lee of the Alternating Gradient Synchrotron Department.

Decision Made on SSC Detectors

The EMPACT/TEXAS detector, for which BNL was one of 56 collaborating institutions, was not approved as an experiment for the nation's Superconducting Super Collider (SSC). It is probable, however, that BNL will be involved in a future experiment at the SSC.

"As a result of our involvement in EMPACT/TEXAS, the SSC Lab recognizes BNL's ability to explore the physics at the SSC, as well as our contribution to detector research and development, and so it would like to involve BNL in an approved SSC experiment," states BNL Senior Physicist Howard Gordon, who heads the Omega Group in the Physics Department and was a deputy coordinator of EMPACT/TEXAS.

As a result, BNL is considering its options for a role in another SSC collaboration.

As reported in the Brookhaven Bulletin on December 14, the EMPACT/TEXAS collaboration was headed by BNL Guest Physicist Michael Marx, a physics professor at the State University of New York at Stony Brook. The 350-member collaboration was competing against two other groups to become one of two major SSC experiments: L* organized

(continued on page 2)

Mammography Screening Reviewed

Due to technical problems, mammography x-ray exams will no longer be performed for employees by the Occupational Medicine Clinic (OMC).

Mammography is a low-dose x-ray technique to study breast tissue. It is currently the best method for finding breast cancer at an early stage, before breast lumps can be felt and when cancer treatment is more successful.

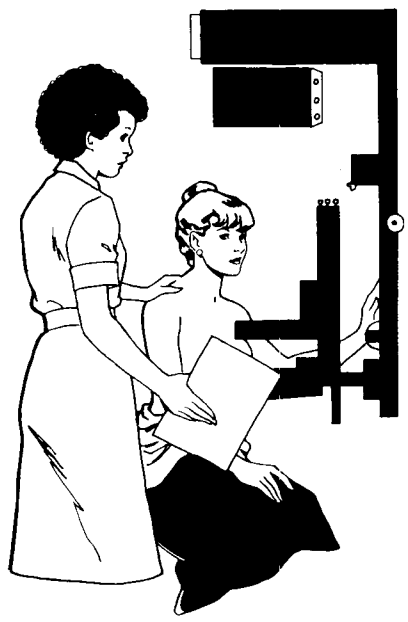
The mammography screening program at the OMC began in July 1989. However, a recent review of the program's results showed that the OMC has had to refer a larger number of employees to outside mammogram facilities than expected, because either the mammogram could not technically be performed or the results of the x-rays done at OMC were inconclusive.

In addition, the American College of Radiology now accredits mammography programs; but, because of the small number of these exams performed at the OMC, it became evident that the Lab's facility would not be eligible for accreditation.

"By discontinuing on-site mammography screening, we are *not* saying that routine mammography is not important," stresses physician Bryce Breitenstein, OMC head. "On the contrary, we are still *strongly* recommending that screening mammography be performed regularly at a qualified facility, in accordance with the recommendations of the American Cancer Society [ACS]."

According to Breitenstein, the Lab is considering contracting with one or more ACR-accredited mammography programs that would offer screening mammography to BNL employees at a reduced fee. In addition, the OMC will be offering breast-cancer education through its Health Promotion Program in the near future.

At present, employees covered by the AUI Medical Plan administered by Connecticut General Life Insurance Company receive reimbursement for mammography under their basic or major medical coverage for diagnostic tests, explains Personnel Division Deputy Manager Richard



Schonberg. Employees enrolled in health maintenance organizations (HMOs) are generally covered for approved screening tests, but they should check with their particular group, since fees for the service vary.

Schonberg adds that, under New York State law, HMOs and health-insurance carriers are obligated to provide screening mammograms or cover them as allowable expenses when the exams are performed according to the state's minimum-requirement schedule, which conforms to ACS guidelines.

According to ACS guidelines, women between the ages of 35 and 40 should have a baseline mammogram taken, which will be used for comparison to later mammograms. In the absence of risk factors, women age 40-49 should have annual or biennial mammography, and women over 50 should have this x-ray exam annually.

While three out of four breast-cancer victims have no known risk factors, women with any of the following symptoms or medical history are considered at higher risk and may be recommended to have mammograms taken sooner or more frequently: personal or family history of breast cancer; unexplained breast lumps or breast pain; discharges or bleeding from the nipple; changes in the skin of the breast or nipple; onset of menstration before age 12 or menopause after 50; childlessness or delayed childbearing after age 30.

Since one out of every ten American women develops breast cancer, female employees and BNL dependents are encouraged to utilize their health coverage to have routine mammograms.

Cancer is the leading cause of death for women 35 to 50, with breast cancer the most common malignancy among women in this age group. When breast cancer in the early stages is detected by routine mammography, research has shown that the survival rate is about 82 percent for women, versus only 60 percent for women in control groups.

In addition, early breast-cancer detection using mammography often permits a woman to be spared from a mastectomy, because a small, early tumor can often be removed with a lumpectomy.

Most breast lumps are not cancerous, but only a physician can make a diagnosis. While an employee's private physician remains the best source of a referral for obtaining a mammogram, OMC staff will continue to refer BNL employees to private providers, if requested.

The brochure "Breast Exams — What You Should Know" is available from the OMC, Bldg. 490, Ext. 3670. Those who have questions about mammography may contact Bryce Breitenstein on Ext. 3668.

Inside Info

Brenda Laster, a medical associate in the Medical Department, has been named to the Employer Hall of Fame of Gallaudet University's Experimental Programs Off Campus. She was cited for "outstanding supervision [that] has made a difference to our program and to Gallaudet students."

In spring 1989, Laster approached BNL's Office of Educational Programs (OEP) with the idea that hearing-impaired students could be included in BNL's Summer Student Program. As a result, three students from Gallaudet in Washington, D.C., participated in the ten-week program last summer, working under Laster and other Lab staff in the Medical and Alternating Gradient Synchrotron Departments.

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Joanna S. Fowler, a senior chemist in the Chemistry Department, has been named to the newly formed, 13-member Advisory Panel on Radiopharmaceuticals appointed by the United States Pharmacopeial Convention, Inc. (USP).

Established in 1820, USP is an independent organization that sets the legally enforceable standards for drugs in the U.S. The new panel is one of 33 expert advisory panels that contribute to the USP DI database, which addresses the information needs of both health care providers and consumers.

During its 1990-95 term, the Advisory Panel on Radiopharmaceuticals will help determine the content of the USP DI database and provide input relating to the clinical aspects of USP's work in the area of drug standards and information.

How Old Are You?

If you think your chronological age is the answer, a computer at the Occupational Medicine Clinic (OMC) may have a surprise for you: You may be younger or older than you think or feel.

So that employees may compare their chronological age with what is called their "health or risk age," the OMC Health Promotion Program has instituted a health-risk appraisal.

Developed by the Centers for Disease Control and updated by the Carter Center of Emory University, the health-risk appraisal is a statistical assessment of employees' health status and their risk of illness, injury or death resulting from their present way of life. The health-risk appraisal will provide employees with information about improving their health and reducing their chances of risk. Participation in the appraisal is voluntary, and results are confidential.

To find out their health-risk age, employees may fill out the health-risk appraisal questionnaire, available through Health Promotion Specialist Mary Wood, Bldg. 490, Ext. 5923, or at the OMC when they have their routine physicals.

1. SEX	1 ☐ Male 2 ☐ Female
2. AGE	☐ Years
3. HEIGHT (Without shoes) (No fractions)	☐ Feet ☐ Inches
4. WEIGHT (Without shoes) (No fractions)	☐ Pounds
5. Body frame size	1 ☐ Small 2 ☐ Medium 3 ☐ Large
6. Have you ever been told that you have diabetes (or sugar diabetes)?	1 ☐ Yes 2 ☐ No
7. Are you now taking medicine for high blood pressure?	1 ☐ Yes 2 ☐ No
8. What is your blood pressure now?	☐ / ☐ Systolic (High number) / Diastolic (Low number)
9. If you *do not* know the numbers, check the box that describes your blood pressure.	1 ☐ High 2 ☐ Normal or Low 3 ☐ Don't Know
10. What is your TOTAL cholesterol level (based on a blood test)?	☐ mg/dl
11. What is your HDL cholesterol (based on a blood test)?	☐ mg/dl
12. How many cigars do you usually smoke per day?	☐ cigars per day
13. How many pipes of tobacco do you usually smoke per day?	☐ pipes per day
14. How many times per day do you usually use smokeless tobacco? (Chewing tobacco, snuff, pouches, etc.)	☐ times per day
15. CIGARETTE SMOKING How would you describe your cigarette smoking habits?	1 ☐ Never smoked ☛ Go to 18 2 ☐ Used to smoke ☛ Go to 17 3 ☐ Still smoke ☛ Go to 16
16. STILL SMOKE How many cigarettes a day do you smoke? ☛ GO TO QUESTION 18	☐ cigarettes per day ☛ Go to 18
17. USED TO SMOKE a. How many years has it been since you smoked cigarettes fairly regularly?	☐ years
b. What was the average number of cigarettes per day that you smoked in the 2 years before you quit?	☐ cigarettes per day
18. In the next 12 months how many thousands of miles will you probably travel by each of the following? (NOTE: U.S. average = 10,000 miles) a. Car, truck, or van:	☐,000 miles
b. Motorcycle:	☐,000 miles
19. On a typical day how do you USUALLY travel? (Check one only)	1 ☐ Walk 2 ☐ Bicycle 3 ☐ Motorcycle 4 ☐ Sub-compact or compact car 5 ☐ Mid-size or full-size car 6 ☐ Truck or van 7 ☐ Bus, subway, or train 8 ☐ Mostly stay home
20. What percent of the time do you usually buckle your safety belt when driving or riding?	☐ %
21. On the average, how close to the speed limit do you usually drive?	1 ☐ Within 5 mph of limit 2 ☐ 6-10 mph over limit 3 ☐ 11-15 mph over limit 4 ☐ More than 15 mph over limit
22. How many times in the last month did you drive or ride when the driver had perhaps too much alcohol to drink?	☐ times last month
23. How many drinks of alcoholic beverages do you have in a typical week?	(Write the number of each type of drink) ☐ Bottles or cans of beer ☐ Glasses of wine ☐ Wine coolers ☐ Mixed drinks or shots of liquor
☛ (MEN GO TO QUESTION 33)	

"The form is easy to fill out, and it takes very little time," reports Wood. "So far, about 50 employees have done it, and most were happy to find that their health age was younger than their chronological age."

Besides asking about your sex, age, height and weight, the appraisal form includes such queries as "How would you describe your cigarette smoking habits?" and "On a typical day, how do you usually travel?"

Results are summarized on a printout, which first assigns you a health-risk age and then gives you a younger target age as a goal. After listing your health risks, given your chronological age and other answers, the appraisal then identifies factors that, if changed for the better as suggested, would help you reach your target.

Employees are encouraged to repeat the appraisal whenever they have changed their lifestyle, such after a weight loss or having quit smoking.

Concludes Wood, "Computerized health-risk assessment may seem gimmicky, but actually it's a good way of taking inventory of your life, and of seeing how making changes for the better will affect your health and lifespan."

SSC Detectors (cont'd)

by Samuel Ting of the Massachusetts Institute of Technology, and Solenoidal Detector Collaboration (SDC) led by George Trilling of the Lawrence Berkeley Laboratory.

On December 14, all three presented their letters of intent to the SSC Program Advisory Committee (PAC) during a meeting near Dallas, Texas.

According to the summary of the PAC's deliberations, "the PAC recommend[ed] that EMPACT/TEXAS not be approved, but strongly encourages the [SSC] Laboratory to find a mechanism by which the expertise, ability, and enthusiasm of this group can be maintained within the SSC program."

Though the SSC Laboratory accepted the PAC's recommendations, SSC Laboratory Director Roy Schwitters noted in a memorandum dated January 4, "The SSC Laboratory appreciates the fine work of the EMPACT/Texas Collaboration and will make every effort to encourage and facilitate participation by its members in the SSC's scientific program."

The SSC's initial scientific program will definitely include the SDC detector, which was approved outright and received funding for developing its formal proposal.

The L* detector was "not approved at this time, pending further PAC review and recommendations" concerning cost, personnel and governance issues, but its collaboration was given limited funding for continued research and development.

— Marsha Belford

Arrivals & Departures

Arrivals

Margaret M. Halpin.....Fiscal
Edward W. Lanning.....S&EP

Departures

This list includes all employees who have terminated from the Lab, including retirees:

Stephen P. Cramer.....NSLS
Peter T. Fallon.....DAS
Edward N. Lazo.....S&EP

Service Awards

The following employees had BNL service anniversaries during the month of January 1991:

Thirty-Five Years

Arthur O. Anderson Jr......Plant Eng.
Elbert N. Carter.....Saf. & Env.Prot.
Lawrence E. Kukacka.....App. Science
Norman Sutin.....Chemistry

Thirty Years

Michael F. Clancy.....AGS
John E. Denes.....Con. & Proc.
Joseph H. Dilg.....AGS
Patricia R. Gassaway.....Dir. Off.
Theodore Lehecka.....NSLS
Kenneth D. Riker.....NSLS
Robert W. Safranek....Saf. & Eng.Prot.
Ernest R. Schmitt.....AGS
Arthur E. Scholtz.....AGS
William P. Sims.....AGS
Michael E. Stone.....Accel. Dev.

Twenty-Five Years

James H. Bell.....Cent.Shops
Graham H. Campbell..Comp.&Comm.
Joseph A. Gallo.....Medical
Frank Haibon.....Sup. & Mat'l.
Hobart W. Kraner.....Instrum.
Hans Ludewig.....Nuc. Energy
Andrew J. McNerney.....AGS
Kenneth Wenger.....Plant Eng.

Twenty Years

Otto H. Jacobi III.....Reactor
Stephen M. Shapiro.....Physics
Shelby L. Williams.....Sup.& Mat'l.

Ten Years

Rolf H. Beuttenmuller.....Instrum.
Lenore F. Dudzick.....App. Science
Christine King.....Cent. Shops
Arleen N. Lancsarics.....App. Science
Thomas R. LeMaire.....Nuc. Energy
Douglas A. Pope.....AGS
Leonardo P. Sotomayor....Cent. Shops
Anthony C. Sturcken.....Plant Eng.
Kevin M. Tisch.....Plant Eng.
Abass Wessen.....Plant Eng.

Reports Available

The following reports are available to Laboratory staff and affiliates of DOE, AUI and NRC. Others may purchase the reports from the National Technical Information Service, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, VA 22161. Staff members should call the designated contact.

NUREG/CR-5576
BNL-NUREG-52239
Contact: A. Lopez, Ext. 5768
Survey of Boric Acid Corrosion of Carbon Steel Components in Nuclear Plants. C.J. Czajkowski

BNL-52243
Contact: L. Hanlon, Ext. 7517
RELAPS/MOD2.5 Analysis of the HFBR for a Loss of Power and Coolant Accident. G.C. Slovik, U.S. Rohatgi, J.Jo

BNL-52246
Contact: K. Tuohy, Ext. 3845
Control of Non Linear Space-Charge Emittance Growth. J.C. Gallardo

BNL-52248
Contact: P.M. Campbell, Ext. 4072
Snakes and Spin Rotators. S.Y. Lee

NUREG/CR-5280
BNL-NUREG-52178
Contact: A. Fort, Ext. 2114
Age-Related Degradation of Westinghouse 480-Volt Circuit Breakers. M. Subudhi, W. Shier and E. MacDougall

BNL-52233
Contact: A Lopez, Ext. 5768
Modeling Status and Needs for Temperature Calculations Within Spent Fuel Disposal Containers. T.M. Sullivan and C. Pescatore

BNL-52244
Contact:. B. Kponou, Ext. 4231
SSC Detector R&D at BNL. Ed: B. Yu, V. Radeka

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Most Popular Gospel Groups Encore in 10th Extravaganza

Somerset Young Adult Choir

In February 1982, the Afro-American Culture Club (AACC) sponsored the first Gospel Extravaganza in celebration of Black History Month. Headlining the sellout show was the nationally acclaimed Institutional Radio Choir of Brooklyn.

In its first nine extravaganzas, the AACC brought some 35 gospel groups to BNL. Now, to celebrate the first ten years of this popular program, the AACC is bringing back several of the most popular gospel groups ever to grace the stage in Berkner Hall — including the Institutional Radio Choir.

They'll be singing again in Berkner for this year's Gospel Extravaganza, on Saturday, February 2, at 7 p.m. In addition, this will be the fourth performance at BNL in the Somerset Young Adult Choir's 23-year history. Hailing from Somerset, New Jersey, this group first sang at the Lab in 1983, then returned in 1985 and 1988.

Two other groups again on the program were first seen at Brookhaven more recently. The East End Community Choir of Long Island, a group composed of over 100 singers from various townships, denominations, races and cultures, last appeared here in 1989. Having performed in last year's extravaganza, the Exciting Stephens Singers — five sisters from Jersey City, New Jersey, who have been singing together for 24 years — are returning for a second consecutive year.

Tickets cost $10 for adults and $6 for children 12 and under. There will be no reserved seats, and no tickets will be sold at the door. So order early, as tickets have sold out quickly in previous years.

To order tickets, contact any of the following people: Pauline Dixon, Ext. 5209, Bldg. 197D; April Donegain, Ext. 2459, Bldg. 134A; Fran Ligon, Ext. 3709, Bldg. 185A; or Bruce Penn, Ext. 7213, Bldg. 197C.

Equipment Demo

KEPCO Inc. of Flushing will exhibit their power supply products in Berkner Hall, on Tuesday and Wednesday, January 29-30, from 10 a.m. to 2 p.m. On display will be KEPCO linear programmable instrumentation, power supplies for systems and bench, and switching power supplies. KEPCO sales engineers Bob Epstein and Tom Fischer will be on hand to answer questions.

Amateur Radio Club

The Amateur Radio Club will meet in Berkner Hall, Room D, on Thursday, January 31, at noon. The agenda includes a briefing of upcoming club activities for the new year.

Lab employees and guests who are licensed radio amateurs or who wish to obtain amateur radio licenses are invited to attend. For more information, contact Andy Feldman, Ext. 3264, or Gary Utz, Ext. 3580.

For Re-Entry Women Science Students Only

If you're a woman who had to interrupt your formal studies in the sciences, engineering or mathematics, but who is now back to the books, you may be eligible to win the Renate W. Chasman Scholarship for Women.

This one-time award of $1,000 is given annually by Brookhaven Women in Science to a woman who is currently enrolled or has been accepted in a degree-oriented program at an accredited institution. To be considered for the 1991 scholarship, you must be pursuing a program of study for 1991-92 at the junior or senior undergradute level or first-year graduate level, on a half time or greater basis. You also must be a U.S. citizen or resident alien who lives in Nassau or Suffolk County.

If you're the winner chosen by an independent committee, the $1,000 award will be presented to you in August, and you will be expected to complete at least two consecutive school terms in good academic standing.

For application forms and more information, contact Susan Hobbie, Ext. 7511. The deadline for applying is June 1.

First awarded in 1986, the scholarship honors the late Renate Chasman, a noted BNL nuclear physicist and accelerator theorist. She co-designed the Lab's National Synchroton Light Source and her work influenced the design of other synchrotrons around the world.

BERA Nominating Committee Named

The following nominating committee has been appointed by the BERA Executive Board to select a slate of four candidates for the 1991 BERA Board elections scheduled for the last week in March:

Name	Dept.	Bldg.	Ext.
Y. Renée Flack	DO	490	3316
Ellen Fredrickson	DAS	179A	2816
Debbie Keating	DCP	355	7745
Eileen Kosloski	Reac.	750	4422
Marty Leach	DAS	51	3813
Denise Miesell	PE	97	5873
Liz Mogavero	Phys.	510A	3940
Bill Schoenig	Phys.	510B	2377
Doris Terry	DNE	197C	7610

Any employee who wishes to propose a nominee is encouraged to do so by contacting one of the nominating committee members before Friday, February 8. Please make certain that the person being proposed will agree to accept the nomination if selected by the committee.

Coming Up

The Trio Bell'Arte will perform the next BERA Concert on Wednesday, February 6, at 8 p.m., in Berkner Hall. Their varied program will include works by Georg Philip Telemann, Jean Marie Leclair, Alberto Ginastera, Domenico Scarlatti, Anotonio Vivaldi, Scott Joplin and Stephen Gryc.

Tickets may be purchased at the door for $12 general admission, $9 students and people over age 65, and $5 children under 18.

LUG Meeting

The next meeting of the Upton Local Users Group (LUG) will be on Wednesday, January 30, at 10:30 a.m., in Room B, Berkner Hall. There will be a presentation on a graphics system for scientific data.

All are welcome. For more information, call Zohreh Parsa, LUG chairperson, Ext. 4748, or send E-mail to Lug@BNL.

Cafeteria Menu

Monday, January 28
Soup: Cream of mushroom .75/.95
Entree: Baked chicken Dijon w/1 veg. 3.10
Entree: International lo mein w/1 veg. 3.10
Fitness: Broccoli quiche w/1 veg. 3.10
Carvery: Hot pastrami sandwich 2.85
Grill: Grilled patty melt w/fries 2.50

Tuesday, January 29
Soup: Beef broth w/barley .75/.95
Entree: Beef stroganoff over noodles 3.10
Entree: Baked chicken, marinara sauce & 1 veg. 3.10
Fitness: Chef's choice 3.10
Carvery: Hot roast beef sandwich 2.85
Grill: 2 hot dogs w/cheese & bacon 2.00

Wednesday, January 30
Soup: Old English cheddar .75/.95
Entree: Pizza (slice) .75
Entree: London broil w/1 veg. 3.10
Fitness: Cheese enchiladas w/1 veg. 3.10
Carvery: Hot Black Forest ham sandwich 2.85
Grill: BBQ pork sandwich w/fries 2.85

Thursday, January 31
Soup: Egg drop .75/.95
Entree: Baked meatloaf w/1 veg. 3.10
Entree: Chef's choice 3.10
Fitness: Spaghetti w/Italian sauce & 1 veg. 3.10
Carvery: Hot corned beef sandwich 2.85
Grill: Deluxe hamburger cordon bleu w/fries 2.85

Friday, February 1
Soup: New England clam chowder .75/.95
Entree: Spicy beef fajitas w/1 veg. 3.10
Entree: Fried fisherman's platter 3.10
Fitness: Chef's choice 3.10
Carvery: Hot turkey sandwich 2.85
Grill: Grilled meatloaf sandwich 2.50

Breakfast w/coffee, 7:30 - 10:30 a.m. 2.65
Mon.: 2 eggs, bacon & pancakes
Tue.: Western omelet, French fries, toast
Wed.: Spanish omelet, home fries, toast
Thu.: 2 eggs, bacon, cheese on croissant, fries
Fri.: French toast, 2 eggs, bacon, home fries

IBEW Meeting

Local 2230 IBEW will hold its regular meeting on January 28, at 6 p.m. in the Knights of Columbus Hall, Railroad Avenue, Patchogue. The agenda includes regular business, committee reports and the president's report.

Volleyball

Standings as of January 10

Open League		League I	
Phoenix	30-9	Cannonballs	28-5
GTEAM	26-10	Upfagrabs	25-8
Magnum	24-12	Rude Dogs	17-16
Me & the Boys	23-13	Dinkers	17-16
Dig It	16-23	Network News	11-22
Penetrating Vollies	11-28	Upsetters	1-32
Jet Setters	3-36		

League II		League III	
Fossils	30-3	High Volley'em	17-10
Net Wits	26-7	NoKaOe	17-13
Nuts & Bolts	23-10	Good Timers	16-14
Pteropods	19-14	Nutcrackers	15-12
Upton Ups	11-22	Renegades	14-16
Slammers	10-23	Undertakers	10-17
Chunga's Revenge	10-23	Sourcerers	10-17
Aces	3-30		

Bowling

White League

Andy Warkentien had a 212, Jim Petro 211, Jim Goode 204, Ken Batchelor converted the 6/7/10 split.

Purple League

Gene Hassell had a 215, Jim Biamonte 208, John Niemczyk 206, Gail Schuman 204/190, Ed Sperry IV 203/201, Sharon Smith 184, Karen Jacobs 183, Kay Conkling 181, Alice Belmonte 181, Marilyn Picinich 181.

Red/Green League

E. Sperry IV had a 238/623 scratch series, K. Asselta 235, T. Prach 218, M. Guacci 211, H. Dawson 209, C. Scarlett 209, C. Bohnenblusch 206, R. Larsen 206/202, K. Batchelor 200.

Basketball

Games for Week of January 14

Trailblazers 74		Celtics 45	
T. Mayo	32	G. Mack	19
R. Domenech	12	A. Schwabb	9
K. Goode	8	N. Schaknowski	6
S. Cramer	6	A. Jones	4
C. Edwards	2	R. Schullman	3
R. Garapolo	2	L. James	2
D. Evans	12	B. Turner	2

Three-point shots: R. Domenech (2), T. Mayo (2)

Runaways 58		Scram 42	
J. Belz	15	T. Powers	15
J. Desmond	15	E. Gregory	6
R. Wells	10	J. Barkwill	5
D. Ratzke	9	M. Davis	4
G. Shepherd	6	J. Duggan	4
J. Garrison	3	V. Cassella	3
		P. Bergh	2
		D. Bingham	2
		S. Nappi	1

Three-point shots: J. Desmond, J. Garrison, T. Powers (3)

Bulls 73		Deep Six 32	
M. Williams	18	B. Brown	13
F. Ligon	14	J. Kutschera	8
P. Johnson	11	E. Tucker	4
B. O'Brien	10	J. Morrow	3
L. Forenlid	8	D. Eleazer	2
P. Brohwiler	4	A. Rahi	2
S. Gilbert	4		
J. Hriljac	4		

Three-point shots: J. Kutschera, M. Williams

Classified Advertisements

Placement Notices

The Laboratory's placement policy is to select the best-qualified candidate for an available position. Consideration is given to candidates in the following order: (1) present employees within the department/division and/or appropriate bargaining unit, with preference for those within the immediate work group; (2) present employees within the Laboratory; and (3) outside applicants. In keeping with the Affirmative Action plan, selections are made without regard to age, race, color, religion, national origin, sex, handicap or veteran status.

Each week, the Personnel Division lists new placement notices. The purpose of these listings is, first, to give employees an opportunity to request consideration for themselves through Personnel, and, second, for general recruiting under open recruitment. Because of the priority policy stated above, each listing does not necessarily represent an opportunity for all people.

Except when operational needs require otherwise, positions will be open for one week after publication.

For more information, contact the Employment Manager, Ext. 2882.

The vacancies listed below have been exempted by the Director's Office from the current freeze on open requisitions.

SCIENTIFIC RECRUITMENT - Candidates may apply directly to the department representative named.

PHYSICIAN, BOARD-CERTIFIED - trained in internal medicine or family practice to serve half-time (50 percent) as Assistant Head of the Marshall Islands Medical Program. Apply to: W.H. Adams, Medical Department.

LABORATORY RECRUITMENT - Opportunities for Laboratory employees only.

DD 8728. OFFICE SERVICES POSITION - Requires AAS or equivalent experience, and excellent secretarial and communication skills. Word processing required; WordPerfect experience preferred. Will act as reservationist in the Housing Office. Duties will include reservations and billing; scheduling housekeeping, maintenance and repairs; and collecting and reconciling receipts. (Reposting of job #8728) Staff Services Division.

DD 0620. SECRETARIAL POSITION - Requires AAS in secretarial science or equivalent experience. Will provide secretarial support to a small engineering group. Word processing experience required; IBM PC experience desired. Must be able to obtain and maintain a security clearance. Reactor Division.

DD 8871. OFFICE SERVICES POSITION - Requires AAS in secretarial science or equivalent experience. Word processing experience required; IBM P/S 2 experience desired. Duties will include the preparation for publication, distribution and control of Division operating manuals. Must be able to obtain and maintain a security clearance. Reactor Division.

DD 0611. DRAFTER POSITION - Requires excellent computer graphic skills and previous Autocad experience. Will prepare sketches, drawings and illustrations for manuals used for training personnel within the Division. AAS highly desired; excellent written and oral communication skills required. Must be able to obtain and maintain a security clearance. Reactor Division.

OPEN RECRUITMENT - Opportunities for Laboratory employees and outside applicants.

NS 0144. CONTRACTS POSITION - Requires bachelor's degree, advanced degree in business or related discipline preferred, and extensive experience with large federal contracts. Minimum of 10-15 years' industrial business-management experience required. Must have experience with procurement strategy and development, preparation of solicitations, review and evaluation of proposals, and assessment of material risk in the federal procurement environment. Demonstrated experience with pricing strategies and negotiation techniques required. Contracts & Procurement Division.

NS 0612. OPERATIONS SUPPORT POSITIONS (3) - Requires BS in engineering, science or math and two years' experience in reactor operations or related fields. Will provide technical assistance in support of HFBR operating activities, including preparing and reviewing operating and surveillance procedures, evaluating performance of reactor systems, and assisting in training programs. Must be able to obtain and maintain a security clearance. Reactor Division.

NS 8870. TRAINING POSITION - Requires BA/BS in instructional technology or several years' experience as an instructor at a nuclear reactor facility. Will develop, conduct and evaluate employee, emergency planning and other technical training programs. Familiarity with INPO guidelines and/or DOE accreditation requirements and reactor operator qualifications desirable. Must be able to obtain and maintain a security clearance. Reactor Division.

LL 8334. PROGRAMMING POSITION - Requires a BS in mathematics, computer science, engineering, or physical sciences and several years' experience in computer programming. Programming experience must include demonstrated capability in dBase and C languages. Responsibilities will include the preparation of software and documentation under direction of scientific or professional staff members for international safeguards systems and arms control verification systems. Some domestic and foreign travel may be required. Must be able to obtain and maintain a security clearance. Department of Nuclear Energy.

Motor Vehicles & Supplies

89 FORD ESCORT LX - a/t, ac, 20k mi., excel. cond., $4,995; '87 Ford Mustang, 5.0 Litre, 5-spd., 55k mi., excel. cond, $5,500. Steve, 933-8844.

87 BRONCO II XLT - 5-spd., ac, cruise, p/w, 30k mi., ext. warr., visor, running boards, alarm, more, $9,000. Susan, Ext. 5149.

86 HYUNDAI EXCEL - 4-dr., 4-spd., excel. body, loses oil, needs eng. work or engine, $650. Larry, Ext. 4295.

86 BUICK CENTURY - 4-dr., 6-cyl., 75k mi., a/t, ac, loaded, mint, best offer; '79 Datsun 210 wagon, 72k mi., a/t, good cond., $600. 821-6321.

86 HYUNDAI GLS - 4-cyl., 5-spd., blue, 4-dr. sedan, p/sunroof, new tires, exhaust eng., am/fm cass., best offer. Tony, Ext. 4035.

86 CHRYSLER LE BARON GTS - a/t, ac, 52k mi., new tires, excel. cond., $3,400. Tom, 472-4228.

86 FORD ESCORT - 5-spd., 49k mi., new tires & exhaust, excel. cond., $4,500 neg. 331-1349 after 6 p.m.

85 CHEVY S-10 4x4 PICKUP - black, must see, excel. cond., asking $6,500. 727-7350.

84 NISSAN STANZA - recently tuned, new cylinder head, sunroof, nice body, am/fm cass., $2,700 or best offer. Elhaj, Ext. 3449.

84 OLDS CUTLAS SUPREME - p/s, p/b, ac, excel. cond., asking $1,500. Ken, Ext. 7311 or 349-3462.

83 FORD LTD - 6-cyl., fully equipped, 112k mi., runs, body no rust, good shape, came from AZ, $700. Knight, Ext. 4639.

81 KAWASAKI 440 LTD - 13k mi., new battery, tires, chain sprockets, rear brake, sissy bar, v.g. cond., must sell, moving, $500 neg. 474-5715.

80 FORD E-250 VAN - p/s, p/b, a/t, heavy-duty suspension, new brakes & tires, good work van, Jim C., Ext. 4150.

80 CHEVY MALIBU - 4-dr., p/s, p/b, a/t, small V-8, 267, blue/blue, gauges, all factory, orig. owner, gar., like new, $2,000. Al, 331-1003 eves.

79 SUBURBAN - new tires & batt., 37k orig. mi., a/t, p/s, p/b, am/fm cass., 4wd, $2,000. Tirre, Ext. 3288.

78 OLDSMOBILE CUTLASS SUPREME — p/w, bucket seats, good running cond., $475. 689-5152 after 6 p.m.

76 FORD GRANADA - reliable, great around town & station car, $500. Tim, 281-7873.

71 LINCOLN CONTINENTAL - runs, some new parts, needs work, best offer. Bill, Ext. 4406.

61 JAQUAR MARK IX - sedan, antique investment collectible, all orig., one owner, 46k mi., black, red leather, excel. running cond. 928-1020.

TIRES - mud terrain, 35", 15" rim, low mileage. 447-6758 after 6 p.m.

RIMS - 4 ea., Western Bullet, 15"x7", 5-hole, 5.5 bolt pattern, 2/4wd, $400; tires, 4 ea., Michelin P215-70-R15, set only, $400. B. Mayo, Ext. 4297.

Boats & Marine Supplies

13' BOMBARD - inflatable, 1987, 30-h.p. Mariner, trailer, all access., excel. cond., great scuba diving, must sell, moving, asking $3,500. 474-5715.

CHARGER - 30 ampere, 3 batt. boat charger, a/t, cost $250, sell $125, brand-new, never used. Chuck, 821-1525.

Send a Love Note To Your Valentine

Is there a special message you'd like to send to your valentine next month? If you can keep it short and sweet, you can have your Valentine's Day message printed in the Bulletin on February 8. Send your 15-to-20 word "love note" to the Bulletin, Bldg. 134, by Friday, February 1, on a Sales & Notices Bulletin classified form, but mark it "Valentine's Day." You must sign your name and include your life number and extension, but your name will not be printed unless it is clearly part of the message. Copy must be deemed tasteful, and all "love notes" will be accepted at the Bulletin's discretion. Only one message per employee, please.

Furnishings & Appliances

DINING ROOM SET - oval table w/3 leaves, 2 arm chairs, 4 side chairs, $500; china closet, $375 or $800/both. Arleen, Ext. 4519 or 924-6051.

ELECTRIC SCISSORS - new, $10; pasta & ravioli maker, $10; Vitamix blender, $25. 369-9879.

ELECTRIC SMOKER - for fish, fowl, meat, new. 325-0447 after 6 p.m..

FOOT MASSAGER - $20; silver ice bucket w/lion head handles, $65; large 1900s mirror, $100. Tim, Ext. 7238.

MICROWAVE - TV, toaster, mixer, humidifier, fan, iron, 1989 models. Bertrand, Ext. 3166 or 281-7808.

CREDENZA - secretary, glass sofa table, oak china closet, color TV, twin bed. 286-0466.

RECLINER - swivel chair w/ottoman, heavy wicker, cream upholstery, $125. G. Williams, 286-3863 eves.

REFRIGERATOR - GE, medium size, hardly used, $100. 821-6321 after 6 p.m.

SOFA - loveseat, slightly threadbare, frame good, $20/each. Marty, 979-7851 leave message.

Tools, House & Garden

FIREPLACE DOORS - brass, w/built-in screen, fits 38"x27", $50. Ext. 2799 or 757-1581.

LADDER - aluminum, 24' extension, like new. 325-0447 after 6 p.m.

OIL BURNER - Beckett, high efficiency, orig. $300, sell for $100. Chuck, 821-1525.

WATER TANK - bladder-type for well, good cond.; Filterite particle filter, used 1 yr., make offer. Carl, Ext. 4986.

WOOD STOVE - cast iron, heats 22,500 cu. ft., takes 30" wood, hot-air distribution system, $300. Dennis, Ext. 4970 or 369-2052.

Sports, Hobbies & Pets

CAMERA LENSES - both Pentax, one 50mm, 1:1.4, new, $100; one 35mm, 1:2.8, $35. Marty, Ext. 3749 or 286-5897.

DRYSUIT - Poseidon, man's large, like new, must sell, orig. $1,500, asking $500. 474-5715.

EXERCISER - Schwinn Air Dyne, air resistance, excel. cond., $300. 369-2716 after 6 p.m.

FLUTE - Bundi edition, perfect for beginner or child's birthday gift, ask. $150. Ernie, Ext. 3357.

PIANO - Lester Betsy Ross, spinet, w/bench, excel. cond., $700. Tony, Ext. 3658 or 929-4903 after 6 p.m.

SKIS - Head Radial, 170cm, Marker M36 bindings, poles, $95. 473-2473.

SKIS - Kastle/FWI, 170cm, w/Geze bindings, $240; Kneisel cross-country skis, 180cm, w/poles, $80. Les, Ext. 2920.

TENT - sleeps 2, additional room for chairs & table, mosquito protection, hardly used, orig. $190, sell for $90. Arnim, Ext. 5240.

TENNIS RACKET - Spalding, new, make offer. George, Ext. 4144.

Audio, Video & Computers

AMPLIFIER - Heathkit AA 15, Heathkit AJ 15 turntable, dual 1218 record, excel. cond., $100/all; Sony color TV, 19", $60. I. Meyer, 929-4326.

COMPUTER WORKSTATION - w/separate printer stand, oak, v.g. cond., $100. 924-2298.

POWER AMPS - Tecknics #SE-A5MK2, 150 watts per channel, never used, list $1,200, $650 or best offer. Al, Ext. 3992 or 331-1003.

PRINTER - Star SG10, 9 pin NLQ, excel. cond., $100; 2400 baud IBM-type modem, internal, new, $55. Bob, 878-2687.

SOFTWARE - Prodigy series, Lotus Works, Magellanzo, First Publisher, Calendar, Creator Plus, Quicken, worth $600, $300. Tim, 281-7873.

VCR - Canon VR-HF 720, HQ, hi-fi, TV sound, 107 channel, cable ready, 8 program/1-mo. timer, 1 year warr., asking $400. 331-1003 eves.

VIDEO CAMERA - compact VHS, brand-new, never used, best offer. 744-3480.

Miscellaneous

AIRLINE TICKETS - 2, round-trip, American Airlines, Islip to San Jose, CA, Feb. 14-19, return to JFK, $495/both. Marie, Ext. 4207 or 732-2668.

CONCERT TICKETS - 2, Leontyne Price in Carnegie Hall, Jan. 26, 8:00 p.m., first tier, $70/seat. Yoshito, Ext. 4921.

Real Estate

Real Estate advertised for sale or rent is available without regard for the race, color, creed, sex or national origin of the applicant.

For Rent

HAMPTON BAYS - 1-bdrm. furn. apt., priv. ent., eik, large l/r, closets, walk to beach, no pets, ideal for single, $550/mo. incl. all + sec. 728-0992.

HOLTSVILLE - 1-bdrm. apt., l/r, eik, priv. ent., w/w, full bath, 15 min. from Lab., $675/mo. incl. util. 289-2159.

MASTIC BEACH - all new 1-bdrm. apt., full bath, full kit., priv. ent., yard, driveway, for single, $550/mo. pays all. Anthony, 281-2513.

MASTIC - 2-3 bdrm., l/r, city water, avail immed., $700/mo. pays all. Jim, 281-2849.

MIDDLE ISLAND - 2-bdrm. condo, 1½ baths, 4 yr. old., furn., all appl., 5 min. to Lab., $875/mo. + util. 751-8351.

MILLER PLACE - barn apt., 5 rooms, fp, deck, panoramic view of Mt. Sinai harbor, priv., semi furn., near beach, no pets, avail. Feb. 1, $800/mo. + util. Sue, 928-6368.

PORT JEFFERSON STATION - unfurn. house, eik, l/r, bdrm., ac, priv. location, $600/mo. + util. Dick, 473-3169.

RIDGE - 3-bdrm. ranch, eik, l/r w/fp, 2½ acres, quiet area, full bsmt., min. from Lab., $950/mo. + util. Jim, Ext. 4606 or 654-5049.

SOUND BEACH - 2-bdrm. apt., bath, l/r, eik, close to shopping & beach, $675/mo. + elec. Ext. 2671 or 744-3284 after 4 p.m.

CLAREMONT, NH - 2-bdrm. condo, 40 mi. to Killington, Okemo, Magic Mt., Mt. Sunappe, $300/wk., $225/wknd. Frank, Ext. 7749 or 758-7913.

KEY WEST, FL - April 20-27, sleeps 4, on water, terrace, sep. bdrm., kit., w/d, jacuzzi, VCR, pool, gym, priv. beach, boat/water sport rental, walk to town, Tiki Bar. Sheryl, Ext. 5384.

HILTON HEAD, SC - 2-bdrm. condo, sleeps 6, 2 baths, beach, pool, tennis, golf, Jan. & Feb. $250/wk. 689-5378.

For Sale

BELLE TERRE - residential bldg. lot, village police, beach, children's programs. 928-1020.

CENTEREACH - 4-bdrm. hi-ranch, l/r, d/r, eik, 2 full baths, large fam. rm. w/fp, deck, pool, large fenced yard, $133,000. 698-8514.

CORAM - Strathmore East, 4-bdrm. ranch, 2 baths, cath. l/r, 2-car gar., gas heat, fenced corner lot, $120,000. Ext. 3791 or 928-7154 after 7 p.m.

MIDDLE ISLAND - 3-bdrm. ranch, eik, den w/fp, d/r, l/r, 1½ baths, screened porch, patio, full bsmt., wooded ½ acre, $149,500. 924-6051.

RIDGE - 2-bdrm. house in adult community Leisure Knoll, ac, newly carpeted & decorated, walking distance to rec. hall, pool, tennis, lots of extras, 5 mi. to Lab, $135,000. 744-3366.

SELDEN - 3-bdrm. L-shaped ranch, l/r, d/r, den, gar., new heat system, ac, w/w, agp, shed, $119,000. Ben, 698-0057.

SHOREHAM - 3-bdrm. Colonial, N of 25A, SWR schools, 1½ baths, eik, d/r, den, l/r w/fp, fin. bsmt., w/sep. work rm., deck, gar., 3-zone heat, 7 mi. from Lab. $165,000. 821-9513.

PALM BAY, FL - near Melbourne, 2-bdrm. condo, 2 full baths, l/r, d/r, kit., w/d, pvt. screened patio, completely furn., heated pool, near beach, malls, $65,000. 698-8514 after 5 p.m.

Wanted

BOOKCASE - desk, w/d, good cond. Kumi, Ext. 3193 eves.

COUPONS - for friends & relatives in military, all kinds, but esp. for diapers. Mail to M. Gibbons, Bldg. 134C.

DACHSHUND - male, miniature, smooth haired, w/papers, for stud to mate w/my female, will get pick of litter. Brenda, 366-1860.

HOUSEMATE - to share 2-bdrm condo, 1½ baths, partially furn., 5 min. to Lab., $450/mo. + ½ util. 751-8351.

MALE BOWLER - Wed. night. Cheryl, Ext. 7572.

MINERALS - mineral collections, mineral books. Plotkin, Ext. 7974 or Wednesday, 798-2887.

PUSH MOWER - good working cond., free or reasonably priced. Susan, Ext. 2184.

TV - low price for visiting scientist. Ext. 4234 or 3191.

Classified Ad deadline is 4:30 p.m. Friday for publication Friday of the next week.