BROOKHAVEN BULLETIN
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BROOKHAVEN NATIONAL LABORATORY

High Energy Cooperation

The Eighteenth Meeting of the U.S./Japan Committee for Cooperation in High Energy Physics was held at BNL on May 30 and 31. This committee meets each year — alternating between the United States and Japan at rotating sites within each country.

"This annual ceremony is an occasion to celebrate the fruits of this long-running and very successful formal program of international cooperation in scientific research," said John O'Fallon, co-chair for the U.S. side and acting Associate Director for High Energy and Nuclear Physics, Office of Energy Research, U.S. Department of Energy, in his opening remarks. During the meeting, members reviewed the progress of the past year and renewed the strong sense of cooperation within the committee.

Highlights included a discussion of the discovery and determination of the approximate mass of the top quark by two experimental teams working at the Fermi National Accelerator Laboratory. One team, the 42-institution collaboration called DZero, includes researchers from BNL's Physics Department.

Also discussed was the discovery of another degree of measurement sensitivity in the rare decay of the K meson — which is predicted to happen only once or twice in 10 billion decays — by researchers with the Experiment 787 research team at BNL's Alternating Gradient Synchrotron which includes some 17 Japanese collaborators.

There was also a review of the major contributions made by approximately 50 Japanese physicists for the PHENIX experiment being built for BNL's Relativistic Heavy Ion Collider.

Finally, the 1996 Japanese Fiscal Year Budget was approved, which includes an investment of $12.5 million for experiments in the U.S. during FY96. — Sarah Gilbert

Roger Stoutenburgh

Members of the U.S./Japan Committee for Cooperation in High Energy Physics: (center left) Co-chair for the U.S. side, John O'Fallon, Acting Associate Director for High Energy and Nuclear Physics, Office of Energy Research, U.S. Department of Energy; (center right) Co-chair for the Japanese side, Hirotaka Sugawara, Director-General, National Laboratory for High Energy Physics (KEK); T. Seiki (left), Research Coordinator, Research Institute Division, MONBUSHO; Seigi Iwata (fourth from left), Director, Physics Department, KEK; Y. Kimura (sixth from left), Vice Director, KEK; Nicholas Samios (eighth from left), BNL Director; John Peoples (ninth from left), Director, Fermi National Accelerator Laboratory; Michiaki Takaishi (second from right), Secretary-General, KEK; Pierre Oddone (sixth from right), Deputy Director, Lawrence Berkeley National Laboratory; Yorikiyo Nagashima (seventh from right), Professor of Physics , Osaka University; Burton Richter (eighth from right), Director, Stanford Linear Accelerator Center. Other BNLers in the photo are: Derek Lowenstein (seventh from left), Chair of the Alternating Gradient Synchrotron Department, and (tenth and eleventh from left), Satoshi Ozaki, RHIC Project Head, and Thomas Kirk, Associate Director for High Energy and Nuclear Physics.

Indian Ocean Carbon Dioxide Measurements Measure Up

On a 14-month, 92,000-kilometer research cruise through the Indian Ocean that concluded last February, BNL researchers helped to collect and analyze over 15,000 water samples to study the ocean's carbon dioxide (CO_2) content.

But the numbers don't stop there: Doug Wallace, a scientist at the Oceanographic and Atmospheric Sciences Division of the Department of Applied Science (DAS), and his survey team have piles of data to sort through to create a three-dimensional map of the CO_2 of the Indian Ocean.

The data gathered by Wallace's team and their collaborators will establish a global baseline for the ocean's CO_2 concentration, as well as allow scientists to distinguish natural, oceanic CO_2 concentrations from human-made, or anthropogenic CO_2.

Anthropogenic carbon dioxide is partitioned between the atmosphere, the ocean and terrestrial ecosystems. Computer models have identified the ocean as a sink for approximately 40 percent of the global, anthropogenic CO_2, but deficiencies in the models, as well as the lack of accurate measurement instruments and techniques, had prevented scientists from verifying this estimate until now.

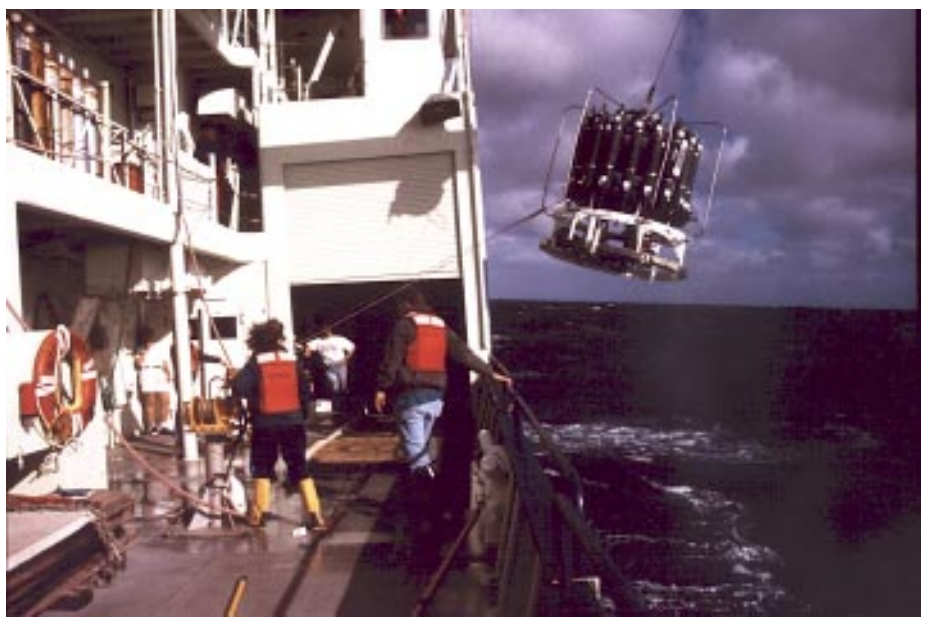
"The data quality was astonishingly good for the entire fourteen-month period," Wallace said. Both the quality and the quantity of the data are important, because the changes in the oceanic concentration of CO_2 due to uptake of anthropogenic CO_2 is less than one-tenth that in the atmosphere. In addition, the CO_2 concentration stored by the ocean is variable because of the slow mixing of the ocean and the cycling of carbon by marine organisms. This is the reason that a three-dimensional map is necessary.

In general, greater concentrations of CO_2 are found in deeper, cooler water. CO_2 dissolves more readily in cold water, and CO_2 released from dead, sinking organic matter tends to accumulate in the deep ocean. Globally, the equatorial regions of the world's oceans release CO_2 into the atmosphere, whereas the high latitude oceans tend to act as carbon sinks.

The BNL team's preliminary results from the Indian Ocean reflect these patterns. "The lowest concentrations of [CO_2] are observed in the southwestern Indian Ocean, generating a stronger north-south gradient in the western basin than in the east," is one of the conclusions of a draft article that the team plans to submit for publication. These differences reflect ocean circulation patterns and the varying frequency with which certain pockets of water well up and make contact with the atmosphere.

These small, but important, variations are revealed because of the accuracy of the data, and

(continued on page 2)



During the recent research cruise that BNL participated in on the Indian Ocean, crew members of the *R.V. Knorr* bringing the deep ocean water sampler aboard off the coast of Madagascar. In the sampler, 36 separate 10-liter bottles close at different depths as a result of cable signals from on board the *Knorr*.

Brookhaven's Reactors — Tours and Talks Offered to Lab Employees and Public

BNL's two research reactors — the High Flux Beam Reactor and the Brookhaven Medical Research Reactor — have been operating since 1965 and 1959, respectively. Due to strict safety and security regulations, however, few employees have had the opportunity to visit the reactors, and, except for specially arranged tours, they have been closed to the general public.

Current interest in the research conducted at the reactors and recent community concerns about their environmental impact on Long Island have prompted the Lab to offer a tour of both reactors on Saturday, July 13. The tours will start at 9 a.m. and run continuously throughout the day — *by appointment only*. Employees and the public may join a tour by calling Vera Meier, Ext. 7702, by Wednesday, July 10. Tours are restricted to people who are at least 18 years old.

Kathy Geiger, BNL's Community Relations Liaison, has also arranged for a repeat of a previous presentation on the reactors that had been given to the Community Work Group in May. This encore presentation will be held on Monday, July 15, at 7:30 p.m., in Chemistry's Hamilton Seminar Room, Bldg. 555, and is open to employees and members of the public *without prior registration*.

This overview of BNL's reactors will include their general descriptions,as well as discussions of experimental programs, environmental monitoring, safety analysis, emergency planning and future plans. A question-and-answer period will follow.

Speakers will include John Axe, Head of BNL's Center for Neutron Science; Michael Brooks, Deputy Associate Director for Reactor, Safety and Security; Raymond Karol, Reactor Division; Frank Marotta, Safety and Environmental Protection Division (SEP), Emergency Services; and Gary Schroeder, SEP.

– Diane Greenberg

Summer Sunday Tours to Emphasize the Environment

Learn the secrets of the universe and have a little fun at BNL's Science Museum.

The museum is the main stop on the Summer Sunday tours that, beginning July 14, will give Lab visitors a sampling of research at Brookhaven. Besides the customary array of hands-on exhibits, this year's program will emphasize the environment, said Museum Programs Supervisor Janet Tempel, Public Affairs Office.

A committee of BNL employees came up with ideas for demonstrations and exhibits, Tempel explained. This year, the museum will offer nature walks around the site, as well as videos about the wildlife at BNL and efforts to clean up hazardous waste.

"The environmental emphasis is in response to community concerns," Tempel said. "These walks and videos are to help dispel some of the suspicions our neighbors have about what we're up to here."

Chris Ryon, a seventh and eighth grade science teacher in the William Floyd School District, is organizing an environmental exhibit on how much radiation people receive from everyday activities such as eating bananas or flying in a plane.

"We are trying to make the public aware of the sizes of some of these doses," Ryon said. "I think there is a lot of misconception and a lot of fear because people just don't know about radiation."

Ryon has created demonstrations and led tours during his seven or eight years working with the Science Museum. "I think this is the biggest challenge I've had since I've been here," he commented.

According to Tempel, the museum will be using BNL personnel as volunteers at some of the exhibits for the first time in ten years. "We really had to do it this year because we need their expertise," she said. "The questions that are going to be asked really can't be answered by our summer tour staff."

In the past, science demonstrations for kids have been the most popular exhibits. This year, in one exhibit, guests can build a freestanding bridge with blocks and then walk over it. In others, visitors can start their own chain reaction or watch how chemicals move through a maze of chemistry glassware.

The tours will be held from 10 a.m. to 3 p.m. every Sunday through August 25. Starting in Berkner Hall, visitors will watch a video about the Lab, then take a bus tour of the site before entering the Science Museum in Bldg. 701. — Andrea Widener

Children are dazzled by the new Light Island exhibit at BNL's Science Museum. White light streams out of several openings in the center of the island, and museum visitors can use lenses, prisms and mirrors to demonstrate the different properties of light.

— Photos on this page by Roger Stoutenburgh

Museum Molds Future Scientist

Nearly 24 years ago, a 12-year-old boy found his calling at BNL's Science Museum.

Stephen McDonald, a Farmingdale native, went on a tour of the Lab in 1972 with his Boy Scout troop: The trip inspired McDonald to become a scientist.

Though there were many experiments on display, he specifically remembers gloves extending inside a box to protect a user from being exposed to hazardous chemicals or dangerous microorganisms. The following week McDonald saw the movie *The Andromeda Strain*, where the actors used the same type of glove box to study viruses.

"That glove box really brought fiction into reality," McDonald recalled. "You don't get the feel for science until you get into the lab and see what happens."

McDonald eventually got a degree in chemical engineering, and he now works for Coherent Technologies, a laser company.

"It is a definite 'must see' thing on Long Island if you are a school-aged kid," McDonald said. "They don't really get to see big science unless they go somewhere like the Science Museum."

— Andrea Widener

Weekday Tours Rely on Volunteers

Whether they're college students, professionals or technically oriented individuals, visitors who tour the Lab can thank volunteers — tour guides, speakers and other BNLers — for making their time here pleasant, informative and possible. These scientists, engineers, secretaries, technicians and other volunteers were the guests of honor at a thank-you luncheon organized by Museum Programs of the Public Affairs Office at the Brookhaven Center last month. Volunteers shown here are: (seated, from left) Diana Fisher, Vinnie Lo Destro, Ann Emrick, Volunteer Coordinator Elaine Lowenstein, Linda Di Pierro, Lynette Finlay, Robin Ambrose, Susan Cuevas, Michiko Tanaka; (standing, front, from left) Ann Marie Luhrs, Yan Shi, Elizabeth Mogavero, Jackie Mooney, George Gharabeigie, Museum Programs Supervisor Janet Tempel, Terri Lacker, Gail Schuman, Jessica Wilke, Jean Matkovich, Janet Sillas, Eileen Morello, Ruth Fernow, Susan Monteleone; (standing, center, from left) Stu Kern, Martha Simon, Peter Kohut, Gwyn Williams, Andy Feldman, Tom Dickinson, Gerry Van Derlaske, Victor Guiterrez; (standing, back, from left) Anh Pham, Barry Karlin, Frank Dusek, Gerhard Redelberger, Andy Ackerman and Sue Cataldo.

CO_2 Measurements (cont'd.)

"The key to the accuracy of the data," said Wallace, "has been the outstanding performance of the CTA."

Key to Quality: The CTA

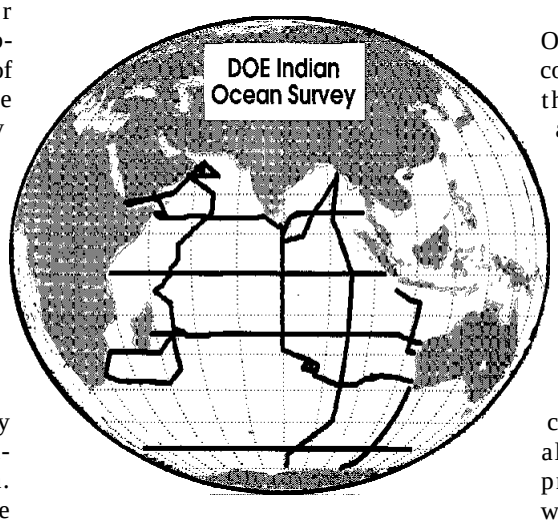
The Coulometric Titration Analyzer (CTA), designed by DAS's Kenneth Johnson, was used aboard the research vessel *Knorr* to analyze the water samples. The CTA acidifies a subsample of the sea water causing all of the carbon species to bubble out in the form of CO_2, which is then detected by coulometric titration.

During the cruise, the CTA was calibrated with daily injections of a known mass of pure CO_2 gas. In addition, water samples, with an independently analyzed concentration of CO_2, were carried on the expedition and analyzed daily to cross-check the CTA.

The CTA maintained an accuracy of 0.05 percent despite extreme temperatures and harsh conditions at sea. This level of accuracy is of the same magnitude as the expected annual increase of the surface ocean CO_2.

In the final analysis, the contribution of anthropogenic CO_2 will be determined by "comparing the CO_2 with other oceanic parameters, looking for changes over time in their interrelationships," said Wallace. A change in the relationships is evidence that the ocean has taken up anthropogenic CO_2.

Samples of ocean water were taken every 30 to 60 nautical miles from the ocean floor to the surface during the long ocean cruise, and maps of the sampling sites form a huge grid that crisscrosses the surface of the ocean. This map, built by the BNL team working in cooperation with several other U.S. institutes, is part of the World Ocean Circulation Experiment (WOCE), which has been going on since 1990 and is now nearing completion.



Grid map showing route along which researchers took CO_2 measurements in the Indian Ocean.

With the completion of the Indian Ocean cruise, the gridded map now covers most of the ocean, meaning that 90 percent of the measurements are complete. The North Atlantic Ocean is the only remaining place where samples have not been taken during the '90s.

Upon the completion of this project, expected by 1998, the data will provide an important foundation for research in the global carbon cycle. These data can be used to determine whether estimates from computer models are correct and to allow those models to make better predictions for the future. The data will ultimately be useful to "people assessing the impact of planned energy strategies," Wallace said.

— Sarah Gilbert

BWIS Cocktail Party

On Wednesday, July 10, Brookhaven Women in Science (BWIS) will host its 17th Annual Cocktail Party from 5:15 to 7 p.m., in the courtyard of the Physics Department, Bldg. 510, or in the building's lobby in the event of rain. Attendees will enjoy an assortment of light refreshments and beverages, including punch and wine.

The Cocktail Party is free, although a small donation will be appreciated.

For more information, call Lisa Tranquada, Ext. 7731.

Telephone Tips

It is not necessary to listen to entire voicemail greetings. If you reach voicemail instead of the called party, you can press the # key and go straight to the beep. (This will not work on an extended absence greeting.)

If the message waiting light does not go out automatically, stop the flashing by getting a dial tone, dialing *52 and hanging up. The message waiting light will stay out until another message is left in your voicemail box.

BNL Food Drive: Volunteers Pick Up Donations Week of July 8

Every month, a brief message appears in the Bulletin: BNL Food Drive Pickup next week. And soon enough, about 2,000 pounds of canned and dried food — tuna, peanut butter, corn, spaghetti, beans, etc. — comes in from the homes of BNL and *Physical Review* employees. Nutritious donations are brought in, collected in bins, transferred to a central point and loaded into a truck sent by St. Anthony's Bread in Rocky Point, from where food is distributed to reach the homes of Brookhaven Town's people in need.

All this doesn't just happen. Organized since 1995 by Rita Kito, Director's Office, and Donna Wadman, Safety & Environmental Protection Division, BNL's smoothly running "food-production" line depends on many dedicated volunteers, some of whom were able to attend a June 24 luncheon sponsored by AUI to recognize their efforts.

Over 200,000 pounds of food have been collected since the Food Drive was initiated at the suggestion of former Business Manager Bernard McAlary, now retired from the DO. For the first six years, the drive was chaired and tirelessly built up by Carole Kerr, DO, who retired in 1995.

The Food Drive supporters are hoping for a record pickup during the week of July 8. No time to shop? Send a personal check to BNL Food Drive, c/o Kito, Bldg. 460; or Wadman, Bldg. 599. — Liz Seubert

Peter Horton

Some BNL volunteers and others from St. Anthony's Nutrition Center and *Physical Review* attended the Food Drive luncheon. Shown are: (front, from left) *Phys. Rev.*'s Barbara Maddaloni, Pam Walczyk, Maria Asaro; Ali Lopez, Department of Advanced Technology; Dolores Janes, Information Services Division (ISD); Cathy Hunt and Tracy Peck, St. Anthony's; Kathy Occhino, *Phys. Rev.*; Margaret Antonucci, St. Anthony's; Clarence Wilkins, Administrative Support Division (ASD); Jeff Mirando, ASD; Bob Di Lello, ASD; (back from left) Rene Scalzo and Patti Merlo, *Phys. Rev.*; Liz Seubert, DO; Marie Tortorella, *Phys. Rev.*; Susan Paulson, St. Anthony's; Arlean Vanslyke, Department of Applied Science; Jim Szczeponksi, St. Anthony's; Sue Foster, Human Resources Division; Frank Kito, Biology Department; Rita Kito, DO, who organizes the Food Drive with Donna Wadman (not present), SEP; Greg Ogeka, DO; Paula Pozzoli, ASD; Hank Grahn, DO; Mike Guacci, ASD; Eva Esposito, ASD; Jerry Quigley, ASD; and Rich Machnowski, Instrumentation Division.

Smith Point Outing For Visitors

As a result of a survey of students and other BNL visitors, the Lab will offer a shuttle service to Smith Point Park, an ocean beach on Fire Island, on Thursday, July 4. Vans will leave from Fleming House parking lot at 9 a.m. and 10 a.m., and the final return to BNL will be at 5 p.m.

To sign up for this trip, call April Donegain, Ext. 2459.

Tennis Anyone?

Summer Tournament

Employees, guests, summer visitors and spouses are invited to sign up now for the 1996 Tennis Tournament. To run from July 20 through August 16, the tournament may include men's singles and doubles, women's singles and doubles, and mixed doubles, depending upon the signup.

Sign up weekdays, 9 a.m. to 1:30 p.m, now through noon on Tuesday, July 16, at the BERA Sales Office, Berkner Hall, where the tournament's rules are also available. The draw will be posted by Wednesday, July 17, at the BERA Sales Office and courtside. Matches may be played any time afterwards, but play must be completed by the scheduled dates.

For more information, call Rudy Alforque, Ext. 4733; Joe Carbonaro, Ext. 5139; Rita Kito, Ext. 3320; or Om Singh, Ext. 5332.

Children's Lessons

Free, informal tennis lessons will be given at the BNL tennis courts to the children of BNL employees and visitors.

Tennis will be taught by Matt Hershcovitch, who is the son of Ady Hershcovitch, AGS, and a former star student of former BNL tennis instructors Linah and Diana Mathabane. Beginning Monday, July 1, lessons will be offered on Mondays through Thursdays, from 3 to 4 p.m., except from July 22 to August 2, when there are no lessons scheduled.

No signup is necessary: Children who wish to attend should show up at the courts with their own racquets and balls, ready to play.

At Your Leisure

The Omega Leisure Travel Office in Berkner Hall will be closed next week, July 1-5, for vacation. During that week, all leisure travel business with Omega will be handled by its Rockville Center office, 766-2350.

The on-site Omega office will reopen on Monday, July 8, with new hours: Weekdays, the office will be open from 8:30 a.m. to 1:30 p.m., close for lunch between 1:30 and 2 p.m., then reopen from 2 p.m. to 3:30 p.m.

For more information about fulfilling your vacation and holiday travel needs, call Carol Zaza, Ext. 5918.

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The Brookhaven Bulletin is printed on paper containing at least 50 percent recycled materials, with 10 percent post-consumer waste. It can be recycled.

Holiday Notes

In observance of Independence Day, the Lab will be closed on Thursday and Friday, July 4 & 5. As a result, the following schedules will be in effect:

• **Brookhaven Bulletin** — There will be no Bulletin next week; the next issue will be published on Friday, July 12. The classified ad deadline for that issue is noon on Wednesday, July 3. That issue, the first issue for July, will include ads for Services; Real Estate ads will run only on July 19 next month.

• **Credit Union** — The Teachers Federal Credit Union on site will be closed Thursday, July 4, but open during its usual hours, 8:30 a.m. to 4:30 p.m., on Friday. The automatic teller machine in the foyer of Berkner Hall will be open throughout the holiday.

• **Food Service** — The Cafeteria will offer snack-bar service Thursday through Sunday, July 4-7, from 9 a.m. to 2 p.m. The Brookhaven Center Club will be closed July 4-6; it will reopen on Sunday, July 7, 5-9 p.m. The vended-food service in Bldg. 912 will be in operation all weekend.

• **Gym & Pool** — The swimming pool will be closed from Thursday, July 4, through Sunday, July 7. The gymnasium, which is closed weekends throughout the summer, will also be closed Thursday and Friday, July 4 & 5.

• **U.S. Post Office** — The service window at the Upton Branch of the U.S. Postal Service will be closed on July 4, open on July 5 from 8 a.m. to 1 p.m., then closed as usual over the weekend.

50 YEARS AGO THIS WEEK

This series, which recounts the earliest days of Associated Universities, Inc. (AUI), and BNL, will run as appropriate throughout 1996 and 1997, the 50th anniversary years of AUI and BNL, respectively.

Due to the upcoming Independence Day holiday, when the Brookhaven Bulletin will not be published, the following history is running a week early.

• **July 6, 1946** — The Planning Committee holds its last meeting under the aegis of the Initiatory University Group (IUG).

• **July 8, 1946** — In May, a legal firm had recommended that the state of incorporation of the group planning the Northeast laboratory be the same as the state in which the laboratory would be located.

Since many more sites were being considered in New Jersey, the incorporation process began there. Thus, on this date, AUI is incorporated in New Jersey, with George Brakeley, George Pegram, I.I. Rabi, Henry Smythe and William Watson signing the charter as the incorporating trustees.

Another issue surrounding the incorporation of AUI had been whether the universities themselves should be *members* or whether they should be *represented by individuals* in the corporation. It appeared, however, that legal obstacles would arise with two of the universities if the former arrangement were used.

Therefore, since the members of the Committee on Incorporation felt that representation through individuals would be satisfactory, this arrangement was written into the charter. Although it was later learned that the government preferred the former arrangement, it was agreed to proceed with the latter, in order to avoid further delay.

• **July 10, 1946** — At AUI's first corporate meeting, the newly incorporated group requests that the government make available the Camp Upton site for the new national laboratory. However, based on that request, the Board of Trustees also decides at this meeting to reincorporate AUI in New York State — making this also the *last* meeting of AUI as a New Jersey corporation.

The meeting includes a speech by General Leslie Groves, commanding officer of the Manhattan District, on the importance of training. *(To be continued on July 12.)*

Arrivals & Departures

Arrivals

James M. Ablett.....NSLS

Departures

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

Benjamin J. Sternlieb.....Physics

Dosimetry badges will be changed tomorrow. Please place your badge in its assigned rack space before leaving work today.

Service Awards

The following employees celebrated AUI/BNL service anniversaries in June:

45 Years

Elinor F. Norton.....Chemistry
Alfred P. Wolf.....Chemistry

40 Years

Anthony J. Romano....Adv. Technology

35 Years

Carl Avent.....RHIC
Michael H. Brooks.....Director's Off.
John J. Dabrowski.....NSLS
Leonard N. Chimienti.....AGS
Katherine S. Conkling.....Medical
Jadwiga Kycia.....Biology

30 Years

Richard J. Becker.....Chemistry
George W. Cornish.....RHIC
Laurie T. Pollard.....Central Schops
John S. Read.....Plant Eng.
Stanley L. Ulc.....Physics
Rudolf Zantopp.....Safety & Env. Prot.

25 Years

John P. McNeil.....RHIC
Daniel N. Slatkin.....Medical
Carol A. Whitley.....AUI

20 Years

Lore M. Barbier.....App. Science
Michael F. Bonner.....Adv. Technology
Cheryl R. Brown.....Admin. Support
Patricia A. Cahill.....Safeguards & Sec.
Paul G. Falkowski.....App. Science
Tirre F. Farmer.....Plant Eng.
Gina M. Flippen.....Medical
G. Alanson Greene.....Adv. Technology
Marion V. Heimerle.....AGS
William M. Morse.....Physics
Doris Terry.....Adv. Technology
Mitchell D. Williams.....RHIC

10 Years

Wayne P. Cummings.....Plant Eng.
Doan J. Hansen.....Saf. & Env. Prot.
Robert P. Hoogsteden.....Plant Eng.
Mumtaz K. Kassir.....Adv. Technology
Maryann Larese.....App. Science
Ralph Mevs.....Reactor
Neil A. Schaknowski.....Instrumen.
Xiao-Qing Yang.....App. Science

Computing Corner

The Computing & Communications Division (CCD) offers the following training classes. For more information or to register, call Pam Mansfield, Ext. 7286, or e-mail pam1@bnl.gov.

JAVA Training

A class in JAVA programming will be offered in four sessions: July 29 & 31, and August 5 & 7, from 10 a.m. to noon in the seminar room, Bldg. 515. Participants must be experienced in C programming. Register by July 19.

LabVIEW Training

During the week of September 16-20, CCD will offer beginner-through-advanced classes on LabVIEW. The classes will be held in the training room, Bldg. 459, from 9 a.m. to 4:30 p.m. each day. The fee is $1,500. Register by July 25.

Water Aerobics

Water aerobics classes will again be offered at the Lab pool, from 5:20 to 6:10 p.m., on Tuesdays and Thursdays starting on July 9 and 11.

Sponsored by the Health Promotion Program of the Occupational Medicine Division, the classes are free, but participants must pay the pool fee of $2 a session or show their season pool pass. Employees and their spouses may sign up for one or both classes by calling Mary Wood, Ext. 5923.

Softball

Standings as of June 21

League E1		**League E3**	
System	5-1	Mesocyclones	5-2
Phoubars	5-2	Medical	3.5-3.5
Blue Jays	4-3	Pick-Up Stick	3.5-3.5
Ice Men	4-3	Bombers	2-5
Magnets	4-3	**League M1**	
Titans	2-5	Gour-Mets	5-1
Cleen Sweep	0-7	Stingrays	5-1
League E2		Snake Bites	4-2
LightsOut	6-1	Good Timers	3-3
Hammerheads	5-2	Parke Avenue	1-5
Contaminators	5-2	OER Wellheads	0-6
Hy Tech	4-3	**League M2**	
CCD	4-3	Varmints	2-0
Scram	3-3	Skeleton Crew	2-0
Phase Out	3-4	No Names	1-1
Feds	2-5	Monday Nite Live	0-2
Phytinphytos	2-5	What's on 2nd	0-2
Sure Fire	0-6	Stray Cats	0-2

Note: *The address for the World Wide Web page of the BNL Softball League is http://pubweb.bnl.gov/~l2ball/*

Handball Club

Attn: Summer visitors and students. Do you need exercise, but want some real action? Then join the BERA Handball Club from noon to 1 p.m. on its courts, located at the southeast end of the warehouses. For more information, call Manny Grau, Ext. 6328.

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 Human Resources Division lists new placement notices. The purpose of these listings is, first, to give employees an opportunity to request consideration for themselves through Human Resources, 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, or call the JOBLINE, Ext. 7744 (344-7744), for a complete listing of all openings.

Current job openings can also be accessed via the BNL Home Page on the World Wide Web. Outside users should open "http://www.bnl.gov/bnl.html", then select "Scientific Personnel Office " for scientific staff openings or "Employment Opportunities" or "BNL Human Resources Division" for all other vacancies.

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

POSTDOCTORAL RESEARCH ASSOCIATE - Trained in experimental physics with interest in correlated electron systems, using a broad spectrum of experimental techniques to study such systems. Both far infrared spectroscopy and high-resolution photoemission studies at the National Synchrotron Light Source will be of particular importance. Contact: M. Strongin, Physics Department.

POSTDOCTORAL RESEARCH ASSOCIATE - Trained in chemistry, with experience in kinetics and mechanisms of reactions. Familiarity with pulse radiolysis or flash photolysis techniques is desirable. Instrumentation experience is preferred. The successful candidate will conduct mechanistic studies using pulse radiolysis and flash photolysis techniques, and assist in the development of new instrumentation to complement a picosecond pulse radiolysis facility. Contact: J. Wishart, Chemistry Department.

POSTDOCTORAL RESEARCH ASSOCIATE - Trained in biochemistry, cell biology, genetics or closely related field, with a strong background in molecular genetics. Experience in protein purification and techniques in protein chemistry is desirable. The research involves analyzing the functions of the enzyme DNA-protein kinease, including characterization of its expression and regulation in mammalian tissue culture cells. Contact: Carl Anderson, Biology Department.

POSTDOCTORAL RESEARCH ASSOCIATE - Trained in chemical engineering, with experience in fermentation and similar biochemical processing technology. Primary duties will be process modeling, and design and construction of pilot plant. The candidate is expected to be familiar with optimization and computerization of unit processes, and hands-on construction of laboratory-scale prototypes. Must be able to work with minimum guidance and to generate technical and economic feasibility estimates. Successful candidate will be expected to work with other members of the group, interact with field engineers and travel to application sites. Contact: E.T. Premuzic, Department of Applied Science.

SCIENTIST - Trained in experimental nuclear or high energy physics, with experience in data-acquisition systems. The successful candidate will join the PHENIX Group at BNL and work in the Online Computing System working group, which is developing the data-acquisition software for the PHENIX Experiment at RHIC. Will also participate in the research program of PHENIX when RHIC begins operation in 1999. Contact: S. Aronson, Physics Department.

OPEN RECRUITMENT - Opportunities for Laboratory employees and outside candidates.

DD 3836. ENGINEERING POSITION - (term appointment) - Requires a BS in a physical science or equivalent, MS preferred, and demonstrated experience in environmental protection. Familiarity with DOE and EPA regulations for environmental programs is desirable. Must have knowledge of environmental radiation protection, and will assist in preparation of BNL environmental regulatory documents, such as environmental ALARA, environmental monitoring and effluent-treatment plans. Will provide general support to environmental protection areas. Safety & Environmental Protection Division.