BROOKHAVEN BULLETIN
Vol. 49 - No. 15 April 14, 1995
BROOKHAVEN NATIONAL LABORATORY

AGS Sets Another World's Record for Proton Intensity

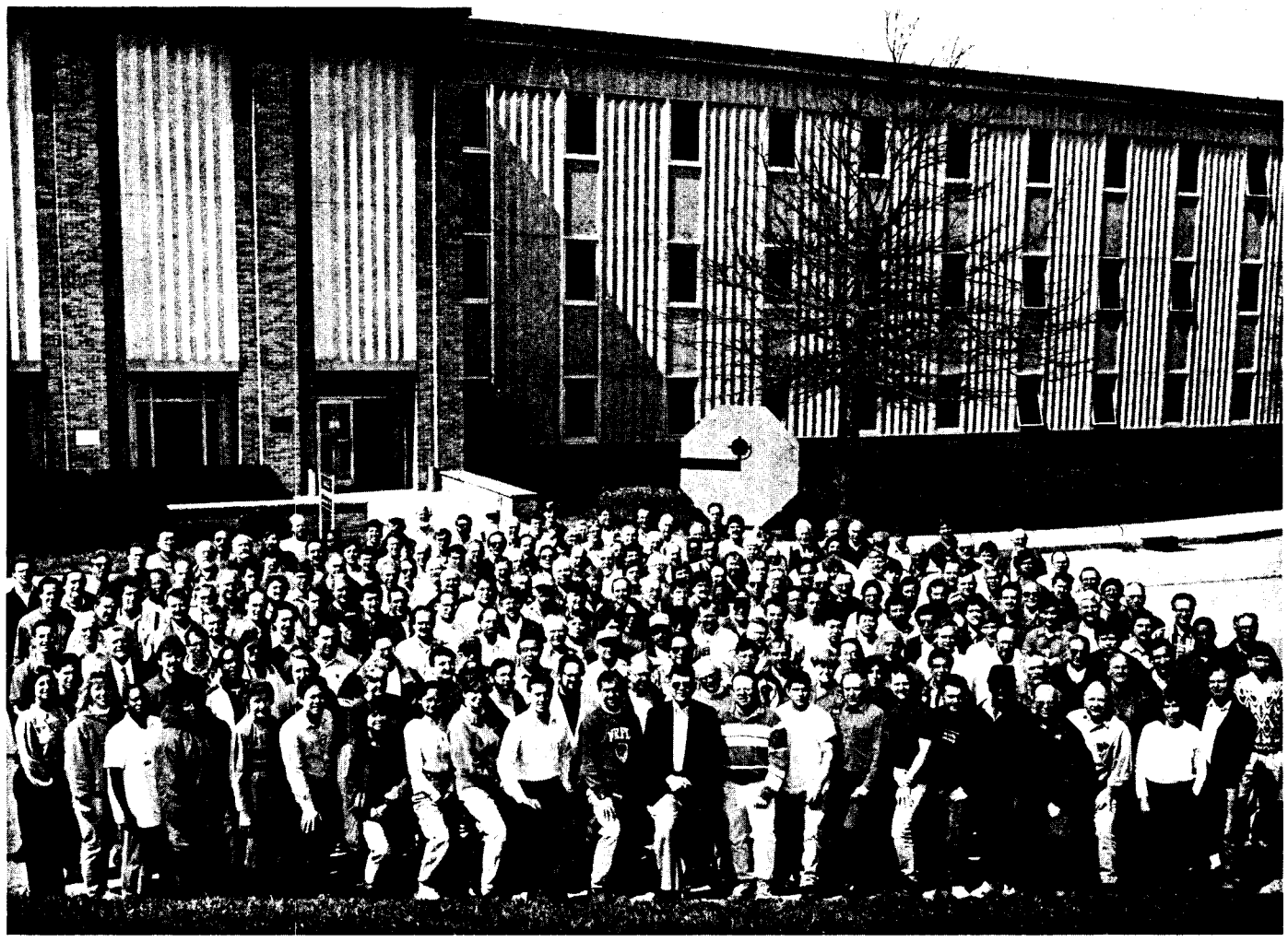
Reaches Goal Two Months Ahead of Schedule

On Friday, March 31, the Alternating Gradient Synchrotron (AGS) again bettered its own world's record for proton-beam intensity: Now able to accelerate 60 trillion protons (6×10^{13}) with every pulse of its beam, the AGS has become the world's most intense proton synchrotron by a factor of two.

In once again breaking and resetting the world's record for proton intensity, the AGS also met the intensity goal that was set for it back in 1984, when the AGS Booster Project was first approved and funded.

The new top intensity of 6.05×10^{13} protons per pulse (ppp) means that 60 trillion protons are delivered to AGS experiments about every 3.2 seconds. While the last milestone of 5.05×10^{13} ppp was set in February, the AGS has been the world's most intense proton synchrotron since last July.

In addition, the new record is a factor of three greater than the 1.9×10^{13} ppp peak that the AGS had reached before the Booster came on line and a factor of 60,000 greater than the 1×10^{10} ppp intensity that the AGS was originally designed to deliver.



Roger Stoutenburgh

Achieving the new proton intensity record at the Alternating Gradient Synchrotron (AGS) was a departmental effort involving the entire staff of the AGS, many of whom are pictured here.

Immediate Results

As an immediate result of this new record, the three AGS physics experiments currently looking for rare kaon decays will have enough proton intensity to create the intense kaon beams they need. These intense kaon beams, in turn, will improve the likelihood that these experiments will observe a kaon's taking an uncommon or even a "forbidden" pathway to decay.

In anticipation of putting the increased intensity to good use, the rare-kaon decay experiments have upgraded the capabilities of their detectors over the last few years. So, since the beginning of the present AGS run on January 1 of this year, these experimenters have been commissioning their detector upgrades to be able to take advantage of the increased intensity.

In the long term, increased proton intensity boosts the probability of us-

(continued on page 2)

BNLers Help New Magazine Span Science's Spectrum

Roger Stoutenburgh

Perusing the first issue of *Science Spectra* are its editor-in-chief, Gerhart Friedlander (right), now retired from the Chemistry Department, and contributing author Richard Hahn (left), also of Chemistry.

A new science magazine with a scope as broad as science itself made its debut recently, and the name at the top of the masthead was a BNLer's: Gerhart Friedlander.

Friedlander is editor-in-chief of *Science Spectra*, a Gordon and Breach Publishing Group periodical aimed at scientists and interested laypeople who want to keep up with developments in many scientific areas.

The publication's first issue was unveiled in Atlanta in February at the annual meeting of the American Association for the Advancement of Science and this week at a reception at the New York Academy of Sciences in New York City. It features an article on solar neutrino research written by Friedlander's Chemistry Department colleague Richard Hahn, along with pieces on topics as varied as gravity waves, new chemical elements, Russian archeology and evolutionary theory.

"One motivation for *Science Spectra* is that most scientists want to keep up with other fields but don't have much time to read outside their specialty," said Friedlander, a retired BNL Senior Chemist. "As a quarterly, this will encapsulate important discoveries and developments." And all of the magazine's articles will be written by scientists and edited to be understandable by those outside their specialties.

Hahn, who has written many general articles on his work aimed at physical scientists, said writing for an even more general audience was an interesting challenge. "It's hard enough to explain the intricacies of it to people who are in the field, and, when you have a general audience, it

(continued on page 2)

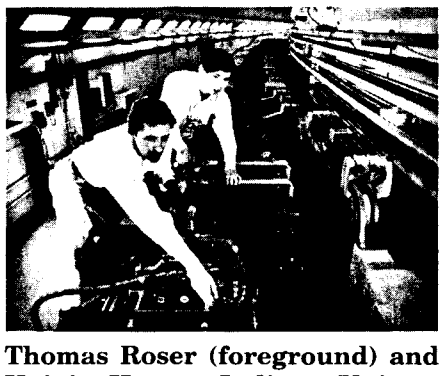
BNL Lecture: Just for Kicks — Siberian Snakes, Proton Spins

A beam of accelerated protons spins into its target. If the protons in the beam are polarized, with their spins all pointing the same way, scientists can obtain unique information about spin effects in high-energy reactions.

But keeping protons polarized in an accelerator is a tough job. The accumulation of horizontal magnetic fields, which increase with higher energies, tends to kick the protons' spins off their vertical axis and depolarize them. For 10 years after polarized protons first circulated in the Alternating Gradient Synchrotron (AGS) in 1984, a labor-intensive series of adjustments involving 94 small dipole magnets was needed for each polarized proton run.

Enter "Siberian snakes."

Invented by two Siberian scientists, these exotic reptiles were named by AUI Distinguished Scientist emeritus Ernest Courant. The snakes are really large magnets whose fields kick out at the polarized proton beam revolving round an accelerator, causing it to wriggle like a snake — and stay polarized.



Thomas Roser (foreground) and Haixin Huang, Indiana University, examine a partial Siberian snake in the Alternating Gradient Synchrotron tunnel.

In 1988, Thomas Roser, then a University of Michigan guest research associate in the Physics Department, published the theory of using a partial Siberian snake to overcome the AGS depolarization problem. Today, a partial snake slithers through the AGS and on Wednesday, April 19, Roser, who is now Accelerator Division Head in the AGS Department, will deliver the 305th Brookhaven Lecture, "Spinning Protons and Siberian Snakes." His talk will begin at 4 p.m. in Berkner Hall, and he will be introduced by AGS Chairman Derek Lowenstein.

In his lecture, Roser will talk about the phenomenon of spin and describe the dynamics of polarized beams and Siberian snakes. He will also detail the innovative equipment and technology used in 1994 for the first snake test at the AGS, which resulted in a polarized proton beam's being accelerated to an unprecedented energy of 25 billion electron volts.

Roser will conclude with a preview of the snake magnets now being designed for BNL's Relativistic Heavy Ion Collider (RHIC). The RHIC Siberian snakes will provide the first occasion to use polarized protons at very high energies, probing the dynamics of spinning quarks and gluons inside the proton.

(continued on page 3)

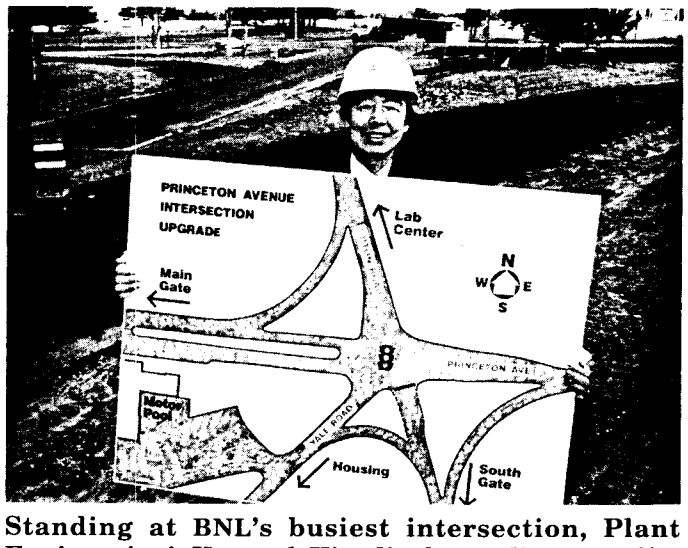
New Traffic Control System Slated for BNL'S Busiest Intersection

Five roads converge at the flashing yellow and red traffic light about one-quarter mile east of BNL's Main Gate — the Lab's busiest intersection. To avoid traffic tie-ups and potential accidents, a BNL police officer controls traffic there during rush hours — from 7:30 to 9 a.m. and 4:30 to 5:30 p.m. on weekdays.

"This intersection is conducive to accidents, and several near-misses have been reported," said Kenneth Kim of the Plant Engineering (PE) Division. "Based on consultants' recommendations and evaluation by PE, the Lab decided to redesign the intersection from five points to four points and add a computerized traffic signal to enhance safety."

PE's new design calls for installing five new overhead traffic lights that will be automatically controlled by traffic detectors at the intersection.

Effective mid-spring, the traffic lights will change to red, yellow and green during rush hours, with the timing of the signals based on traffic flow. At other times, a flashing signal will prevail, as it does now — a warning to proceed with caution. The new system will be completely automated, eliminating the need for a police officer to control traffic.



Standing at BNL's busiest intersection, Plant Engineering's Kenneth Kim displays a diagram of its planned new design.

In addition, the new design will eliminate direct access to Upton Road South at the intersection, except for emergency vehicles. To ease afternoon rush-hour traffic, bypass roads are being built between East Princeton Avenue and Upton Road South, and between Yale Road and Upton Road South (see photo).

Thus, those exiting to the South Gate can use the bypass from East Princeton Avenue to Upton Road South. Drivers headed toward the South Gate from the Child Development Center and housing area can use the bypass from Yale Road to Upton Road South. Those leaving from Upton Road North must exit through the Main Gate as usual.

To ensure a safe transition, a BNL police officer will be on duty at the intersection area when the new traffic control system first goes into effect. Kim reminded employees and motorists that all New York State traffic laws apply on site, and everyone should comply with BNL's speed limits.

BNL Video is producing *GLANCE* videos about the new traffic system, to be shown in the Berkner Hall lobby continuously on weekdays, starting in May, when more information will also run in the Bulletin.

Our Daughters Are Coming to Work

Over 125 daughters of BNL employees and guests are already signed up to participate in the Lab's first Take Our Daughters to Work Day, on Thursday, April 27.

Since the event is open to only the first 200 girls ages 9 to 15 who are registered by April 21, parents should quickly return the registration form on the bottom of the letter sent to all employees last week or available at the reception desk in Personnel, Bldg. 185.

The Ms. Foundation for Women organized the first Take Our Daughters to Work Day three years ago; this year, five to seven million girls nationwide are expected to participate.

The foundation focuses on girls because: "By the turn of the century, eight out of every 10 women between the ages of 25 and 54 will be on the job . . . . Moreover, for the first time in history, a majority of all new jobs will require education or training beyond high school. It's clearly more important than ever that our daughters — the next generation of working women — have the chance to witness first-hand the endless variety of ways women contribute to American society and the economy, so they can begin to think realistically about their own future options."

With this in mind, a Lab committee headed by Susan Foster, Personnel Division, has planned a day in which the visiting daughters will be exposed to many fields and job possibilities. If this day is successful, a similar day will be planned for boys in the fall.

Centered on the theme "A girl is watching. What is she learning?", the day will begin with daughters reporting to work with their parents at the parents' normal reporting time. The girls will spend up to an hour and a half in the workplace learning about the jobs their parents do.

If a parent cannot bring his or her daughter to the workplace due to safety concerns, the parent should arrange for a "host parent" for this part of the day, or ask the Lab to find a host parent by noting this need on the registration form. Employees interested in being host parents should call Foster, Ext. 2888.

At 9:45 a.m., parents will bring their girls to the Brookhaven Center, where registration will be followed by a welcome from M. Sue Davis, BNL's Associate Director for Reactor, Safety & Security, who will also discuss careers in environmental restoration.

Additional career talks and demonstrations will be given by seven BNL women: Alison Davenport, a materials scientist in the Department of Applied Science; Joanna Fowler, a chemist in the Chemistry Department; Marsha Kipperman, an employment manager in the Personnel Division; Sue Norton, a design engineer with the Relativistic Heavy Ion Collider (RHIC) Project; Yasuko Sanborn, a computer analyst in the Department of Advanced Technology (DAT); Sandi Sullivan, a librarian in DAT; and Patricia Williams, a safety engineer in the Plant Engineering Division.

At noon, the parents and daughters will enjoy a box lunch, compliments of Associated Universities, Inc. Then, the girls will hop onto buses for guided tours in the following Lab areas: Biology Department, Central Shops Division, Chemistry Department, Computing & Communications Division, Firehouse, National Synchrotron Light Source and RHIC.

When the girls return to the Brookhaven Center, they will receive certificates of participation and a BNL souvenir.

Parents should pick their daughters up at the Center between 4:30 and 4:45 p.m.

Science Spectra (cont'd.)

gets tougher," he said. Still, he added, the experience was rewarding, and he has become a subscriber.

Friedlander helped his friend, Gordon and Breach board chairman Martin Gordon, bring *Science Spectra* to fruition. "Martin felt there was a niche for a magazine to bring science articles to scientists in other fields, to make astrophysics understandable to biologists and vice versa," Friedlander said. The two brought together a board of editors and worked to select scientists to write the first issue's articles.

The result is a magazine that seeks to cover the wide spectrum of science, including some research that may not otherwise reach Western general audiences. One editor covers only Chinese science, another Russian science, while well-known American, European and Japanese researchers recruit articles in the areas of chemistry, life and medical sciences, physics and astronomy, earth sciences, and technology and applied science.

While *Science Spectra*'s driving concept may draw comparisons with that of the well-established *Scientific American*, Friedlander sees important differences between the two.

"*Scientific American*'s emphasis has changed over the years, and it has become much more diffuse, dealing with societal and social issues," he said. "We are planning to stick with the science." And the magazine's glossy design, by a top Australian graphic design firm, makes it more of a "coffee table" publication.

For a complimentary copy of *Science Spectra*, call (800) 545-8398 or send a fax to (201) 643-7676. Inside the first issue will be subscription forms, with introductory subscriptions priced at $38 for a special offer of eight issues. — Kara Villamil

AGS Intensity (cont'd.)

ing accelerators, instead of reactors, as sources of neutrons. Such accelerators, called spallation neutron sources, would require even higher beam intensity than 6×10^{13} ppp. As its intensity continues to be increased, the AGS will be a major test bed for high-intensity beam acceleration, not only for spallation sources, but also for a proposed high-energy muon collider.

"The AGS of 1995 is a totally rebuilt machine from that of 1960," says AGS Department Chairman Derek Lowenstein, "and, in fact, only two original parts remain: one, the main ring magnet iron, and, two, the main ring magnet-support girder. Not only has the AGS been totally rebuilt in the last ten years, but the linac injector is also undergoing the same process. This has been and continues to be a massive team effort, but I would like to especially acknowledge the leadership of Bill Weng," who was the immediate past Accelerator Division Head.

The Booster Difference

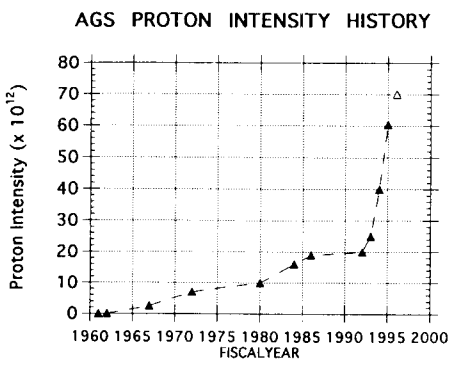
Though the Booster is an accelerator one-quarter the size of the AGS itself, the Booster has a power disproportionate to its size: It makes possible the AGS's high-intensity proton-physics program, as well as the heavy-ion physics program at the AGS and, soon, at the Relativistic Heavy Ion Collider (RHIC).

On line since 1992, the Booster is an intermediate accelerator for protons between the AGS linac and the AGS ring itself, overcoming effects that limited AGS intensity in bygone days when protons were injected directly from the linac into the AGS ring.

Before the Booster, one linac beam pulse would fill the AGS with 1.5×10^{13} protons. Now, each Booster pulse fills one-quarter of the AGS with 1.5×10^{13} protons, so four injections are required to fill the entire ring.

By increasing proton intensity four times to 6×10^{13} ppp, the AGS Accelerator Division has met the second of three goals set for it in 1984. The first, accelerating heavy ions through gold, was met in 1992, and the third, increasing the intensity of polarized protons, is expected later this year.

The proton-intensity record was set the day that James Curto, Robert Diem and Keith Zeno were operating the AGS, under the supervision of Jonathan Laster, all of the AGS Operations Group. This group's efforts are supported by a study program



coordinated by Lief Ahrens.

"The intensity record set by this shift of operators was just the last in a series of records acheived in the preceding weeks by the competent and experienced control-room staff," comments Peter Ingrassia, Head of the AGS Main Control Room.

"Because they know the accelerator so well, the operators are the ones to be credited with getting that last 10 percent of performance out of the machine," says AGS Accelerator Division Head Thomas Roser.

The largest effort went into constructing and commissioning the Booster, which was done under the leadership of Bill Weng. However, to host the increased intensity within the AGS itself, significant upgrades were made to: the AGS radio-frequency (rf) system, under the leadership of Michael Brennan; main-magnet power supplies, under Anastasios Soukas; transition jump system, under Willem Van Asselt; transverse damper system, under Thomas Roser; and radiation shielding.

With this world's record in place, the Accelerator Division is now considering ways to increase intensity by another factor of two or more, by filling the AGS with eight or more Booster pulses.

But, in the meantime, the emphasis of this run, which ends in mid-June, is "increased efficiency, that is reduction of the percentage of beam that is lost as it is transported to the user," concludes Roser.

— Marsha Belford

Blues and Jazz at BNL — Doug McLean and Dwayne D. Kerr

BERA will sponsor a special concert, starring both Doug "Harmonica" McLean and his Blues Band and "funky fluteman" Dwayne D. Kerr on Friday, May 5, at Berkner Hall. Kerr will open the show at 7:30 p.m. with his own mix of music, from jazz to hip hop, and McLean will take the stage at 9 p.m., playing several different instruments, known as "blues harps."

The son of the late Lowell McLean and his wife Ella, who both worked at BNL until their retirements in 1974 and 1988, respectively, Doug McLean previously performed at the Lab in 1983. Playing the blues harmonica since he was 14, McLean has performed with such blues masters as BB King, Muddy Waters, John Lee Hooker and Pinetop Perkins.

McLean's career took off in 1975 when Blue Labor Records invited him to tour the U.S. with blues artists Peg Leg Sam and Louisiana Red. Subsequently, the trio formed the renowned Louisiana Red Blues Band. Now McLean and his band play innovative and intense electrified blues throughout the New York area.

Doug McLean

Dwayne D. Kerr, who has played at such well-known New York jazz hubs as the Apollo Theatre and the Village Gate, combines several styles of music with singing, rapping and choreographed dancing in his high-energy stage show. After playing in several Long Island bands, including the popular Jazz-Fusion and Febop, Kerr decided to go solo in 1991. At the Brookhaven concert, Kerr will be accompanied by his band and dancers.

Tickets for the concert cost $10 for adults and $6 for senior citizens and children under 12. Purchase tickets at the door, or in advance at the BERA Sales Office, 9 a.m. to 1:30 p.m. weekdays, or from any of the following:

	Bldg.	Ext.
M. Kay Dellimore	185	2873
April Donegain	134A	2459
Andrea Epple	750	5943
Haskell Frei	750	5651
August Hoffmann	510C	3884
Elliot Levitt	134	2495
Luis Nieves	179B	5350
Rosalie Piccione	355	3160
Bridget Ramos	197	3452
Edward Sperry IV	902A	2697
Arlene Wolochuk	902C	3428

Dwayne D. Kerr

BWIS Meeting: The Internet & You

Gail Schuman, a programmer/analyst in the Biology Department, will talk about "Internet . . . For the Rest of Us!" at the next Brookhaven Women in Science (BWIS) meeting on Monday, April 24, at noon, in Room C, Berkner Hall.

The Internet is the global computer network that everyone's talking about and many are using. But many people are not using the Internet to its potential, and many others really do not understand what's out there and how it can be useful to them. Schuman will take all these users on an informative and easy-to-follow tour of the Internet, from e-mail to the World Wide Web.

Schuman's career at BNL began in the Physics Department in 1966, and she was in two more departments — Applied Science and Medical — before she left the Lab in 1979 to become an engineer at the Grumman Corporation. She returned to Brookhaven, to her current position in Biology, in 1992.

All are invited; bring your lunch.

BNL Lecture (cont'd.)

Thomas Roser, who was born in Basel, Switzerland, received his 1980 diploma in experimental physics and 1984 Ph.D. in physics, with the Silver Medal award for an outstanding thesis, from the Eidgenoessische Technische Hochschule in Zurich. In 1984, when he joined the Physics Department at the University of Michigan, he also became a guest research associate in Physics at BNL, which he remained until 1991. Then, he joined BNL's AGS as a full-time associate physicist, becoming a physicist in 1993.

After the lecture, all are invited to join Roser for discussion and refreshments. To have dinner with the speaker at a restaurant off site, call Marion Heimerle, Ext. 4776.

BROOKHAVEN BULLETIN

Published weekly
by the Public Affairs Office
for the employees of
BROOKHAVEN NATIONAL LABORATORY

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An Evening Of Fine Art And Science

To see scientifically observed botanical illustration transformed into fine art, come to an exhibition of watercolor and gouache paintings by Diane Bouchier, whose prize-winning work is in the permanent collection at the Hunt Institute for Botanical Documentation, Carnegie Mellon University. Sponsored by the BERA Art Society, the exhibit of 22 paintings such as this example of rhododendron will be held from 5:30 to 8 p.m. on Thursday, April 20, and from 11:30 a.m. to 1:30 p.m. on Friday, April 21, in Room B, Berkner Hall. To add incisive remarks to Thursday's opening reception, accompanying Diane Bouchier will be her husband, David, known to many BNLers for his essays on National Public Radio station WSHU and humor column in the Sunday *New York Times*. All are invited to share "An Evening of Art and Science with Diane and David Bouchier." Refreshments will be offered.

CPR for Adults

The Health Promotion Program of the Occupational Medicine Division is scheduling adult cardiopulmonary resuscitation courses. Each three-hour class will be given on site from 6 to 9 p.m. At a cost of $22.50 per person, the courses are open to all employees, guests and their family members.

For dates and more information, call Health Promotion Specialist Mary Wood, Ext. 5923; to register, send your name, building number and extension to Wood in Bldg. 490.

Toastmasters

The BNL Toastmasters Club will hold its fourth Charter Anniversary Night on Tuesday, April 18, beginning at 5:20 p.m., in the large conference room of Bldg. 475.

Toastmasters is an international organization dedicated to improving the public speaking skills of its members in a supportive, constructive and relaxed environment. The on-site club was chartered in April 1991.

Charter and other members as well as interested nonmembers are invited to join this celebration. Refreshments will be served. For more information, contact Darryl Kaurin, Ext. 7892, or Jan Kieleczawa, Ext. 4894.

Social Club

The next Social Club outing will be on Saturday, June 17, to the Nassau Coliseum to see the 4:30 p.m. Power Rangers Show. Twenty-five tickets are available at $18.50 each. To reserve tickets, call Doris Terry, Ext. 7610, by May 1 or sooner for the best seating.

Great Adventure Ticket Sales

Six Flags Great Adventure Amusement Park is now open weekends, so tickets are on sale at the BERA Sales Office, Berkner Hall, weekdays, 9 a.m. to 1:30 p.m. The park is still featuring "The Great American Scream Machine" and the "Batman" ride, and its newest attraction is "The Viper."

This year, "early bird" tickets are being offered at $18. Regular park tickets are $32.86 for adults and $23.32 for children, and the Park-Safari combo is $36.04, while BERA prices are $23 and $25, respectively. This saves about $10 for each ticket — and a wait on line.

For more information, call Andrea Dehler, Ext. 3347.

Arrivals & Departures

Arrivals

John J. Coccorese ..... Plant Eng.
Ralf-Hendrik Menk ..... NSLS
Christian Muentz ..... Physics
Zhijian Yin ..... NSLS

Departures

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

Gui-Ying Nie ..... App. Science
William J. Carapezza ..... RHIC

Note to Employees:

Attendance at lectures, meetings and other special programs held during normal working hours is subject to supervisory concurrence.

Microcomputer Club

On Thursday, April 20, at noon, the BNL Microcomputing Club will discuss "Getting Started on the World Wide Web," in the Seminar Room, Bldg. 515.

Tom Schlagel of the Computing & Communications Division will talk about how to install and configure Web browsers, with a focus on the Netscape Navigator. After giving examples of the types of information that can be accessed through the Web and showing how to navigate and search it, Schlagel will answer questions.

All are welcome; bring your lunch. For further details, contact Steven Stein, Ext. 5694.

Golf Season Starting

The BERA Golf Association is starting up, so applications will soon be mailed to members. If there is to be a 1995 season, volunteers are urgently needed to fill vacant officer positions. Anyone interested in joining or becoming an officer may call Rick Jackimowicz, Ext. 3803.

Insurance Rep at TFCU

Jamie Stewart, a representative of CUNA Mutual Insurance Services, will visit the on-site Teachers Federal Credit Union (TFCU) on Tuesday, April 18, from 9:30 a.m. to 4:30 p.m., to provide free price comparisons on auto and homeowners insurance. Call TFCU, Ext. 2790, to make an appointment, to which you should bring a copy of your current policy, so Stewart may give you an exact comparison.

Cafeteria Menu

Monday, April 17	
Soup: Five-spice red pepper	.90/1.20
A la Carte: Pork loin w/braised apples	3.95
Lite: Tortellini w/sun-dried tomatoes	3.65
Deli: Turkey w/apple-mustard sauce	3.20
Grill: Pastrami/Swiss melt	3.30
Tuesday, April 18	
Soup: Provençal spinach w/ham	.90/1.20
A la Carte: Chicken tortillas, guacamole	3.95
Lite: Gingered pepper steak	3.85
Deli: BBQ beef brisket w/slaw	3.20
Grill: Harvest vegetables	3.30
Wednesday, April 19	
Soup: Chicken chili	.90/1.20
Display Cooking: Asian kitchen	4.75
Deli: Pork roast w/rum-lime glaze	3.20
Grill: Beef brochettes over rice	3.30
Thursday, April 20	
Soup: Turkey rice	.90/1.20
A la Carte: Baked macaroni & cheese	2.95
Lite: Chicken saute w/shallots	3.95
Deli: Creole-roasted NY sirloin	3.20
Grill: Two-cheese quesadilla	3.30
Friday, April 21	
Soup: French vegetable	.90/1.20
A la Carte: Dijon-pecan turkey cutlet	3.85
Lite: Baked halibut w/wild mushrooms	3.95
Deli: Pastrami Dijonnaise	3.20
Grill: Mahimahi w/ginger relish	3.30

Volleyball

Playoff Results

Open League, Semifinals: GTEAM 3, Roofing Co. 0; The Men & Me 3, Far Side 2.
League 1, Finals: Koopas 3, Rude Dogs 1.
League 2, Round 1: Fossils 2, Night Court 0; Netwits 2, Jolly Vollies 0; Mon. Night Live 2, Spiked Punch 0; Safe Sets II 1, Nuts & Bolts 2.
League 3, Semifinals: Silver Bullets 1, Upton Ups 3; Take Five 3, High Volley'em 1.
Finals between Take Five and Upton Ups rescheduled for April 19 at 5:30 p.m.

Captains' Meeting

The end of the season captains' meeting will be held at noon on Wednesday, April 26, in the conference room, Bldg. 426. Since the first order of business will be the election of officers for the 1995-96 season, nominations for president, vice president, secretary, treasurer or referee may be sent to Rick Wagener at Bldg. 426, wagener@bnl.gov; or Terry Sullivan, Bldg. 830, sulliva1@bnl.gov, by Monday, April 24.

The second order of business at this meeting will be suggestions for improving the league rules or constitution, e.g., solutions to the understaffed referee rosters.

Phy. Rev. Opening

The American Physical Society (APS) has an opening for an Assistant to the Editor of Physical Review B. APS will train someone with an interest in journal publication who is willing to make the commitment necessary to develop editorial skills. Ph.D. in science, preferably in condensed-matter physics, is necessary. Candidate should have broad interest in physics; strong command of the English language, spoken and especially written; excellent communication skills; and familiarity with the working scientist's expectations for a scientific publication. APS offers a competitive salary and outstanding benefits package. Send cover letter and resume, including current salary and requirements, to: Joseph Ignacio, Personnel Manager, APS, 1 Research Road, Ridge, NY 11961

Bowling

Red and Green League

J. Griffin 283/228/690 scratch series, R. Raynis 278/200/656 scratch, J. Cuccia Jr. 267/242/677 scratch, R. Wiseman 257/224/671 scratch, E. Larsen 245/207/629 scratch, E. Sperry IV 235/221/651 scratch, R. Eggert 238/203/619 scratch, J. LaBounty 235, R. Mulderig Jr. 237/234/670 scratch, R. Prwivo 227/213/604/scratch, S. DiMaiuta 223/202, R. Mulderig Sr. 222/214/618 scratch, H. Arnesen 213/201, K. Asselta 214, J. Goode 213, F. Griswold 205, A. Warkentien 203, E. Sperry III 203, B. Sick 203.

Purple and White League

B. Belligan 231, E. Sperry IV 225, J. Butler 220/182, S. Logan 213, Doug Fisher 211, N. Besemer 211, J. McCarthy 211, N. Fewell 207, P. Wynkoop 207, P. Callegari 202/182, G. Munoz 198/193, A. Wynkoop 193/171, G. Riker 192, K. Batchelor 191/181, S. Frei 188/181, T. Farmer 186/182, K. Riker 184, S. DiMaiuta 180, E. Sperry III 180, E. Zukowski 173, T. Meier 172, I. Batchelor 171, C. Wood 170.

Addled Address

• Brookhaven Natnl Lavatory

Basketball

Second-round playoffs on April 6

Magic 81		Scram 56	
Terry Buck	28	Al Boerner	12
Mitch Williams	11	Tim Powers	12
Troy Mayo	9	Joe Barkwill	11
Pat Browne	7	Victor Cassella	10
Ed Gregory	7	John Duggan	8
Carlos Victoria	7	Steve Jao	3
Ray Jackson	6		
Dennis Ryan	4		
Al Langhorn	2		

Three-point shots: Powers (4), Boerner (2), Williams (2), Buck.

Mustangs 83		Runaways 72	
Wayne Cummings	37	Chris Ingoglia	17
Rich Domenech	14	Jim Desmond	16
Charlie Edwards	11	Ed Meier	15
Lars Furenlid	7	Jerry Gaeta	13
Greg Mack	6	Bob Wells	7
Bill Gunter	4	Pete Ratzke	2
Steve Springston	4	Gerry Shepherd	2

Three-point shots: Ingoglia (4), Meier (3), Cummings (3), Domenech (3), Gaeta (2).

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, or call the JOBLINE, Ext. 7744 (282-7744), for a complete listing of all openings.

LABORATORY RECRUITMENT - Opportunities for Laboratory employees.

DD 3818. SECRETARIAL POSITION - Requires an AAS in secretarial science or equivalent experience, excellent organization and communication skills and a broad knowledge of Laboratory policies and procedures. Will provide secretarial/administrative support to the Environmental Management Section Head and Environmental Management Section, including records management, commitment tracking, coordination of meetings and conferences and the preparation of correspondence, presentations and reports. Proficiency in WordPerfect, spreadsheets and graphics/desktop publishing software essential. Safety & Environmental Protection Division.

OPEN RECRUITMENT - Opportunities for Laboratory employees and outside candidates.

DD 0562. TECHNICAL POSITIONS - (term appointments) Require an AAS in a technical field or equivalent experience. Demonstrated proficiency in both mechanical and electromechanical fields required. Responsibilities will include assisting in the assembling, testing and installing of magnets and associated equipment for use in the RHIC injection beam line. RHIC Project.

NS 3069. SCIENTIFIC ASSOCIATE POSITION - Requires an MS/PhD in chemistry or physics with specialization in x-ray absorption spectroscopy. Experience with VAX stations and PCs and the ability to write and modify FORTRAN programs are essential. Experience with instrumental techniques, including GC, HPLC and FTIR, is highly desirable. Duties will include measuring x-ray absorption spectra of samples at the NSLS; analyzing the spectral data using computer-based algorithms; and developing, modifying or adapting the necessary computer algorithms for data analysis. Department of Applied Science.

Furnishings & Appliances

BEDROOM SET - 2 dressers, nightstand, bed frame, full, convertible sofa w/futon mattress, recliner, all excel. cond., reasonable. Ext. 5826.

BEDROOM SET - head & footboard, night tables, dressers; 8' couch, high-back chair, 2 rock maple end tables; 16 cu. ft. refrigerator, GE. Kenny, 654-9134.

BEDROOM SET - Wayside, white dresser, end table, desk, chair, mirror, $100; kitchen set, Formica rosewood, black director chairs, $100. Carol, 929-8411.

BEDROOM - teen, w/trundle bed, bookcase, headboard, night stand, chest, complete, teak, $300 firm. Fran, 289-0526.

BLANKET CHEST - antique, cedar, $100; brass bed frame, single, $100. Fran, 289-0526.

CHAIRS - Ethan Allen, solid cherry, Windsor-style, 4 side, orig. $199/ea., now $125/ea.; 2 arm, orig. $249/ea., now $175/ea. Eric, Ext. 5875.

CHEST - cedar-lined, good cond., $100. Pete, 289-3014.

CHINA - Corelleware, service for 12, 103 pieces, $75; glass service for 12, 50c/glass. 744-3919.

CHINA - Sasaki Anello gray, service for 16, some in orig. boxes, $75. Carol, Ext. 2673 or 929-8632.

COUCH - matching chair, ottoman, pine trim, Col., matching tables. John, Ext. 2788.

CROCKPOT - Rival, 5-qt., removable stoneware, new, $25; Bissell carpet sweeper, $3. Joe, Ext. 2898.

CURIO CABINET - fruitwood finish, 2-dr., 3-sided glass front, 4 glass shelves, int. light, 48"Wx75"H x12"D, orig. $999, now $500. Eleanor, 744-0564.

DESK - mahogany, 42"x30"W, file drawer, $50; swivel desk chair, mahogany, $50. 744-3919.

DINETTE SETS - two 1 w/4 chairs, pine, $75; 1 w/2 blue chairs, pine, drop leaf, $75. Ken, Ext. 5110.

DINING ROOM SET - Queen Anne, cherry wood, 6 chairs, 2 arm, 4 reg., leaf, good cond., $500. Dave, 395-3484.

FREEZER - excel. cond., upright, $180; work table w/leaves, $10; freestanding fireplace screen, $5. Paul, Ext. 7697.

HOUSE CONTENTS - bedroom sets, antique sofa, chair, teak dining table, teak buffet, teak china cabinet, teak wall system, Niels, Ext. 3774.

MATTRESS - twin; turntable; wicker storage hampers, $20/ea; kitchen table w/4 chairs, excel., $150. Kathy, 744-2203.

MATTRESS - boxspring, frame, queen, $230; 2 sofas, $70 & $90; storm door, $60; all very clean, good cond. Ext. 3842 or 929-6925 after 7 p.m.

REFRIGERATOR - 16 cu. ft., $100. 289-0967 after 6 p.m.

TRUNKS - 2, small, wood; Avon collection, screen, projector, vacuum cleaners, glassware, plates, knick knacks, kitchen molds, antique night table. 286-0376.

Sports, Hobbies & Pets

AQUARIUM EQUIPMENT - power filters, heaters & pumps. 744-3919.

BICYCLE - Nashbar 3000ETR, road bike, 27"x1⅛ tires, 67cm frame, 18-spd., Shimano Exage components, orig. $400, asking $250. Phil, Ext. 5669.

BIKE - girl's, 26", 10-spd., Royce Union, excel., hardly used, 4 yrs. old, $65; ski boots, Raichle, rear entry, single buckle, men's size 9-9½.$50, Mike, Ext. 7941.

COMPOUND BOW - Hoyt Super Slam, 29" draw, 55-70, used 1 mo., orig. $400, ask. $275. Lou, Ext. 4289.

FISH TANK STAND - 13"x30½"x40", black steel, $25; area rug, 8'x10', dk. blue, used 2 mo., $70; papasan cushion, $20. Sue, Ext. 3492.

GOLF CLUBS - Calloway Bobby Jones Driver, 5-wood, $100; Taylor mid-size steel driver, fairway drives, 3-wood, $125. Don, Ext. 2943.

RABBITS - dwarf, 6, lovable, 7 mos. old, for adoption. Ext. 3766 or 929-4011.

VOLLEYBALL SET - recreational, $10; men's shirt, navy, Botany 500, neck 16, sleeves 33-34, $12. Susan, Ext. 7647.

WET SUIT - Navy Seal, orig. $1,000, size small, now $100. Jorg, Ext. 5653.

Audio, Video & Computer

COMPUTER - Commodore 64, monitor, printer, best offer. Bill, Ext. 3859.

MODEM - for laptop, 2400 baud, $50; C64C,Jiffy mouse, modem, software, $125; 1541 DD, $25; Creative Micro, 20 meg HD, $150. Mike, 467-8393.

SOUND CARD - 8-bit, Thunderboard, w/speaker & software, $30. Dan, Ext. 3558.

TV - Mitsubishi, 46" projection screen, oak wood case, $400. 363-7633 after 5 p.m.

VCR - programmable VHS, $75. Cindy, 874-3652.

VIDEO GAMES - Nintendo, w/entertainment center, $40; toys, Little Tykes waffle blocks, large Legos, puzzles; Fisher Price 13" boy's bike, $15. 929-8411.

VIDEO - tutor, Windows NT Beginning, $25. Susan, Ext. 7647.

Miscellaneous

BABY'S ITEMS - dbl. Jolly carriage, $40; single carriage, like new, $50; high chair, $25; Fisher Price wkshop. w/access., $50. Rex, 929-3235.

BABY'S ITEMS - Sears gates, training potty, more, $5-$10. Louise, 595-5476, 8 a.m.-4:30 p.m.

CHILD'S CAR SEAT - like new, orig, $70, sell for $40; carpets, Ikea, 4 small, 1 large, $20; kid's bicycle, $10. Martina, 341-1003.

CAR SEATS - Fisher Price, $25/ea.; 20" girl's bicycle, $30; tricycle, $5; Fisher Price infant swing, $20; Century stroller, $10. Joe, Ext. 4259.

DRAFTING EQUIPMENT - 54"x38" board, Mutoh, built-in desk, 5-drawer flat file cabinet, Bruning Diazo PD80 whiteprint machine. 298-3855.

GOWN - formal, size 14, peach satin, straight skirt, camisole top, fitted jacket, w/beaded sleeves, never worn, never altered, $395. Jean. 331-4525.

DRESS - Jessica McClintok, prom/wedding, deep teal, 15/16, never worn, $50. Donna, Ext. 3415.

FUR VEST - Andew Marc design, dark brown & black, adult's small, excel. cond., $70 neg.; black leather jacket, women's small, $50 neg. Kim, 289-1726.

Free

FIREWOOD - many hardwood trees, stacked up, some pine, lots of kindling, bring saw, backhoe avail. to help you load. Frank, 234-0538.

TV - 19" b/w, old, no vertical sweep. Pat, Ext. 7635.

Yard & Garage Sales

N. SHIRLEY - 4/22-23, 9 a.m.-3 p.m., 560 Starlight Drive, off Moriches Mid-Isl. Road. Donna, 924-9282.

Car Pools

LIE EXIT 36 - fourth needed. John, Ext. 5181.

Real Estate

Real Estate advertised for sale or rent is available without regard for the race, color, religion, sex, age, national origin, disability or veteran status of the applicant.

For Rent

BELLPORT VILLAGE - 1-bdrm. apt., full bath, all new, village amenities, $625/mo. incl. util & cable. Jim, 744-2095 after 6 p.m.

BELLPORT VILLAGE - upstairs, 3-rm. apt., gar., priv. ent., nonsmoker, no pets, single, $650/mo. incl. util. + 1 mo. sec. Mary, 286-2632.

CALVERTON - 2-bdrm. condo, 5 appl., ac, patio, upper deck, fp. Ext. 7595.

CENTER MORICHES - 1st floor, 1-bdrm.apt., fully furn., lg. sunny rooms, 2 sep. ent., w/d, off-street parking, walk to all, avail. immed., nonsmoker only, $575/single, $600/couple. Anna, 878-6760.

CORAM - 2-bdrm., 1 bath, l/r, kit., w/w, sep. ent., 10 min,. to Lab, close to bus stop, 1½-acre yard, avail. 6/1, $750/mo. + util. 821-5624.

FARMINGVILLE - 1-bdrm. apt., furn./unfurn., priv. ent., nonsmoker, no pets, use of deck & laundry facilites, single pref., avail. 4/15, $650/mo. incl. utils. & cable. Patricia, Ext. 2907 or 758-3952 eves.

LAKE RONKONKOMA - 1-bdrm. apt. overlooking the Lake, easy access to LIE, 20 min. to Lab, sep. ent. & parking, $550/all. John, 363-8206.

MASTIC BEACH - 1-bdrm. bsmt. apt., priv. ent., $500/all. Mary, Ext. 2719.

MEDFORD - 1-bdrm. Blue Ridge upper condo, l/r, d/r, kit., all appl., cac, full club facilities, $770/mo. + util., 1 mo. sec. Russ, Ext. 3059 or 758-3952 after 6 p.m.

MILLER PLACE - 2 bdrms., ideal for couple or for roommates, new carpet & kit., ac, priv. ent., full bath, off-street parking, $850/mo. incl. all. Doan, Ext. 7535.

N. SHIRLEY - share house, lg. l/r-bdrm., own bath, cable, w/w, share kit., w/d, agp, basketball court, gazebo, fenced yard, 7 mins. to BNL, single nonsmoker pref., $400 mo. + sec. & refs. Henry, Ext. 3413.

PATCHOGUE - 1-bdrm., priv. ent., all new,. nonsmoker pref., $625/mo. incl. all + sec. 289-0967 after 6 p.m.

PORT JEFFERSON - lg. furn. room. share bath, cable, carpet, priv. ent., refrig., nonsmoker, $100/wk. all util. 473-6432.

SELDEN - studio, full kit. & bath, clean, new flooring w/w, priv. ent., $500/all + sec. Pam, 474-2792.

SHIRLEY - new studio apt., carpet, new bath, priv. ent., cable, all util., nonsmoker, 10 min. to Lab. 473-6432 or 399-5677.

SHIRLEY - 3-bdrm. waterfront house, big yard, fenced, fp, walk to beach, 15 min. to Lab, $750/mo. Matthew, 399-2989.

SHIRLEY - 3-bdrm., bsmt., fenced yard, 10 min. to Lab, 2 min. to shopping,. $650/mo. + util. Squires, 399-6122.

SMITHTOWN - 1,000 sq. ft. 2-bdrm. apt. in new house, ½ acre, carpets, full tiled bath w/skylight, w/d, huge kit., l/r, d/r, lg. closets, $950/single or $1,200/couple. 979-0632.

WADING RIVER - 4-bdrm. contemporary, family neighborhood, 2½ baths, lg. bsmt, cac, 2-car gar., w/w, hardwood floors, all appl. 929-8613.

WADING RIVER - lg. studio apt., unfurn., full kit., near beach, parking, quiet neighborhood, 15 min. to Lab, $500/mo. incl. electric & heat. Bill, 722-4489.

KEY WEST, FL - oceanfront studio timeshare, 5-star Coconut Beach Resort, sleeps 2, refrig., microwave, ac, TV, pool, Jacuzzi, fish, swim, nightlife, 7/29-8/5. Pat, Ext. 2539 or 929-3586.

CATSKILLS - 3-bdrm. chalet w/sleeping loft, fully furn., near Hunter & Windham Mts., great for skiing. Kay, Ext. 4501, or Bea, Ext. 3642.

LAKE GEORGE - lakefront cottage, sleeps 4-5, swimming 15' from door, fishing, boat docking, fully equipped kit., 4 hrs. from NYC. 518-747-7821 or 518-499-2581.

HILTON HEAD, SC - 2-bdrm. condo, 2 baths, sleeps 6, fully furn., pool, beach, golf nearby, $475/wk. Apr.-Sept. Guy, Ext. 3147 or 689-5378.

VERMONT - ski house near Mt. Snow, sleeps 7, avail. week/wknds., $124/night, 3 night min. Lloyd, 627-7589.

For Sale

BRIGHTWATER FARMS/BAY SHORE - 3-bdrm. Colonial, eik, fd/r, l/r, den, laundry, 2 full baths, bsmt. Andersens, new driveway/walks, fenced, patio, quiet 35 min. to Lab, $135,000. Bill, Ext. 2762 or 665-3782.

CALVERTON - Marlette 1972 3-bdrm. mobile home, full bath, kit., d/r, l/r, cac, immaculate, $500/mo. incl. LILCO heat, maint., ask. $14,000, must be 55 yrs. or older. Faye, 588-8113.

CALVERTON - 2-bdrm. townhouse, 5 appl., carpeted, cac, f/p, patio, upper deck. Ext. 7595.

CENTER MORICHES - 3-bdrm., lg. fam. rm., l/r, kit., 1 bath, deck, new siding & kit., 40 yds. from boat ramp, ask. $134,000. Bob, 878-3376.

EAST MARION - 1-acre bldg. lot, adjacent to greenbelt, walk to Sound. 325-0447.

E. PATCHOGUE - 3-bdrm. ranch, full bsmt., fenced yard, sprinkler sys., 1-car gar. Bob, Ext. 3509 or 289-9533.

MIDDLE ISLAND - 2-bdrm. co-op, upper unit, l/r, d/r, kit., all appl., cac, gas heat, newly carpeted, many extras, pool, tennis, clubhouse, 80% tax write-off, $53,000 neg., must sell., Angela, 924-5282.

RIDGE - 4-bdrm. Colonial, l/r, d/r, den, f/p, new kit., both heating systems, ask. $145,000. Mike, 929-5035.

RIVERHEAD - 2/3-bdrm. double-wide mobile home, 2 baths, l/r, d/r, kit., all appl., cac, shed, ask. $50,000. Ribaudo, Ext. 4572 or 286-8470.

RIVERHEAD - on Peconic River, 2-bdrm. wood-frame house, deck, picture window, priv. dock,. eik, cac, central humidifier, bsmt., timed igs, bulkheading, 15 min. to Lab, $99,000. George, 878-0270 eves.

ROCKY POINT - 3-bdrm. custom ranch, corner lot, landscaped, w/w, eik w/custom cab., 4 appl., OHWH, city water, $85,000. Donald, 473-6570 after 7 p.m.

SELDEN - 4-bdrm. Colonial, eik, lg. family rm., full bsmt., $95,000. Mike, 698-3414.

SHIRLEY - 3-yr.-old, 4-bdrm. Cape, like new, lg. eik, thermalpane windows, vinyl siding, 2 full ceramic baths, OHWH, ask. $88,000. 472-1133.

SOUTHOLD - 3-bdrm. contemporary, 2 baths, 11 yrs. old, vaulted ceilings, cac, deck overlooking small pond, walk to bay beach & boating, $245,000. Ext. 4747 or 765-1075.

WADING RIVER - 3-bdrm. Colonial, 2½ baths, 2-car gar., custom kit., Jennair, gazebo, shed, igs, igp, deck, steam bath, satellite dish, SWRSD, 1.1 acre, $209,900. 929-8323.

WADING RIVER - 3-bdrm. farmhouse, remodeled, 2 baths, l/r, d/r, OHWH, 0.53 acre, c. 1900, mod. kit., patio, porch, shed, ½ mi. to beach & park, taxes $2,600, $157,000. Bill, Ext. 2906 or 929-6189.

PORT CHARLOTTE, FL - ¼ acre bldg, lot, developed neighborhood, ready to build, $9,000. 929-8323.

TAMARAC, FL - 1-bdrm. condo, 3rd floor, 1½ baths, screened porch, fully furn., $30,000 neg. 325-1907.

WASHINGTON, NC - 1.13 wooded acres, waterfront community, pool, clubhouse, marina, 35' boat slip on the Pamlico River off the Intercoastal Waterway, $38,000. Ken, 281-5565.

GILMANTON I.W., NH - ¾-acre wooded lot, deeded rights to Crystal Lake, excel. for all season 2nd home, will consider holding mortgage for up to 50% of cost, $11,500. Mike, Ext. 4061.

Wanted

BOAT TRAILER - for 19' centerboard sailboat, reasonable. Terry, 473-8426.

CHILD CARE - need mature, responsible, experienced person to care for two 1-yr.-olds, Patchogue area, refs. req. Ann, Ext. 5756 or 654-0296.

DONATIONS FOR UPTON NURSERY SCHOOL - tag sale on 5/6. Cindy, 874-3652 or Jane, 929-8513.

GARDEN SUPPLIES - shovel, metal, hoe, oscillating sprinkler, reasonable. Terri, 369-1992.

HOMES FOR BNL VISITORS/GUESTs - furn. apts., condos, houses, short-term rentals. Marie, Ext. 4489.

LAWN MOWERS & LAWN TRACTORS - old, complete only, will pick up. Dan, Ext. 4220 or 698-7322.

MILITARY CAPS - vintage WWII U.S. Air Force/Army Air Corps, buy or borrow for theatrical use. Agnes, 727-1483.

MOTORCYCLES - bent or broken, any age or cond. Kevin, 281-8031.

PRINTER - Apple Imagewriter. Bill, Ext. 3859.

PUPPY - yellow Lab, female, AKC, reasonable, for loving family w/lg. yard and a 2-yr.-old yellow male who needs a friend. Ext. 5725 or 727-7227.

ROTOTILLER - gas-powered, mini size. John, Ext. 7671.

UTILITY TRAILER - Dave, 751-1474.

Farewell Gatherings

RETIREMENT PARTY - for Bill DeCaro, 4/21, 5:30-9 p.m., Brookhaven Center, open invitation, call for details. Fred, Ext. 5032.

In Appreciation

I thank all my friends and coworkers who offered their sympathy and support following the loss of my companion. — Y. Renée Flack

To all — I really had a great five years at the Lab. Take care. — Nick Scala

Ads left out of this issue due to lack of space need not be resubmitted to appear in the next issue.