BROOKHAVEN BULLETIN
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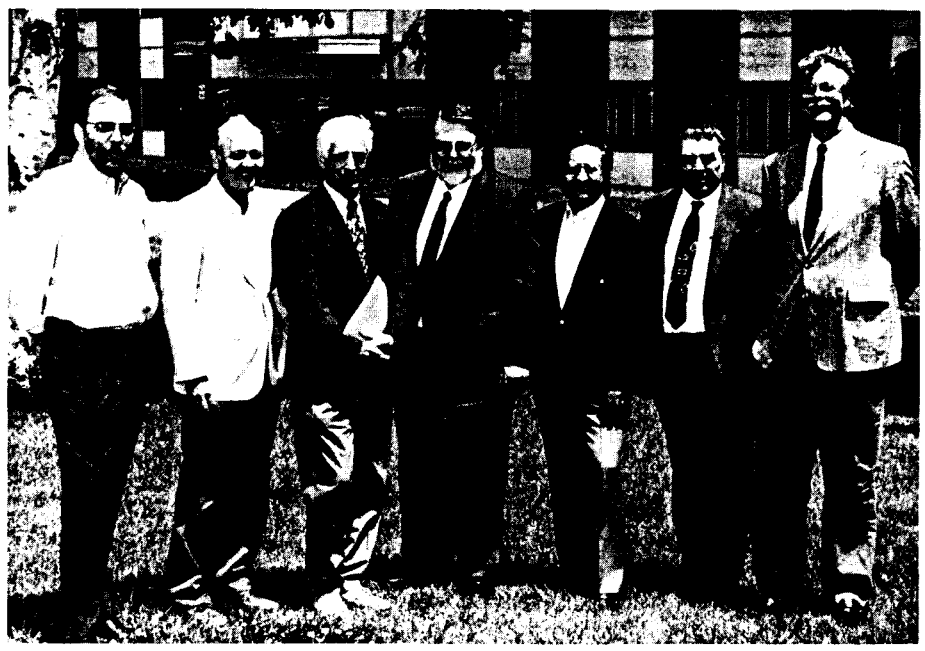
BROOKHAVEN NATIONAL LABORATORY

Speak Up for Science, AGS-RHIC Users Urged at Annual Meeting

The annual Alternating Gradient Synchrotron (AGS) and Relativistic Heavy Ion Collider (RHIC) Users Meeting was held June 15-16, culminating a year of achievement for both the present and the future accelerators.

Work on RHIC is "going like gangbusters," said Lab Director Nicholas Samios in opening the meeting of roughly 150 participants. Later on, Satoshi Ozaki, RHIC Project Head, summarized RHIC construction as firmly on track in both cost and schedule. Then there was the recent good news of confirmed support for RHIC for the next fiscal year (FY) at the expected level of $70 million.

In addition, in the past year, the AGS twice broke its own world record of peak proton intensity, reaching 63.3 $\times 10^{12}$ protons per pulse. Thanks to U.S. Department of Energy (DOE) support of an extra $1.6 million during the year, the AGS ran 25 weeks of protons for the first time since 1986, as well as six weeks of gold ions.



Roger Stoutenburgh

Photographed during a break at the AGS-RHIC Annual Users' Meeting, held June 15-16, are: (from left) Hank Crawford, Lawrence Berkeley Laboratory, Chairman of the AGS-RHIC Users' Executive Committee; Peter Bond, Chairman of BNL's Physics Department; Jack Lightbody, Program Director, Nuclear Physics, National Science Foundation; John O'Fallon, Director, Division of High Energy Physics, U.S. Department of Energy (DOE); Nicholas Samios, BNL Director; David Hendrie, Director, Division of Nuclear Physics, DOE; and Thomas Kirk, BNL's Associate Director for High Energy and Nuclear Physics.

A Twofold Strategy

Yet in spite of the excellent physics made possible by these and other achievements, there is uncertainty in the present funding situation. With this in mind, Samios and other key speakers reiterated to users the vital importance of a twofold strategy: First, have solidly thought-out programs for unique, exciting physics, and then, make sure that these programs are known and their value understood by political representatives. This could be done by letter, but also by scientists' arranging to visit Washington policymakers and inviting politicians to visit their laboratories.

The productivity of such interactions has been demonstrated. Samios and other speakers gave examples such as the national lab directors' and users' collaborative visit to Washington last fall, which resulted in a $100 million addition to the science budget for increased use of existing facilities.

Samios vividly stressed the importance of the scientific community's sticking together to further the common goal of sufficient funding. As he pointed out, "Knocking one person off doesn't get you anything — it just makes you next in line."

Similar themes underlay remarks by Thomas Kirk, BNL's Associate Director for High Energy and Nuclear Physics. In advocating partnership between particle and nuclear physicists, he said, "The physics is totally interconnected, so no barrier should be important." Kirk also strongly supported direct contact between scientists and their political representatives, thanking DOE for the help given to BNL in such ventures, particularly by Martha Krebs, Director of DOE's Office of Energy Research (OER), who led the initiative to get the recent $100 million increment added to the proposed budget.

Major AGS operating expenses will continue to be met by OER's Division of High Energy Physics (DHEP) through FY 1998, while OER's Division of Nuclear Physics (DNP) plays a minor funding role. With RHIC's completion in 1999 and the conversion of the AGS to use as the RHIC injector, DNP will assume the major funding support role, with HEP covering only the incremental cost of the continuing high energy physics program.

In any case, Kirk declared, "The AGS will stay on top as the world's best medium-energy, proton/heavy-ion synchrotron."

AGS Upgrades and Research

An update on recent AGS upgrades was given by Thomas Roser, AGS, designer of the partial Siberian snake solenoid now in use that allows AGS polarized protons to be accelerated to an unprecedented 25 GeV. Other notable achievements included a new peak intensity in the Booster of 22 $\times 10^{12}$ — some 7 $\times 10^{12}$ above design ex-

(continued on page 2)

Oceanographers and Environmental Engineers Find Common Ground *(Groundwater, That Is)*

"There is some soul of goodness in things evil, would men observingly distill it out."
— William Shakespeare, Henry V, Act IV, Scene I.

Shakespeare probably wasn't talking about halocarbons. But for today's scientists, these man-made chlorofluorocarbons (CFCs) — widely blamed for the depletion of the ozone layer — can provide useful information about the age of water samples taken from the world's oceans.

And now, in a unique collaboration between two Lab organizations, a technique originally developed by Brookhaven oceanographers is helping environmental engineers better understand how groundwater flows on Long Island.

The new project, which brings together the Oceanographic and Atmospheric Sciences Division (OASD) of the Department of Applied Science and BNL's Office of Environmental Restoration (OER), is a perfect example of how methods developed through basic research often apply to seemingly unrelated scientific and technical fields.

Roger Stoutenburgh

Jim Happell (left) and Bob Ramirez sample one of the monitoring wells on the Brookhaven site.

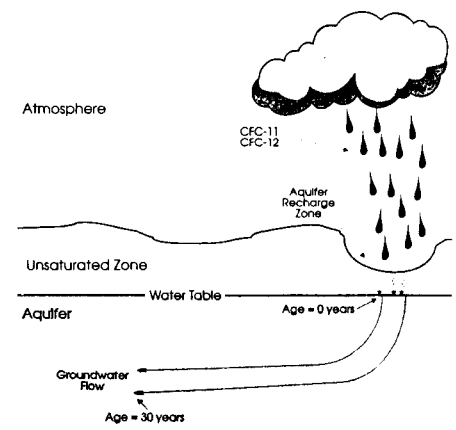
For several years, a team of BNL oceanographers, led by Doug Wallace of OASD, has been charting water circulation patterns in the Atlantic Ocean. Along the way, the team pioneered a unique way of dating water samples: By measuring the concentration of CFCs — Freons such as CFC-11, CFC-12 and CFC-113, and other man-made compounds such as carbon tetrachloride — in a given water sample, they can determine how much time has elapsed since the sample was last in contact with the ocean surface. The group has taken samples from the Greenland Sea all the way to Brazil, south of the equator.

Dating the Groundwater

Now, the same water-dating technique is allowing engineers from OER to determine the age of groundwater sampled from BNL's on-site monitoring wells. And from the ages of these samples, the OER team can verify the accuracy of existing groundwater flow models.

"We thought it was a perfect example of using on-site expertise to help us in our efforts in environmental remediation," said Tom Burke, a project manager at OER. "OASD had developed this technique for dating water samples. Our project manager Bob Ramirez [also of OER] was aware of it, and we realized that we could use it in our site characterization program to help us get a better handle on groundwater flow. It was a perfect fit."

Environmental remediation at BNL includes an ongoing effort to locate



How CFCs are introduced into the groundwater.

chemical or radioactive contaminants that might have seeped into the groundwater. This is essential because the Lab sits atop the aquifer that is the sole source of drinking water for Long Island. If contaminants are detected in the groundwater, CFC-dating can help confirm when the contamination was introduced and how quickly it is moving away from the original source.

Burke explained that groundwater flow models are used to predict at what depths, how fast and in what direction groundwater flows. "Assume a certain amount of rain falls at Brookhaven today. If our model says that in 15 years, that water will end up in Shirley, 100 feet below land surface, then we can collect a sample of the water in Shirley for CFC analysis, from a depth of 100 feet — to see whether it's 15 years old." If it's not, the model may need adjustment.

But how do scientists determine the age of a sample of groundwater?

Atmospheric CFC concentrations have been increasing since CFCs were

(continued on page 3)

AGS/RHIC Users (cont'd.)

pectations. A new fast-extracted beam system was tested, as was micro-bunching of slow extracted beams, proposed by Woody Glenn, AGS. Demonstrated at less than 600 picoseconds long, and recurring each 10 nanoseconds, these would be valuable for time-of-flight experiments.

Roser also detailed plans to increase AGS intensity to even higher levels in the future.

At the meeting, which was organized by Hank Crawford of Lawrence Berkeley Laboratory, Chairman of the AGS Users' Executive Committee, researchers described progress in some 15 experiments, and Philip Pile, Head of the AGS Experimental Planning & Support Division, summed up AGS news and discussed next year's experimental schedule.

Peter Bond, Chairman of BNL's Physics Department, reported on the Nuclear Science Advisory Committee (NSAC), whose full long-range planning report is due in July. A subcommittee on additional experimental equipment for RHIC met at BNL last January 4-5 and strongly recommended that funds be made available for such priorities as an off-line computing facility for all RHIC users, as well as a silicon vertex tracker for STAR, and muon-arm detectors and a second level trigger for PHENIX, the two major RHIC detectors.

More on Funding

In his comments on certain recommendations of the NSAC long-range plan, David Hendrie, DNP Director, emphasized the strength of DOE's commitment to RHIC, which, he said, should also provide opportunities for innovative use of advanced data highways. He warned that recent rapid changes in budget news all indicate that "Things are going to be tighter than they were in the past . . . Congress is an independent agency — our ability to control them is limited." However, he also said, "We still have a very strong, healthy, active, forefront field to do science."

John O'Fallon, DHEP Director, agreed, saying, "The budget has eroded, but is still pretty substantial." Of the extra funding provided for the AGS last year, he said, "You have certainly shown you did the physics with the money." As for U.S. support being pursued by DOE for the Large Hadron Collider (LHC) at CERN, the outcome was still uncertain.

Uncertainty also marked the report of Jack Lightbody, Program Director, Nuclear Physics, from the National Science Foundation, which funds the experiments of many university-based AGS users.

In contrast to so much funding uncertainty was the fierce enthusiasm for the real business of the occasion: the discussion of physics — what had been accomplished, what new initiatives could begin. Talks on the idea of doing spin physics at RHIC were given by Laurence Trueman, Physics, and Gerry Bunce, AGS. Ozaki detailed a recent collaboration with Japan's Institute of Physical and Chemical Research (RIKEN), established for a RHIC spin physics program. This is expected to provide funding for vital accelerator hardware and experimental apparatus for spin physics at RHIC.

Other new programs discussed for the future included a long baseline neutrino oscillation experiment at the AGS and the development of a multi-TeV muon collider. — Liz Seubert

Coming Up

Brookhaven Women in Science will host its 16th Annual Cocktail Party on Wednesday, July 12, from 5:15 to 7 p.m., in a new location — 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. All BNL employees and visitors are welcome to attend. A donation for the wine will be appreciated.

R.S.V.P. by Wednesday, July 5, to Maria Beckman, Ext. 2301, or Lisa Tranquada, Ext. 7731.

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Brian Winer, University of Rochester, who is leader of the Top Quark Analysis Group for the CDF detector at Fermi National Accelerator Laboratory, will deliver the 1995 Sambamurti Memorial Lecture, on Monday, July 17. His talk, "Top Quark and Beyond," will begin at 1:30 p.m. in the large seminar room of Physics, Bldg. 510.

New Traffic System To Start Next Week

The new Traffic Control System at the intersection of Princeton Avenue & Upton Road will go into use at noon on Wednesday, July 5. The signal will no longer be a flashing yellow light; a full-time, fully controlled red, yellow and green light system will operate for each road at the intersection.

In addition to changes announced previously, a pedestrian crossing signal system has been added to control traffic when pedestrians cross Princeton Avenue. The system has a "Walk/Don't Walk" signal on either side of Princeton Road to indicate when it is safe to cross. To cross the street, pedestrians must press the push button and wait for the "Walk" signal.

Drivers should use caution when pedestrians are near the intersection and observe New York State traffic laws, which require drivers to yield to pedestrians in the crosswalk.

Ground Broken for Building In Which a STAR Will Be Born

Ground was broken for the Solenoidal Tracker at RHIC (STAR), one of two major detectors planned for BNL's Relativistic Heavy Ion Collider (RHIC), at a March 17 ceremony attended by some 75 people. STAR is designed to search for signatures of quark-gluon plasma and to investigate the behavior of strongly interacting matter at high energy density.

Some 350 physicists from 34 institutions are involved in building this detector, which will ultimately be put together on site in RHIC's Wide Angle Assembly Hall, also known as the STAR Detector Assembly Hall and being built near the 6 o'clock Hall on Ring Road.

When completed next January, the new building will be an 8,200-square-foot, five-story structure providing half a million cubic feet of space.

Roger Stoutenburgh

Ceremoniously beginning construction of the STAR detector for the Relativistic Heavy Ion Collider (RHIC) are: (from left, with shovels) RHIC Project Head Satoshi Ozaki; STAR Project Director Jay Marx, Lawrence Berkeley Laboratory; BNL Director Nicholas Samios; and RHIC Project Manager Jim Yeck, Brookhaven Area Office (BHO) of the U.S. Department of Energy (DOE). Looking on: (from left) Thomas Kirk, BNL Associate Director for High Energy & Nuclear Physics; Mark Sakitt, BNL Assistant Director for Planning & Policy; Jerome Hudis, Vice President for Programmatic Affairs, Associated Universities, Inc.; John Brinker, RHIC Financial Administrator; Michael Schaeffer, RHIC Conventional Facilities Coordinator; Michael Butler, BHO, DOE; and Douglas Fisher, Assistant Administrative Assistant to the Head of the RHIC Magnet Division.

Summer Fun for Subatomic Sleuths at Museum

Your imagination may lead you on some wild adventures this summer. But here's your chance to chase a set of footprints usually only scientists get to follow: *particle* footprints.

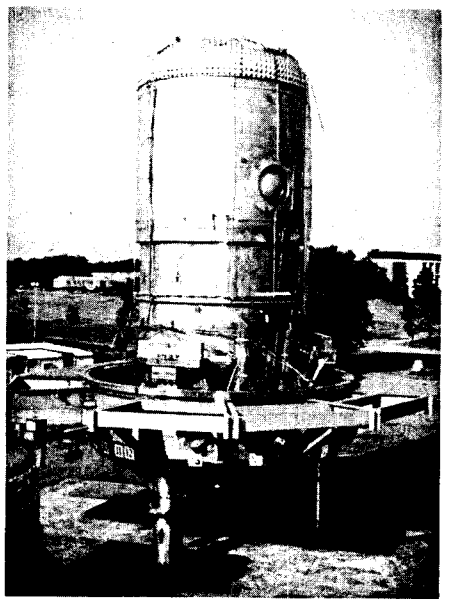
Beginning Sunday, July 9, you can take a free tour of the Lab, to learn — among other things — various ways scientists have become subatomic sleuths, following particles with detectors such as bubble chambers and drift tubes.

The weekly summer tours are offered every year as part of the Public Affairs Office's Museum Programs. They will be conducted every Sunday from July 9 through August 27, between the hours of 10 a.m. and 3 p.m. No reservations are necessary.

Better be ready, though; particles aren't that easy to track. When physicists chase particles, they sometimes end up with Nobel Prizes; when you tour BNL, you, too, will be a winner.

Visitors first assemble at Berkner Hall and watch an informative video about research here at the Lab. Then they board a bus for a guided tour of the BNL site, home to several Nobel Prize-winning discoveries and plenty of other interesting and important science. Finally, visitors are dropped off at the BNL Science Museum in Bldg. 701, for a high-energy learning experience.

Over 20 hands-on exhibits in such fields as biology, medicine and chemistry make the BNL Science Museum a fun place to learn — for kids and parents alike. In fact, many youngsters who visit Brookhaven during the school year bring their families for the Sunday tours in the summertime. Says one of the tour guides at the museum, "Kids are always coming up to me saying, 'I expected this to be boring, but it's not — it's fun.' "



This 7-Foot Bubble Chamber, used to observe particles in several historic BNL physics experiments, is located by the Science Museum.

Those die-hard discoverers who seek particle tracks will have to mount to the third floor of the Science Museum — where a series of displays traces the Lab's history of monumental breakthroughs in the fields of nuclear and particle physics.

Easy-to-understand diagrams and lighted displays give visitors the complete scoop on BNL's particle accelerators: from the Cosmotron — the world's first proton accelerator to reach energies greater than one billion electron-volts (GeV) — to its successor, the 30-GeV Alternating Gradient Synchrotron (AGS). The AGS is soon to be the injector for the Relativistic Heavy Ion Collider, also explained in one of the displays.

Yes, there *is* a bubble chamber: It's outside, next to the museum (see photo). And, as a matter of fact, the museum boasts one of the largest pieces of optical-quality glass ever manufactured — a massive oval lens used to look into one of the old Brookhaven bubble chambers. Weighing 675 kilograms, it's roughly the size of a small hippopotamus.

Once you've mastered the particle, you can enjoy the Camp Upton Historical Collection — featuring photos and memorabilia from World Wars I and II, when the Brookhaven site was the Army's Camp Upton — and finish with a visit to the Science Store, which is stocked with science-related toys and other fun items. — Brad Keoun

Post Office Plea

The Upton branch of the U.S. Postal Service needs your help: If you wrote a check on May 11, 1995, to "Postmaster, Upton" for either $9.17 or $96.27, please see the postal clerk in Bldg. 179. And don't worry — Postmaster Jeanine Fornsel says it's a bookkeeping problem, not a problem with your check.

Groundwater (cont'd.)

first introduced into the environment earlier this century: CFC-11 and CFC-12 were introduced around 1945, and CFC-113 was introduced in the 1960s. The amount of CFCs in rainwater is known to be proportional to the concentration of CFCs in the atmosphere, and scientists can estimate the atmospheric concentration of CFCs for each year since they were introduced. Because the CFCs are stable (nonreactive) in Long Island groundwater, the concentration found in the aquifer can be directly related to the year in which the rainfall became groundwater.

Sampling the Wells

So far, OASD postdoctoral researcher Jim Happell, who has been working on the project for several months, has gathered samples from 37 of the more than 400 permanent monitoring wells at BNL. According to Happell, he has already analyzed groundwater samples with ages ranging from ten to more than 45 years.

Happell is planning to sample several of BNL's existing off-site wells later this summer. At some of the wells, he will collect samples for helium/tritium-3 analysis, an alternative — but more expensive — groundwater-dating technique that's used as a cross-check against CFC-derived ages. These samples will be analyzed by Columbia University.

According to Wallace, the concentration of CFCs in a groundwater sample can be extremely low. However, it is possible to detect CFCs in concentrations as small as a single gram in a cubic kilometer of groundwater — one part in a *thousand trillion* — using only a 30-milliliter sample.

Happell has developed ultraclean sampling techniques to perform the CFC-dating test. In order to verify that his sampling gear is not tainted, he regularly takes samples from an artesian well at Smith Point County Park, which taps the Island's deepest, oldest aquifer — with groundwater known to contain no CFCs.

Burke emphasizes that using CFCs to date groundwater samples has applicability beyond the Brookhaven site. "The CFC-dating technique is a unique and special capability we have at BNL. The only reason people elsewhere aren't doing this is that they don't know about it." He notes that the new technique could be used to date groundwater samples for groundwater investigations at many other sites.

— Brad Keoun

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Volunteers Earn Thanks for Job Well Done

Roger Stoutenburgh

When various college groups and professional and technical visitors tour the Lab, volunteers — tour guides, speakers and other BNLers — make their time here both pleasant and informative. 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. Shown here are: (seated from left) Randy Church, Janet Sillas, Museum Program Supervisor Janet Tempel, College Tour Coordinator Elaine Lowenstein, Hue-Anh Pham, Sue Monteleone, Lynn Warkentien; (standing, front row) Yan Shi, Martha Simon, Kathleen McIntyre, Kathy Geiger, Linda DiPierro, Lynette Bennett, Diana Fisher, Anne Marie Luhrs, George Gharabeigie, Barry Karlin, Vera Mott, Bonnie Sherwood, Michiko Tanaka, Pat Corolla, Brenda Laster, Graham Smith, Nick Tsoupas, Vinnie LoDestro; (standing, back row) Bob Howe, Frank Dusak, Steve Dewey, Gerhardt Redelberger, Peter Kohut, John Carter, Mark Walker, Vincent Gonzalez, Dave Comstock, Tom Dickinson, Stuart Kerr, Sue Cataldo, Frances Scheffel, Evelyn Ritter and Jerry Van Derlaske.

Get in the Swimarathon '95
For the American Cancer Society

On Saturday, July 22, see how far you can swim in the Lab pool and how much money you can raise for the Long Island Division of the American Cancer Society (ACS), during the sixth annual BNL Swimarathon sponsored by the Brookhaven Employees Recreation Association (BERA).

From 8 a.m. to 9 p.m. that day, swimmers may put in as many laps as they can — and take breaks between sets of laps. This is neither a race nor an endurance test, so participants may stop and go as much as they wish over those 13 hours.

The BNL Swimarathon is open to all BERA members. If enough swimmers from one department, division, group or club wish to sign up as a team, they are encouraged to do so. Swimmers may participate on more than one team.

In turn, each swimmer or team will be asked to sign up sponsors who pledge money per lap or make a flat pledge. The total donation that each sponsor makes will be a tax-deductible contribution to the ACS.

Swimarathon '95 also needs volunteers to check in swimmers, count laps, serve the free food and refreshments, and keep the music playing. Each swimmer or volunteer will be awarded a commemorative T-shirt, donated by the ACS.

To sign up to swim or to help, use the coupon below or those available at the pool, Bldg. 478; the BERA Sales Office, Berkner Hall; or the Recreation Office, Bldg. 185. Send completed registrations to Kay Dellimore, Recreation Supervisor, Bldg. 185. Sponsor sheets will then be sent to each registered swimmer.

Registration: BNL Swimarathon '95

Sponsored by the Brookhaven Employees Recreation Association to benefit the American Cancer Society

Name _____ Life No. _____

Department/Division _____ Bldg. _____

Ext. _____ Fax _____ Home tel. (optional) _____

Swimmers — I am signing up to swim laps as a(n):

❑ individual ❑ team member/name of team _____

Helpers — I volunteer to help during the: ❑ morning ❑ afternoon ❑ evening

Return form to: M. Kay Dellimore, Recreation Supervisor, Bldg. 185.

Pool Schedule

The three-month summer schedule at the swimming pool will begin on Wednesday, July 5, and end on Saturday, September 30. Purchase tickets at the pool during open hours:

Open Hours

- **Monday through Friday**

11 a.m. - 1:30 p.m.	employees only
1:30 p.m. - 2 p.m.	reserved for speed swimming and training
2:15 p.m. - 3:15 p.m.	children's lessons
3:45 p.m. - 9 p.m.	employees, families, guests*

- **Saturday & Sunday**

1 p.m. - 5 p.m.	employees, families, guests*

Fee Schedule

- **Daily Admissions**

employee or family member	$2.00
guest	$3.00

- **Season Tickets** (fees not prorated)

Individual	$40.00
Family	$50.00

Guest ruling: One guest per employee is permitted without prior arrangement. Advance arrangements for additional guests, up to five per employee at one time, must be made at the Recreation Office, Personnel Division, Bldg. 185. Guests must be accompanied by the sponsoring employee.* **The pool is closed on all Lab holidays.

Saturday Social Soon

On Saturday, July 8, at 8 p.m. in the North Ballroom of the Brookhaven Center, all are invited to fox trot, lindy, mambo, waltz, etc. the night away at the BNL Ballroom, Latin & Swing Dance Club's monthly informal social. The suggested donation of $1 per person goes to the club's CD music fund. For more information, call John Millener, social chairman, Ext. 3853.

Runners Wanted

The BNL Roadrunners Club is looking for runners to participate in the Chemical Bank Corporate Challenge, to be held at Eisenhower Park at 7 p.m. on Tuesday, July 25. No racing qualifications are necessary. There's no limit on the number of teams that can enter — the categories are men only (five per team), women only (three per team) and mixed (two men, two women per team). If you have no preference, we'll find a team for you.

Call Paul Geiger, Ext. 3308, for more details and to register. For general information on the Club, call President Diane Hatton, Ext. 5073, Secretary Sharon Zuhoski, Ext. 3359, or Treasurer John Dabrowski, Ext. 4632.

Blood Count

To all those who donated blood, or tried to, in last week's Blood Drive: a sincere thank-you from Chair Susan Foster and the rest of the Blood Drive team — and especially from all those who will receive the gift of life from the 445 pints donated.

Donor pledge cards received early were entered in a drawing for five $50 dinner certificates.

Congratulations to the winners: Sharon Atkins, Contracts & Procurement Division; Steven Bellavia, Physics Department; retiree Robert Lehn; Richard Morante, Department of Advanced Technology; and Amanda Staudt, Department of Applied Science.

LINK.bnl on the Web

Because readers of LINK.bnl can now access it on the World Wide Web (WWW), the monthly newsletter of the Computing & Communications Division (CCD) will no longer be distributed to all on site through the intraLab mail starting with the July issue. Therefore, those who still want their paper copy of LINK.bnl must complete and return a subscription form found in the May issue or call the CCD Documentation Store, Ext. 4144.

To access LINK.bnl on the WWW, you need to have: a computer with access to the Internet either directly or through one of BNL's internal networks; a Web browser such as Lynx, Mosaic or Netscape; and *http://www.ccd.bnl.gov/LINK.bnl/* — the universal resource locator for LINK.bnl on the CCD home page.

For more details or assistance, call the CCD Help Desk, Ext. 5444.

Holiday Notes

In observance of Independence Day, the Lab will be closed on Monday and Tuesday, July 3 & 4. 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 14. The classified ad deadline for that issue is 4:30 p.m. on Friday, July 7. That issue, the first of the month, will include ads for Services; Real Estate ads will run only on July 21 next month.

• **Credit Union** — The Teachers Federal Credit Union will be open for normal hours, 9 a.m. to 4:30 p.m., on July 3, but it will be closed all day on July 4. The automatic teller machine in the foyer of Berkner Hall will be open throughout the holiday.

• **Food Services** — The Cafeteria will offer only snack bar service on July 3 & 4, from 9 a.m. to 2 p.m.. The Brookhaven Center will be closed Sunday, July 2 through Tuesday, July 4, then reopen Wednesday, July 5 at 5 p.m.. The vended food service in Bldg. 912 will be in operation throughout the holiday.

• **Gym & Pool** — The swimming pool will be closed from Saturday, July 1, through July 4. The gymnasium, which is closed on weekends throughout the summer, will also be closed Monday and Tuesday.

• **U.S. Post Office** — The Upton Branch of the U.S. Postal Service will be open on Monday only from 8 a.m. to noon, and will be closed on Tuesday.

Note to Employees:

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

Arrivals & Departures

Arrivals

Marcelo E. Vazquez.....Biology
Parthasarathy Vijayaraghavan....DAS

Departures

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

Edward R. Beadle.....AGS
Michael J. Bompane.....RHIC
Peter J. Minnett.....DAS

Service Awards

The following employees celebrated BNL service anniversaries in June:

35 Years

Kurt Fuchel.....Comp. & Comm.
Michael A. Guacci.....Sup. & Mat'l.
Theodore G. Robinson.....RHIC
Thomas A. Wild.....RHIC

30 Years

John W. Baum.....Advanced Tech.
Richard E. Watson.....Physics

25 Years

Frank M. Dusek.....AGS
Howard A. Gordon.....Physics
Pearl M. Hicks.....Info. Services
Alvin J. Vestal.....Cent. Shops

20 Years

Brian F. Briscoe.....AGS
Ralph J. Giordano Jr......Plant Eng.
Roger W. Klaffky.....NSLS
Stephen F. Lenski.....Comp. & Comm.
Susan N. Rackett-Rossetti.....S&SD

10 Years

James T. Durnan.....Saf. & Env. Prot.
Edward J. Grove.....Advanced Tech.
David Lissauer.....Physics
Florence A. Lo Presti.....AGS
Denise C. Monteleone.....Biology
Catherine Osiecki.....Director's Off.
Christopher M. Robertson.....RHIC
John G. White Jr......AGS
Arline F. Willsey.....Info. Services

Cafeteria Menu

Monday & Tuesday, July 3 & 4
Independence Day Holiday
Snack Bar Service — 9 a.m. to 2 p.m.

Wednesday, July 5	
Soup: Broccoli & cheese	.90/1.20
Display Cooking: Chicken Caesar	4.75
Deli: Roast turkey w/stuffing	3.20
Grill: Tuna melt	3.30
Thursday, July 6	
Soup: Beef vegetable	.90/1.20
A la Carte: Baked lasagna w/focaccia	3.65
Lite: Hickory grilled steak	3.95
Deli: Roast beef w/mashed potatoes	3.20
Grill: Spanish omelet	3.30
Friday, July 7	
Soup: New England clam chowder	.90/1.20
A la Carte: Liver w/bacon & onions	3.85
Lite: Italian fish roll-up	3.95
Deli: Pastrami Dijonnaise	3.20
Grill: Meatball hero	3.30

Phys. Rev. Has Opening

The American Physical Society (APS) seeks a Ph.D. scientist with a background in condensed-matter theory and a broad interest in physics for a permanent, entry-level editorial position with *Physical Review Letters*, available immediately, to assist in all phases of the selection of manuscripts for publication. Excellent written and verbal communications skills are essential, as is a basic understanding of the working scientist's expectations of the editorial process. Postdoctoral research experience is desirable. APS offers a competitive salary and outstanding benefits package. Send cover letter and resume, including references, current salary and requirements, to Joseph Ignacio, Personnel Manager, APS, 1 Research Road, Box 1000, Ridge, NY 11961.

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.

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 Personnel Office" for all other vacancies.

LABORATORY RECRUITMENT - Opportunities for Laboratory employees.

DD 2081. SECRETARIAL POSITION - Requires an AAS in secretarial science or equivalent experience and a thorough knowledge of Laboratory policies and procedures. Computer proficiency also required in word processing, spreadsheets, database and e-mail. Responsibilities include preparing technical manuscripts and correspondence; arranging foreign and domestic travel; organizing workshops, conferences and meetings; and maintaining records. Will interact with group members at various locations in the U.S. and Europe and act as point of contact for visiting staff. Physics Department.

OPEN RECRUITMENT - Opportunities for Laboratory employees and outside candidates.

DD 3339. ELECTRICIAN POSITIONS - (temporary openings) Under minimum supervision lays out, constructs, installs, maintains, repairs and operates (in accordance with the national electrical codes, or as otherwise directed) electrical systems, equipment, controls and related devices. May be required to perform similar duties on other than maintenance division equipment and facilities. Plant Engineering Division.

DD 0534. TECHNICAL POSITIONS - (term appointments) Require an AAS in mechanical technology or equivalent experience. Will fabricate, assemble and operate cryogenic systems. Process systems operating experience, and piping and mechanical assembly experience highly desired. Periodic shift work required. RHIC Project.

DD 0571. TECHNICAL POSITION - (term appointment) Requires an AAS in electronic technology, and experience in high-speed digital circuitry, prototype wire wrapping from schematics of complex digital microprocessor electronic circuit boards, and electronic assembly (PC boards and electronic chassis). Familiarity with diagnostic procedures using digital analyzers and digital scopes is required, as are excellent communication skills. Personal computer and PCAD experience highly desirable. RHIC Project.

Motor Vehicles & Supplies

94 FIREBIRD - black, V-6, a/t, ABS, ac, 8-spkr. stereo, alloy wheels, loaded, mint, $15,500. Dave, 736-8010.

93 MERCURY CAPRI - conv., black, 5-spd., 30k mi., fm cass., air bag, extras, $10,500; tires, Mich., MXV3 195/60R15, $25/pr. Jill or Chris, 924-6940 after 8 p.m.

92 MERCURY GRAND MARQUIS LS - 40k mi., fully loaded, gray, alarm, rear air susp., mint cond., $11,900. Carter, Ext. 7599 or 654-8683.

92 GEO METRO - 18k mi., 45 mpg, 5-spd., am/fm, 3-yr. warr., blue, $4,500 firm. Joe, Ext. 4496.

91 MERCURY CAPRI XR2 - conv., red, turbo, loaded, 53k mi., 5 yr./60k warr., excel., $7,800. Ext. 5360 or 477-8117.

91 HYUNDAI EXCEL - ac, 5-spd., customized, black, $5,000. Dave, 331-8470.

90 T-BIRD LX - all power, keyless entry, 71k mi., white w/burgundy int., excel cond., $6,900. Jason, Ext. 2417.

90 TOYOTA COROLLA - white, 4-dr., 5-spd., ac, p/s, p/b, excel. in/out, $5,000 neg. 821-1215.

89 FORD ESCORT LX - dark blue, 85k mi., ac, am/fm cass., good cond., $3,000 reduced. Sonia, Ext. 5341, leave message.

88 OLDS DELTA 88 - 4-dr., loaded, 145k mi., good cond., $2,100. George, Ext. 5298 or 929-8770.

87 OLDS DELTA 88 ROYALE - V-6, fuel inj., 57k mi., all power, stereo, clean in/out, well maint., $4,000 neg. Jean, 360-2350.

87 FORD TEMPO 4x4 - 4-dr. sedan, ac, am/fm cass., p/s, p/b, new tires & brakes, 86k mi., excel. cond., $3,900 neg.; Ext. 2683 or 751-2469.

87 FIERO GT - 6-cyl., 5-spd., showroom cond., new brakes, metallic red, p/w, must see, asking $6,000. John, Ext. 7340 or 732-2702.

86 HONDA CIVIC - h/b, 5-spd., red, am/fm cass., sunroof, extras, $2,100 neg. Kevin, Ext. 2963 or 744-0871.

86 PONTIAC GRAND AM - 6-cyl., p/seat, all options, orig. owner, gar., 90k mi., v.g. cond., $3,200. Eva, Ext. 3701 or 751-8128.

86 FORD BRONCO XLT - blue, no rust, 64k mi., orig. owner, ac, cruise, well maint., mint cond., $6,800 neg. Joe, Ext. 2350.

86 PLYMOUTH VOYAGER - p/s, p/b, ac, stereo cass., int./ext. good cond., $1,950. 924-8558 after 5 p.m.

85 OLDSMOBILE- 4-dr. sedan, black, V-8, a/t, p/sunroof, $800. Ext. 2351.

85 FORD RANGER 4x4 - cap, rebuilt trans., eng. done by A#1, 2.8L, new tires, everything works well, $2,500. Peter, Ext. 5105 or 399-2813.

85 RENAULT - tan, m/t, runs well, needs work, $800 neg. Robyn, Ext. 2680.

84 MERCURY TOPAZ - 5-spd., m/t, eng. runs well, good station car or parts, $500 neg. Tom, Ext. 7625 or 345-3843.

84 CADILLAC ELDORADO - clean, runs well, $1,700 neg. 924-4688.

84 PONTIAC FIREBIRD TRANS AM - black w/gold trim, gray int., 5-spd., 5.0 liter eng., orig. owner, $2,400. Rich, 744-4816.

84 CADILLAC ELDORADO - low mi., clean, runs excel., reasonable. 585-8590.

83 HONDA CIVIC - 98k mi., good cond., asking $1,500. Bernice, 472-1735.

72 & 79 FORD F150 & BRONCO PARTS - steering box, master cyl., brake booter, hood dr., '65-'69 Mustang parts. Wayne, Ext. 7238.

69 BUICK SKYLARK - 4-dr. hardtop, 350 V-8, a/t, p/s, p/b, runs well, needs nothing, ask. $750. Joe, Ext. 3893.

68 CAMARO - 350, red, all new metal, 20k mi. on motor, $5,500 neg. Emil, Ext. 4289 or 473-3120.

64 HI-LO POP-UP CAMPER - 14', sleeps 4, refrig., oven, potty, trailer brakes, more, good cond., asking $900. MaryEllen, Ext. 2979.

JEEP CHEROKEE - 4wd, a/t, ac, 60k mi. on eng., top rack, $2,700. Joe, 878-9331.

SNOW PLOW - 6', Meyer angle, complete, fits Jeep, '80 Wrangler, $300. Rich, Ext. 3354 or 589-9103.

BUMPERS - new, front & rear, '95 Chevy van, $50 ea. firm; radio, new, am/fm cass. w/speakers, $40. Don, Ext. 7237 or 744-2921 after 5:30 p.m.

BUMPER - rear step, Ford, adapt other pickups, new, brackets welded on bumper, $50. 878-4089 eves.

TIRES - 2, Goodyear, P225/75R14, like new, $40 ea.; 1, Firestone, P215/70R14, $20. 698-9274.

TIRES - 4, radials, P195/75R14, $60. 878-1617.

Boats & Marine Supplies

17' FOLBOT KAYAK - 2-person, lots of storage space, great family boat, $400; paddles, floats. Nick, Ext. 2490.

16' GLASTRON - 1968, navy top, w/1979, 2k lb. capacity Shoreline trailer, both good cond., $500. John, Ext. 3422 or 929-4101.

14½ CAPRI DAYSAILER - trailer, many extras, excel. cond., $2,950. Dave, 736-8010.

14½ SAILBOAT - fg body, mahogany rudder & oars, brand-new rainbow sail, w/trailer, $400 firm. Vinny, 395-6520.

JET SKI - 1987, 300, excel. cond., $1,000. 878-1178.

MOTOR - 1983, 90-h.p. Mercury, w/s.s. prop, runs well, no corrosion, no controls, $1,200. Jason, Ext. 2417.

Furnishings & Appliances

AIR CONDITIONER - Sanyo, 5,000 Btu, window mount, like new, $150; changing table w/chest of drawers, good cond., $50. Devinder, Ext. 4985.

AIR CONDITIONERS - G.E., 7,500 Btu, runs well, $50; Westinghouse, 6,500 Btu, v.g. cond., $75, both 110 volt. Tirre, Ext. 3288.

BED - brass, full size, w/frame, about 5' high, good cond., $100; elec. log for fake fireplace, lighted, like new, $35. Kathy, Ext. 2267 or 395-6520 after 6 p.m.

BED SET - 2 twin beds w/boxsprings & headboards, $250, prices neg. Tad, Ext. 5571 or 744-1443.

BLINDS - vertical, 7½', fits 6' glass doors, woven design, matching valance, cream color, 2 yrs old, excel. $100. Margaret, Ext. 2529 or 588-7989 eves.

CARPET - Karastan, remnant, new, approx. 2 sq. yds., blue, orig. $40 per yard, suitable for corridor, stairs, mat, $25. 929-4446.

CREDENZA - server buffet; cube end table, 2 elec. wall sconces; 3 pc. kitchen set; kero. heater, Corona 22DK, heats 800 sq. ft. Bill, 924-6940 after 4 p.m.

CRIB - Simmons, oak, mattress included, excel. cond., $75. John, Ext. 3422 or 929-4101.

CRIB - Simmons, full-size, white, excel. cond., w/mattress, $100. Bob, Ext. 1034.

CUISINART DLC7 - SuperPro, $80; Farberware mixer #391; Scandanavian teak couch, love seat, chair, $400; more. 929-5880 after 5 p.m.

DINETTE SET - Colonial, trestle pine table w/1 bench, 4 chairs, $75. 924-8558 after 5 p.m.

DINING SET - all wood trestle table, 2 leaves, lighted breakfront, rolling serving bar, 6 chairs, $500. Fran, Ext. 3309.

DRYER - elec., 7 mo. old, like new, $200. Olaf, Ext. 2211.

DRYER - Kenmore, electric, heavy-duty, 12 yrs. old, good cond., $50. John, Ext. 7456.

SOFA - 9', white/beige, $100; Ping-Pong table, $25. Dick, Ext. 4329 or 751-6820.

SOFA - chair & drapes, matching, clean, $350 or best offfer. Dick, 475-4199.

TABLES - coffee, 3 lamp tables, Colonial, pine, v.g. cond., $175. 289-0413.

Tools, House & Garden

AWNING - Grover, alum., 10'x10', white, replacing w/larger one. Margaret, Ext. 2529 or 588-7989 eves.

GREENHOUSE - commercial grade, 9'hx14'wx100'l, can be made into five 20' sections, end panels, new plastic, $200. Bob, Ext. 4793 or 929-3409.

LAWN MOWERS - Toro, 21", $40; Snapper, 21", $50; lawn sweeper, 30", $25. 567-9025.

POOL - above ground, 16'x30', 4 yrs. old, ready to go, all access., best offer. Edward, Ext. 7502.

POOL LADDER - for above ground 4' pool, alum., used 1 season, mint cond., $40. Joe, Ext. 2152.

STORM DOOR - standard size, white, crossbuck, insulated glass, screen, excel. cond., all hardware, $50. Ext. 5873 or 878-1303.

TREES - Japanese maples, $10-$45+. 265-6542.

Sports, Hobbies & Pets

BICYCLES - 10-spd., man's and woman's, speedometers, saddle bags, reflectors, Fletchers, $25 ea. Pat/Bill, 722-4489.

BIKE - mountain, 18-spd., excel. cond. 878-1617.

BIKE TRAILER - Tot Tote for 2 children, rear facing, $75; woman's Schwinn 26" touring bike, 3-spd., $65. Dave, Ext. 7277.

CAGE - for medium-size dog, can be folded, $20; Dogloo doghouse for small/medium-size dog, new, cost $115, now $75. Carol, Ext. 3325 or 472-3332.

FISH TANK - 55 gal. wrought-iron stand, hood w/light, canister 403 fluvial filter, 4 power heads, misc. accessories, $300. 981-5993.

GOLF CLUBS - Ping's eye 2's through sand wedge, $350, metal woods 1 & 5, custom, $100 ea. or all for $400. Emil, Ext. 4289 or 473-3120.

PUNCHING BAG - Everlast, 70 lb., $50; 4 tires, Firestone 185/70R13, $100; good cond. on 5 lug rims. Tom, Ext. 7625.

CAMERAS - Nikon classic F2 Photomic w/135mm telephoto, $325, Nikon F3 50mm lens, 28mm-70mm lens, gadget bag, $375. 924-8558 after 5 p.m.

Audio, Video & Computers

COMPUTER - Macintosh Performa 636, 250 MB HD, 4 MB RAM, 12" monitor, software, Stylewriter printer, ask. $2,100 neg. Robyn, Ext. 2680 or 286-8195.

COMPUTER - Macintosh SE30, 5/40, includes spreadsheet and word processor, ideal for student, $550. Peter, Ext. 4272.

COMPUTER - 486 5x33 multimedia, CD ROM, stereo sound, SVGA monitor, lots of software, like new, $1,300 or best offer. Kevin, Ext. 3082 or 281-8031.

COMPUTER GAMES - Super Nintendo system, 2 controls, and Mario game, $80, extra games, $30-$50, SuperScope, $25. Dennis, 924-3316 after 2 p.m.

KEYBOARD - Yamaha, electronic, new and in box, $55. Patricia, Ext. 2907 or 758-3952 eves.

LASER PRINTER - Citizen ProLaser 6000, 6 ppm w/RISC processor, 1 yr. old, $550. Joey, Ext. 2950 or 758-2938.

RECORDS - L.P., classical, Franklin Mint collection, old but never used. Janet, Ext. 2345 or 929-3910.

SYNTHESIZERS - Yamaha DX-21, $200, and Casio C2101, $250; Yamaha SK-10 string, $75; bass guitar, $100; Roland S-10 sampler, $250. Tom, 281-6498.

TV - 5", color, 12V/110V, $65; typewriter, Canon, like new, $50. 363-4279.

TV - JVC 13", rarely used, new remote, on screen, warranty, $150. Sonia, Ext. 5341 leave message.

TELEVISIONS - 19", $20; 11" b&w, working, $10. 929-4446.

TYPEWRITER - electric, portable, Smith Corona, $35. Albert, 727-4884.

Miscellaneous

BABY'S WALKER - Century, good cond., $10; playpen, Graco, lt. blue, excel. cond., $40. Lisa, 369-5730.

BOOKS & RECORDS - electronics and other topics, half price; 33⅓ records, 50¢ ea.; will come on site. Joe, 281-7683.

PLATE - 1980 Hummel, mint cond., $50 boxed. Albert, 727-4884.

TRUNK - w/drawer, 17"x31"x15"; twin x-long sheets, mattress pad for college dorms, good cond., reasonable. S. Spark, Ext. 4111.

Free

DOG - Chesapeake Bay retriever, 1.5 yr. old, female, spayed, hunting/guard dog, companion to adult, aggressive to our children. Mike, Ext. 5972 or 744-4579.

KITTEN - black & white male, well behaved, 9 weeks old. Lorraine, 981-9386.

PIPE - 19' 2" thin-wall conduit formerly used to roll up a swimming pool cover. Ralph, Ext. 2180.

TV - 20" color (almost) w/remote. Ext. 4761.

Yard & Garage Sales

EAST PATCHOGUE - 3-family, Sat. 7/1, 10-4, 11 South Orchard Rd., rain or shine.

RIVERHEAD - moving sale, 7/1, 9 a.m.-12 noon, rain date 7/2, household, telephones, photographic, CB radios, records, more, 139 Ostrander Ave. off Main.

Car Pools

FRESH MEADOWS, QUEENS - or reasonable vicinity, temporary ride needed, car or van pool, from 7/17-7/31. Mike, (718) 479-9053.

Lost & Found

LOST - Timex watch, black cloth band, plain white face, around ball field, sentimental. Kathy, Ext. 2267.

Wanted

APARTMENT OR HOUSE - to rent, 2-3 bdrm., SWRSD, on or after 8/1. Don, Ext. 7237 or 744-2921 after 5:30.

BICYCLE - 2-wheeler w/training wheels for 5-yr.-old girl. Marylin, Ext. 3487.

DOG CRATE - for medium-size dog, steel, good cond. Vera, Ext. 7702.

FUTON - for last week of July. Fabrice, Ext. 7097.

HOMES FOR BNL VISITORS/GUESTS - furn. apt., condos or homes, short-term rentals. Marie, Ext. 4489.

NORDIC TRACK - exercise machine. Mark, Ext. 3812.

RABBIT HUTCH - good cond. Vera, Ext. 7702.

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

SAXOPHONE - alto, for beginner, good cond., reasonable. MaryEllen, Ext. 2979.

SPEEDBOAT - 14'-15', no motor. 363-3138.

WHEELCHAIR CARRIER RACK - for rear bumper of car. Joe, Ext. 2898.

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