BROOKHAVEN BULLETIN
Vol. 40 - No. 15 April 11, 1986
BROOKHAVEN NATIONAL LABORATORY

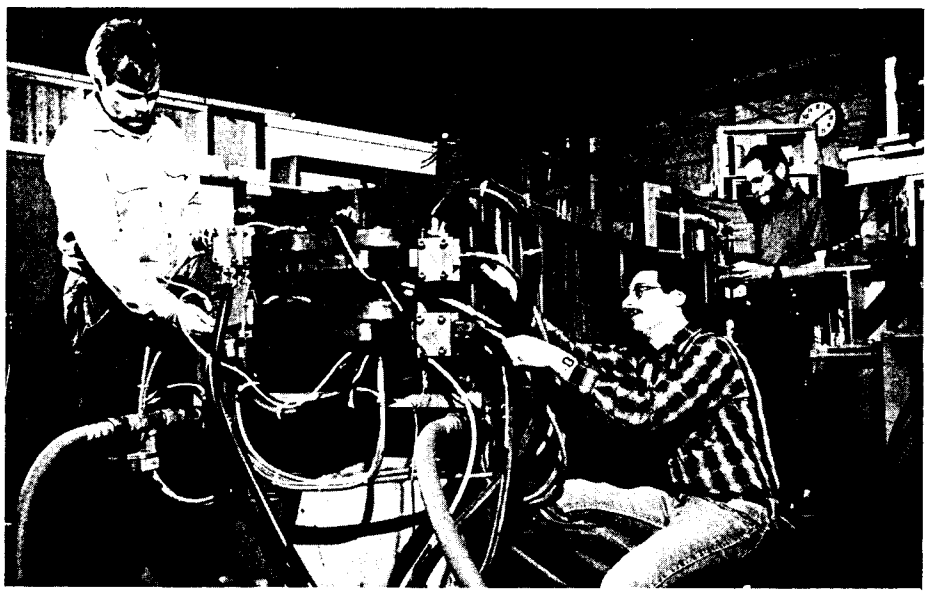
Booster Magnet Ready for Testing

The newest accelerator to be funded at BNL is the Booster for the Alternating Gradient Synchrotron (AGS). Designed to be exactly one-quarter the size of the AGS, the Booster will accelerate particles before they enter the AGS ring, greatly enhancing every aspect of the AGS physics program. Crucial to the Booster design are 36 dipoles, the type of magnets used to curve particle trajectories in a circle. Less than six months after the Booster Project was approved, the first full-size prototype dipole is ready for testing.

According to Bob Phillips, a retired BNL physicist and now a consultant with the Booster Project, the dipole design calls for a conventional water-cooled magnet with a curved aperture. Among other things, magnetic measurements will show whether the magnetic field is uniform throughout the curving particle pathway. The tests will also tell if the magnet is performing properly at its rated current of 5,000 amperes.

"One important thing," said Phillips, "is that these magnets will be cycled very rapidly as the Booster pulses four times for each AGS pulse. So some of our mechanical measurements will check how well the magnet withstands the vibrations this cycling produces."

Testing of the prototype dipole will take about six months. A second prototype is now under construction by the Magnet Division.



Peter Horton

Preparing the Booster prototype dipole magnet for testing are (from left) John Tradeski, Ed Hoey and Jack Weisenbloom.

News Flash!

Last Thursday, April 3, a beam of heavy ions left the Tandem Van de Graaff accelerator, wended its way to the end of the new Heavy Ion Transfer Line, then was injected into the Alternating Gradient Synchrotron (AGS). This was the first time in the AGS's almost 26-year history that anything but protons had been introduced into the accelerator. The heavy ion beam consisted of oxygen nuclei at an energy of 7.3 million electron volts per nucleon.

This initial injection study showed the oxygen beam to have good characteristics. In order to resume the scheduled AGS physics program, the test had to be ended before full circulation of the heavy ion beam in the AGS could be achieved. This will be the next significant step for the Tandem/AGS Heavy Ion Project.

Computing Corner

NETWORKING . . . NETWORKING . . . NETWORKING . . . NETWORKING . . . NETWORKING . . . NETWORKING . . . NETWORKING . . .

This article concludes a series of stories addressing the changing role of the Applied Mathematics Department (AMD) at BNL.

Talking on the telephone, turning on the TV, sending data from one computer terminal to another — all these activities involve communicating over a distance, or telecommunicating.

Until recently, responsibility for telecommunications at BNL was distributed primarily between AMD, which provides data services, and the Staff Services Division, which provides voice services. In October 1985, however, Laboratory Director Nicholas Samios assigned AMD the lead role in unifying the diverse aspects of telecommunications at BNL, including voice, data and video services. Heading the AMD effort is Deputy Chairman Arnold Peskin, who explained that AMD and Staff Services have set a goal of October 1, 1986, to complete the transition of voice services management.

Both voice and data telecommunications involve networks, with telephones or terminals connected by communications lines. Computers at BNL — from the large computers at the Central Scientific Computing Facility (CSCF), to specialized computing workstations, to the burgeoning legions of personal computers — can tie into several networks that have evolved to meet user needs for both local and long distance telecommunications.

Pioneering Efforts

On a local level, Graham Campbell, who AMD Chairman Ron Peierls says "has been the Lab's expert on the computer end of networks," was instrumental in the development of the BNL network BROOKNET, in the early 1970's. Though replaced now by newer technologies, BROOKNET was a pioneering effort and a major technology transfer to industry from BNL. Led by Campbell, Brookhaven also played an important role in pioneering the use of ARPANET, a national network for telecommunicating with computers and/or users at other national laboratories.

AMD's Network Coordinator George Rabinowitz described some of the other networks currently operating at the Lab:

- MASSNET — Connects site users to the mass storage of the computers in the CSCF.
- BITNET — Sends files and messages to other national labs and CERN (the European high energy physics lab).
- TELENET — A commercial service that allows users to log-in to computers at CERN.
- DECNET — Links high energy physics computers manufactured by Digital Equipment Corporation.
- MFENET — Ties users in the energy research community to the Cray supercomputers at the Magnetic Fusion Energy Laboratory at Lawrence Livermore Laboratory.
- USENET — Sends and delivers electronic mail nationwide.

New networks crop up all the time. The U.S. Department of Energy, for example, is sponsoring HEPNET, which will soon provide a basic network service for high energy physics users and carry DECNET as one of its communications languages, or protocols. In the interest of stimulating research activities, New York is proposing a statewide network. The New York State Research Network, or NYSRNET, would connect BNL with a number of universities within the state.

The Lab's GTE voice network can also telecommunicate data by using modems. And within some BNL sections, related computers and terminals are joined together in this manner.

One specialized local area network (LAN) at BNL links all terminals devoted to CAD/CAM (computer-aided design and manufacturing) to the central system in the CSCF. To create the CAD/CAM network, miles of fiber-optic cables were added to the labyrinth of communications lines that already existed underground at BNL. AMD Communications Manager Ralph Trondle, who has served as liaison between GTE and Staff Services for almost ten years, explains that these cables are useful for other data communications as well.

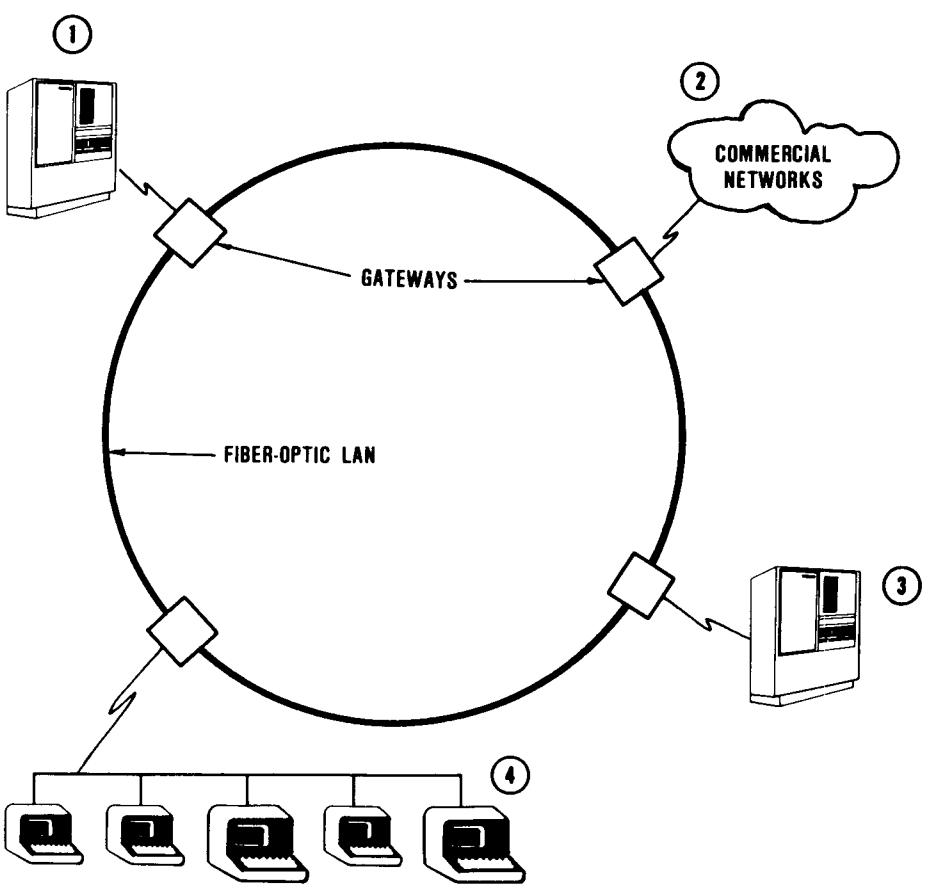
"Currently, our lab-wide networking is primarily in the form of a switch called a PACX, for private automated computer exchange," Trondle says. Through the PACX, users of computers in departments all around the Lab can select which computer resource in the CSCF or elsewhere on site they would like to access. When installed in 1979, the PACX could handle only 256 terminals. Since then, the switch has been continually expanded and will soon support 1,024 terminals. That's its limit, though new users may be accommodated for a while, by moving connections. Against the day when there's simply no more room on the PACX, new avenues of networking are being explored.

Some Possibilities

One avenue might be to use some of the 18-strand cable laid for the CAD/CAM network, to create a high-speed, fiber-optic-based LAN. Individual computers and smaller LANs all around the site would tie into the new LAN. "Gateway" devices at each junction would translate protocols to make the connecting devices compatible. With this system, says Trondle, "theoretically, any machine at the Lab can communicate with another."

Another possibility is to tie data switching into another lab-wide LAN — the telephone system. "We have kept data switching separate from voice switching because integrated voice/data is still an evolving tech-

(Continued on page 2)



With a high-speed, fiber-optic-based, local area network (LAN) any computer at BNL might communicate with another. Shown here are some of the configurations that could tie into such a LAN: 1) A large, department computer, such as a VAX. 2) Commercial off-site networks. 3) An on-line experiment at one of the Lab's research machines. 4) Specialized workstations and PCs hooked to a coaxial cable running through a building. The gateway device through which each configuration is joined to the fiber-optic LAN would insure compatibility throughout the system.

On Site

Why was a ten-foot-deep trench dug between Brookhaven and Bell Avenues in the parking lot between Buildings 184 and 424 along Johns Hopkins Street?

The trench will contain new steam pipes and is a step in a major construction project to expand and improve the BNL steam heat distribution system. The new pipes in this trench will provide more reliable steam service to the Medical Department, Building 490. Other buildings on site that will have steam lines extended to them are Bldg. 452, the Utilities Shop, and 479, the Heavy Machine Shop. Construction actually began last fall when the concrete foundations for six new steam manholes were poured.

Also as part of the ongoing utilities upgrade program, many underground steam mains, some over 40 years old, will be replaced with new piping. The list of buildings to have their steam mains replaced include Bldg. 134, Fiscal, Plant Engineering and Public Relations; 179, Staff Services, Applied Science and the Post Office; 185, Personnel; 194, Oceanography; 355, Contracts & Procurement; 426, Environmental Chemistry; and 464, Department of Energy, Brookhaven Area Office.

Unfortunately, this project requires the excavation of several roads and parking lots around site, and includes the crossing of Brookhaven Avenue, Bell Avenue and Rochester Street. Although measures will be taken to minimize the disruption to traffic, some inconvenience can be expected through the summer. Look for specific construction warnings in future issues of the Bulletin.

Patents Awarded

Sidney Fiarman, DNE, was issued U.S. Patent #4,523,186 for inventing a seal system for materials such as nuclear materials, where security is of the essence. Fiarman's seal system transmits an optical signal, which may be pulsed, through a loop made of fiber optics cable and then closes the loop, which serves to secure the item to be sealed. The transmitted signal is read by an optical detector so that attempts to open or tamper with the loop causes detectable changes in the signal.

The system also consists of a second detector, for detecting motion, vibration or radiation. Such a detector senses significant changes in the local environment, which might indicate an attempt to gain access to or tamper with the sealed item.

Thus, an advantage of Fiarman's seal system is that a single inspection will reveal both if a seal has been opened or tampered with and if attempts to bypass the seal have been made.

•

Toshifumi Sugama and **Lawrence E. Kukacka,** both in DAS, and **William H. Horn,** a former BNL employee, were issued U.S. Patent #4,540,726 for inventing quick setting polymer concretes with high compressive strengths.

Suitable compositions are needed for the rapid repair of deteriorated Portland cement concrete bridge decks and highways and for construction material for pipes, slabs, wall panels and the like. The need is particularly acute for compositions that can be used under all weather conditions to repair, simply and rapidly, damaged aircraft runways.

The present invention solves disadvantages of the existing polymer concrete materials used in the above applications. In particular, the new method provides unsaturated polyester concrete compositions that are quick setting and water compatible as well as having compressive strength of at least 1,000 psi.

1986 Scholarship Winners

From among 50 applicants, 13 sons and daughters of BNL employees were chosen as the 1986 AUI Trustee Scholarship winners. The scholarship recipients were selected by an independent committee appointed by the College Scholarship Service, Princeton, N.J., which administers the program for AUI. The winners are:

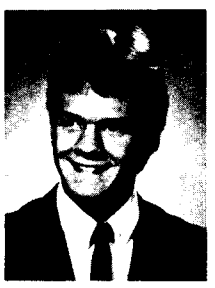
Laura Asselta — daughter of Kenneth Asselta (Physics) . . . student at William Floyd High School . . . lives in Shirley. She will enter the Eastman School of Music to study the viola.

Sarah Beniquez — daughter of Eusebio Beniquez (Safeguards and Security) . . . student at Central Islip High School . . . lives in Central Islip. Will enter the State University of New York at Stony Brook and will study physical therapy or pre-med.

Flora Feng — daughter of Natalie Inan Feng (Biology) . . . student at Ward Melville High School . . . resident of Stony Brook. Plans to go to Cornell and will major in biology.

Irina Kats — daughter of Joseph Kats (AGS) . . . attends the Fox Lane School, Bedford, N.Y. . . . lives in Mt. Kisco. Plans to go to Princeton and major in applied mathematics.

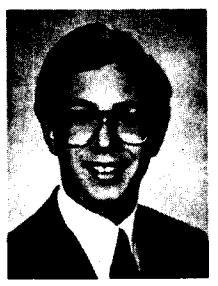
Charles Ogeka — son of Carol Ogeka (Safety & Environmental Protection) . . . student at Mercy High School . . . lives in Moriches. Will attend Georgetown University and major in finance.



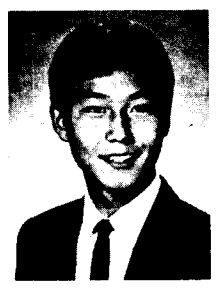
Daniel Trueman — son of T. Laurence Trueman (Physics) . . . senior at Shoreham-Wading River High School . . . resident of Shoreham. Will attend Stanford or Carleton and study physics or music.

Anna Abola — daughter of Enrique (AGS) and Agnes (Chemistry) Abola . . . student at Longwood High School . . . lives in Middle Island. Her goal is to study physic s at Princeton.

Michele Becker — daughter of Jesse Becker (High Energy Facilities) . . . student at Hauppauge High School . . . resident of Hauppauge. Will attend Brandeis and plans to study medicine.



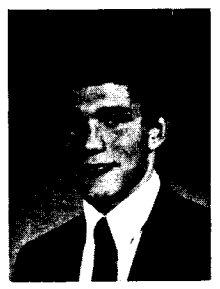
Michael Bernstein — son of Frances Bernstein (Chemistry) and Herbert Bernstein (DAS consultant) . . . senior at Bellport High School . . . lives in Bellport. Plans to attend Princeton or Swarthmore and study political science.



Sei Iwai — son of Junichi Iwai (Medical) . . . senior at Bellport High School . . . lives in Bellport. Plans to enter Harvard and major in music or the life sciences.

John Niederer — son of James Niederer (Applied Mathematics) . . . is a senior at Shoreham-Wading River High School . . . resident of Shoreham. Expects to attend Cornell or Tufts and major in biology.

Kathleen Reilly — daughter of James Reilly (Applied Science) . . . student at Bellport High School . . . lives in Bellport. Will attend Princeton or Williams and major in science or music.



Daniel Zucker — son of Martin Zucker (Nuclear Energy) . . . student at Westhampton Beach High School . . . resident of East Moriches. Plans to go to Princeton University and major in physics.

Networking (Cont'd)

nology and would be very expensive right now, since our voice switch is only about five years old," explains Trondle. "But will we go to integrated voice/data when we need a new voice switch? Or will we go to the fiber-optic LAN? Or will another technology suit us better? That's still being decided."

One way to evaluate these technologies is to look at the speed at which they can transmit information — how many characters per second (c/s) flow down the communications line. At 30 to 120 c/s, for instance, a personal computer telecommunicating with the CSCF via modem is very slow. A terminal going through the PACX moves data at speeds up to 960 c/s, and some direct computer-to-computer links on site go from 5,000 to 6,000 c/s. By switching to coaxial cables, millions of c/s are possible, and with fiber optics, says Peierls, "there's almost no limit."

But before plunging into a new technology, Peierls cautions that there are considerations, such as: How do you move fast enough to give reasonable service to your users without locking yourself into something that can be obsolete in six months? And there are questions about standards and protocols, which involve international agreements. And after all these issues are resolved, Peierls says, "Everybody believes that, in the long run, computer networks, like the telephones, will be a public utility that people hook up and subscribe to, and questions of individual networking will become irrelevant."

— Anita Cohen

Award to Alternate

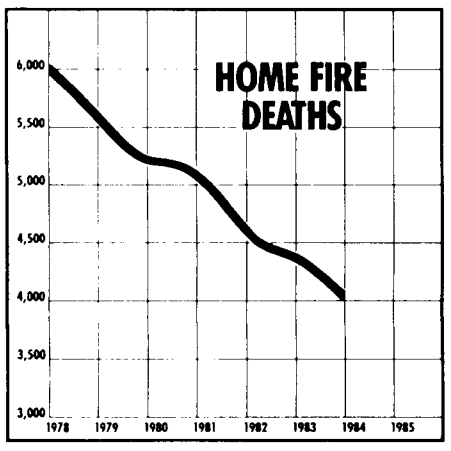
Each year, in the AUI Trustee Scholarship competition, three alternates are chosen at the same time as scholarship winners. This past year, Sally Natoli, a 1982 alternate, received unexpected good news. AUI approved a two-year scholarship award to her because one of the 1982 recipients did not complete the four-year term. Natoli is a senior at William Smith College in Geneva, N.Y. and plans to go to graduate school. She is the daughter of Anthony Natoli Jr., Applied Mathematics Dept.

WIS Meeting

At noon on Wednesday, April 16, Industrial Hygienist Nicole Bernholc of Safety & Environmental Protection will discuss chemical and physical exposure in the workplace at a luncheon meeting of Brookhaven Women in Science in Room A, Berkner Hall. As a member of the Center for Assessment of Chemical and Physical Hazards, she has developed interim chemical exposure standards for the U.S. Department of Energy and is serving on a Federal mediation committee to develop an exposure standard for 4,4'-methylenedianiline, a suspected carcinogen. Bernholc's talk will cover the nature and development of exposure standards and the mechanisms for obtaining safety and health assistance at BNL.

Weight Watchers

A few places remain in the two new Weight Watchers groups forming on site. One session will be held on Tuesdays, beginning April 29; the other on Thursdays, starting May 1. Both will meet from 5:15 to 6:15 p.m. and have eight weekly sessions. If you wish to participate, drop a line to Health Promotion Specialist Elaine Friedman, Medical Department, Building 490. Note which group you would like to join and include a check for $10, payable to Weight Watchers.



As shown in this chart, home fire deaths declined impressively between 1978, when they numbered about 6,000, and 1984, when they were reduced to 4,260. The National Fire Protection Association cited an increase in home smoke detectors as a major factor behind this decrease. In 1977, only 20% of American homes had even one smoke detector; by 1983, 67% had one. And a 1985 poll indicates that smoke detectors are now in 74% of U.S. households.

Arrivals & Departures

Arrivals

John L. Bourquin, III ..... Plant Eng.
William M. Paradisin ..... Medical
James M. Roberts ..... DAS
Milford H. Schuster ..... DNE
Randolph I. Smith ..... Instr.

Departures

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

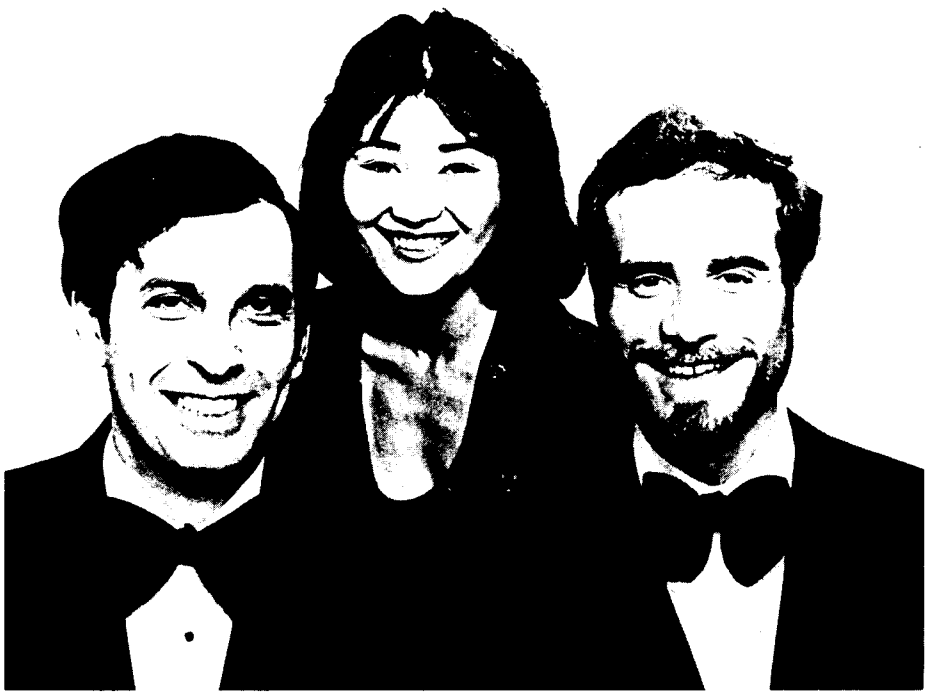
Robert B. Foley ..... Plant Eng.
Johannes C.P. Matthijs ..... Biology

BROOKHAVEN BULLETIN

Published weekly
for the employees of
BROOKHAVEN NATIONAL LABORATORY

BERNICE PETERSEN, Editor
MONA S. ROWE, Associate Editor
ANITA COHEN, Senior Reporter
MARSHA BELFORD, Reporter

35 BROOKHAVEN AVE., UPTON, N.Y. 11973
Telephone (516)282-2345



Cremona Arts Trio

Cremona Arts Trio In Concert

The Cremona Arts Trio will perform at Berkner Hall on Tuesday, April 15, at 8:30 p.m. This marks the final concert in the 1985-86 Concert Series. The Musica da Camara Praga, which was previously scheduled to play on the 15th, was unable to meet its commitment.

The Cremona Arts Trio is composed of pianist Bernard Rose, violinist Setsuko Nagata and cellist James Kreger. As soloists, they have garnered prizes in prestigious competitions, including the Tchaikovsky Competition in Moscow and the Tibor Varga International Competition in Switzerland. It was during summers at the Academia Chigiana in Siena, Italy, that the three artists decided to blend their talents. They established a trio that retains the rugged solo qualities of each instrumentalist, in the tradition of the best trios.

For their program at Brookhaven, they have chosen Haydn's Trio in A Major, Hob. XV:9; a Trio by Ravel (the only one he wrote); and Beethoven's Trio in E Flat Major, Op. 70, No. 2.

Tickets will be sold at the door the night of the concert. General admission is $9; students and those over 65, $6; and those under 18, $5.

Astronomical Society

The "Farewell to Comet Halley" celebration will take place on Friday, May 2, at 8 p.m., instead of 7:30 p.m., as previously announced.

Volleyball

League I	W-L
Dinkers	52-4
Upfagrabs	41-15
X-Rayted	31-25
Bumpers	24-32
Net Results	11-45
TNT	9-47
League II	
Phoubars	56-0
Nuts & Bolts	34-22
Fossils	27-29
Chungas Revenge	25-31
Cannonballs	22-34
Upton-Ups	4-52
Open League	
Odds & Sods	44-7
Dakota	43-8
Phoenix	36-15
Court Jesters	22-29
Rowdy Radicals	20-31
Generic	13-41
Out of Control	2-49

Motorcycle Club

Come to the meeting on Monday, April 14 at 5:15 p.m. at the Recreation Building, and help plan the club's events for the season. Everyone welcome. A ride to Marcus Dairy is scheduled for Sunday, April 13.

Bowling

Red/Green League

J. Carroll rolled a 233, R. Larsen 222, J. Petro 212, J. Muller 205, R. Eggert 202, J. Ferrante 201.

White League

High games were bowled by Steve Gushue 239, Frank Gaetan 232, Ken Riker 229, Pete Stelmaschuk 213, Mary Scheidet 205, Nate Carter 207, Dick Adams 204, Ed Sperry IV 203, Joe Mayeski 200, Kathy Griffin 183, Terry Skelaney 183, Kay Conklin 180. The East Pick Ups had a 910 gross game, 2578 series.

Pink League

Sharon Smith had a 192, Renie Rosati 189, Louise Chinn converted the 6/7/10.

Quilters Exhibit

BERA Quilting Club, now known as the Hands All Around Quilters, will display their work at the Sou'Wester Bookshop, 137 Main Street, Bellport, from Saturday, April 12 through Saturday, May 3. The exhibit includes contemporary quilted pieces as well as traditional quilts. The quilters will host a reception with cookies and sherry between 3:30 and 5 p.m., April 12, at the bookshop. Everyone is invited to come and meet the group's members.

The quilting club is an informal group which meets monthly to work together and exchange ideas. Although the group originally held its meetings during the day at the Brookhaven Center, meetings are now held in the evenings at members' homes to accommodate work schedules. New members are welcome, and anyone who would like more information may call Jane Shero, 286-0925 (evenings).

Basketball

The league competition is finished, and the Hollywoods are the champs. Playoff games are coming up.

Record

	Won	Lost
Hollywood	9	2
Runaways	7	4
Longshots	5	6
Coasters	1	10

Game 1

Longshots — 68		Coasters — 57	
L. James	18	M. Williams	10
P. Brown	6	P. Ratzke	12
J. Garrison	9	R. Rowley	13
L. Walcott	14	J. Gaeta	6
M. Colon	9	R. Doty	16
E. Taylor	3		
B. Johnson	6		
A. Anderson	3		

Game 2

Hollywood — 72		Runaways — 57	
G. Mack	8	G. Shepherd	2
R. Domenech	10	T. James	10
E. Meier Jr.	21	P. Johnson	19
B. Gunther	2	G. Smith	2
K. Rogers	2	R. Moran	6
B. Jasper	2	J. Desmond	8
D. Hall	4	J. Ripka	8
D. Nordstrum	23	A. Stillman	2

-BERA News-

Swim Club

At the Connecticut Masters April Fool's Swim Meet on Saturday, April 5, in New Haven, six members of the BNL Swim Team took 19 individual age-group ribbons and one relay-team ribbon. As well, Marsha Belford finished second overall of women in the 50-yard breaststroke and third overall of women in the 100-yard breaststroke.

50-yard Freestyle		
Paul Michael	31.54	5th men 55-59
Don Makowiecki	41.51	7th men 40-45
100-yard Freestyle		
Wlodek Guryn	59.77	2nd men 35-39
Paul Michael	1:15.23	3rd men 55-59
200-yard Freestyle		
Paul Michael	3:14.78	3rd men 55-59
50-yard Backstroke		
Wlodek Guryn	32.96	5th men 35-39
Marsha Belford	41.53	3rd women 25-29
Don Makowiecki	49.11	2nd men 40-45
200-yard Backstroke		
Peter Cameron	3:12.94	4th men 35-39
50-yard Breaststroke		
Marsha Belford	42.41	2nd women 25-29
Carrie Grimshaw	49.53	1st women 20-24
100-yard Breaststroke		
Peter Cameron	1:20.30	1st men 35-39
Marsha Belford	1:31.96	2nd women 25-29
Carrie Grimshaw	1:48.35	2nd women 20-24
200-yard Breaststroke		
Peter Cameron	2:58.75	2nd men 35-39
Carrie Grimshaw	3:56.79	1st women 20-24
100-yard Individual Medley		
Wlodek Guryn	1:10.80	2nd men 35-39
Peter Cameron	1:17.53	6th men 35-39
Marsha Belford	1:25.31	5th women 25-29
200-yard Individual Medley		
Peter Cameron	2:56.04	5th men 35-39

200-yard Men's Freestyle Relay
2:06.14 - 2nd 160+
Peter Cameron, Don Makowiecki, Paul Michael, Wlodek Guryn

Car Rentals

As of April 1, 1985, the Lab account number for Avis car rentals was changed. Anyone still holding the old card should get a new one from the Travel Office. Call Ext. 2531 or 2552.

Cafeteria Menu

Week of April 14

Monday, April 14		
Cream of chicken soup	(cup)	.65
	(bowl)	.85
Veal Parmesan with spaghetti		2.55
Pork & cabbage crisp		2.45
Hot Deli: Pastrami Reuben		2.45
All you can eat!		
Spaghetti with garlic bread (no takeouts)		2.95
Tuesday, April 15		
Turkey noodle soup	(cup)	.65
	(bowl)	.85
Veal cordon bleu		2.65
Chicken burrito w/ hot sauce		2.35
Hot Deli: Italian sausage hero		2.40
Wednesday, April 16		
Tomato soup	(cup)	.65
	(bowl)	.85
Baked ziti with garlic bread		2.45
Broiled filet of fish w/ 1 veg.		2.65
Broiled liver & onions w/ 1 veg.		2.45
Hot Deli: Daily double hero		
A mix of corned beef & pastrami		2.45
Thursday, April 17		
Navy bean soup	(cup)	.65
	(bowl)	.85
Salisbury steak w/ 1 veg.		2.45
Eggplant Parmesan with spaghetti		2.65
Hot Deli: BBQ chicken patty on roll		2.45
Friday, April 18		
Seafood gumbo	(cup)	.65
	(bowl)	.85
Broiled flank steak w/ 1 veg.		2.50
Beef pot pie		2.45
Hot Deli: Roast beef	(bread)	2.40
	(roll)	2.55
All you can eat!		
Fried clams (no takeouts)		2.95

It's a fact: Of the 361 structures on the Lab site in September 1985, 244 were buildings of over 500 square feet (except modular buildings and mobile homes), 56 had 500 square feet or less, 18 were modular buildings, 7 were facility areas such as gas storage sites, 20 were miscellaneous structures such as antennas and water tanks, and 16 were mobile homes.

Classified Advertisements

Placement Notices

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

Each week, the Personnel Office lists new personnel placement requisitions. The purpose of these listings is, first, to provide open placement information on all non-scientific staff positions; second, to give employees an opportunity to request consideration for themselves through Personnel; and, finally, for general recruiting purposes. Because of the priority preference policy stated above, each listing does not necessarily represent an opportunity for all candidates. As a guide to readers, the listings are grouped according to the anticipated area of recruitment.

Except when operational needs require otherwise, positions will remain open for one week following publication date.

For further information regarding a placement listing, contact the Employment Manager, Ext. 2882.

THE VACANCIES LISTED BELOW HAVE BEEN EXEMPTED BY THE DIRECTOR'S OFFICE FROM THE CURRENT FREEZE ON OPEN REQUISITIONS.

SCIENTIFIC POSITIONS OPEN: The following staff positions are open. Candidates may apply directly to the department representative named, or through the Office of Scientific Personnel, Ext. 3338.

POSTDOCTORAL RESEARCH ASSOCIATE - to study a DNA-activated protein kinase found in human and other eukaryotic cells. Background in enzyme purification or protein phosphorylation desirable. Contact: C.W. Anderson, Biology Department.

OPEN RECRUITMENT - Opportunities for Laboratory employees and outside applicants.

2421. SECRETARIAL POSITION - Requires AAS degree in secretarial science or equivalent, the ability to take shorthand and knowledge of general office procedures. Previous experience in a purchasing environment and familiarity with word processing is strongly preferred. Contracts and Procurement Division.

2422. ENGINEERING POSITION - Requires MS degree or equivalent with an emphasis on safety engineering or a related field and a minimum of three years' pertinent experience to assist in the development and maintenance of the Lab's safety program. Ability to perform stress analysis calculations and computer applications skills are necessary. Responsibilities include the review of drawings and specifications for conformance with safety and fire protection codes, review of high hazard experimental apparatus and the evaluation of work stations for ergonomic/human factor considerations. Safety and Environmental Protection Division.

Autos & Auto Supplies

67 CHEVY CAMARO RS - V8, a/t, p/s, new tires, brakes, 95% complete, $3,500; 1955 CHEVY BELAIR, 2 dr., sedan, no eng., $1,500. 395-1588 eves.

77 PLYMOUTH ARROW 200 - 41k mi., 5 spd., a/c, radio, runs well, body clean, $1,500 or best offer. Ext. 2611 or 751-4098 after 6 p.m.

TRUCK ROLL BAR - $50; 1200-16:5 snow tires, $50 pr. Joe, Ext. 3498 or 758-7035.

81 CHEVY VAN - long w.b., 6 cyl., a/t, 81k mi., well maintained, $3,200. 281-7873.

69 HONDA CB750 - 900cc kit, all custom, runs but needs work, $1,300 firm. 395-1554 after 7 p.m.

81 FORD GRANADA - 4 dr., a/t, a/c, 6 cyl., black, 62k mi., am/fm, new tires, $2,500. 585-9149.

74 MUSTANG II - 4 spd., 4 cyl., valve job, runs well, some rust, $550. 981-8751 after 6 p.m.

69 BMW 1600 - runs very well, rust problem, good for parts/restoration, $1,500. Doug, Ext 3630 or 732-3549.

80 CHEVY MONZA - p/s, p/b, a/c, good cond., $2,300. 878-0786.

79 FORD FAIRMONT - 3 spd., p/s, p/b, a/c, 100k mi., good cond., $1,700. Ramesh, Ext. 4805 or 924-8113 eves.

80 AMC SPIRIT - squareback, very good cond., stick shift, extra wheels w/snows, 65k mi., $2,300. 286-3374.

79 FORD COUNTRY SQUIRE - sta. wagon, V8, 9 pass., all power, a/c, 73k mi., excel. cond. Ext. 3187 or 2823.

82 HONDA ACCORD - 4 dr., 5 spd., 63k mi., silver, excel. cond., $6,200. Russ, Ext. 3059 or 698-9364.

78 HONDA CIVIC - good cond., avail. 4/25, $1,000. J.C. Berset, Ext. 5150 or 3207.

SUZUKI GS250t - 10k mi., extras, excel. cond., $649; truck cap, custom Toyota short bed, $299. Jack, Ext. 4411 or 929-8287.

66 FORD GRANADA - clean in and out, $750. Frank Perez, Ext. 3531.

76 HONDA CIVIC CVCC - needs eng. work, all else good cond., no rust, $400 or best offer. Jory, Ext. 5508 or 929-6941.

85 TOYOTA CELICA GT - liftback, sunroof, digital pkg., c/c, excel. cond., $11,000. Scott, 281-1862.

67 JAGUAR XKE - restored, mint cond., burg. w/saddle int., $13,000. Joni, 736-7377 or 698-5640.

FIBERGLASS CAP - for Mazda pickup, long bed, hi-rise, g/struts, s/window charcoal grey, excel. cond., $425. Joe, Ext. 4126 or 878-6660.

71 TORINO - 302 V8, 68k mi., $375. Steve, Ext. 4008 or 821-0686.

8' CAP - side windows, open rear window, alum., good cond., $150. Bill, Ext. 4986.

77 DATSUN 810 - good cond., low mi., $2,500; 1968 ME-BE, 6 cyl., good cond., $2,500. Sorin, Ext. 2765.

74 MAVERICK - very good cond., no rust, 4 dr., 6 cyl., 11k mi., $600. Liu, Ext. 2181 or 3103.

84 HONDA SPREE - good cond., low mi., $300. Jerry, Ext. 7427 or 475-5591 after 5 p.m.

78 CHEVETTE - 2 dr., clean, maint., rel. transp., 30 mpg, $1,395. Bob, Ext. 2514 or 757-3178 after 6 p.m.

85 BUICK REGAL - Limited Edition, fully equipped, 1,200 mi. Pete, Ext. 3297.

78 FORD FIESTA - runs well, minor body damage, 30 mpg, 98k mi., 4 spd., $850. Colleen, 929-3573.

83 HONDA SHADOW - 350cc, black, shaft drive, excel. cond., $1,750. Frank, Ext. 4113 or 395-3165.

79 GMC JIMMY - mag wheels, running board, 40-channel CB, am/fm stereo, 34k mi. on reb. eng. 281-7035 after 6 p.m.

74 NOVA - good running cond., $600; 1974 HORNET, good running cond., $400. Ext. 3783 or 732-6647.

62 JEEP CJ5 - w/plow, very good cond., w/extra body parts, $750. 744-9892 after 6 p.m.

74 DODGE DART - 6 cyl., 2 dr., 78k mi., a/c, p/s, p/b, good cond., $600. 732-3105.

67 CHEVY CONVERTIBLE - new top, new seats, 383 V8, p/s, p/b, p/w, a/t. Tony, 698-9274.

74 DATSUN PICKUP - w/cap, excel. cond., new clutch, exhaust, tires, no rust. Ted, Ext. 7992 or 821-2569.

69 APACHE POP-UP CAMPER - sleeps 6, good cond., $650. Neil, Ext. 2023.

76 HONDA 750 - good cond., $750. 363-7032.

81 FORD LTD - wagon, a/c, p/s, p/b, am/fm, new tires, new trans. w/20k mi., $3,800. 821-0954 after 5 p.m.

77 HONDA CIVIC - 2 dr., a/t, 68k mi., excel. cond. 878-0817.

VOLKSWAGONS - 1973 Fastback, reb. eng., $1,100; 1973 Squareback, stand., $695; 1973 bus, new eng., reb. trans., $2,500. Ext. 4463 or 751-2422.

72 OLDS CUTLASS SUPREME - very good cond., $700 or best offer. 924-0582 eves.

76 BUICK REGAL - needs some mech. work, 150k mi., $400. Mike, Ext. 7625.

75 CHEVY MALIBU - 4 dr., a/t, a/c, p/s, p/b, stereo, runs well, some body work, $350. Ext. 3233 after 6 p.m.

74 DODGE PICKUP - 3 spd., f/m stereo 8-track, new exhaust, rel., $1,000. Ken, Ext. 4421 or 744-0722.

73 CADILLAC - Coupe Deville, good cond., rel., full power, $595; DATSUN 240Z parts or whole car, $300. 399-4480.

78 NOMAD TRAVEL TRAILER - 20', fully self-contained, sleeps 6, excel. cond., $4,000. Ext. 4459 or 751-2095.

HUB CAPS - (1) 15" set, (1) 14" set, good cond., $15 ea. set. Mike, Ext. 2705.

80 SUBARU GLF - 5 spd., 2 dr., 80k mi., $2,000 neg. 924-5541.

COMET - 302 V8 eng., running cond., new radial tires, good batt., hung valve, $200. Dunning, Ext. 4636.

72 NOVA - runs well, $400; 1979 car trailer, dual wheels, elec. brakes, $1,000. Dick, Ext. 3499 or 589-9103.

TRAVEL TRAILER - 18', self-contained, new brakes & tires, $2,400 neg. Artie, Ext. 2697.

TIRES - (2) L78x15, on Chrysler rims, good cond., $40. Ann, Ext. 2022.

Boats & Marine Supplies

18' MARQUIS OPEN-BOW - 1979, 85 HP Johnson w/power tilt, full canvassed, galv. trailer w/power winch, all excel. cond., best offer. Arnie, Ext. 2040 or beeper 913.

YAMAHA OUTBOARD - 1985, 115 HP, still in box, 2 yr. warranty, power tilt and trim, all gauges, access., $4,800. Chris or Jeff, 286-1348.

18' DONZI MARINER - 1983, V6, 150, w/power trim, fast, deep V, open sport fisher model, fishing & skiing, many extras, $5,900. 472-3342.

27' TARTAN - 9 sails, VHF-FM, DF, RDF, Autohelm compass, refinished topside, many extras. Ext. 4258 or 669-9202.

18' GLASSPAR - 1971, Bowrider, 1977 150 HP Merc., full canvas, galv. trailer, excel. cond., $3,500. 277-9709.

14' SAILBOAT - West Wight Glass Slipper, sleeps 2, trailer, 6 HP eng., $2,200 neg. 744-0024.

11-1/2' SAILBOAT - Snark Wildflower, 3 sails, main, jib, spinnaker, fits on car top, unsinkable, $795. Joe, Ext. 2898.

17' MARK TWAIN - 115 HP Merc., trailer, $3,000. Ext. 3783 or 732-6647.

19' MFG - 1980, 70 HP Johnson, Tee Nee trailer, lines & cushions, $2,300. Gerry, Ext. 3694 or Bob, 281-8296.

PROPELLER - for power boat, 3-blade, 17" dia. x 12" pitch, for 1-1/4" shaft, $50. Ext. 4745 or 722-4076.

12' JON BOAT - Sears, alum., excel. cond., $275. Mike, Ext. 4061 or 475-8406.

27' CATALINA SLOOP - 1976/7, 3 sails, inboard, cruise equipped, very good cond. Ext. 2144.

23' O'DAY - 1980, 7.5 HP Honda, 6 sails, full race equip., keel ctr. bd., electronics, extras, excel., $15,400. Lloyd, Ext. 3381 or 286-1024.

OUTBOARD MOTOR - 65 HP Johnson, 4 cyl., new pump, lower unit resealed, $325. Ext. 4095 or 475-8504 after 5 p.m.

SAILBOAT - Sunfish, 1982, w/trailer, multicolored sail, excel. cond., $1,200. John, 283-8774.

BOAT/TRAILER HITCH - class A, 2,000 lbs. capacity, $15. Ext. 2514.

Miscellaneous

SOFA BED - queen size, brown/rust/tan plaid, very good cond., $200. Ext. 4206 or 924-5230 eves.

9' POOL SLIDE - curved fiberglass, for in or above ground pool w/deck, $200. 589-4327 after 5 p.m.

SCUBA TANKS - (2), steel, vinyl coated, $30 ea. Joe, Ext. 3498 or 758-7035.

TABLES - (3) end, (1) coffee; TV cabinet, all pine; (2) AC's; antique console radio. Sue, Ext. 2050.

FREEZER - frost-free, 15 cu. ft., upright, white, good cond., $100. 289-0791 after 6 p.m.

COCKTAIL TABLE - hardwood maple, 56"x21", (2) draws, excel. cond., $95. Ext. 4615 or 751-8462 after 6 p.m.

SOFA - cocktail table, excel. cond.; small bar w/2 stools. Susan, Ext. 7235 or 395-3529.

FLOWER BOXES - heavy plastic, dark green, 35"x8"x5", never used, 6/$15. Ext. 4745 or 722-4076.

DINING ROOM SET - table w/leaf, (5) chairs, china closet w/glass doors, $175. 289-7470.

COLONIAL TABLE - 60"x38", w/(2) 12" extens. (1) arm chair, (5) side chairs, dark pine, $350; ceiling fixture, (4) lights, $75; $400 takes all. Ext. 2671 or 744-3284.

BED/OTTOMAN - convertible, single, tangerine, excel., $100. Ext. 7686 or 878-0897.

19" COLOR TV - Panasonic, good working cond., 100% solid state, w/service manual, $70. Ron, Ext. 3238.

OAK FIREWOOD - 3 to 5 cords, cut to 14" logs, $150. Ken, Ext. 3574.

ATARI - new, 130XE, ss/dd drive, color monitor, 70+ disks, access., reas. Chris, 878-2421 after 3 p.m.

SOFA - gold, trad., excel. cond. Ext. 4192 or 751-7787.

POOL TABLE - regulation, 4-1/2 x 9, antique, 3 pc., 1" slate, w/ball return and all access. $650. 799-8338.

BUNK BEDS - w/built-in dresser and closet, good cond. Jerry, Ext. 7427 or 475-5591 after 5 p.m.

FOLDING GARMENT BAG - canvas, w/large pocket, black w/red trim, new. Ext. 2950.

COLLECTOR PLATES - Norman Rockwell, complete set of Rediscovered Women. 732-2570.

HIGH RISER - $35; Danish couch w/arms, $25; formica cabinet for stereo or liq., $15; Bogen amplifier, best offer; Hedstrom stroller. Josie, 689-9234.

BAY MARE TB - 15.2 hands, well mannered, English, $850. 878-2810.

WEIGHT SCALE - analog, like new, $8. Ext. 3187.

WOMAN'S BICYCLE - 10 spd.; Olivetti Editor IV typewriter; cradle; high chair. 928-2803.

MAXELL DISKS - 5-1/4", ds/dd, 10/$10. Jim, Ext. 3372.

STEREO PLAYBACK DECK - cassette, auto-reverse, use through any stereo system, receiver, etc., $35. Ext. 3293 or 751-7408 after 3 p.m.

STALL SHOWER - 36", steel-baked enamel, terrazzo base, tempered glass door, new, $300. Tony, Ext. 2462.

DINING ROOM SET - chrome & glass table, (4) upholstered chairs, $250; 25" Magnavox console color TV, $150. 234-1480.

POOL - alum. framework, 15'x30', incl. through wall skimmer, motor/pump, vacuum, hoses, etc., $250. Walt, Ext. 2907 or 698-0576.

SHARP COLOR TV - 14", w/remote control, brand-new, $200. Ext. 3480.

TARP - plastic, carbon fiber reinforced, 20'x30', excel., $25. Ext. 4745 or 722-4076.

MOWER - 4 HP, rotary, 21" cut, self-propelled, Briggs & Stratton, rear bagger, good cond., $75. 654-3781.

LEAF MULCHER - heavy duty, needs eng., $30; gas range, no pilots, clean, $20. 878-6676 after 6 p.m.

FISH TANK - 10 gal., w/Diatom filter, extras, $50; Sansui stereo rack system, $500. Mark, Ext. 5350.

KEROSENE DRUMS - 55 gal., 2/$5; Sears auto. baking oven & rotisserie, $20. 924-3236.

GIRL'S BICYCLES - (2), Ross, excel. cond. 751-8403 after 6 p.m.

SIAMESE CATS - chocolate Blue Pt., also some older cats. Ramona, 928-3088.

HONDA GENERATOR - 1000W, extra quiet, almost new, $350; chain saw, Homelite XL2, good cond., $100. 744-6423.

CHILDREN'S STEREO - bikes; easel; desk; toy chest; ice skates; Fisher Price toys; pine table, w/3 leaves; oak buffet; small china cabinet; 10 gal. tank. Ext. 2066 or 744-1898.

CANADIAN HEMLOCKS - white pines, yews, spruces, nursery grown, $4 per ft., root pruned. John, 744-5867 after 5 p.m.

BASKETBALL HOOP - & net, $5; weight lift bench, $10; (2) snare drums w/stand, $15. Tony, Ext. 2050.

AZALEAS - field grown, balled, burlaped, 2-1/2' to 3', $4 ea., min. of 5; elec. stove, 40" wide, (2) ovens, self-cleaning, $200. Ken, Ext. 4421 or 744-0722.

SUNBEAM SNOW THROWER - Snow Champ, 12", new, elec., $175. Kevin, 878-4285 after 5:30 p.m.

DP EXERCISE BENCH - leg pulley, leg lifts, assembled, folds up, almost new, orig. $130, sell for $75. Ext. 2907.

WOMAN'S GOLF CLUBS - full set of woods & irons, plus golf cart, excel. cond., $50; woman's 10 lb. bowling ball, w/carrying case, $25. Ext. 7544.

MAGNAVOX STEREO - hi-fi console, $125; Wurlitzer organ, spinet, cherry, multimatic percussion, $750; Vespa Bravo moped, Super Deluxe, Class B, excel. cond., $450. Lloyd, Ext. 3381 or 286-1024.

BIKE - 10 spd., used, Raleigh racer, 27", $40. Ed, 924-3528.

DARK ROOM EQUIPMENT - b&w and color, complete, $750, neg. 878-1873 after 5 p.m.

COLOR TV - 19", some lines on screen but good color, $80. Judy, 289-7292.

ELECTRIC HEATER - portable, 1,000 and 1,500 watts, $25. Carolyn, 331-6269 eves.

DEHUMIDIFIER - GE auto., $60; (3) bar stools, swirl, black vinyl, $15 ea.; 20" girl's bicycle, $60, all in excel. cond. Inan, Ext. 3370.

EXERCISE BIKE - $50. Ext. 5053.

Car Pools

LIE EXIT 26 - 8:30-5:00, need driver for existing 3-person pool. Sorin, Ext. 2765.

Real Estate

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

For Rent

N. SHIRLEY - lg. furn. studio, w/kit., priv. ent., util. incl., 1 person, only, non-smoker, no pets, security, 5 min. from Lab, $400 mo. pays all. 281-8044.

SHAWNEE VILLA - vacation resort in the Poconos, full accommodations for 6, week starting 6/7 through 6/14, $400. Charlette, 348-2856 or 286-0913 after 5 p.m.

E. PATCHOGUE - S. of S. Country Rd., 1st floor apt., 2 bdrms., l/r, eik, priv. ent., avail. 6/1, no pets, $430 mo. plus util. Walt, Ext. 2907 or 698-0576.

HILTON HEAD, SC - 2 bdrm. condo., sleeps 6, tennis, golf, pool & beach, first 2 weeks of Apr. $300 wk., after 4/15, $450 wk. 585-9149.

WADING RIVER - 2-1/2 rm. apt., full bath, priv. ent., patio, $450 mo. incl. util. 929-3071.

SOUND BEACH - new lg. 3 rm. apt., eik, full bath, priv. ent., non-smoking single preferred, no pets. Ext. 7918 or 744-7007.

RONKONKOMA - near LIE & beach, immac. 3 bdrms., l/r, d/r, eik, w/w, storage rm., $725 mo. plus util., avail. 5/1. Ext. 2676 or 543-0487.

N. SHIRLEY - 3 bdrm. house, l/r, eik, full bath, appl., bsmt., 7 min. to Lab, 1 mo. sec., $700 plus util. 395-1084.

For Sale

S. SAYVILLE - Colonial, circa 1935, 4 bdrms., l/r w/fp, d/r, eik, den, attic, full basement, 2-car garage, 1/2 acre, $195,000. 589-8518.

OTSEGO COUNTY - 3 bdrm. house, modern kit. & bath, furn., 1-1/2 car garage, on 17-1/2 wooded acres w/stream, $51,900. 929-8287.

HAMPTON BAYS - exp. cape, 30 min. from BNL, fresh paint, new siding, 4 bdrms., 2 baths, eik, sewing rm., dark rm., new well for lawn, cable & phone jacks ea. rm., 18x36 ft., in-ground pool, $190,500. 728-9165 eves.

ROCKY POINT - Tides ranch, 3 bdrms., 2 baths, den w/fp, gar., 1/3 acre, wooded lot, priv. beach rights, $132,500. Ext. 3823 or 744-4205.

OAKDALE - Idle Hour section, near water, 2-story Tudor, 4 bdrms., 2 baths, gar., attached full apt. w/priv. ent., located on 1/2 acre on deadend st., $210,000. 363-6940 eves.

RIDGE - N. of Rt. 25, 1.12 acre plot, 100 ft. plus x 400 ft. plus, partially wooded, $49,500. 924-3236.

RIDGE - 3 bdrm. L-ranch, 4 mi. N. of BNL, gar., full bsmt., 1/3 landscaped acre, coal stove, all appl., new w/w, storms & screens, many extras, $119,000. Marie, Ext. 7716 or 744-4047.

YAPHANK - Colonial Woods, 2 bdrm. condo., 2 baths, full bsmt., central air, appl., storms & screens, fully carpeted, $95,000. 269-9510 after 7 p.m.

PORT JEFF. - Harbor Hills, 3 bdrm. split level, l/r d/r, eik, lg. den, gar., priv. patio, 1/3 landscaped acre, beach rights, $155,000. 928-2803.

COOPERSTOWN - 190 acres, 1/2 wooded, 1/2 cropland, $425 per acre package deal. 363-7032.

BELLPORT - M/D house, 5 bdrms., 3 baths, Florida sun rm., many extras. 286-9051.

MANORVILLE - 3 bdrm. ranch, 1-1/2 acres, wooded plot, 8 mi. from Lab, 2-car gar., extras. 878-6676 after 6 p.m.

MIDDLE ISLAND - 1 bdrm. co-op, new appl., new w/w, cedar paneled bath, central air, tennis & pool fac., $55,000. Ext. 3007 or 924-9041 eves & wknds.

AQUEBOGUE - 20 min. to Lab, 1/3 acre, f/p, all appl., oak floors, fin. bsmt., 3 bdrms., 1-1/2 baths, town water, fenced-in back yard, treed lot, $129,500. 722-4644.

SAYVILLE - mint, custom, 3 bdrms., 2 full baths, 2-car gar., eik, formal d/r, den, double fp, 2-tier deck, full bsmt., new roof, extras, $169,000. 567-8752.

WADING RIVER - 2 bdrm. ranch, w/attach. gar., full bsmt., 1/4 acre w/lg. fenced-in yard, deeded beach rights, walk to beach & State park, $119,000. 929-8876 after 6 p.m.

Free

FIREWOOD - Jurg, Ext. 3422.

Wanted

TO RENT - prof. couple needs 2-3 bdrm. unfurn. house, May through October. Ext. 4112 or 324-2133.

TRAINS - Lionel, American Flyer, access., any cond. brings good price, Carole, Ext. 3362 or 924-4097 eves.

HOUSE TO SIT - going away on vacation or business, I will stay w/your house. Ext. 3671 or 736-2131 eves.

GARDEN ROTOTILLER - Ext. 2353 or 736-3946.

LIFE PRESERVER - child's, 50-90 lbs. Ellen, Ext. 2816.

HOUSEMATE - Coram, share 3 bdrm. house, gar., priv. bath, unfurn., from 5/15, $233 mo. plus util. Ext. 7253 or 928-8379.

PENDULUM CLOCKS - any cond. Jerry, Ext. 3711.

CAR-TOP LUGGAGE CARRIER - all weather, good cond., reas. Austin, Ext. 4479.

CORELLE DINNERWARE - 8-1/2" luncheon plates & 10-1/2" dinner plates, Spring Blossom green pattern. Chris, 821-1704.

HOUSE TO RENT - 7/14-8/4, 2 bdrm. min., near Lab or Stony Brook, visiting professor. Dr. Frank Liu, 246-6108 or 751-3540.

HOUSEMATE - to share 3 bdrm. house on 1-1/2 acres, 5 min. walk to Sound, clean, non-smoking couple or single, $450 mo. plus util. Rick, Ext. 4662 or 744-6059.

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

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