BROOKHAVEN BULLETIN
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BROOKHAVEN NATIONAL LABORATORY

Samios Responds to Suffolk Life

The following letter was sent by Laboratory Director Nicholas Samios to David Willmott, Publisher and Editor of Suffolk Life, in response to his editorial dated August 3 concerning Brookhaven's effect on the environment. As previous letters from Laboratory management have not been printed in Suffolk Life, there is no guarantee that this one will appear. Since it is important that employees know the facts, the Bulletin is printing the letter from Samios in its entirety. Detailed information about BNL's effect on the environment is contained in the Laboratory's environmental monitoring reports, which are issued each year. These reports are available to employees and to the general public.

David J. Willmott Sr.
Publisher and Editor
Suffolk Life
P.O. Box 167
Riverhead, New York 11901

Dear Mr. Willmott:

Your editorial in Suffolk Life, dated August 3, contains gross inaccuracies and misinformation about Brookhaven National Laboratory and its effect on the environment. You do your readers a disservice.

Pollution is a serious matter, particularly here on Long Island, which relies on a sole source aquifer for its drinking water. We at Brookhaven are concerned that our activities are conducted safely and with minimum effect on the environment, and we are deeply committed to protecting the environment. After all, we live here, too.

When you give credence to unfounded claims by unnamed people and accuse us of operating irresponsibly, you are disregarding the facts, many of which have even been stated in stories by your own reporters.

First: Brookhaven Lab is open to inspection by the federal government, New York State and Suffolk County. On the basis of these inspections, permits are issued for air and water emissions and solid waste disposal.

Brookhaven's own monitoring of the environment dates back to 1947, when the Laboratory was established. The Laboratory issues annual environmental monitoring reports, which are sent to federal, state and county officials and are available to the general public.

Through the years, scientific knowledge and society's awareness of environmental issues have greatly increased. As a result, some of the practices that were acceptable in the past are not acceptable by today's far more stringent standards.

Thus, in earlier years, Brookhaven — like so many other institutions, municipalities and even homeowners — disposed of wastes in ways that resulted in soil or water contamination. Our past disposal methods did not represent mismanagement of wastes; they were the standard, accepted waste disposal procedures of that time. We recognize, however, that today's regulations call for activities of the past to be corrected in the present.

Second: Brookhaven is well aware of the importance of environmental protection, and we are committed to an aggressive program of environmental monitoring and, where necessary, cleanup of contaminated areas.

We have 100 monitoring wells placed around the Laboratory site for the purpose of drawing groundwater samples for analysis. Because of this system, we have detected several regions of groundwater that have been contaminated with small amounts of chemicals or radioactivity due to past practices.

One area discovered in 1984 to contain solvents is being cleaned up before the water travels beyond the site boundary, and the cleanup program will be completed in a year. In addition, we are carefully monitoring around our landfills the concentration and movement of tritium, a radioactive isotope of hydrogen.

This does not mean that our employees are in any danger. The Laboratory's drinking water wells are separate from the monitoring wells, and our drinking water is routinely analyzed to assure that it meets all applicable state and federal requirements.

Third: Brookhaven Lab does not threaten the health of its neighbors.

Water samples taken from our monitoring wells at the boundaries of the Laboratory show that radiation and chemical concentrations are well within all guidelines.

Nicholas Samios

Water samples taken by the Suffolk County Health Department from about 20 homes east and southeast of the Lab show traces of tritium at levels that are well below drinking water standards. One home shows a level of chemicals slightly above the standard, but it is uncertain whether the Laboratory is the cause of this pollution.

Fourth: The so-called brown tide affecting local waters in recent years is not caused by radiation. The likely culprit is sewage discharged by local communities.

Nor is the Laboratory responsible for a fish kill in Manorville in May of 1974. That was due to oxygen depletion caused by high temperature and excess duck weed growth, conditions that caused a number of fish kills elsewhere on Long Island at the same time.

The claims about high radioactivity in the Peconic River and high levels of radiation in the air over the Laboratory as detected by an Air National Guard helicopter are also not true.

Fifth: The Laboratory perimeter is not fenced, and almost none of our work is classified.

Each year, we welcome 1,800 visiting scientists and students who come to collaborate with our researchers, as well as 15,000 visitors who come to tour the Laboratory and learn about our scientific programs.

It is our intent that the Laboratory remain open and accessible, in order to promote the free exchange of scientific knowledge.

Sixth: Brookhaven Lab does not operate under a cloak of secrecy. Only two years ago, in fact, the Laboratory invited the editors of local weekly newspapers to visit our site and learn, in particular, how we monitor the environment.

Included in the day's activities were tours of our sewage treatment plant, the landfills, an area where chemical pollution is being cleaned up, and the waste management area, where hazardous waste is packaged before being taken off the Laboratory property and disposed of in federal sites designated for such materials.

Suffolk Life did not reply to the invitation and did not attend.

And why not?

Sincerely,

N. P. Samios

N. P. Samios, Director
Brookhaven National Laboratory

SEUTF — A Singular Facility at the Tandem

A single particle striking a single circuit may cause a single error to be recorded in a computer's memory. The result — a multitude of problems for satellite designers.

From insignificant glitchs to critical systems errors, cosmic rays zipping through a satellite's computer systems can be bad news. One system error caused a multimillion dollar satellite to spin so much that NASA controllers were unable to communicate with it.

Because insulating satellites against cosmic radiation is impractical — satellites have strict weight and space limitations — researchers are looking to develop computer chips that are less sensitive to cosmic radiation.

Harder Chips

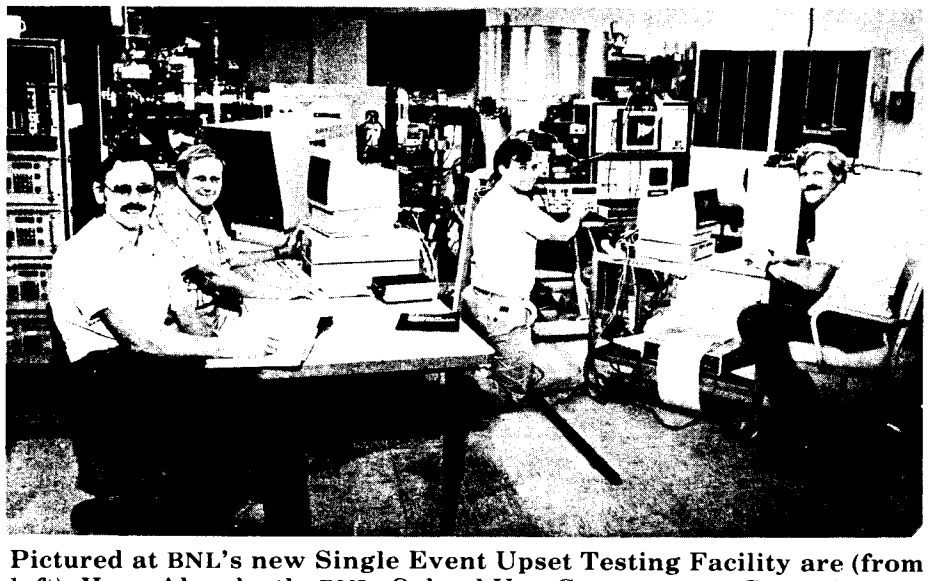
To develop these "harder" chips, a Single Event Upset Testing Facility (SEUTF) has been built at BNL's Tandem Van de Graaff Accelerator.

Nuclei ranging from protons to lead have been identified in cosmic radiation. As the Tandem can provide a large variety of ions — protons through uranium — at various energies, its beam is a good stand-in for cosmic rays.

The facility, which became fully operational last month, brings together the fields of heavy ion physics and electronics.

A coalition of government agencies, called the Single Event Facility Group (SEFG) built and operates SEUTF. The members of SEFG are: National Aeronautics and Space Administration (NASA) — Goddard Space Flight Center, Naval Research Laboratory, National Security Agency (NSA) and the United States Army Strategic Defense Command.

As SEFG will use the facility only about 10 percent of the time, it has made SEUTF available to the rest of the research community.



Roger Stoutenburgh

Pictured at BNL's new Single Event Upset Testing Facility are (from left): Hans Abendroth, BNL; Orland Van Gunten, NSA; Gregg Tarara and David Roehler of the Honeywell Inc.

Flip the Chips

The chips to be tested are mounted on a circuit board inside a large aluminum vacuum chamber at the end of a beam line at the Tandem. Although the circuit board has been removed from the computer, it is still connected and functioning.

The circuit board can be rotated inside the chamber so that the incoming beam hits the chip at different angles. A perpendicular strike travels quickly through the circuit, causing minimal disturbance. A low-angle hit plows through the circuit on a longer path, maximizing the potential for an upset.

An upset occurs when a heavy ion strikes a chip and causes a data error in the logic circuit. These errors, called BIT flips, occur when zeros are switched to ones, or ones to zeros, in the logic circuits of binary computers.

Corporate Customers

"We are trying to find out how many days chips will last in space before we have one upset," said David Roehler, a senior design technician with Honeywell Inc., SEUTF's first corporate customer.

Honeywell came to BNL in late July to test two radiation-resistant computer chips by exposing them to the beam for periods ranging from 10 to 60 seconds.

Hardware designers and engineers from industry will be SEUTF's primary customers. A research group from the Rockwell International Corporation came to SEUTF the day after the Honeywell group left.

Not For Satellites Only

"This work is not only for satellite computers," said BNL Physicist Peter Thieberger, Head of the Tandem facility. "We see similar problems with

(Continued on page 2)

SEUTF (Cont'd)

computers on Earth because there are cosmic rays here too.

"The problem is getting worse as circuit elements are becoming smaller and more densely packed," added Thieberger. With smaller circuits, it takes less charge to cause a flip.

A Unique Testing Facility

Until now, similar work has been done in smaller and more primitive chambers at the BNL Tandem and at other accelerators, such as the 88-inch Cyclotron at Lawrence Berkeley Laboratory.

"The new BNL facility is unique for two reasons," said Orland Van Gunten, an NSA physicist and nuclear engineer, who designed the vacuum chamber. "First, because it is usable by people who don't know, and don't want to know, a lot about heavy ions."

Technicans at the Tandem control the beam from a control room down the hall in Bldg. 901A.

Second, it is "affordable and fast." Single upsets are detected by computer within 60 seconds after the chip is exposed and the beam shut off. "Components could be tested for as little as $2,500, making routine testing economical," added Van Gunten.

"It is my hope," he continued, "that this will evolve into a national testing facility for research on Single Event Upset phenomena."

— Alexandra Biesada

DAS Celebrates Service Landmarks

Peter Horton

Members of the Department of Applied Science who recently observed BNL service anniversaries were the guests of honor at a June reception hosted by DAS Chairman Bernard Manowitz. Pictured are: (left row, front to back) Daniel Spandau, Jai Lee, Toshifumi Sugama, Henry Thode, Manowitz; (right row, front to back) Kenneth Sutter, Robert Sabatini, Roland Sick, Donald Huszagh, Antoinette Fridae, Alessio Mezzina, John Smalley and David Elling. Not pictured: Patricia Carr, Keith Jones, Jerome Lamontagne and Sharon Smith.

Giving From the Heart

Bob Heimerle, a senior technical specialist in the Accelerator Development Department, underwent a four-hour operation on Wednesday to replace his diseased heart with a healthy one — and Bob's friends and coworkers at BNL are giving from the heart, so that his wife Marion Heimerle, a senior executive secretary in the Alternating Gradient Synchrotron Department, and his mother Marie Heimerle can be at his bedside at the Latter Day Saints Hospital in Salt Lake City, Utah.

Marion and Bob Heimerle

So far, contributions have totaled nearly $7,000, towards Marion and Marie's airfare, lodging, telephone, car rental and other expenses.

"Our medical insurance is wonderful, but, of course, it doesn't cover Bob's mother's and my expenses," Marion explained from Salt Lake City before the operation. As for any BNL employee's illness, hospitalization is paid in full; as both Bob and Marion are employed by BNL and thus their medical benefits are coordinated, Bob's surgical and other medical expenses are paid in full after the calendar year deductible is paid.

Marion added, "At first, we were hesitant about the contributions, but now we offer our heartfelt thanks and appreciation to everyone for their moral support."

In March of this year, Bob, who is 37, came down with what seemed to be the flu, but turned out to be a virus that diseased his heart muscle and caused his heart to fail. "From the beginning, the doctors were telling us that he would need a heart transplant," remarked Marion.

On July 27, Bob was admitted to Winthrop-University Hospital, Mineola, with congestive heart failure. As the one-year survival rate for heart transplants performed at the Latter Day Saints Hospital is 95%, which is higher than at New York City hospitals, and the waiting list is not as long, he was flown by hospital jet to Salt Lake City, arriving on July 29. Marion and Bob's mother followed him out there by commercial jet.

After being found healthy enough to withstand a transplant, Bob waited almost two weeks for a donor heart. One from a 13-year-old girl was found in Michigan early Wednesday morning.

After his transplant, Bob will stay for three days in intensive care and for up to two weeks in the hospital. When he's settled in one of the hospital's apartments for his four-to-six month recuperation, Marion will go back to work and Bob's mother will care for him. Marion hopes, however, to be a frequent flier to visit her husband.

Contributions can be deposited in The Heimerle Heart Fund set up at the Barclays Bank branch on site.

Inside Info

Marilyn Galli became Acting Division Manager of the Technical Information Division at the end of July, as **Kenneth Ryan** left the Laboratory to assume a new position in California.

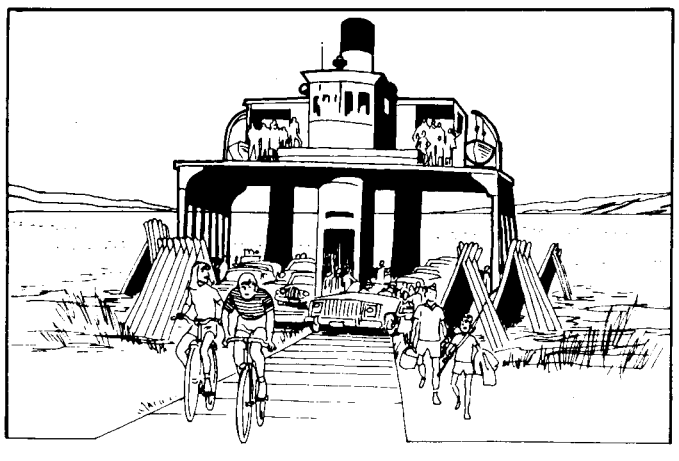
•

Karl Swyler and **Robert Thomas** have joined the staff of the Office of Educational Programs. Swyler was formerly in the Department of Nuclear Energy, while Thomas was in the Chemistry Department. Both have had considerable experience in educational programs in the past, in the Brookhaven Semester Program and in the Honors Research Program.

In announcing the appointments, Deputy Director Martin Blume noted, "Over the past several years both the number and size of the educational programs offered at BNL have significantly increased. We expect this trend to continue as the National Laboratory system is being asked to play a prominent role in helping to upgrade the quality of education in science and mathematics at all levels. At BNL, we expect to expand these efforts to include education, training and participation in research at all our facilities."

Summer on Long Island
Steamboats & Ferries Crossing the Sound

To get to New England, driving off Long Island and over the bridge to the Bronx can be a drag. Even if the ferries from Port Jefferson or Orient Point don't get you there any quicker, sailing across the Long Island Sound to Connecticut is more fun and relaxing, though more expensive.



• **Bridgeport & Port Jefferson Steamboat Company** — *between Port Jefferson and Bridgeport*

Port Jefferson Terminal West Broadway Port Jefferson, NY (516) 473-0286	Union Square Dock Water Street Bridgeport, CT (203) 367-3043

Sailing times: Through Nov. 27; first ferry from Port Jefferson at 6:30 a.m., Bridgeport 8 a.m.; last ferries from Port Jeff 6 p.m. Mon.-Thu., 9:30 p.m. Fri., 7:45 p.m. Sat. & 9:30 p.m. Sun.; last ferries from Bridgeport 7:45 p.m. Mon.-Thu., 11 p.m. Fri., 9:30 p.m. Sat. & 11 p.m. Sun.

Crossing time: 1½ hours.

Rates: Mon.-Thu., $28 auto & unlimited number of passengers one-way, $22 car & driver one-way, $6 one adult passenger one-way/$11 round-trip, $3 each child passenger under 12 one-way; Fri.-Sun. & holidays, $25 car & driver one-way, $7 each adult passenger one-way/$12 round-trip, $4 each child passenger under 12 one-way/$7 round-trip; all trips, children under two years old sail free; special rates for foot passengers, senior citizens and day sailors.

Reservations: Suggested for Fri., Sun. & holiday sailings; must be accompanied by a $10 deposit per crossing; telephone reservations accepted with credit card charge; mail checks to Port Jefferson, NY 11777; cancellations must be made 24 hours in advance for deposits to be refunded.

Boarding: Vehicles with reservations are required to be in line, ready to load, 30 minutes before scheduled sailing; vehicles without reservations loaded on first-come, first-served basis until boat filled to 98% capacity, then vehicles loaded by size.

• **Cross Sound Ferry** — *From Orient Point to New London.*

Dock Road Orient Point, NY (516) 323-2525, -2695, -2743 or -2415	2 Water Street New London, CT (203) 443-5281, -0783, -5035, -0482

Sailing times: Depart Orient Point and New London every hour on the hour, 7 a.m. to 10 p.m., through September 6.

Crossing time: 1½ hours.

Rates: $22 vehicle & driver Mon.-Thu./$24 Fri.-Sun. & holidays; $7.50 adults one-way/$11 round-trip; $4 children under 12 one-way/$6 round-trip.

Reservations: Required; $10 deposit recommended, cash or check to Cross Sound Ferry, P.O. Box 33, New London, CT 06320; 48-hour cancellation notice required for deposit refund.

Boarding: Reservations with deposits must be at the dock with tickets purchased 15 minutes before sailing time; reservations without deposits, at least 30 minutes before sailing time.

team safety

It's week four of the Team Safety program* and all the teams are playing. Wait! Two red spots have appeared on the scoreboards, which means that two teams have struck out — the Heavy Shop and the Plumbing Shop. No need to be alarmed though, word from the locker rooms is that the batters will be okay and both teams have decided on new strategies to keep their teams in the running. The thought of pizza may have something to do with their plans. The new goal for the Heavy Shop is October 11, and the goal for the Plumbing Shop is October 17.

Overall the teams are doing great. Keep up the safe work!

**Twenty-six teams are participating in the Lab's Team Safety program. As two have now incurred lost-time injuries, 24 teams are now in the running to be the first to be rewarded for their safe practices with a pizza or deli luncheon.*

Equipment Demo

Custom Computer Specialists (CCS), Hauppauge, and Apple Computer will exhibit the latest in Macintosh hardware and software on Wednesday, August 17, from 10 a.m. to 3 p.m., in Berkner Hall.

A network of 12 Macintosh II computers and assorted LaserWriter printers will be set up to demonstrate the Appletalk and Ethernet networks. Various color and gray-scale monitors, connection solutions and new software packages will also be on display along with products from such vendors as AST, Radius, 3Com, Aldus, Adobe and Interleaf. The Apple products demonstrated will be available as stock items.

Gregory Galdi, president of CCS, will be on hand, along with Apple representatives, to answer questions, and to provide literature and pricing information. Galdi will also have details about both the newly formed BNL Macintosh User Group and the BNL employee purchase plan for Apple computers, as well as select third-party software and hardware products.

Bowling

Bowlers should note the following correction on this year's application form: The Mixed Leagues will be bowling Thursday nights in Shirley, not in Port Jeff.

Golf

In weather best described as hazy, hot, humid and just plain horrid, 69 BNL golfers tested their skills at the Middle Island Country Club on Tuesday, August 2. Those winners who managed to stay cool under the intense heat were:

Flight	Low Gross	Low Net
A	Steve Heald	Artie Dick
B	Mike Losquadro	Ed Smith
C	Bob Brown	Howard Vetter
D	Mike Clancy	See-Meng Wong
E	Dennis Malloy	Bill Cahill

Long-Drive Winners: Dennis Hall, John Hildenbrand.
Closest-to-Pin Winners: Larry Musso, Joe Fortunato.

In other Lab golf news, Jim Morris stunned his playing partner, as well as his opponents, by shooting his first hole-in-one on the seventh at Swan Lake.

Softball

Standings as of week of August 1

League I	W	L	League II	W	L
Phoubars	9	2	AMD Bombers	7	2
Blue Jays	8	3	Scram	7	2
Six Pax	7	4	Titans	6	3
Light Source	7	4	Phase Out	6	4
Ravens	6	5	Scrambled Legs	5	3
Bandits	6	5	Dirty Sox	5	4
Cool 'n Gang	4	7	Bombers	3	5
Sudden Impact	3	8	Medical	1	8
Cutting Edge	3	8	Moles	0	9
Magnuts	2	9			

League III	W	L	League IV	W	L
Survivors	10	1	Spacekadets	10	1
Snakebites	9	2	Underalls	8	4
Simply Awesome	8	4	7th Inning Stretch	6	6
Hounds & Foxes	6	6	Turkeys	6	6
Kidz-R-Us	4	7	Sandboxers	5	6
Farm Team	4	8	The Far Side	4	6
Foul-Ups	3	8	Mudville Sluggers	3	6
Source	2	10	Who Cares	2	9

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Have Wheel, Will Travel

How do you get the kinks out after sitting at a typesetting terminal all morning? Michele Dickerson's solution is to take a lunchtime spin on her unicycle. When the weather is favorable, Dickerson pedals from Bldg. 197, where she works in Graphic Arts' Composition Group, to the parking lots opposite Berkner Hall. There she practices "getting down my turns. Going straight is easy. Turns are much harder."

Dickerson first took up unicycling as a ten-year-old growing up in Mattituck, but her skills got rusty as other interests captured her attention. Two years ago she decided to try the hobby again and bought her present unicycle. —photos by Stoutenburgh

Scoop of the Week

Two scoops are awarded for week six of the Scoop of the Week contest: One to Lenore Dudzick, Personnel Division, for informing the Bulletin about employee support for Bob Heimerle, who has received a heart transplant, and his wife Marion, who is at his bedside in Salt Lake City; and a scoop to Dolores Knighton, Photography & Graphic Arts Division, for the hot tip about Michele Dickerson's unicycle riding.

Trade your hot tips for cold scoops of frozen yogurt this summer by calling Ext. 5053 or writing the Bulletin, Bldg. 134, with your ideas for news or features. If you scoop the Bulletin's informed sources and a story based on your idea is published, you'll win an official certificate for soft-serve yogurt. While you may want to frame it, or at least hang it on your bulletin board, you can redeem the certificate anytime at the Cafeteria.

Arrivals & Departures

Arrivals

John J. Butler ..... Accel. Dev.
Anthony Costantini ..... Plant Eng.
John DeBoer ..... AGS
Richard P. Giesler ..... Sfgrds. & Sec.
Al P. LaPlaca ..... Physics

Departures

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

Feliciano Illana ..... Plant Eng.
Audrey L. Karzenski ..... Accel. Dev.
Jeffrey L. Snead ..... S&EP

WIS Art Auction In September

Reserve the evening of Saturday, September 17, to attend an art auction at Berkner Hall, for the benefit of the Renate W. Chasman Scholarship for Women fund. The auction, run by Marlin Art, will be an entertaining, informative event and an opportunity to acquire works by established artists. Watch the Bulletin for details in September.

Note to Diners

The Cafeteria will be closed on Saturday, August 13. On that day, snack bar service will be available from 9 a.m. to 2 p.m. at the Brookhaven Center.

Cafeteria Menu

Week of August 15

Monday, August 15

Potato-bacon chowder	(cup)	.75
	(bowl)	.95
Baked ham & fruit sauce w/1 veg.		3.10
Pasta w/turkey & 1 veg.		3.05
Batter-fried fish w/1 veg.		2.95
Hot deli: Pastrami	(bread or roll)	2.85
	(hero)	2.95

Tuesday, August 16

Chicken noodle soup	(cup)	.75
	(bowl)	.95
Italian lasagna w/garlic bread		3.05
Shrimp chow mein over rice		3.10
Beef liver w/1 veg.		2.95
Hot deli: Roast beef	(bread or roll)	2.85
	(hero)	2.95

Wednesday, August 17

Vegetarian cucumber soup	(cup)	.75
	(bowl)	.95
Braised Swiss steak w/sauce & veg.		3.10
Baked stuffed shells w/garlic bread		2.95
Roast prime rib of beef w/1 veg.		3.95
Hot deli: Breast of turkey	(bread or roll)	2.85
	(hero)	2.95

Thursday, August 18

Chicken vegetable soup	(cup)	.75
	(bowl)	.95
Baked meat loaf w/1 veg.		2.95
Chinese pepper pork over rice		3.10
Marinated chicken breast w/1 veg.		3.05
Hot deli: Grilled Reuben sandwich		2.85

Friday, August 19

Seafood gumbo	(cup)	.75
	(bowl)	.95
Moussaka w/1 veg.		2.95
Baked fresh fish w/1 veg.		2.95
Tortellini w/garlic bread		2.95
Hot deli: Corned beef	(bread or roll)	2.85
	(hero)	2.95

Help Wanted At Cafeteria

Marriott Corporation, which runs the Cafeteria, needs several new employees to serve as cooks and to fill utility and general positions. Marriott Corporation is an equal opportunity employer. Anyone interested may apply in person at the Cafeteria. For more information, call Ext. 3541.

Look for LINK.bnl

LINK.bnl, the new computer newsletter for BNL, was delivered to your building this morning. Please be sure to pick up your copy.

Soho Came to BNL

Roger Stoutenburgh

The sculpture "Double Falls," by Cherie Reichgut, was one of 37 two- and three-dimensional artworks from the Pindar Gallery in Manhattan, which were viewed by more than 300 guests in Berkner Hall last week as part of the "Soho Comes to BNL" exhibit. Discussing the steel piece are: (from left) exhibit attendees John and Harriet Castro; Clare Sheppard, who chairs the BERA Art Committee, which arranged the exhibit; and Sandra Bond, one of several Art Committee members who hosted visitors during the show.

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.

LABORATORY RECRUITMENT - Opportunities for Laboratory employees only.

2915. MATERIAL HANDLER - Supply and Materiel Division.

2916. BUDGET POSITION - Requires a BS in business administration (master's degree desirable), a strong background in business systems development, and extensive pertinent work experience. Excellent analytical, written and oral communication skills are required. Responsibilities will include overall administration, coordination and control of an assigned area of the Laboratory budget and coordinating the development of business systems in the Budget Office. Will be expected to exercise a high degree of initiative and judgment in the performance of the work and will be required to coordinate budgetary matters with both Laboratory and Department of Energy staff. Budget Office.

2917. SECRETARIAL POSITION - Requires AAS in secretarial science or equivalent and thorough knowledge of Laboratory policies and procedures. Will provide varied secretarial support to Networking/Engineering/Telecommunications Division. Duties include report preparation, travel arrangements, data entry and filing. PC experience helpful. Applied Mathematics Department.

2918. SECRETARIAL POSITION - (temporary/part-time) Requires AAS in secretarial science and a knowledge of Laboratory policies and procedures. Under general supervision will provide varied secretarial support. Responsibilities will include preparing correspondence and reports on a MICOM word processor, establishing and maintaining files and records systems and arranging travel. (Reposting Job #2888) Department of Applied Science.

2919. SECRETARIAL POSITION - Requires AAS in secretarial science or equivalent and a thorough knowledge of Laboratory policies and procedures. Will provide varied secretarial support for Atmospheric Sciences Division. Duties will include preparing technical reports, maintaining travel and purchasing records and assisting in small group library. Word processing essential. PC experience helpful. Department of Applied Science.

OPEN RECRUITMENT - Opportunities for Laboratory employees and outside applicants.

2920. RADIOACTIVE MATERIALS TECHNICIAN - Requires an AAS or equivalent capabilities in chemical technology or chemistry. Will assist with the operation and maintenance of Linac Isotope Producer. Duties will include remote processing of accelerator and reactor-produced radionuclides in the Hot Laboratory. Radiochemistry experience desired. Demonstrated mechanical ability essential. Medical Department.

2921. TECHNICAL POSITIONS (2) - Requires AAS in electronic technology or equivalent. Previous experience with electronic test instruments, high voltage and/or high current power supplies essential. Familiarity with computer operations highly desirable. Duties will include the testing of cryogenic magnets. Shift work may be required. Accelerator Development Department.

2922. SYSTEMS ANALYST POSITIONS (3) - Requires a bachelor's degree, an MBA is highly desirable. Several years experience in the development of Accounting or Human Resources/Payroll Systems necessary. Must possess excellent communications skills as well as hands-on experience in the development of major business systems applications in an on-line processing environment. Experience in COBOL programming and knowledge of the application of fourth generation languages preferred. Management Information Systems Division.

2923. TECHNICAL POSITION - Requires AAS in mechanical technology or equivalent with one to five years' experience in one or more of the following areas: machine shop fabrication, mechanical assembly, precision inspection, maintenance of mechanical equipment. Will perform technical functions related to fabrication and assembly of superconducting particle accelerator magnets. (Reposting of Job #2684) Accelerator Development Department.

2924. TECHNICAL POSITIONS (2) - Requires an AAS degree with an emphasis on engineering or physical sciences or the equivalent (AAS in health physics is desirable). Responsibilities include routine radiation and contamination surveys. Requires participation in respirator, industrial hygiene and general safety training programs. Safety & Environmental Protection Division.

2925. DESIGNER POSITION - Requires AAS degree in mechanical technology or the equivalent experience. Experience in the preparation of piping layouts and working drawings for water pumping systems and water distribution lines is essential. Ability to work from sketches and field measurements is important. Knowledge of AWWA, NRPA, ASME and ANSI standards is desirable. Alternating Gradient Synchrotron Department.

Motor Vehicles & Supplies

87 TRAVELMASTER MOTOR HOME - 24', a/c, TV, awning, rear bed, bath, excel. cond., $26,000. 929-8772.

86 PLYMOUTH VOYAGER - 47k mi., a/c, new tires, brakes, balance of warrantee, excel. cond., $9,500. 821-1169.

86 MITSUBISHI 4x4 TRUCK - sleeper cap, 5-spd., am/fm, must sell, asking $6,800. Jack, Ext. 5562.

86 MAZDA B2000LX TRUCK - am/fm cass., bucket seats, cruise control, black/grey, mint cond., $5,500. Dorry, Ext. 2103 or 286-8689 eves.

85 CADILLAC ELDORADO - white, 2-dr., sunroof, a/c, new tires, 57k mi., top cond., real beauty, only $10,500. 475-9055.

84 BUICK SKYLARK - am/fm, a/c, 57k mi., excel. cond., asking $3,800. Ext. 4242 or 751-7508.

84 CADILLAC COUPE DeVILLE - rebuilt eng., all new parts, asking $5,500. 284-4980.

83 BUICK REGAL - a/c, p/s, p/w, am/fm, champagne, landau top, excel. cond., $4,500 neg. Bob, Ext. 7238.

83 TOYOTA COROLLA - rwd, 4 cyl., a/t, 2 dr., p/b, a/c, 48k mi., excel. cond., $4,000. Ext. 2944.

82 MAZDA PICKUP - long bed, 5-spd., good cond., cap, $2,200. Ext. 3841 or 757-7676.

82 FORD ESCORT - 91k mi., a/c, am/fm cass., new clutch, exhaust, good cond., $950. Ext. 4600 or 3079.

81 PLYMOUTH HORIZON - 2 dr., am/fm cass., runs, need work, asking $200. 744-5093.

81 BUICK SKYLARK - 4 dr., V-6, runs & looks ok, Ext. 5286.

80 AUDI 4000 - 4-cyl., 4 spd., 93k mi., $2,200. Ron, Ext. 3987.

80 YAMAHA 850 MOTORCYCLE - special, full fairing, trunk, 6k mi., excel. cond. Ext. 2674 or 878-0175.

80 CHEVY CHEVETTE - 4 dr., hatchback, a/t, 80k mi., am/fm, excel. mech. cond., $600. Gene, Ext. 2055.

80 BUICK SKYLARK - 4 dr., full power, new trans., orig. owner, excel. cond., $1,500. Ext. 3593.

79 COUGAR XR7 - fully loaded, must sell, make offer. Tony, 698-9274 after 6 p.m.

79 OLDS CUTLASS - orig. owner, looks & runs great, garaged, retiring, make offer. Walter, Ext. 4605.

78 DODGE ASPEN - runs well, high mileage, no dents, $500. 924-0960 after 5 p.m.

78 JEEP CJ-5 - good mech, cond., needs body work. Rich, Ext. 2403 or 485-4316.

78 CAMARO Z28 - yellow, needs engine work, good cond., $1,000. John, Ext. 4847 or 732-4068 after 6 p.m.

78 DATSUN B210GX - am/fm cass., new tires, good cond., 5-spd., must sell, $500 or best offer. Jim, Ext. 2432.

78 DODGE COLT WAGON - $300. Andrew, Ext. 5161.

77 FORD LTD - p/s, p/b, a/c, am/fm, good for parts, best offer. Ext. 4713.

76 DATSUN 280Z - blue, good cond., runs well, $1,500 neg. 929-3063.

75 BMW R-90 MOTORCYCLE - 900cc, very good cond., $1,700. Roger, Ext. 7518 or 878-8847.

75 TOYOTA PICKUP - a/t, cap, sunroof, Blaupunct stereo, $995. Hank, Ext. 3848 or 472-0553.

74 TOYOTA CELICA - 5-spd., needs some work, $200 or best offer. Warren, Ext. 4939 or 924-7552.

74 FORD PICK-UP - crew cab, insulated cap, dual tanks, needs work, best offer. 924-7262.

74 DUSTER - runs great, needs tires, body fair, a/c, $150. Rick, Ext. 3355 or 331-0482.

74 CHEVY IMPALA - runs well, $400. Ext. 3852 or 929-6933.

74 MG BGT - very good cond., 74k orig. mi., $3,100 or best offer. John, 286-9334.

72 OLDS CUTLASS SUPREME - runs well, new tires, $300. Wick, Ext. 7868 or 758-6773.

72 BUICK GS - ram-air, V-8, a/t, a/c, p/b, emerald green, mint, $5,695. Ext. 2198 or 744-4662.

71 FORD TORINO - 2-dr., a/t, p/s, p/b, 76k mi., $450. Pete, Ext. 2498.

70 CHEVY NOVA - runs well, $425. 878-4448 after 5:30 p.m.

70 POP-UP CAMPER - sleeps 6, asking $600. 286-4805.

69 & 70 VW CARMANN GHIAS - both running engines, 1 good body, all glass, best offer. Henry, Ext. 5110 or 399-6947.

69 PONTIAC LeMANS - 2 dr., red/white, V-8, a/t, runs well, $600 or best offer. Jim, 744-3792.

63 CORVAIR CONVERTIBLE - runs, $500. Adam, 289-2939.

TIRES - 2 AR78-13, 2 155R13, 2 150SR13, good cond., $5 ea. Al, Ext. 5128.

TIRES - 2 Uniroyal P195-75-14 WW, mounted on '82 Pontiac Firebird wheels, balanced, good cond., $30. 475-8658.

SNOW TIRE - G78-14, on GM wheel & regular tire on GM wheel, $10/both. 473-3364.

TIRE - new, 721 Firestone 235/75R15, Eldo rim, $75 neg. Ernie, 588-4987.

RIMS - for Monte Carlo SS, $125/each. Ralph, Ext. 2238.

TIRES - 4, General steel belted radials, P195 SR15, sell or trade for 14" radials. Ext. 4867.

H/D ROOF RACK - for medium or full size car, $15. 924-2726.

MIRRORS - for trailer towing, Universal set, $25. Artie, Ext. 4988 or 325-0743.

CAR BICYCLE CARRIER - $10; car-top ski rack, $10. Sheryl, Ext. 4400.

TIRE - Goodyear Attracker, 31/10-15, new, $50. Tony, 269-9510 after 7 p.m.

Boats & Marine Supplies

19½' CORINTHIAN SAILBOAT - fiberglass w/full keel, sleeps 2, o.b, etc., $2,995. Ext. 4637 or 692-8659 after 6 p.m.

19' BAYLINER - 1980, 140 h.p. i.b.-o.b., good cond., $3,800. 671-1736 or 288-5839 weekends.

16' TRAVELER - fiberglass runabout w/1980 40 h.p. electric-start Mercury o.b., new teleflex sterring, lights. 589-4363 after 6 p.m.

8' SKIMMER - sailing dinghy, fiberglass, w/oars, oar locks and sail, good cond., $350. Ext. 2405.

ELECTRIC WINCH - for boat trailer up to 21', $55. Rich, 363-6845.

12' ALPHA WIND SURFER - poly hull, kick-up skeg and dagger, very stable, $395. 286-7698 eves.

6' VARNISHED OARS & OARLOCKS - 1 pair, v/g cond., $15. Walter, Ext. 4605.

SHIELDS 30 JIB - reel, halyard winch, anchor, misc. fenders, must sell, good/fair cond., reasonable. Ext. 3794.

MERCURY ENGINE - 50 h.p., 1976, electric start, w/controls & cables, $600; 1975 Mercury 50 h.p. parts, $125. 281-4337.

OUTBOARD MOTOR - 7.4 h.p. Mercury, 3-hr. time, gas tank, excel. cond., $450. 473-0178.

ATOMIC FOUR ENGINE - w/attached trans., good for parts, $50 or best offer. Ext. 2405.

OUTBOARD MOTOR - 7½ h.p. Sears Best, std. shaft, only 37 hrs. run time, $125. 475-8658 between 4 p.m. & 9 p.m.

Miscellaneous

LIVING ROOM FURNITURE - 2 Mediterranean chairs, 2 pecan wood end tables, 1 coffee table, $450. 751-3178.

BUNK BED - pine, upper mattress only, 2-yrs. old., $40. Ext. 3523.

DRESSER - hardwood w/mirror, pecan finish, good cond. Scott, Ext. 3369.

LOUNGE CHAIR - & ottoman, brown, $75; brass-coated andirons, $5. Ellie, Ext. 3395 or 325-1537.

SEWING CABINET - antique, wood, three drawers, two bins, $10; typewriter, manual Royal, $10. 286-8521.

CRIB - w/mattress, dresser, $300; sofa, loveseat, Key City, printed velvet, $200. Fran, Ext. 4835 or 744-4061.

CONVERTIBLE SOFA - loveseat, single bed, never used, cost $450, $200 firm; Lazy Boy recliner, clean, $100. 728-0273 eves.

COUCH - ottoman, rocker, side chair, Colonial, good cond., $100. 281-9412 after 5 p.m.

OAK HUTCH - MLU, excel. cond., $375; men's 3-spd. Schwinn bike, $75. 924-3082.

PLAYER PIANO - electrified antique w/about 2-doz. rolls, $950; Optigon organ w/discs, $100. 475-7974.

FURNITURE - child's bedroom & living room, best offer. 473-4668.

WASHER & DRYER - G.E., heavy duty, excel. cond., $300 both; G.E. Potscrubber dishwasher, portable, $35. Ext. 2434.

WASHER - Kenmore, $75; dryer, $40; dryer. $75; dishwasher, $40; piano, Boston pool, $450. Ext. 3852.

AIR CONDITIONER - window, Admiral 5,000 Btu, 115 volts, good operating cond., $65. 475-8658 after 4 p.m.

AIR CONDITIONER - 7,500 Btu, $175; hanging lamp fixtures, $20; antique typewriter, $30. 744-2203.

WOOD STOVE - end tables, desk, Acrosonic piano, dining room, bed room sets, chairs, more. 473-2754.

WINDOWS - alum., misc. sizes, make offer; boy's bike, Huffy, 24', $55. Jerry, Ext. 7427 or 475-5591 eves.

LAWN MOWER - Toro 21" cut rotary w/bag, electric starter, like new, $90. Dan, Ext. 4987 or 698-7322.

LAWN TRACTOR - 8 h.p., needs parts; lawn mower, good cond., needs tune-up; 3 tires & wheels for Chevette, make offer. Ext. 7204.

LAWN MOWER - Sunbeam, 19" cut rotary, 3 h.p., Tech. eng. $50. Dan, Ext. 4987 or 698-7322.

RIDING MOWER - Simplicity Landlord, 10 h.p., 42" mower unit, attachments, dozer blade and chains, tiller w/hitch. 281-8118.

POOL COVER - for 18' round pool, $25. Ext. 238.

EXTENSION LADDER - aluminum, opens 18', $20. 924-3082.

TREE STAND - Baker, aluminum, excel. cond., 12' high, w/ext. ladder, $75. Bob, 757-3178.

TOPSOIL - fine, screened, $18 per yard delivered, also peat moss, sand/gravel blend. 924-9427.

COMPUTER - MacIntosh SE, 20 megabyte hard drive, lots of software, Imagewriter II printer incl. Ext. 4142 or 345-3915.

STEREO RECEIVER - am/fm, 20w/channel, rms, in good cond., $50. Dave, 878-8541.

BICYCLE - boy's 10-spd., 24" wheels, like new, $65. Alan, Ext. 2928 or 821-1389.

BICYCLE - 27" Raleigh, black, 10-spd., brand-new, cost $170, asking $115, firm. 286-7698 eves.

BICYCLES - men's 26" 10-spd., $25; Ross 236ZFX BMX, rims, red, $50; 18" Huffy Sweet Thunder, $20; Ross BMX, $30. 924-5419

FISHING GEAR - offshore, many brand-new, in excel. cond., list. 728-0273 eves.

TENNIS RACKET - oversized, 4½" grip, Prince graphite, very good cond., cost $200, asking $80. Bob, 757-3178.

COOLER - 75 quart poly Coleman, $25; Sears Hillary 13'x10' family tent, sleeps 8, $50. 581-6432.

COCKER SPANIELS - adorable, 7-weeks-old, AKC registered, black, males, vet-checked, shots, $375. 821-9709.

KISSING GOURAMI - pretty pink, $1.50. 981-5696.

ENGAGEMENT RING - diamond solitare, ½ carat, $800. Frank, Ext. 3843 or 325-9584 eves.

Free

NATIONAL GEOGRAPHIC COLLECTION - 1950 to 1987. You pick up. 581-6432.

MALE CAT - Nicky needs a home, I'm moving, please help. Ext. 2468.

Car Pool

PLAINVIEW - 4th driver needed. Elliott, Ext. 2495.

STONY BROOK - van pool riders wanted to Lab, it's the only way to go. Sid, Ext. 4125 or Paul, Ext. 2476.

Real Estate

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

For Rent

BROOKHAVEN - 3 bdrm. house, quiet neighborhood, fenced yard, avail. Sept. 1, $775/mo. + util. Ext. 3084 or 281-3479 eves.

SHOREHAM - 1 bdrm. apt., clean, large kitchen, l/r, full bath, priv. ent., working person, $550/all. 744-8659.

SOUND BEACH - new 1 bdrm. apt., priv. ent., parking, full bath, eik, cable, single, non-smoker, $550/mo. all., 1 mo. sec. Ext. 7918 or 744-3068.

S. JAMESPORT - cozy cottage, 1 bdrm., l/r, eik, bath, porch, furn., suit. couple, walk to beach, 30 min. from lab, no children/pets, $500/mo. + util. Walt, Ext. 2907 or 698-0576.

CATSKILLS - chalet, 3 bdrm., fully furnished w/sleeping loft, near Hunter Mtn. music festivals, golfing, rafting, hiking, fishing. Bea, Ext. 3642 or Kay, Ext. 4501.

GILBOA, NY - 2 bdrm. chalet, sleeps 6, private, on top of mountain, good fishing, near Hunter Mtn., festivals, rent by weekend-month. Ted, Ext. 4052 or 928-1445.

HILTON HEAD, SC - 2 bdrm. condo, sleeps 6, beach, pool, tennis, golf, June-Sept., $420/wk. 588-9149.

For Sale

CENTER MORICHES - 3 bdrm., 1½ bath, attached garage, storage shed, trees and shrubs, ⅓ acre plus, walk to water, $144,900. 878-0175.

EAST MORICHES - one acre building lot, nice location, beautiful old trees, good land, privacy, city water. Ext. 3298 or 878-2172.

FLANDERS - 3 bdrm, 2 baths, library, cathedral ceilings, skylights, f/p, bay windows, patio, 1.5 acres, beach pass, $225,000. 369-1363.

MANORVILLE - restored 60-yr.-old house, 4 bdrm., l/r, d/r, 2½ baths, porch, full bsmt., oak floors, 1½+ acres, $195,000. 878-8875 after 6 p.m.

MIDDLE ISLAND - Artist Lake condo, 1 bdrm., l/r, kit., bath, a/c, new w/w, dishwasher, clubhouse, sauna, pool, gas heat, 5 min. to Lab, $82,500. Ext. 3144 or 234-2240, 698-5046 eves.

MILLER PLACE - Scotts Beach, 4 bdrm. ranch, ½ acre plus, private beach community, sunroom, spa, pool, city water, $190,000. Judy, 473-6631 after 5 p.m.

NORTH SHIRLEY - 4 bdrms., 2 baths, 1½ kit., l/r, d/r, den, fam. rm., w/w carpet, 6 appli., garage, vinyl siding, ½ acre, possible m/d, 8-months-old, $157,000. Ext. 4605, 395-5991 or 281-5456.

PORT JEFFERSON - Harbor Hills, 4 bdrm., split ranch, d/r, eik, family rm. w/fp, brick patio, oak floors 24'x44' basement, $189,900. Ext. 4483 or 929-5699.

SHOREHAM - 3 bdrm. ranch, garage, above-ground pool, fenced yard, ½ acre, 10 min. to Lab, SWR schools, $137,000. 821-3373.

SHOREHAM - 3 bdrm. ranch, carpeted, coal stove, pool, priv. fenced backyd., 2½-car garage, low taxes, SWR schools, clean, move-in cond., $135,900. 744-9677.

WADING RIVER - 3 bdrm. ranch, 2 baths, l/r, d/r, eik, screened room, 1 acre, $178,000. 929-3251.

WADING RIVER - 3 bdrm. ranch, eik, d/r, l/r, solar, ¼ acre, low taxes, walk to Sound, excel. cond. 929-3207.

YAPHANK - 3 bdrm. condo, end unit, brick front, full bsmt., attached garage, ca/c, w/w, 5 appl., pools, tennis, clubhouse, $123,900. 924-0612.

KISSIMMEE, FL - 7½ acres, Disney/Epcot area, close to proposed horse race track, build your own home, $35,000. (407) 260-1921.

PALM COAST, FL - ¼ acre lot, 80'x125', 5 mi. to ocean, 24 mi. no. of Daytona Beach, water, drainage, & sewage util. in, $3,995 & assume payments, must sell. Thomas Nolan, Ext. 5265.

ROCKLEDGE, FL - block & stucco, 2 bdrms., 2 baths, fam. rm., 11'x25' porch, carpet, shades, some drapes, extras, good loc., $64,500. (407) 631-2840.

HILTON HEAD, SC - 3 bdrm. condo, sleeps 8, 2 baths, washer/dryer, wet bar, 6 tennis courts, 3 pools, whirlpool, golf, ocean view, asking $89,000, will rent. 929-8912 or 324-2832.

Wanted

CEMENT MIXER - Wet Saw/Bobcat, to buy or rent. Tony, 698-9274.

BABY ITEMS - high chair, stroller, car seat, etc. Ext. 7192.

BABYSITTER - Stony Brook, my home, starting in Sept., full-time, infant & 3 year-old. Sally, Ext. 3854.

HOUSEMATE - share condo, 4 mi. from Lab, fully furnished, a/c, cable, pool, tennis, $350 all. Ext. 3160 or 924-2430 after 5 p.m.

HOUSEMATE - non-smoker, share 3 bdrm. 2 bath, hi-ranch, 10 min. to lab, $450. Ext. 4023 or 929-3721.

HOUSEMATE - master bdrm., private bath, furnished, 4 miles to lab, $365 + ¼ util. Mike, Ext. 2671 or 924-2865.

TWO LARGE SUITCASES - in good cond. Yosepha, Ext. 3403 or 3133, days, or Ext. 3129, eves.

ALUMINUM BOAT - 14'-16', preferably w/steering console. Joe, Ext. 2898 or 728-1859.

VENDORS - for craft sale on Sept 10, at Ridge FD. Paul, 924-8143.

HEARSE - to buy, Fritz, Ext. 4049.

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

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