BROOKHAVEN BULLETIN
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BROOKHAVEN NATIONAL LABORATORY

Lederman, Schwartz, Steinberger Win Nobel Prize For 1962 Discovery of Muon-Neutrino at AGS

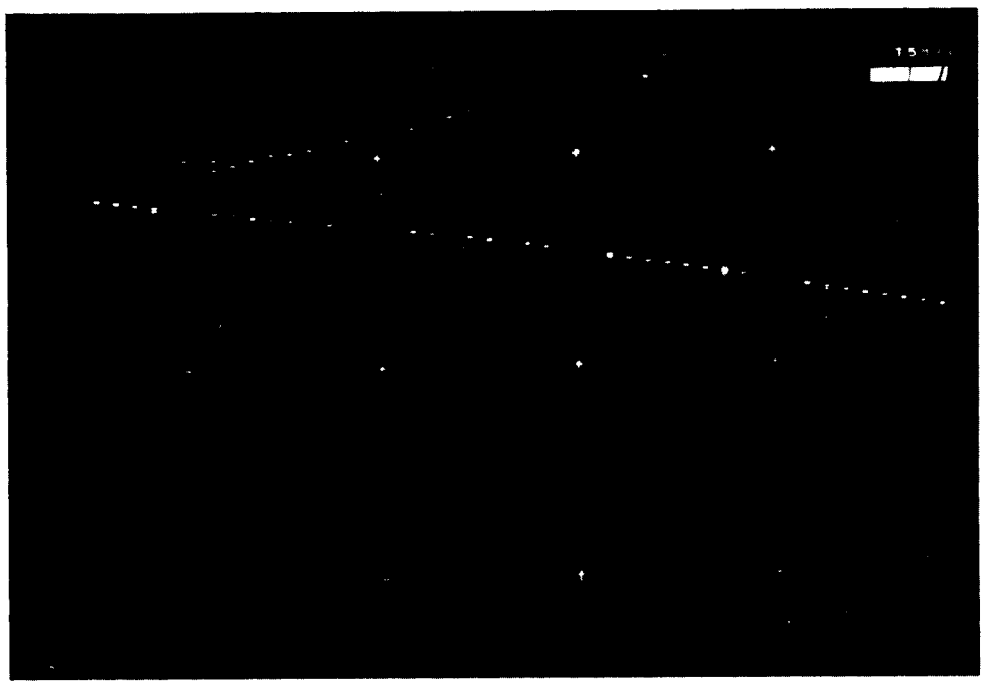
For the third time, the Nobel Prize has been awarded for research carried out using Brookhaven's Alternating Gradient Synchrotron (AGS).

The latest such honor came on Wednesday, October 19, when the Royal Swedish Academy of Sciences awarded the 1988 Nobel Prize in Physics jointly to Leon Lederman, Melvin Schwartz and Jack Steinberger. They were cited for a 1962 AGS experiment that employed the first neutrino beam ever used in high energy physics and resulted in the discovery of the muon-neutrino.

Other Nobel Prizes for research done at the AGS have been awarded to James Cronin and Val Fitch in 1980, for their 1963 discovery of CP violation, and to Samuel C.C. Ting, who shared the award in 1976, for the 1974 discovery of the J/psi particle.

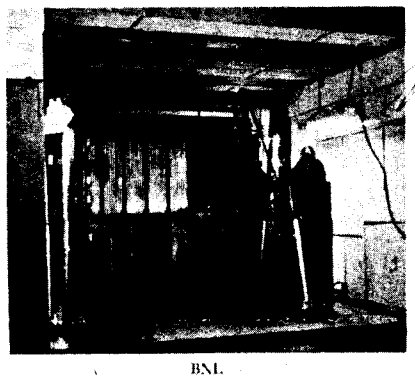
BNL Director Nicholas Samios summed up the Laboratory's reaction to the latest good news, saying, "We congratulate the winners on this well-deserved award, and we are extremely pleased because it was done at Brookhaven — one of many great experiments done here. This one was a tour de force — at that time, it involved one of the biggest detectors you could think of — ten tons — to detect neutrinos. It was a pioneering experiment. It opened up a whole new experimental area of physics and was the forerunner to all the neutrino experiments done all over the world."

On a more personal note, Samios, continued, "I am particularly thrilled by this because I was Steinberger's thesis student at Columbia University, and Mel and I were graduate students together and performed many experiments together at Brookhaven."

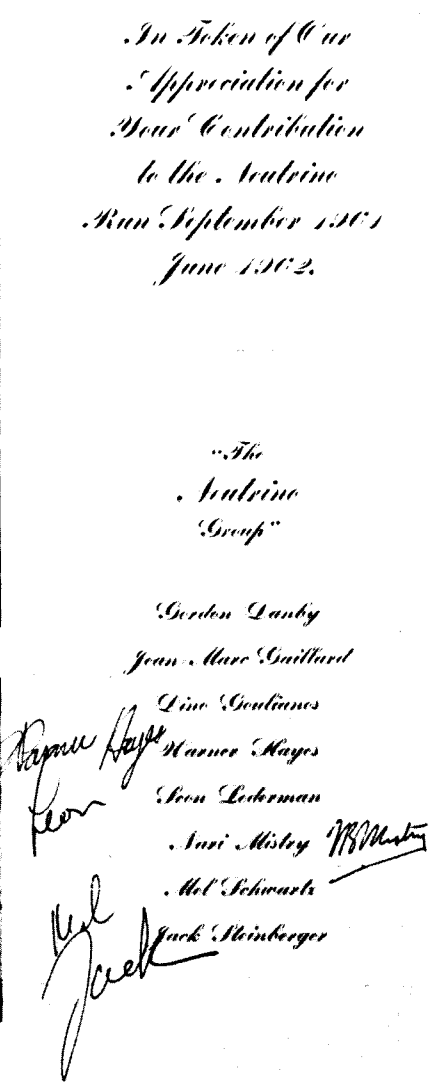


NEUTRINO EVENT

COLUMBIA (NEVIS)



BNL



This composite was presented to all those associated with the 1988 Nobel Prize-winning AGS experiment 28, at the end-of-run celebration in June 1962. Shown in this print, which was signed by some of "The Neutrino Group" members including Nobel laureates Leon Lederman, Mel Schwartz and Jack Steinberger, are (counterclockwise from bottom right):

• The ten-ton spark chamber, within the 42-foot-thick shielding wall.

• The result of a neutrino collision in the spark chamber: The long, straight spark track is that of a muon created by an incident neutrino.

• The experimental team: (from left) Jack Steinberger, Dino Goulianos, Jean-Marc Gaillard, Nari Mistry, Gordon Danby, Warner Hayes, Leon Lederman and Mel Schwartz. All were from Columbia University, except Danby who was with BNL.

The Winning Team

At the time of their award-winning research, Lederman, Schwartz and Steinberger were all associated with Columbia. Today, Lederman is Director of Fermi National Accelerator Laboratory; Schwartz is president of his own firm, specializing in computer communications, Digital Pathways, Inc., Mountain View, California; and Steinberger is a senior physicist at CERN, the European particle physics laboratory.

In addition to the three Nobel laureates, the research team included three Columbia graduate students, Jean-Marc Gaillard, Dino Goulianos and Nari Mistry. Also on the team were Warner Hayes, then the team's electronics technician from Columbia and now with BNL's Reactor Division, and BNL Physicist Gordon Danby, still with the AGS Department, who originally served as liaison between the experimenters and BNL, and then became a full member of the team.

Hayes recalled "a special bond that was built up in the group. It was a small group, and everyone worked hard on a complicated experiment. I was very fortunate to be part of it, and I'm pleased to have contributed to something that will be an everlasting monument."

Best-known today as the coinventor of superconducting, magnetically levitated trains — an idea he and BNL Physicist James Powell were working out "at exactly the same time" as the AGS experiment was going on, Danby was excited for his colleagues, calling the award "well-deserved, for a landmark experiment."

Dr. N. Samios
Director

Dear Nick,

The honour that Leon, Mel and I are now enjoying belongs largely to the Lab of which you are the Director. To my great pleasure, please accept, in the name of BNL, my heartiest congratulations.

Jack Steinberger
CERNLab

Text of cablegram received October 20.

How Many Neutrinos?

The experiment was designed to answer a critical question of the day: Are there two kinds of neutrinos — one associated with the electron and one with the muon?

Neutrinos are ghostlike particles associated with the weak interaction, the force responsible for radioactivity and nuclear decay. All matter is transparent to neutrinos, so they can pass through any wall unaffected. Until the discovery at the AGS, only one neutrino was known, and it was part of the "first family" of fundamental leptons, the others being the muon and the electron — a total of three.

The hadron sector of particles — protons, neutrons, strange particles, etc. — could also be characterized by three quarks — up, down and strange. This experiment, which detected two types of neutrinos, suggested that the symmetry consists of two doublets, totaling four particles.

Before this, the only way to study neutrinos was with spontaneous radioactive decay processes, such as the beta decays of unstable nuclei. To study the effect of the weak force at high energies, however, a beam of neutrinos would be required.

AGS Makes It Possible

That became possible with the 1960 commissioning of the AGS, which could accelerate protons to energies of 33 billion electron volts and was the world's highest energy accelerator until 1968.

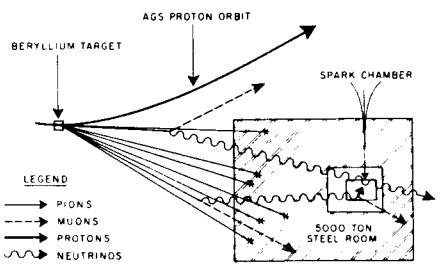
Thus, Lederman, Schwartz and Steinberger submitted a proposal for producing and using a beam of neutrinos for high energy physics research at the AGS. As Danby said, "They recognized that the AGS was capable of producing, an intense enough neutrino beam from pion decay, that you could expect on the order one event a day with a ten-ton detector."

Then the team spent two years working to achieve a sufficiently intense beam of neutrinos that was free from all other types of particles and to design a detector for measuring neutrino reactions.

The result was AGS experiment 28, which began with high-energy AGS protons striking a metal beryllium target, producing high-velocity pi mesons. These pions were allowed to travel about 70 feet before striking a shielding wall.

During their travels, about ten percent of the pions decayed into two par-

(Continued on page 3)



Schematic of the arrangement of experiment 28 at the AGS. A small fraction of the pions radiating from the bombardment of the beryllium target with AGS protons decayed into muons and neutrinos. The neutrinos penetrated the 42-foot-thick shield and entered the spark chamber, where muons that decayed from them could be detected.

BNL Lecture: High T_c Superconductors: The Current Prospects

High temperature superconductivity — the very words can conjure up intriguing visions of levitated trains running down the middle of the Long Island Expressway (LIE). But how realistic are such visions?

That's one of the questions that will be answered by David Welch, when he delivers the 246th Brookhaven Lecture on Wednesday, October 26. A materials scientist in the Department of Applied Science (DAS), Welch will begin his talk on "High Temperature Superconductors: The Current Prospects," at 4:30 p.m. in Berkner Hall. Masaki Suenaga, DAS, will introduce the lecturer.

To begin, Welch will discuss the history of superconductivity, the property which, at a low enough temperature, causes materials to lose all resistance to electricity. He will begin with the 1911 discovery that mercury becomes superconducting at 4.2 kelvins (−451.85°F) and trace developments to the most recent findings that certain oxide compounds can become superconducting at critical temperatures (T_c) as high as 126 K.

The high T_c superconductors can be cooled using liquid nitrogen, which is far less expensive than the liquid helium needed to chill conventional superconductors. Thus, the discovery of the new materials has opened up exciting new possibilities for commonplace applications. Welch will show a videotape to illustrate the Meissner effect, which makes possible such concepts as levitation.

Then, Welch will discuss some of the properties superconductors must have to make these concepts practical as well. For example, if high T_c were the sole criterion for determining a practical oxide superconductor, a levitated train based on high T_c superconductivity might already be under construction on the LIE. Other aspects of the new superconductors, however, must be considered.

To help his audience understand those aspects, Welch will give a minitutorial on the physical meanings of some of those other properties of the superconducting state.

In particular, he will discuss the characteristics of type II superconductors — those from which all practical applications, such as superconducting magnets, have thus far evolved — focusing on features that influence how much resistance-free current a superconductor can carry.

Welch's primary emphasis will be on critical current density — the maximum amount of a current that can be sent through a superconductor before its resistance reappears and it loses its superconductivity. As a theorist, Welch has been collaborating with DAS metallurgist Masaki Suenaga to study the problem of critical current density.

Welch will also review some of the other active areas of related research on the oxides now going on at BNL and elsewhere. He will conclude by summing up the prospects for the future.

David Welch earned his Ph.D. in physical metallurgury from the University of Pennsylvania in 1964, then spent a year at the Atomic Energy Research Establishment in Harwell, England, as a NATO research fellow.

He returned to the U.S. in 1966 to take an assistant professorship at Princeton University, until 1971. From 1966-68, he was also a consultant to Oak Ridge National Laboratory, and, in 1968, to Argonne National Laboratory. During 1970, he was a visiting professor of materials science at the Universidade de Sao Paulo and Universidade Federal de Sao Carlos, Brazil, and he is currently an adjunct professor of materials science and engineering at the State University of New York at Stony Brook.

Welch joined BNL's Physics Department in 1972, as an associate physicist, and was named Physicist in 1975. In 1977, he transferred to BNL's Department of Energy and Environment, which became DAS in 1983, where he is now Assistant Head of the Materials Science Division.

A member of the Brookhaven Council from 1985-88, Welch served as its chairman from 1986-87. Currently, he is a member of BNL's Interdisciplinary Task Force on High Temperature Superconductors.

All those interested in getting together with the lecturer are invited to go to a restaurant for dinner. To be part of this group, call James Hurst, Ext. 3844.

Roger Stoutenburgh

David Welch

Environmental Exchange

Roger Stoutenburgh

Exchanging greetings before the start of last Friday's informational meeting on BNL environmental issues are (from left) Suffolk County Executive Patrick Halpin and BNL Director Nicholas Samios. U.S. Congressman George Hochbrueckner also attended the session, which included tours of sites where BNL is monitoring the Lab's effect on the environment. Twelve other officials and aides, drawn from Brookhaven Town, Suffolk County, New York State and the federal government, were also on hand.

Lectures on Tape

Beginning with the 1988-89 Brookhaven Lecture series, all talks are being videotaped. After each lecture, two copies of the videotape will be available for loan at the Research Library. For more information, inquire at the Circulation Desk, Ext. 3483.

Drugs Have No Place In the Workplace . . .

Drug-Free America Week

October 24-30

Drugs at Work, **a film produced by the National Institute on Drug Abuse, will be shown twice on Wednesday, October 26 — at noon and at 12:30 p.m. — in Berkner Hall.**

For confidential assistance with drug-related problems . . .

On-site — Contact Clinical Psychologist Jannifer Hill, head of the Lab's Employee Assistance Program, Ext. 4567.

Off site — Call one of the following agencies:

- 1-800-COCAINE (24-hour hot line).
- Apple Inc., Hauppauge, 979-7300.
- Catholic Charities, 678-5800.
- Concepts for Narcotics Prevention, Inc., Northport, 261-2670.
- Family Service League of Suffolk County, 427-1768.
- Hispanic Counseling Center, Inc., Hempstead, 538-2613.
- Jewish Community Services of Long Island, (718) 896-9090.
- Narcotics Anonymous, 673-2954 (24-hour hot line).
- North Suffolk Mental Health Center, 265-3311.
- United Way of Long Island's "First Call for Help," 249-1100.
- Young Men's Christian Association of LI, Inc., 673-6260.

Smoking Policy Revised

Last week, BNL Director Nicholas Samios announced the following changes to the Laboratory's smoking policy:

- Smoking is now prohibited in all lunchrooms, in addition to conference rooms, seminar rooms and auditoriums, where smoking was previously banned. This includes all areas of the Cafeteria, except a location near the potted tree. By Monday, signs to this effect will be placed at the Cafeteria entrances and at the designated smoking area. Should this area prove too small, it will be expanded as necessary.

- If employees sharing work locations cannot resolve their smoking-vs.-nonsmoking problems within the department or division, they will be referred to Robert D'Angio, Manager, Personnel and Labor Relations Division, and nonsmokers will be given priority in the resolution of the problem.

First, however, employees should try to resolve their problems themselves, and, if necessary, with their supervisors. Past successful solutions have included the segregation of smokers and nonsmokers; the provision of desktop ashtray-filter units; and, in cases where it is cost-effective, the installation of air-purifying systems.

Other parts of the smoking policy remain unchanged:

- As always, smoking is prohibited in designated work areas for specific safety reasons.
- As before, employees working in private office areas may designate their work locations as no-smoking areas, and visitors to these offices are obliged to honor this designation.

For identifying no-smoking areas, wall signs and tabletop placards are available as stock items through the Supply and Materiel Division.

The Lab recognizes that these changes will be difficult for employees who smoke, and they are encouraged to contact Elaine Friedman, Health Promotion Specialist, for information on upcoming smoking cessation programs. For example, beginning Tuesday, October 25, twenty-five employees will begin a three-session Cigarette Break-Away Workshop, to be given on site by the American Lung Association, for which BNL will play half of the $50 fee for each participant. Though this program is filled, Friedman is now compiling a waiting list and will schedule another program depending on demand.

To get on the waiting list, or to get information about other stop-smoking programs, call Friedman on Tuesday, Thursday or Friday, on Ext. 2699.

Indoor Tennis

Sign-up for indoor tennis at the gymnasium will begin today, October 21. The gym is available for tennis from 5 p.m. to 9 p.m. on Tuesdays, and from 1 p.m. to 5 p.m. on Sundays.

Reservations can be made in person at the BERA Sales Office in Berkner Hall between noon and 2 p.m. on Monday for play the next day, and between noon and 2 p.m. on Friday for play the following Sunday.

Players are reminded that they are limited to one hour of court time per week for singles or two hours each per week for doubles.

team safety

Week 13 of the Team Safety* program is in the books, and the team records were again perfect as of the date of this report. Word on the field this week is the Mets should have had our bats. Despite the nip in the morning air, safety seems to be a hot topic. Keep it up!

**Twenty-five teams are participating in the Lab's Team Safety Program. As a team reaches its time goal without any lost-time injuries, team members are being rewarded for their safe practices with a luncheon.*

BERA Art Committee presents:

"DATA"

Employee Art Exhibit #11

Berkner Hall, Room B

Reception: Monday, October 24, 5-7 p.m.

Also: Tuesday and Wednesday, October 25-26, 11:30 a.m. to 1:30 p.m.

Helping People to Help Themselves

(From left) Pamela Campbell, Arlene Waltz and Michael Hurley of BNL are shown how to operate a special dispenser that is used by working AHRC clients to tape boxes.

Helping each client achieve a maximum level of self-fulfillment and independence is the goal of the Suffolk Association for the Help of Retarded Children (AHRC), which assists over 2,000 Suffolk families every year.

A group of 25 BNL United Way fund-drive representatives visited the AHRC at Bohemia last week. They met some of the clients at work painting pottery, and making gifts and other saleable items.

"We were very impressed," said Susan Foster, this year's BNL United Way fund-drive chair. "The clients were proud to show us their work. The satisfaction they derive from leading productive lives showed on their smiling faces. We found that the AHRC also arranges community residence for as many clients as they can, and the companionship at work and at home leads to much more normal lives than would be possible without the AHRC."

At the AHRC, highly trained staff work with volunteers in specialized programs to develop each client according to need and ability. Children learn how to learn, and adults are taught work skills — and many can then support themselves. Residential facilities and family counseling are also part of the AHRC service.

This program and many others just as important are all supported by the United Way — and BNL employees can support the United Way now!

This year, early pledge cards may win prizes. Pledges received by Monday, October 31, when this year's United Way campaign ends, will be included in a drawing to be held on Tuesday, November 1.

First prize is a weekend for two in New York City at the Marriott Marquis Hotel — with tickets for *Me and My Girl*, dinner, room, brunch and parking. Other prizes will be awards for dinner for two at restaurants around Long Island. For more information, call Susan Foster, Ext. 2888.

Photos by Stoutenburgh

BNL's (from left) Arlene Waltz, Susan Foster, Patricia Cahill, Judy Thompson and Cynthia Fridrich are shown the hand-painted pottery made by clients of the Suffolk Association for the Help of Retarded Children (AHRC), which is supported by the United Way.

A handicapped artist shows BNL'er Judy Giordano how she paints with a brush attached to her helmet.

Nobel Prize (cont'd)

ticles — a muon and a neutrino. Made of about 5,000 tons of iron, in the form of old battleship plates, the 42-foot-thick wall was sufficiently thick to stop all particles except the neutrinos, which passed through with ease.

Like a Neon Sign

On the other side of the shielding wall was the ten-ton neon gas-filled spark chamber, then a new and fairly untested type of detector. The detector consisted of a large number of aluminium plates with spark gaps between them. A muon or an electron produced by a neutrino in one of the aluminum plates photographed its own track as a series of sparks, using a special self-exposing device. "The particle tracks lit up like a neon sign," Danby remembered.

If there were only one type of neutrino —the electron-neutrino already noted in beta decay — electrons and muons would be produced in equal numbers. But if two kinds of neutrinos existed, only muons would result.

And muons are what the researchers saw. So, less than two years after the AGS first reached its design energy of 33 billion electron volts, the discovery of the muon-neutrino was announced in the July 1, 1962, issue of *Physical Review Letters*.

Thus, the discovery of the muon-neutrino accounted for the fourth member of the lepton family. Although it was not completely recognized until later, the muon-neutrino established the existence of different particle families.

In addition, the experiment transformed the ghostly neutrino into an active and important tool of research — as the high-energy neutrino beams used in experiments at the AGS and around the world.

— Anita Cohen

BROOKHAVEN BULLETIN

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Equipment Demo

All are invited on board the Polaroid Demonstration Station on Monday, October 24, when it will be parked outside Berkner Hall from 9 a.m. to 4:30 p.m. Visitors will be able to:

- Get hands-on experience with Polaroid's professional imaging systems.
- Talk with Polaroid representatives.
- See demonstrations of instant imaging systems that can produce color or black-and-white presentation visuals or hard-copy records from such sources as personal computers, video cameras and displays, flat art or three-dimensional objects, and passport and photo identification systems.

Women in Science

Sold to the Highest Bidder

Nearly $2,700 was netted at the Art Expo and Auction, on September 17, sponsored by Brookhaven Women in Science (BWIS) to benefit the Renate W. Chasman Scholarship for Women. This boost brings the Scholarship fund over $12,000.

To the 135 people who attended the benefit, 95 artworks were sold. Scholarship chair Eva Bozoki thanks both those who came to browse, as well as those who made a purchase, as both counted towards the evening's income for the fund.

The Chasman Scholarship is an annual award of $1,000 to a Long Island woman who, after an interruption, has returned to college to obtain a scientific or technical degree. Tax-deductible contributions can be made to the Chasman Scholarship Fund, P.O. Box 183, Upton, N.Y. 11973.

Wine & Cheese Party

BWIS invites all members and non-members to the annual Wine & Cheese Party, to be held at the Recreation Building on Wednesday, October 26, from 4:30 to 6:30 p.m.

Please come to meet the newly elected officers: Stephanie Lamontagne and Joyce Tichler, Group Coordinators; Pat Carr, Secretary; Pat Webster, Treasurer; Eena-Mai Franz, Program Chair; Carmen Benkowitz, Seminar-Lecture Chair; Eva Bozoki, Scholarship Chair; Betty McBreen, Publicity Chair; and Susan Eng, Membership Chair.

No reservations are necessary.

Cafeteria Menu

Week of October 24

Luncheons

Monday, October 24

Soup: Beef barley	(cup)	.75
	(bowl)	.95
Chili con carne w/veg.		2.95
Cheese blintze w/fruit sauce		2.95
Lite-line: Broiled chicken w/veg.		3.10
Hot deli: Baked ham	(bread or roll)	2.85
	(hero)	2.95

Tuesday, October 25

Soup: Cream of mushroom	(cup)	.75
	(bowl)	.95
Salisbury steak w/gravy & veg.		3.10
Chicken cacciatore w/rice		3.10
Lite-line: Baked fish w/veg.		3.10
Hot deli: Corned beef	(bread or roll)	2.85
	(hero)	2.95

Wednesday, October 26

Soup: Split pea	(cup)	.75
	(bowl)	.95
Chinese pork w/yellow rice		3.10
Seafood Creole over rice		3.10
Lite-line: Chef's salad plate		2.25
Special hot deli: Grilled cheese & tomato w/cup of soup		1.95

Thursday, October 27

Soup: Minestrone	(cup)	.75
	(bowl)	.95
BBQ beef ribs & veg.		3.10
Sausage & peppers over rice		3.10
Roast beef au jus & veg.		3.10
Hot deli: Fish & cheese sandwich		2.85

Friday, October 28

Soup: Chicken rice	(cup)	.75
	(bowl)	.95
Turkey tetrazzini w/veg.		3.10
Fish Oriental over rice		3.10
Beef & bean tostados w/veg.		3.10
Hot deli: Knockwurst & bratwurst on roll		2.95

Breakfast Specials

Monday:	Scrambled eggs & ham	1.15
Tuesday:	Blueberry pancakes & sausage	1.40
Wednesday:	Beef hash & egg	1.50
Thursday:	Grilled croissant w/small fruit cup	2.10
Friday:	Western omelet on roll	1.45

Afro-American Culture Club
Halloween Costume Party

The Afro-American Culture Club is a BERA-sponsored organization.

IBEW Meeting

Local 2230, IBEW, will hold its regular monthly meeting on Monday, October 24, at 6 p.m., in the Knights of Columbus Hall, Railroad Avenue, Patchogue. On the agenda will be regular business, comittee reports and the president's report.

Swim Club

At the first meet of the indoor swimming season, at the Flushing YMCA on Sunday, October 16, six BNL swim team members racked up 19 medals for top-three, age-group finishes. In addition, Wlodek Guryn was second overall in the 50-yard breaststroke.

100-yard Freestyle

Peter Heotis	58.73	2nd men 35-39
Roger Klaffky	1:05.07	4th men 40-44
Marsha Belford	1:13.05*	4th women 30-34
Paul Michael	1:17.62	5th men 60-64

200-yard Freestyle

Peter Heotis	2:13.59	1st men 35-39
Roger Klaffky	2:30.18	4th men 40-44
Marsha Belford	2:37.92*	2nd women 30-34

50-yard Butterfly

Peter Heotis	28.30	4th men 35-39
Wlodek Guryn	29.46*	5th men 35-39
Paul Michael	39.60	3rd men 60-64

100-yard Butterfly

Peter Heotis	1:04.13	2nd men 35-39

50-yard Backstroke

Wlodek Guryn	34.69	3rd men 35-39
Ron Wittlock	34.77	1st men 50-54

100-yard Backstroke

Ron Wittlock	1:16.38	1st men 50-54
Roger Klaffky	1:23.14	3rd men 40-44

200-yard Backstroke

Ron Wittlock	2:52.47	1st men 50-54

50-yard Breaststroke

Wlodek Guryn	34.26	2nd men 35-39
Marsha Belford	42.37	4th women 30-34
Paul Michael	43.85	3rd men 60-64

100-yard Breaststroke

Wlodek Guryn	1:18.22	2nd men 35-39

100-yard Individual Medley

Peter Heotis	1:08.75	4th men 35-39
Roger Klaffky	1:17.18	6th men 40-44
Ron Wittlock	1:23.22	1st men 50-54
Marsha Belford	1:26.26	2nd women 30-34
Paul Michael	1:37.66	2nd men 60-64

200-yard Individual Medley

Wlodek Guryn	2:42.21	2nd men 35-39
Ron Wittlock	3:04.66	1st men 50-54
Marsha Belford	3:05.66	1st women 30-34

*Indicates personal record

Bowling

White League

High games were bowled by Ed Meier 223/214/615 scratch, Ed Sperry IV 202, Pete Stelmaschuk 201, Pat Manzella 186, Nancy Erickson 180.

Purple League

Ed Beadle had a 223, Rob Simes 214, Jim Petro 203, Jeannette Thiede 181.

Pink League

Renie Rosati rolled a 200, Donna Cunningham 171, Sandy Asselta 170.

Red/Green League

Ron Mulderig bowled a 254/643, Nick Parrinello 232, Jim Roesler 215, Harold Marshall 214, Mike Guacci 210, John Connelly 201, Bob Jones 201.

Cooking Exchange

A demonstration and sampling of Mexican dishes will be featured at the next meeting of the BERA International Cooking Exchange on Wednesday, October 26, in the Recreation Building, at 12:30 p.m. Taste such favorites as super nacho platter and enchiladas for only a $2 admission per person, to cover the cost of cooking ingredients, and 50¢ per child, for the babysitting provided.

Following is a complete schedule of Cooking Exchange meetings for the remainder of the 1988-89 season:

October 26	Mexican Food
November 9	Leftovers - What to do with all that turkey.
December 14	Hanukkah Treats
December *	Holiday Party
January 25	International Pasta & European Day
February 22	Far Eastern & Hawaiian Cooking
March 22	Cajun Day
April 26	Appetizers & Desserts
May 24	International Summer Favorites
June *	International Dinner

* Exact date to be determined later.

For more information, contact any of the following committee members: Tina Sferlazzo, 286-1016; Susan Sears, 331-5642; Barbara DiMauro, 744-1645; or Kay Larson, Ext. 3072.

Note to Employees:

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

Update Your ID Card

Employees and guests — check your wallets. Has your BNL identification card expired? If so, please renew your card at Police Headquarters, Bldg. 50, 9:30-11 a.m., Mondays, Wednesdays and Fridays. For more information, call Hank Raimondo, Ext. 7258.

Arrivals & Departures

Arrivals

Yoshiyuki Amemiya ..... NSLS
Patricia F. Campbell ..... Tech. Info.
Robert S. Cruz ..... Comp. & Comm.
Leo J. DeBobes ..... S&EP
Klaus W. Ehinger ..... Cent. Shops
Markus W. Elmiger ..... Physics
Clement G. Jones ..... NSLS
Neil A. Maccarrone ..... Plant Eng.
Zoran S. Musicki ..... DNE
John M. O'Hara ..... DNE
John K. Strahmann ..... S&EP
Michael F. Wenzek ..... Cent. Shops

Departures

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

Luis Aguilar ..... NSLS
Edward J. Carapezza ..... Plant Eng.
Alain R.E.G. Plenevaux ... Chemistry
William A. Watson III ..... Physics
Hoydoo You ..... Physics

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.

SCIENTIFIC POSITIONS OPEN: The following staff position is open. Candidates may apply directly to the department representative named, or through the Office of Scientific Personnel, Ext. 7813.

JUNIOR STAFF/RESEARCH ASSOCIATE - to participate in the development of a program in cellular radiobiology and cytology. Contact: V.P. Bond, Medical Department.

LABORATORY RECRUITMENT - Opportunities for Laboratory employees only.

2972. MATERIAL HANDLER - Supply and Materiel Division.

2973. SECRETARIAL POSITION - Requires AAS in secretarial science or equivalent experience. Responsibilities will include preparation and distribution of operating manuals and training materials, establishing and maintaining training records on data base for Training and Procedures Group. Previous IBM PC XYWrite experience desired. The ability to obtain and maintain DOE "L" clearance required. Reactor Division.

OPEN RECRUITMENT - Opportunities for Laboratory employees and outside applicants.

2974. SCIENTIFIC ASSOCIATE POSITION - Requires BS degree in physics, optical engineering or a related field. Will be responsible for setting up optical test instrumentation, performing experiments, analyzing data, interpreting results and writing reports. Experience in optical design, testing and metrology is essential. Must be familiar with He-Ne laser and diode-laser systems, and must have experience in the use of minicomputers for data acquisition and analysis. Instrumentation Division.

2975. ENGINEERING POSITION - Requires a BS degree or equivalent in health physics, industrial hygiene or a related field, and several years of relevant experience. Will lead and supervise the Safety & Environmental Protection Division's support to the Physics and Chemistry Departments. Responsible for program audit and oversight, radiation-exposure control practice, radiation monitoring, industrial hygiene monitoring and safety. Safety & Environmental Protection Division.

2976. PROGRAMMER/ANALYST - Requires a BS degree or equivalent in computer science and 1-2 years' experience using IBM PCs and VAX. Will provide programming and related support services to the Division utilizing data base-management software on the VAX. Knowledge of networking and data base concepts essential, knowledge of BASIC and FORTRAN highly desirable. A background in the physical sciences would also be helpful, but not required. Safety & Environmental Protection Division.

2977. ENGINEERING POSITION - Requires a MS or equivalent in industrial hygiene, toxicology, environmental health, occupational epidemiology, or a related field and several years of relevant experience. Will direct and implement a comprehensive quality assurance program for the Safet. & Environmental Protection Division. In addition, will perform operational industrial-hygiene consultation for various Laboratory programs. Background in the quality assurance aspects of industrial hygiene and ABIH certification are desirable. Safety & Environmental Protection Division.

2978. ENGINEERING POSITION - Requires a BS or equivalent in industrial hygiene, industrial safety or a related field and several years of relevant experience. Will perform industrial hygiene tasks associated with asbestos abatement projects. Individual will also be responsible for providing health guidance to various construction projects at BNL. Experience in asbestos abatement projects and strong background in construction safety are essential. ABIH or CSP certification is desirable. Safety & Environmental Protection Division.

2979. ENGINEERING POSITION - Requires a BS in nuclear engineering, physics or a related field. Responsible for the planning and scheduling of irradiations at the High Flux Beam Reactor and the Medical Research Reactor. Will review the safety of irradiations and experiments at these reactors, especially with regard to potential adverse effects on the reactor. Will coordinate scheduling of experiments with reactor operations requirements. Must be able to obtain a DOE "L" security clearance. Safety & Environmental Protection Division.

2980. TECHNICAL POSITION - Requires an AAS in electronic technology or equivalent and two to four years' experience in troubleshooting electronic equipment to the component level. Will be responsible for maintenance and calibration of various radiation detection and environmental monitoring instruments. Safety & Environmental Protection Division.

2981. ENGINEERING POSITION - Requires a BA degree in engineering, a related field or several years of relevant experience. On an assigned shift basis, responsible for the operation of nuclear research reactor. Involves directing, training and coordinating the work efforts of reactor operators in performing required control, inspection testing and maintenance of reactor. Previous nuclear operating experience preferred. Ability to obtain and maintain DOE "Q" clearance is necessary. Reactor Division.

2982. REACTOR SUPPORT SPECIALIST (Trainer Position) - Requires BS degree in engineering or equivalent experience and previous training experience and qualification as a senior reactor operator at a research or commercial power reactor. Will administer and implement High Flux Beam Reactor training activities, conduct training, coordinate, write, revise and maintain a variety of training materials and operating documents. The ability to obtain and maintain DOE "Q" clearance is necessary. Reactor Division.

2983. ENGINEERING POSITION - Requires BS degree in an engineering discipline with quality assurance experience. Work will include auditing, design review, procedure writing, training, purchasing oversight for QA requirements and source inspection of suppliers. Experience in a reactor environment and familiarity with quality assurance standard ANSI/ASME NQA-1 is highly desirable. Ability to obtain and maintain DOE "L" clearance necessary. Reactor Division.

2984. ENGINEERING POSITION - Requires a bachelor's degree in health physics, industrial hygiene or safety engineering and substantial relevant experience. Will be responsible for participating, scheduling and coordinating safety assessments, issuing reports and tracking departmental responses. CSP certification is a plus. Safety & Environmental Protection Division.

2985. TECHNICAL POSITION - Requires AAS in an engineering discipline or equivalent experience. Previous quality assurance or testing and calibration experience desired. Will provide an active quality assurance presence for all operational, maintenance and modification functions within the Reactor Division. Additional responsibilities will include test and inspection oversight and interfacing with outside organizations that provide QA services for the Reactor Division. Ability to obtain and maintain DOE "L" clearance required. Reactor Division.

2986. TECHNICAL POSITION - Requires AAS in a technical discipline or equivalent experience. Responsibilities will include preparation of samples for neutron irradiation, charge and discharge samples from reactors. Will assist with set-up of experiments and operate beam shutters at HFBR and Medical Research Reactor. Ability to obtain and maintain DOE "L" clearance required. Reactor Division.

2987. TECHNICAL POSITION - Requires AAS in environmental sciences or equivalent experience. Previous experience in the preparation of environmental and industrial samples for radiological and nonradiological analysis is required. Responsibilities will include documenting data pertaining to sampling and analysis, and preparing reports. Duties will also include preparation of laboratory and field sampling equipment, as well as participation in environmental sampling. Safety & Environmental Protection Division.

Motor Vehicles & Supplies

87 MAZDA BE2000 - cab plus sport package, 5-spd., sliding rear window, bed liner, 29k mi., $6,500. Ext. 5308.

87 NISSAN SENTRA - fully equipped, 50k mi., need tran. seal, $3,000 firm. Mike, Ext. 4605 or 395-5991.

See Supplement for additional classified ads.

87 CONQUEST TSI - immaculate cond., loaded, $12,500. Terry, Ext. 7527 or 281-2796.

87 CAMARO Z28 IROC - all options, $15,500; 86 Mustang LX, a/t, power, 24k, asking $6,000; 78 GMC Jimmy, s/t, asking $8,000. 585-2084.

86 CAMARO - 27k mi., fully loaded, T-top, red w/gray interior, custom wood-grain dash, alarm, $8,900. Ext. 4962.

86 HONDA SPREE - $300. 732-1913.

86 CAMARO IROC - 5-spd., loaded, mint cond. 874-3201.

86 OLDS CALAIS - 2-dr., a/c, a/t, velour int., mint, $7,500. Ext. 3163 or 286-1024 after 6 p.m.

86 MERCURY LYNX - 2-dr., 4-spd., 60k mi., mint, $2,500. 689-2471.

86 CAMARO SPORT - red, 5-spd., V-6, am/fm cass., a/c, p/s, p/b, low mi., tinted windows, louvers, mint. $10,000 firm. 286-0034.

86 HONDA GYRO SCOOTER - low mi., 35 mph, rear basket, cover, excel. cond., $500. Ext. 2434, 8:30 a.m.-4:30 p.m., M-F.

85 MONTE CARLO SS - 45k mi., loaded, am/fm cass., alarm, a/t, 305, clean, $9,500. 736-7603.

85 MERCURY TOPAZ - 2-dr. sedan, 2.3L EFI, a/t, a/c, p/s, tilt steering, 45k mi., $4,600. Jim, Ext. 7669 or 878-9309.

84 OLDS CUTLASS SUPREME - new batt., exhaust., tires, shocks, starter, etc., 90k mi., clean, $2,500. 724-8099.

84 DODGE 600 - conv., all options, 45k mi., excel., $6,000 neg. 473-6116 or 212-285-0041.

84 PONTIAC TRANS AM - 305 HO, 5-spd., T-top, tinted glass, excel. cond., $7,800. 928-9109.

84 PONTIAC TRANS AM - 305 HO, 5-spd., full power, T-top, new brakes & exhaust, must sell, $7,000 neg. 360-0841 after 6 p.m.

84 S10 PICKUP - 2wd, 4-cyl., 4-spd., 51k mi., $3,500. Jay, Ext. 2172 or 751-0538.

84 DODGE COLT - needs clutch, runs well, $400. Ext. 5124.

84 MERCURY TOPAZ - 4-dr., a/c, p/s, am/fm stereo, good cond. 924-1967.

84 DODGE CHARGER - 5-spd., 4-cyl., looks good, runs well, $2,300. 698-9603.

83 PLYMOUTH RELIANT - wagon, new tires, brakes, battery, am/fm cass., 88k mi., good cond., $1,500. 289-5216.

83 MAZDA B2000 SUNDOWNER SPORT - long-bed pickup, 5-spd., 4-cyl., excel. gas mi., excel. cond., $2,500. Ed, Ext. 2526 or 765-2017 after 6 p.m.

83 JEEP CJ7 - 4-spd., new 33" AT tires, $6,000 neg. Steve, 744-8087.

83 CAMARO - mint, T-top, 4-spd., 51k mi., garaged, $4,650 neg. Sue, Ext. 7235 or 395-3529, leave message.

82 OLDS CUTLASS SUPREME - all power, good cond., $3,350. 399-3401 after 5 p.m.

82 TOYOTA PICKUP - fiberglass cap, 60k mi., good cond. Pete, 475-0831 after 7 p.m.

82 KAWASAKI 750 SPECTRE - shaft drive, garaged, low mi., asking $1,150. Henry, Ext. 4547 or 727-7227.

82 HONDA ACCORD - h/b, 5-spd., 69k mi., needs muffler, some body damage, $1,100. 727-6775 days.

81 MAZDA - grey, 2-dr., 5-spd., moonroof, a/c, excel. cond., 95k mi., $1,500. Ext. 3426.

81 FORD ESCORT - wagon, 72k mi., new clutch, good cond., $850. Ext. 2957.

81 FORD MUSTANG - 4-spd., 4-cyl., gauges, good cond., $1,900. 744-9812 after 5 p.m.

80 BUICK SKYLARK - 75k mi., good cond., new tires, $1,400, neg. Ext. 3851.

80 CAMARO - V-6, a/t, a/c, power disc brakes, no rust, $2,700. 928-1231.

80 OLDS OMEGA - 4-cyl., 2-dr., s/t, a/c, p/s, p/b, am/fm cass., runs well, excel. cond., $1,500. Ext. 7103.

81 HONDA ACCORD - 5-spd., p/s, p/b, excel. cond., $2,295. 758-5659 eves.

81 HONDA CIVIC - station wagon, 5-spd., new brakes, clutch, exhaust system, $1,500 or best offer. Ext. 2914 or 286-3742 eves. & wknds.

80 CHEVY CITATION - asking $650. Ext. 4597 or 878-1255.

80 SUBURA DL - 4-dr., new tires, brakes, & radiator, front end work, $900. Ext. 2518.

80 CHEVY CHEVETT - h/b, 4-dr., needs rod, good cond., $600 neg. 399-6390, 9 a.m.-1 p.m. & 6 p.m.-8 p.m.

80 CHEVY CAPRICE ESTATE WAGON - a/c, p/w, am/fm. Ext. 3082.

79 OLDS STARFIRE - 4-spd., am/fm stereo, fastback, 4-cyl., 25 mpg, good cond. $975. 751-3666 after 5 p.m.

78 DATSUN 280Z - 5-spd., am/fm, excel. cond. $3,000. 543-7065.

78 COACHMAN MOTOR HOME - self-contained, sleeps 8, good cond., $7,000 neg. 369-2414.

78 JEEP CJ5 - V-8, soft-top, excel. mech., no dents, some rust, $2,200. Ext. 5288 or 878-8177.

77 PLYMOUTH VOLARE - 4-dr. sedan, p/s, a/c, p/b, new tires, some rust, runs well, $400. Ext. 4982.

77 TOYOTA CELICA GT - new radiator, brakes, am/fm stereo, 90k mi., great transportation, $850. Rick, Ext. 3932 or 472-9789.

77 PLYMOUTH - runs, needs work, fair cond., $100. Dave, Ext. 3093 or 281-0062 eves. & wknds.

77 DODGE ASPEN SW - needs battery, $250. 929-4850 after 5:30 p.m.

77 CHEVY CAPRICE CLASSIC - a/t, p/s, a/c, V-8, trans. cooler rigged for towing, class 1 hitch, runs well, $975. 744-2715.

76 PICKUP TRUCK - 4wd, 8' bed, cap, 36" tires, a/t, runs well, some rust, $3,400 neg. Ext. 4142 or 345-3915 eves.

75 DODGE VAN - 6-cyl., a/t, many extras, good cond., asking $800. 585-6518, 8:30 a.m.-4:30 p.m., M-F.

74 PLYMOUTH SATELLITE - 318 V-8, new tires, exhaust, battery, carb., runs well, excel. station car, $150. 874-8631 after 5 p.m.

74 MGB GT - 72k orig. mi., good cond., $3,100 neg. John, 286-9334.

71 CAMARO - white w/black interior, $300 neg. Mark, 727-3673.

67 AMC RAMBLER - Ambassador, 63k orig. mi., no rust, easy restoration, runs well, just tuned, asking $350. 874-8631.

66 DEL-RAY CAMPER - slide-on, sky lounge, stove, sink, refrig., heater, best offer. Bob Kiss, Ext. 4428 or 467-4222.

64 CHEVY 283 IMPALA - 120k mi., excel. in/out, 100% orig., 2nd owner, runs well, $600 or best offer. 698-6832 eves.

AMC CONCORD - cruise, a/c, p/s, p/b, new tires, excel. cond., no rust. Robert, Ext. 2238 or 874-8646.

STARTER/CHARGER - Sears, 40 amp-160 amp, new, in sealed carton, $85. Ron, 878-4089.

KEYSTONE RALLY WHEELS - set of 4, w/Yokohama 175-70SR radials, for Honda, good cond., $175. Ext. 5786.

COLEMAN POP-UP TENT TRAILER - Somerset, good cond., $800. Ext. 4238 or 286-3509.

HONDA NIGHT HAWK - 650cc, w/ helmet, low mileage, asking $2,500. Tom, Ext. 4671 or 399-6698.

EQUALIZER/BOOSTER - 40 watts per channel power booster, w/5-band graphic equalizer, fits under dash, good cond., $15. Ext. 4153 or 732-5829.

SLIDE-ON CAMPER - full bath, shower, stove, oven, refrig., hot water & reg. heater, good cond., $1,700. 475-5469.

TRUCK/VAN MIRRORS - new. 399-3401 after 5 p.m.

RADIATOR - Chevy, 4-core, like new, best offer. Steve, Ext. 2496.

TIRES - 4, steel-belted radials, new, P235 75/R15 Ford, 5-lug rims & hub caps, $275. Ext. 2021 or 288-2080 after 5 p.m.

REAR SPOILER - Pontiac Firebird, fits '76-'81, trim rings & center caps, $50. 698-9603.

Boats & Marine Supplies

28' CHRIS CRAFT CATALINA - 1970, f.b., D.F., VHF, cb, full canvas, sleeps 6, clean, 281-5692.

27' SPORTCRAFT - 1988, twin 115 h.p., galley, head, all electronics, storage, top cond., low 30's. 751-7629.

23' LARSON SPORTCRUISER - 260 Mercruiser, swim platform, sleeps 3, full of accessories. 475-9095 or 475-9093.

19½' BAYLINER BOWRIDER - 1980, 140 h.p. I/O, extras, perfect cond., must sell, $2,000. 671-1736.

19' CRUISERS CUDDY CABIN - 1975, sleeps 3, fiberglass, 115 h.p., stereo cass., w/1983 Dilly trailer, $3,500. 928-5065.

9' SAILING DINGHY - w/sails, $600; option 2.7 h.p. motor w/boat, $200, both new. 366-0021.

BROWNING BOWRIDER - 1976, w/1985 Cox trailer, very good cond., $3,000. George, 744-9732.

MAKO 238 WALKAROUND CUDDY - twin 115 h.p. Evinrude, VHF, cb, Loran recorder, loaded, ready to go in water, outstanding. 924-5329.

MOTOR - 4 h.p. Evinrude, fold-up model. Don, Ext. 5329 or 878-2215 eves.

Miscellaneous

DINING ROOM SET - table, three leaves, six chairs, chest w/drawers and shelves, $400. 744-4611.

CONVERTIBLE COUCH - firm, lightweight, beige, opens to 80" round bed, excel. cond., must be seen, $800 new, asking $350. 473-8387 eves.

BEDROOM SUITE - triple dresser, armoire, night stands, headboard, provincial, excel. cond., $850. 929-4787.

DRESSER - w/mirror, $100. 689-7326.

DRESSER - w/mirror, hardwood, good cond., $100. Scott, Ext. 3369.

DRESSER - large, all wood. Don, Ext. 5329 or 878-2215.

CHAIR - w/ottoman, sofa, tables, kitchen set, gold chair w/cover. 289-1640.

MEDICINE CABINET - beveled-mirror and matching light, 30"; lucite & chrome, soap dish, toothbrush holder, towel bars, new. Ext. 3315.

COLONIAL LIVING ROOM - chair, sofa, red print, $75. 878-6526.

TV/STEREO CABINET - 52"w x 47" h, oak veneer, glass doors, solid, excel. cond., $60. Brian, Ext. 5265 or 234-9487.

DINETTE - w/4 chairs, $65; captains bed/3 drawers and mattress, girl's white, $100. Joyce, Ext. 4215.

KNEE-HOLE DESK - maple, $20; press bench, new, $50; weights, $30; 5 plain, painted, old oak chairs, $50. 878-6637.

COUCH - contemporary, tan, 7 ft., good cond., $50. Sue, Ext. 3388.

SOFA - good cond., $15; stereo rack cabinet, $45. Ext. 5400 or 878-6098.

KING-SIZE BED - 5-yrs.-old, $75 or best offer. Ext. 4764 or 821-2875.

BEDROOM FURNITURE - Ken-Lea, 15 pcs., correlated mica tops, oak, $500. 475-8658 after 6 p.m.

BOOKCASE - dark mahogany, 2 glass doors, antique, $200. 821-0695.

CHINA CLOSET - circa 1940, dark mahogany, good cond., $200. Barbara, 744-0960.

TABLE LAMP - $10; set of coffee mugs, $5; misc. woman's clothes, size 7 or 9; shoes, size 7, 50¢ ea. Ext. 2733.

REFRIGERATOR - compact, Sanyo, excel. cond., $50. 689-7963.

FREEZER - 16-cu.-ft. Frigidaire upright, like new, $200. 928-0293 after 6 p.m.

REFRIGERATOR - Hotpoint, 22-cu.-ft., freezer on top, rev. doors, yellow, excel. cond., $150. Harry, Ext. 5248 or 744-2715.

PORTABLE WASHER - Sears Lady Kenmore, heavy-duty, good cond., white, $80. 758-2620.

REFRIGERATOR - 23 cu. ft., good mechanical cond., harvest gold, $75. Norman, Ext. 2138 or 399-1125.

MICROWAVE - w/full size cart, $150. Jim, Ext. 7669 or 878-9309.

COFFEE MAKER - Toshiba, brews & grinds, digital clock, auto brew start, $200 new, sell $75. 585-6518, 8-5, M-F.

VACUUM - Hoover, upright, $15; aquarium, 12"x11"x30", 15 gal., $5. Ext. 2946 or 281-2463.

WASHER & DRYER - Whirlpool, portable, excel. cond. $300. Ext. 4660 or 722-4842 after 6 p.m.

WASHER & DRYER - G.E., $125; York air conditioner, $50. Paul, Ext. 3372.

WASHER & DRYER - Whirlpool, portable & stackable, 110 V, good cond., will deliver, $350. Pete, Ext. 4100.

FREEZER - refrigerator, stove, dishwasher, vacuums, steam iron, Hollywood beds, casement, a/c, wood-burn stove, broiler, 2 desks. 427-8254.

COFFEE MAKER - Norelco, drip, $10. Carol, Ext. 3325 or 472-3332 after 6 p.m.

COFFEE MAKER - Toshiba, never used, $75. Ext. 2434.

REAR BAGGER LAWN MOWER - Sears, 3-½ h.p., no bag, $65; Lawn Boy mower, 21", self-drive, 2 bags, mulcher, $225. Dan, Ext. 4987 or 698-7322.

TRACTOR MOWER - 5-h.p., excel. cond., $275. Joe, 929-8321.

JALOUSIE STORM DOOR - 36"x81", white, excel. cond., $50. 281-9412 after 5 p.m.

COAL/WOOD STOVE - Surdiac, large, w/accessories, used, 2 seasons, $450. 821-0954.

STOVEPIPE - 8" flexible stainless steel, for woodstove-to-fireplace installation, $40. Pete, Ext. 7627 or 929-3847.

DOUBLE SINK - half laundry, half 10" deep, white, $50 incl. faucet, Ext. 2946 or 281-2463.

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

WOODBURNING FIREPLACE INSERT - Leyden hearth fan, glass doors, 22" h x 26" w, plus panels to fit all fireplaces, slides right in, $175. 369-1363.

LAWN TRACTOR - 8-h.p., 32" cut, structurally fine, needs major tune-up, first offer takes it home, delivery extra. Ext. 7204 or 331-5912 eves.

FIREPLACE COVER - polished brass, glass doors, $35. Ext. 2679 or 472-6922.

HUMIDIFIER - Sears, console, used once, $25; also table-top model, DeVil Biss, $10. 473-5568.

WOOD STOVE - Vermont Castings, Valliant, excel. cond., $500. Rau, Ext. 3864.

SHALLOW WELL PUMP - Goulds, ½ h.p., new, paid $300, asking $180. 399-3401 after 5 p.m.

PIZZA OVEN - commercial, electric, 24x18, excel. cond., asking $100. Tony, 698-9274.

HOT WATER HEATER - electric, 30 gal., O.A. Smith, tall, like new, $50. Tom, Ext. 4084 or 878-1060.

STOVE PIPE - off-set, 2 pc., brand-new, triple wall, galvanized, 10" OD, s.s. steel, 6" ID, best offer. Gary, Ext. 4095.

HUMIDIFIER - model 2500, 1¼ gal., $10; desk lamp, $5; leather shoes, $8. Ext. 3986.

COLOR TV - 19", good cond., $40. Ext. 3011.

TOWER SPEAKERS - Realistic, 150 watts ea., cost $450, sell both for $150. 821-1525.

P.A. SYSTEM - J.B.L., 200 watts, R.M.S., extras, paid $3,500, sell for $2,000. Tom, 369-2414.

PIANO - Sohmer upright, 52"hx27"dx59"w, dark mahogany, $400 firm. Bill, Ext. 2889 after 12:30 p.m. or 585-2563 eves.

TRAINS - Lionel Rocky Mountain set, extra track switches. Bob Kiss, Ext. 4428 or 467-4222.

DACHSHUND PUPS - mini, black, AKC, vet-checked, shots, champ lines, 7-wks.-old, M/F. 281-8916.

LIGHT TABLE - 36"x48", 4 40 wt. flourescents w/base, spare bulbs, perfect, $280. Ext. 5110 or 399-6947.

EXERCISE MACHINE - Soloflex, extra weight straps, excel. cond. Ext. 5318 or 277-3805.

CABOOSE - Pennsy-N5, lewing-Quonset Pt., RI, new paint, AMTRAC compatible, $6,500. Fred, Ext. 4407/4435 or 499-1214 after 6 p.m.

SEWING MACHINE - Brother, needs minor work, hardly used, $50 or best offer; rowing machine, twin bar, cost $180, sell for $75, 821-1525.

POOL TABLE - 6' slate, good cond., $200. 399-3401 after 5 p.m.

MINK COAT - full-length, size 8-10, natural beige, full skin, $600. John, 924-4262.

TICKETS - Doo-Wopp concert, Chimes, Cleftones, Delvikings, Wrens, Bluestars in Massapequa Park, Nov. 19, $17.50 ea. D. Vail, Ext. 2067 or 2021.

Yard Sales

RIVERHEAD - N. of Sound Ave., Sebastian Dr., 10/22-23, 10 a.m.-4 p.m., brick-a-brack, antique Prince dresser, motorcycle. Ext. 4547.

MILLER PLACE - 6 Grist Mill Lane, 10/22, 2 families. 473-6904.

YAPHANK - Rustic Rd., opposite M.I. Country Club, 10/22, 9 a.m.-5 p.m., raindate 10/29, block yard sale. Ext. 7100.

Free

PARAKEETS - 2 birds plus cage. Charlie, Ext. 7019 or 399-3228.

UPRIGHT PIANO - you move it. Ext. 2965 or 744-0960.

RABBIT - male, 1½ yrs., white w/black patches, w/cage & accessories. Ext. 7505 or 689-8605.

BUNK BED FRAME - pine headboards, steel sideboards. Ext. 5786.

MAGAZINE - China Reconstructs, 1985-1988; Chinese literature, 1985-1987. Cheng, Ext. 3423.

SALT-WATER FISH - Amazon Mollies, born in spring, looking for good home. Ruth, Ext. 5461.

UPRIGHT PIANO - elderly Knabe, needs much work, yours for the taking. 286-0263.

Lost & Found

LOST - blazer. Bill Dalton, Ext. 4428.

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

BELLPORT - 4 bdrm., 3½ baths, Jacuzzi, walking distance of schools, bay & village, avail. unfurnished Oct. 1. 363-8936 eves.

BELLPORT VILLAGE SOUTH - furnished, 3 bdrm., 2 bath, no pets, non-smoker, Nov. 1 to June 30, $800/mo. 286-0466 or 286-9389.

MASTIC - 2-rm. apt., large new kitchen, bath, priv. ent., single or couple, $600/mo. incl. all. Ext. 2951.

MATTITUCK - waterfront contemp., 3 bdrm., loft, 2 bath, dock, 2-car garage, on 2½ acres. Ron, Ext. 4715 or 289-1003.

MILLER PLACE - 3 bdrm. ranch, 2-car garage, family rm., finished bsmt., north of 25A. Ext. 3353 or 212-779-9415.

RIDGE - 3 bdrm. ranch, country kitchen, l/r, all appl., incl. dishwasher, w/d, fenced-in yard, family neighborhood, 5 min. from Lab, $850/mo. Lynn, 744-1110 or 744-8632 after 6 p.m.

STONY BROOK - 4 bdrm., 3 bath, eik, l/r, mint, no pets, non-smoker, $1,200/mo. Ext. 3705 or 862-7998.

FT. MYERS, FL. - condo, immaculate, 2 bdrm., 2 bath, fully furnished, pool, close to Ft. Myers Beach and Sanibel Island, seasonal and non-seasonal rates. 286-8112.

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

HILTON HEAD, SC - 2 bdrm. condo, sleeps 6, tennis, golf, beach, pool, Sept. & Oct., $350/wk. 585-9149.

For Sale

MASTIC BEACH - 3 master bdrms., l/r, large full bsmt, oil-hot water heat, eik, stove, refrig., carpeting, 3 blks. from marine, low taxes, $120,000 neg. 281-8685.

PATCHOGUE - cottage by bay, steps to ferry, boat slips & F.I. beaches, 2 bdrm., 1 bath, oak floors, new kitchen, wood burning stove, porch w/bayview, redone, $115,000. 475-6070 after 8 p.m.

PORT JEFFERSON STATION - 5-bdrm. contemporary hi-ranch, M/D, 3 baths, 2 kitchens, gar., vinyl siding, fenced yard, ¼ acre, mint, $174,990. 331-1523 eves.

RIDGE - 2 bdrm. townhouse, central a/c, appl., 5 min. from Lab, avail. 1/1/89, $97,000. Ext. 4676.

ROCKY POINT - 4 bdrm. tri-level, 2 bath, eik, l/r, f/r, TV/sun rm., loft, utility rm., attic, garage, patio, shed, outdoor shower, carpeted, full appl., large closets, mint cond., $165,000. 821-0691.

SHOREHAM - 4 bdrm. 2½ baths, Colonial, enclosed porch, all appliances, 2-car garage, ⅓ + acre, low taxes, SWR schools, $175,000. 744-0960.

YAPHANK - 2 bdrm. townhouse, garage, bsmt., 5 appl., w/w carpet, pools, tennis, clubhouse, $125,000. 924-3307.

PALM COAST, FL - ¼ acre lot, 80' x 125', Greenbelt backyard, 5 mi. to Ocean, 24 mi. north of Daytona Beach, water, drainage & sewage util., $1,995 & takeover loan. Thomas Nolan, Ext. 5265.

ROCKLEDGE, FL - 2 bdrm. house, 2 baths, 2-car garage, fam. rm., porch, w/w carpet, shades, some drapes, appliances, $64,500. 407-631-2840.

ADIRONDACKS - 5 acres, 290' waterfront property, swimming, boating, fishing, terms avail. 288-5576.

FREEHOLD, NY - Greene Co., 5 acres, 700' road frontage, near skiing, 2 golf courses, ½ hr. off NY Thruway, will subdivide, 30 mi. w. of Albany. 584-6729.

MASTHOPE, PA - ½-acre homesite in Pocono recreational community, amenities include on-site skiing, boating, horseback riding. 289-7218.

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.

Wanted

GENERATOR - 4 kw. Don, Ext. 5329 or 878-2215 eves.

MACHINIST TUTORING - temporary, shop math, blue prints, lay-out, few times weekly, patient, reasonable. Miguel, Ext. 3884.

BUREAU - 45-56" wide. Elaine, Ext. 5329.

KITCHEN CABINETS - w/base unit, used or new. Ext. 5288 or 878-8177.

PEOPLE - to form Chinese painting classes. Lucy Liu, Ext. 3016.

GENERATORS - looking to buy 3 generators for reasonable price, must be in good operating cond. Miguel, Ext. 3884.

CEMENT MIXER - wet saw, bobcat, to buy or rent. Tony, 698-9274.

OLD LAWN MOWERS - or gas powered tools of any kind. Dan, Ext. 4987 or 698-7322.

TRAINS - Lionel, American Flyer, accessories, any cond., brings good price. Carole, Ext. 7100 or 924-4097 eves.

STATIONARY TRAINER - wind trainer for bicycle. Ext. 3359.

KILN - electric or gas, for ceramics. 331-1864 eves.

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