

## In Honor of 1988 Nobel Laureates in Physics, Gerald Feinberg to Recall Physics in the '60s

It was 1962, and they were all in the same place: Columbia University physicists Leon Lederman, Melvin Schwartz, Jack Steinberger and BNL's 30-billion-electron-volt proton accelerator — the Alternating Gradient Synchrotron (AGS).

Last October, though their paths had led each man far from Columbia, Brookhaven and the AGS, the summer of '62 was recalled in all its glory: Lederman, Schwartz and Steinberger were awarded the 1988 Nobel Prize in Physics for their 1962 AGS experiment, which had employed the first neutrino beam ever used in high energy physics and resulted in the discovery of the muon-neutrino.

Next week, the AGS and the Nobel laureates will again be in the same place at the same time, as the three return to BNL for a celebration of their Nobel-prize winning efforts. For the celebration, cosponsored by Columbia and BNL, Lederman will come from Illinois, where he is now Director of Fermi National Accelerator Laboratory; Schwartz will arrive from California, where he is president of his own computer communications firm, Digital Pathways, Inc.; and Steinberger will fly in from CERN, the European particle physics laboratory in Switzerland, where he is a senior physicist.

On Friday, February 17, the experiment that captured the 1988 Nobel Prize in Physics will be recalled at a special address to be given by Gerald Feinberg of Columbia University. His talk on "This Was the Particle Physics That Was: Particle Physics in the Early 1960's" will begin at 10 a.m. in Berkner Hall. A coffee hour will precede the lecture, at 9 a.m. in the Berkner Hall lobby.

Like the Nobel laureates, Feinberg was associated with both Columbia and BNL. He earned his Ph.D. from Columbia in 1957, then was a research associate at BNL from 1957-59. In 1959, he became an assistant professor at Columbia, though he remained a consultant at Brookhaven until 1974. At Columbia, he was named Associate Professor, then full Professor of physics in 1965. He was Chairman of Columbia's Physics Department from 1980-83.

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The team that worked on the Nobel-prize winning 1962 experiment at the AGS: (from left) Jack Steinberger, Dino Goulianos, Jean-Marc Gailard, Nari Mistry, Gordon Danby, Warner Hayes, Leon Lederman and Mel Schwartz. All were from Columbia except Danby, who is with BNL.

## BNL Lecture: Journey to Incredible Precision

*Mirror, mirror in the beam,  
Are you as perfect as you seem?*

When the National Synchrotron Light Source (NSLS) first came on line in 1982, experimenters had no way of answering that question. The specifications and measuring techniques needed to determine the precision of optics used for experiments in NSLS beam lines had yet to be developed.

The story of how the needed instrumentation came into being will be recounted by Peter Takacs next week in the next Brookhaven Lecture. A physicist in the Instrumentation Division, Takacs will talk about "Metrology of X-Ray Optics: Journey to Incredible Precision," on Wednesday, February 15, at 4 p.m., in Berkner Hall. The speaker will be introduced by Hobart Kraner, Instrumentation.

As this will be the 250th lecture presented since the series was initiated in 1960, Takacs' talk will be preceded



Peter Takacs

by a tribute to Brookhaven Lecture Series founder Gertrude Scharff-Goldhaber (see story below).

In order to focus extreme ultraviolet beams (EUV) and x-ray photons from the NSLS, the mirrors used in the beam lines must be very precise in both finish and figure. Finish refers to the surface smoothness of the optical device; figure is concerned with its overall shape.

Metrology is the science of measuring the optics to make sure they meet specifications. Takacs will explain how he and his group got into the business of metrology when no standard optics existed, and how the Optics Laboratory has evolved to where it now provides a service that is not available anywhere else in the world.

The Optics Lab can measure both finish and figure precisely. For deter-

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### Coming Up

"Man's Universes" will be the subject of the 18th George B. Pegram Lecture Series, to be given by Nuclear Physicist Sir Denys Wilkinson, University of Sussex, England. In lectures on Tuesday, Wednesday and Thursday evenings, February 21, 22 and 23, Wilkinson will look first at "Man's Ways of Thought," then "The Quantum and Gravity," and lastly "The Cosmos and Man." All lectures will start at 8 p.m. in Berkner Hall.

## Recognizing Gold Medal Research



Richard Setlow (right), one of two winners of the Department of Energy's 1988 Enrico Fermi Award, accepts a gold medal from Energy Secretary John Herrington, at the awards presentation held in Washington, D.C., on January 18. Now BNL's Associate Director for Life Sciences, Setlow, a biophysicist, was honored for his contributions to the fields of radiation biophysics and molecular biology. In addition to gold medals, Setlow and Victor Weisskopf, a physicist from the Massachusetts Institute of Technology who was chosen for his contributions to particle and nuclear physics, each received a Presidential citation and a \$100,000 honorarium.

## Solid Science in Plain English

*Most of us at Brookhaven have wondered what the next person, the next laboratory or the next department is doing. What "they" do affects all of us. We are often prevented from knowing what goes on because each specialty has its own language and the rest of us may not be conversant with it. What we need is plain English by knowledgeable persons so that we can discuss and question and profit.*

This statement was given as the aim of the newly created Brookhaven Lecture Series, when the first lecture was announced in the Bulletin Board of November 8, 1960.

Twenty-nine years and 250 lectures later, the series' continued success is a tribute to the foresight of its founder — Gertrude Scharff-Goldhaber, Physics.

In addition to her nuclear physics career, which began in 1935, Scharff-Goldhaber has demonstrated a longstanding interest in disseminating scientific information to scientists in different fields and fostering a general understanding of science in interested nonscientists. As a result of initiating the Brookhaven Lecture Series, Scharff-Goldhaber has been gratified to see both of those ends served through the same means.

She continues to serve as an ex officio member of the Brookhaven Lecture Committee which is chaired by Leslie Fishbone, Department of Nuclear Energy. Made up

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On March 17, 1971, Gertrude Scharff-Goldhaber presented the 100th Brookhaven lecture, "Collective Motions in Atomic Nuclei," and then Lecture Committee Chairman Martin Rosenblum presented her with a bouquet of roses for having initiated the series.

## Wanted: Nominations For Restaurant List

The popular "Guide to Restaurants," a document frequently consulted by users and other visitors, is being updated. The guide includes eating establishments located within a reasonable distance of the Lab that appeal to every pocketbook and palate. If you have a restaurant that you particularly like, please send its name, address and type of cuisine to the Public Affairs Office, Bldg. 134.

## Notaries on Site

In addition to those listed in last week's Bulletin, the following people are also notaries public:

<b>Accelerator Development</b>	
Melanie Covitz	1005S
Penny Lo Presti	911A
<b>Applied Science</b>	
Florence O'Brien	51
Virginia Richardson	475
<b>Contracts &amp; Procurement</b>	
Roseann Callister	355
Barbara Pringle	355
<b>Nuclear Energy</b>	
Cheryl Conrad	130



PRINCE - You're so charming. Your palace or mine?

TIM - Have a Happy Valentine's Day! Good luck with your studies. Keep in touch. Your secret admirer, T.L.

GN - I feel I have learned many secrets from you, and learned many wise words. I hope I can remember them. Love, T.R.B.

SHARING YOU - with Larry, my dear, has gotten absurd. So let's hope that on Valentine's Day he'll not be heard. Love, M.



DEAR MARGIE - With your words, touch and charm, you've made me so happy. Please be my Valentine. Love always, Rob.

DOLL - Please be my Valentine always and forever. All my love, Sweetheart.

KIDDO - If your experiments work fine, will you be my Valentine? Your assistant forever, Roo.

TO MY FAVORITE FIANCÉ, FRANK - You mean more to me than any words could ever express. Happy Valentine's. Love, Buddy.

RLG - You're the one my heart beats for, you're the one that I adore. MEH.

TO THE "SEXY OLD MOOSE" - you light up my life...

DONNA - I missed you. I'm glad that we are back together. I love you, John.

DMM - "I want to know what love is." (Again). Love you always. B.K.

ORLANDO - Roses are red, violets are blue, sugar is sweet and so are you. Be my Valentine honey, Marilyn.

CAROL - Your love, caring and enthusiasm for life are the key ingredients in the success of our marriage. Love always, Irish.

TO SMH - from JCH. Be mine today and always.

STUDENT BY DAY - Your kindness and sincerity are touching. Thanks for adding to the quality of my life. Fondly, Andrea.

SANDRA, MI VIDA - Yo te amor con todo mi corazón y alma. Para siempre, José.

TO MY FAVORITE BEAR - Knowing that this is our fifth Valentine's Day makes me feel warm and content. Love, your Bunny.



CHESH - Ever greater, ever brighter, ever sweeter, ever new — forever my love. Atila.

SWEETS - I love you with all my heart and soul, and I will love you forever. Love, Teddy Bear.

ROSEMARY - You are the apple of my eye. Love toujours, Lou.

SHELLY - That oracle was very true — now it's only me and you. Love, Greg.

DEAR PR - We have something special. Let's keep the faith. REMEMBER 2.0.3!! You captivated my heart. Love you always, SUGAR.

TO CATHY, DENISE, SHEREE, LISA, HELEN, ANN, SUE, JEANNE, KATHY, GINGER, CHERYL - Have a Happy Valentine's Day. Love, LaRosa.

HAPPY VALENTINE'S DAY DAD & JOANN - may this be your day to shine and the sweetest yet!! Love, Diana.

ELECTRIC COMPANY - It was a real "turn on" working with you, and it must have been a "shock" that I left you all. I'll never forget all the "sparks that flew" among us. Patti.

HONEY - There'll always be sunshine when I look at you. I'll always love you. Always & forever, your Honey



DEAR BETTY - I am proud to have a Mom like you. Happy Valentine's Day. Your adopted son.

TO MY PANUCHITO - I love you more than words can say.

FOR SEPT. 16 - we have set the date, since the love we share is so very great! P.S. I love you.

LOVE - offered with a "Lifetime Guarantee." Happy Valentine's Day. Amen.

TO MY CALIFORNIA HONEY-BUNNY - Happy Valentine's Day.

TO THE BEST FATHER A DAUGHTER CAN HAVE - I will always be your Valentine. Love, JoAnn-Budd.

TO THE MOST BEAUTIFUL GIRL IN THE WORLD - who will someday be my wife, that we will have a long life together. Papa Gus '79.

RICH - You bring me happiness every day of every year. You're my lover, you're my friend; you're truly my treasure, and I will always love you. V.

SMOGLY WOOGUMS, POOKEY - I love you. You are my best friend. I want to spend all my time with you.



BABY - Though you're far away, think of you night & day, can't wait till my next stay, so we can play, play! Happy Valentine's Day. Your little baby.

JOSÉ - Thank you for letting me be the special one. Love, Julian.

LEE - Just want to say I love you. I'm looking forward to the little one in June. Love, Danny.

CHAU-CHAI - Just to say I love you very much and Happy Birthday to you forever.

WOULD YOU - catch me if I were falling? King Kong.

SILVER FOX - You're not getting older, you're getting better and better and better!!! Happy Valentine's Day. Lady.

TEDDY - Wishing you the kind of happiness you give to me just by being you. Your loving Valentine, Princess Buttercup.



#1 DEAR HONEY - Remember, I'll always miss, need and love you. Me.

DEAR HELEN - I love you with all my heart! Charlie.

LEO - We love you & we're not lion! Your three little cubs.

TO MUTT AND JEFF - working with pigs can be refreshing, and the raisins will certainly keep you guessing! Love, TTLPS.

JOYCE - You are one of the thousand points of light. Love you morning, noon and night. Especially night. Love, Rich.

RAINE - I love you more as each day passes. I hope we can be together and share every one of them.

HAPPY VALENTINE'S DAY - to the guys at Q.C. — You wish! From the girls.

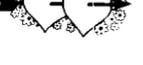
KAREN AND ERIC - Be my Valentine! Your Sun.

MARYELLEN - We could make beautiful music together. I desire you! Your secret admirer.

LISA - I give you a lot of credit! I'm dying to meet you but am too shy to ask. John.

DEAR CAROL - I'm looking forward to many more Valentines with you. I love you.

JD - Happy Valentine's Day! You're wonderful. Love, Susan.



DEAREST JACKIE - I love you for so many reasons, large and small, and all of them are wonderful. From Bruce.

KIMMIE - I'll love you always, and I want the whole world to know it. Jim Bob.

LADY DI - Now and forever, no meal shall ever come between us. Love always, Lombo.

A BOOK - (1st edition, as is); a jug of wine (chipped, rather full-bodied); and Thou: Still be mine, Valentine.

DIANE - I love you with all my heart. Your love lights up my life. Christopher.

LYNNE-MARIE - Thank you for the tolerance, patience and understanding. You'll always be my Valentine. I love you! Love always, John.

DAD - Thanks for being the father I never had. Love, your favorite daughter, your favorite kid!

## BNL Lecture (cont'd)

mining mirror finish, Takacs will relate how an instrument developed by the University of Arizona was adapted to fill the bill. For evaluating the figure of an optical component, Takacs and his group use the Long Trace Profiler, invented at BNL by Takacs and Shinan Qian, who has since returned to his native China.

Peter Takacs became involved with optical instrumentation development during his graduate studies at The Johns Hopkins University, before receiving his Ph.D. in physics in 1975. He did postdoctoral research at the

Naval Research Laboratory from 1974-77, developing EUV photometers for sounding rocket instrumentation.

In 1977, Takacs signed on at the Kitt Peak National Observatory in Tucson, Arizona, where he was involved with data analysis and operations for the Mariner 10 and Voyager space probes. Two years later, he came to BNL as a research associate in the Biology Department, developing synchrotron radiation beam-line instrumentation. After one year at the Lab, he became an associate physicist in the Instrumentation Division, where he first became involved with optics for the NSLS. In 1982, he left Brookhaven for a year to work at TRW, on optical metrology instrumentation in high-energy laser systems. He returned to BNL in 1983 as a physicist.

Takacs is a member of the American Geophysical Union, American Society for Precision Engineering, Optical Society of America and Society of Photo-Optical Instrumentation Engineers. He is also president of the Optical Society of Long Island.

After the lecture, those attending are invited to join the speaker for discussion and hors d'oeuvres. In addition, anyone interested in joining the lecturer for dinner at a restaurant off site should contact Graham Smith, Ext. 4253.

## Nobel Laureates (cont'd)

Also like the Nobel laureates, Feinberg was very active in high energy physics in the early 1960's. As BNL Director Nicholas Samios recalled, "He had done a calculation on the decay of a muon to an electron and a gamma ray. That this decay occurred at a rate much less than expected on the basis of a single type of neutrino led him to speculate that there might be two types of neutrinos. This was one of the motivations for the now-famous Columbia-BNL experiment, which demonstrated the existence of two types of neutrinos."

## Solid Science (cont'd)

of 20 representatives from the Lab's research departments and divisions, the Committee selects the speakers, helps them to rehearse their talks, and arranges for lectures and receptions.

Introduced by Scharff-Goldhaber on November 16, 1960, the first lecturer was Nobel laureate Edward Purcell, then a BNL research collaborator, who spoke on "Radioastronomy and Communication Through Space." Most of the subsequent lectures have been by BNL staff.

A sampling indicates the scope and importance of the lectures given over the years:

"Fundamental Particles in Physics," given by Maurice Goldhaber, lecture number 11, November 1961; "Bubble Chamber Experiments — Alpha to Omega-Minus," Nicholas Samios, no. 37, May 1964; "Nuclear Methods in Art and Archaeology," Edward Sayer, no. 53, January 1966; "Parkinson's Disease: Relationships of Miners, Metals and Madness," George Cotzias, no. 79, December 1968; "The Brookhaven Solar Neutrino Experiments: Past, Present and Future," Raymond Davis, January 1976.

Also: "Studying Skin Cancer in a Test Tube," Betsy Sutherland, no. 168, October 1979; "Oceanography and Anchovies," Sharon L. Smith, no. 176, September 1980; "The Quest for Quark Matter," Thomas Ludlam, no. 214, April 1985; "The Chernobyl Accident," Herbert Kouts, no. 227, September 1986; "Promises and Challenges: A Metallurgist's View of High Temperature Superconductors," Masaki Suenaga, no. 240, January 1988.

For a copy of the complete lecture list, contact Brookhaven Lecture Committee Secretary Neil Baggett, Ext. 4949. For copies of published lectures, contact Linda Thompson, Technical Information Division, Ext. 5068.

## Software Demos

A representative from Structural Dynamics Research Corp. (SDRC) will demonstrate "Ideas for Design," a conceptual design system for the mechanical engineer, in the C&CD seminar room in Bldg. 515, on Wednesday, February 15, from 10 a.m. to 12:30 p.m.

With the power of 32-bit UNIX workstations available today, solids modeling and analysis tools have appeared on the engineer's desk. Industry forecasters look for this technology to supersede 3-D wireframe modeling in the 1990's, with advantages gained through the use of computer-aided engineering tools early in the design cycle.

The demonstration will include designs created at BNL and Fermilab. All are invited to attend. Call Ted Daniels, Ext. 5555, for information.

## PSI News

A film on AIDS will be shown at the next monthly meeting of the Upton Chapter of Professional Secretaries International (PSI). The meeting will be held on Thursday, February 16, at 6 p.m., in Berkner Hall, Room C. All are welcome.

## Local Users Group

The next meeting of the Upton Local Users Group (LUG) will be on Wednesday, February 15, in Berkner Hall, Room B, at 10 a.m. It will feature a presentation on upgrades status and future plans for the IBM3090 and VAX clusters at BNL. All computer users are welcome to attend. For more information, contact Zohreh Parsa, LUG Chairperson, Ext. 4748.

## ANS Meeting

At 7 p.m. on Wednesday, February 15, the Long Island Section of the American Nuclear Society (ANS) will tour LILCO's J. W. Dye Training Center and have a demonstration of the Shoreham simulator, by Leonard Calone, LILCO's Manager, Operator Training. A \$13-per-person buffet dinner at 6 p.m. will precede the tour and demonstration.

For reservations and directions, call Lydia Ryan, Ext. 2380, no later than Friday, February 10.

This computer-aided design and drafting software has the largest installed user base in the world and is the most popular at BNL. All are invited to attend. Call Chris Neuberger, Ext. 4160, for information.

# Black History Month Event: The African Influence

"Once people have been to his lectures, they always ask when they can come back." This comment has been made about Anthony Browder, who will come to Brookhaven next Saturday, February 18, to give a slide-illustrated talk about "The African Influence on Western Culture and Civilization."

Browder, who describes himself as a chronicler of facts and information relative to the positive portrayal of the African experience, has lectured throughout the United States, Mexico and Africa and conducted numerous television and radio interviews.

Since graduating from Howard University's College of Fine Arts, Browder has written *From the Browder File*, a collection of 22 essays on African-American thought. He writes for the *Washington Afro-American* newspaper, is a graphic artist and cultural historian, and founded and now directs the Institute of Karmic Guidance, a culturally oriented organization.

One of the most successful endeavors undertaken by Browder at the Institute was a speakers' bureau, which has sponsored lectures by African-American historians, scientists and psychologists. His other activities at the Institute include running Afro-centric tours of Washington, D.C.; holding monthly study-group meetings; annual tours to Egypt; and publishing the "Human Insight" newsletter.

In seeking the symbols of Africa and their influence on first Egyptian, then Western art and civilization, Browder hopes "to instill a sense of self-worth in black Americans about their heritage," he said.

Browder's lecture begins at 7 p.m. on Saturday, February 18, in Berkner Hall. Admission is free.



Anthony Browder

## To Your Health

"Tips for Achieving Ideal Body Weight" will be the third Health Promotion Seminar in the series "Nutrition for a Healthy Heart." These tips will be presented by Maria Museler, a registered dietitian and director of the dietetic technician program at Suffolk County Community College, on Tuesday, February 14, at noon in Berkner Hall.

## Cafeteria Menu

Week of February 13

### Luncheons

#### Monday, February 13

Soup: Vegetable beef	(cup)	.75
	(bowl)	.95
Ground beef Stroganoff over noodles		3.10
Cheese ravioli w/ garlic bread		3.10
Lite-line: Salad plate		2.15
Hot deli: Grilled Reuben sandwich		2.85

#### Tuesday, February 14

##### ♥ Happy Valentine's Day ♥

Soup: Dutch potato chowder	(cup)	.75
	(bowl)	.95
Trout tempura w/veg.		3.10
Vegetable chow mein over rice		3.00
Lite-line: Broiled trout w/veg.		3.10
Hot deli: Ham		2.85

#### Wednesday, February 15

Soup: Chicken noodle	(cup)	.75
	(bowl)	.95
Roast beef w/ brown gravy		3.10
Rigatoni w/ sausage & garlic bread		3.10
Lite-line: Roast beef au jus w/veg.		3.10
Hot deli: Chicken patty on roll		2.85

#### Thursday, February 16

Soup: Split pea	(cup)	.75
	(bowl)	.95
Creamed chicken & veg. over puff pastry		3.10
Pork chop chasseur & veg.		3.10
Lite-line: Broiled chicken & veg.		3.00
Hot deli: Turkey		2.85

#### Friday, February 17

Soup: Cheddar broccoli chowder	(cup)	.75
	(bowl)	.95
Fish & chips		3.10
Macaroni au gratin & veg.		3.10
Lite-line: Broiled fish & veg.		3.00
Hot deli: Pastrami		2.85

### Breakfast specials

Monday:	Scrambled eggs & ham or toast	1.20
Tuesday:	Corned beef hash w/egg	1.50
Wednesday:	Pancakes & sausage patty	1.10
Thursday:	Egg on roll w/ sausage	1.50
Friday:	Waffles & bacon	1.05

## Microcomputer Club

The BNL Microcomputer Club will present a lecture by Robert Kaszuba, Management Information Systems (MIS) Division, who will deliver an overview of the PC training available at the Lab through MIS.

The presentation, which will take place at noon on Thursday, February 16, in the main conference room, Bldg. 475, will include the definition and purpose of the training program, the courses available, special courses for individual needs, product demonstrations and information about support after training. All those interested are invited to attend. For more information, contact Frank Salzano, Ext. 4458.

## Archery Club

The BERA Archery Club will meet on Wednesday, February 15, at 5 p.m. in the Recreation Building in the apartment area. Officers will be elected and discussions on continued improvement of the archery range will take place.

As your input is needed, current members are urged to attend. Anyone interested in joining is most welcome. For information, contact Lou Cannizzo, Ext. 4220, or Tom Cannizzo, Ext. 4048.

## Bowling

### White League

High games were bowled by Joe Ferrante 214, Sharon Smith 210, Gerry Riker 191, Kay Conkling 190, Nancy Erickson 183.

### Purple League

Dick Adams had a 216, Frank Gaetan 211, Marsha Kipperman 193, Sheryl Miezianka 187, Caryl MacDougall 181.

### Red/Green League

B. Jones rolled a 242, H. Marshall 236/600 scratch, T. Holmquist 230, R. Mulderig 206/200, F. Griswold 203, J. Roesler 202, K. Asselta 201, S. Dimaiuta 201, T. Prach 201, L. Jacobson 200.

## Volleyball

### Standings - Week of January 30

League I		League II	
Upfagrabs	34-5	Fossils	32-7
Dinkers	29-10	Set Ups	30-9
Xrayted	24-15	Krush	26-13
Cannonballs	19-20	Nuts & Bolts	24-15
Phoubars	8-31	Ziegfield Veggies	15-24
Netminders	3-36	Slammers	11-28
		Chung's Revenge	9-30
		Upton-Ups	9-30
League III		Open League	
Frazzled	38-4	Dig Your Lips	31-8
MISfits	26-16	Meriem's Team	30-6
High Volley'em	25-17	Phoenix	28-8
Sourcerers	24-18	Tom's Mutants	24-15
Printouts	22-20	Magnum	20-16
Spikes	16-26	Veggies	15-24
Renegades	9-33	Rowdy Radicals	12-27
Good Timers	8-34	Pi Chu	8-28
		Constables	0-36

## Make a Splash . . .

. . . In the record book for BNL's 33.3-yard pool.

Tomorrow, Saturday, February 11, the BNL Swim Club is sponsoring a meet open to all adult BERA swimmers. Warm-up begins at 11 a.m., with the competition getting under way by 11:30 a.m. Events are scheduled every 10-15 minutes, so the meet will be over by 1 p.m.

Men and women's pool records and age-group records, for ages 20-24 to 90+, can be set in any of seven events: 100-yard freestyle, backstroke or breaststroke; 200-yard freestyle and backstroke; four-lap individual medley; and two laps open: your choice of freestyle, butterfly, backstroke or breaststroke.

For more information, contact meet director Wlodek Guryn, Ext 3878, or Swim Club President Paul Michael, Ext. 2264.

## Swim Club

Six BNL Swim Team members brought home 17 medals from the U.S. Merchant Marine Academy winter masters invitational swim meet, on Sunday, February 5.

### 50-yard Freestyle

Peter Heotis	25.65	3rd men 35-39
Paul Michael	35.09	3rd men 60-64

### 100-yard Freestyle

Peter Heotis	58.38	3rd men 35-39
Roger Klaffky	1:05.66	4th men 40-44
Paul Michael	1:15.61	3rd men 60-64

### 200-yard Freestyle

Peter Heotis	2:11.73	3rd men 35-39
Roger Klaffky	2:28.48	3rd men 40-44
Ron Wittlock	2:39.44*	4th men 50-54

### 50-yard Butterfly

Peter Heotis	28.33	7th men 35-39
Paul Michael	40.54	5th men 60-64

### 100-yard Butterfly

Peter Heotis	1:02.99	2nd men 35-39
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### 50-yard Backstroke

Ron Wittlock	33.66	2nd men 50-54
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### 100-yard Backstroke

Ron Wittlock	1:14.09	1st men 50-54
Roger Klaffky	1:22.39	8th men 40-44

### 200-yard Backstroke

Ron Wittlock	2:49.87	1st men 50-54
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### 150-yard Breaststroke

Wlodek Guryn	34.09	2nd men 35-39
Pavel Rehak	36.46	3rd men 40-44
Paul Michael	45.08	5th men 60-64

### 100-yard Breaststroke

Wlodek Guryn	1:15.73	2nd men 35-39
Roger Klaffky	1:22.22	3rd men 40-44
Pavel Rehak	1:22.47	4th men 40-44

### 200-yard Breaststroke

Wlodek Guryn	2:51.33*	2nd men 35-39
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### 100-yard Individual Medley

Wlodek Guryn	1:09.66	5th men 35-39
Paul Michael	1:42.41	7th men 60-64

### 200-yard Individual Medley

Wlodek Guryn	2:48.89	3rd men 35-39
Ron Wittlock	3:01.56*	2nd men 40-44

\* indicates personal record

## Tomorrow: One-Man Show — Poetry Is Theater

Tomorrow, Saturday, February 11, is the day that John S. Patterson will act, sing, dance and mime to turn poetry into theater. His one-man show, "When the Colored Band Goes Marchin,'" brings to life the American struggle for democracy as portrayed by three generations of prose and poetry by Afro-Americans such as Paul Laurence Dunbar, Frederick Douglass, Langston Hughes, the "Harlem Renaissance" group, James Baldwin and Martin Luther King Jr.

The show starts at 7 p.m., Saturday, February 11, at Berkner Hall. Admission is free.

## Basketball

### Week of February 1 First Game

Penetrators	51	Celtics	48
F. Ligon	19	J. Gaeta	13
K. Jackson	14	D. Hoggard	13
R. Domenech	8	C. Edward	11
T. Abbott	5	M. Colon	9
R. Tonkin	5	M. Barrett	2

Three-point shots: Domenech, Gaeta, Hoggard, Jackson, Ligon.

### Second Game

Runaways	68	Light Source	55
J. Desmond	15	K. D'Amico	16
P. Johnson	15	P. Ratzke	15
S. Gilbert	12	M. Fulkerson	14
G. Shepherd	12	I. Garcia	7
B. Doty	8	J. Garrison	3
R. Meese	4		
A. Stillman	2		

Three-point shots: Desmond, Garcia, Garrison, Johnson, Ratzke.

### Third Game

Longshots	71	Knicks	65
S. Alonzo	22	E. Hobson	25
R. Bersak	20	L. Walcott	14
S. Springston	10	T. Mendez	10
G. Mack	7	M. Lawrence	8
F. Malone	4	T. McGill	2
T. Mayo	4	F. Thompson	2
B. Rowley	2	G. Thompson	2
J. Wells	2	B. Turner	2

Three-point shots: Hobson (3), Mendez, Walcott (4).

## Arrivals & Departures

### Arrivals

Marvin J. Duncan	Reactor
Edward J. Grove	DNE
Wailin Litzke	S&EP
Robert C. McNair	Reactor
Henry J. Muller	DAS
Kevin J. Randall	NLS
Charles J. Sirico	Reactor
Frank A. Toldo	Accel. Dev.
Gary P. Utz	MIS

### Departures

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

James LaMountain	DNE
Harriet J. Stafford	Personnel
Alexander Wirszyla	Accel. Dev.

# BROOKHAVEN BULLETIN

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

ANITA COHEN, Editor  
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35 Brookhaven Ave., Upton, N.Y. 11973  
(516)282-2345

### Note to Employees:

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



### Food Drive Tally:

**November — 1680 pounds**

**December — 1306 pounds**

**January — 740 pounds**

### Food Drive Goal:

**2,000 pounds per month**

**Help reach the Food Drive goal.**

**Help ease hunger in Brookhaven Town.**

## 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.

3071. MATERIAL HANDLER - Supply and Material Division.

3072. ADMINISTRATIVE POSITION - Requires extensive pertinent Laboratory administrative experience and an in-depth knowledge of Laboratory policies and procedures. Will assist department personnel in the preparation and processing of purchase requisitions, change orders, shipping memos and ILRs, including the delivery of required documentation to the appropriate support division. Will oversee capital equipment inventory for both the AGS and Accelerator Development Departments. Accelerator Development Department.

### OPEN RECRUITMENT - Opportunities for Laboratory employees and outside applicants.

3073. BIOLOGY ASSOCIATE - Requires a bachelor's degree in biochemistry, chemistry, biology or microbiology. Will assist in molecular biology research involved in mechanisms of mutagenesis. Duties will include gel electrophoresis, plasmid purification and bacterial transformation. Biology Department.

3074. ELECTRICIAN A - Under minimum supervision lays out, constructs, installs, maintains, repairs and operates electrical systems, equipment, controls and related devices. Plant Engineering Division.

3075. TECHNICAL POSITION - Requires AAS in mechanical technology or equivalent and one to five years' experience in one or more of the following areas: mechanical assembly, precision inspection, maintenance of mechanical equipment. Duties will include fabrication and assembly of superconducting particle accelerator magnets. Some electrical experience desired. Accelerator Development Department.

### Motor Vehicles & Supplies

86 CHEVY SPECTRUM - 4-dr., a/c, p/b, low mi., \$5,700 736-4135.

86 HONDA CIVIC SI - h/b, 5-spd., 50k mi., sunroof, am/fm cass., new tires, muffler, clean in & out, asking \$6,500 Chris, Ext. 2022.

86 CAMARO - red, black int., am/fm, a/c, p/s, p/b, 31k mi., orig. owner, mint cond., \$8,000. Audrey, 333-5015.

86 HYUNDAI EXCEL GL - 36k mi., sunroof, am/fm cass., 5-spd.; '86 Audi 4000S, 4-dr., gray, alloy wheels, \$6,500 neg. Ken, 395-6235.

85 BUICK REGAL - 38k mi., p/s, p/b, p/w, a/c, fm cass., velour int., like new, \$5,900. 744-9802.

84 HONDA ATC 200X - 3-wheeler, low hrs., good rubber, good cond., \$1,000. Bob, Ext. 2514.

84 PONTIAC FIREBIRD - lt. blue, V-6, a/t, a/c, p/w, alarm, 59k mi., excel. cond., \$5,900. 924-2839.

84 MAZDA 2000 - long-bed, cap, new muffler, tires & brakes, \$1,575 821-0686.

83 FORD MUSTANG GT - T-top, a/c, p/w, p/l, cruise, tilt, am/fm cass., mint. Ray, 821-3955.

83 BUICK REGAL - a/c, p/s, p/w, am/fm, excel. cond., \$3,500 neg. Bob DiLello, Ext. 7238.

83 VW GTI - black, 66k mi., Pirelli, Koni, Leistritz, Bosch, alarm, tint, Benz, meticulously kept, asking \$4,800. 385-1065.

82 FORD F150 XLS - 4x4, 302, 4-spd., cruise control, red, new tires, \$5,000. Dick, Ext. 3457 or 589-9103.

82 HONDA ACCORD - 4-dr., a/t, a/c, stereo, am/fm cass. Carol, Ext. 4398.

82 BMW 733i - all options, good cond., \$10,000 neg. Pat, 331-8980.

82 YAMAHA MAXIM - 1100cc, 32k mi., \$1,100; '82 Cadillac Coupe De Ville, burgundy, 82k mi., \$4,800. Fred, Ext. 4407/4435 or 499-1214 after 6 p.m.

81 FORD MUSTANG - 4-spd., 4-cyl., new clutch, gauge pkg., 71k mi., good cond., \$1,600. 744-9812 after 5 p.m.

81 MAZDA RX7 - 58k mi., red ext., black int., runs well, good cond., \$3,400. 924-7316.

81 FORD MUSTANG - 4-cyl., 4-spd., sunroof, am/fm cass., p/s, p/b, good cond., \$1,300. Jeff, Ext. 5262 or 325-8761.

81 DATSUN - 54k mi., good cond., \$2,500. Jim, 475-7535 after 5 p.m.

81 FORD ESCORT - s/t, needs minor work, asking \$350. 728-8635, leave message.

81 EL CAMINO - 74k mi., a/c, p/s, p/b, V-6, 3-spd., good cond., no rust. Bob, 727-1146.

81 SUBARU STATION WAGON - white, s/t, \$1,000. Ext. 4144.

80 MONTE CARLO - V-6, 2-dr., a/t, p/s, p/b, a/c, needs work, best offer. Ext. 2498 or 472-9349.

80 COLEMAN CAMPER - sleeps 5, hardtop, full-door, stove & sink, port-a-potty, many extras, \$1,000. Paul, Ext. 2350 or 273-6796.

80 PONTIAC BONNEVILLE - diesel, 98k mi., runs well, \$800. Jerry, Ext. 3711.

80 JEEP J-10 PICKUP - 6-cyl., 4x4, clean, excel. running cond., asking \$3,000. 878-0516 after 5 p.m.

80 HONDA ACCORD - 5-spd., 4-dr., sunroof, 87k mi., new alt., batt., carb. & tires, am/fm, 30 mpg, asking \$1,700. Ralph, Ext. 5197 or 821-1057.

79 DATSUN - king cab, 5-spd., cap, bucket seats, needs work, \$250. Ext. 3302 or 924-0651.

79 MUSTANG - runs well, needs paint, \$500 or best offer. Bart, Ext. 3457 or 924-6761.

79 CHEVY LUV MOTOR HOME - sleeps 5, 4-cyl., 4-spd., 21 mpg, self-contained, 12 V, gas/elec., \$6,000 neg. Paul, Ext. 2350 or 273-6796.

79 DATSUN 210 - 5-spd., high mi., new tires, rebuilt trans., good runabout, asking \$250. Joe, Ext. 2214.

79 HONDA CIVIC - h/b, 92k mi., am/fm cass., new tires, starter, brakes, water pump, etc., good cond., make an offer. Ext. 3583 or 3204.

78 CHEVROLET STATION WAGON - V-8, a/c, p/s, p/b, new front tires, recent brake job & tune-up, runs well, asking \$750. Greg, 475-2509.

78 MAZDA GLC - new tires, struts, rear end, runs, needs work, \$300 or best offer. John, Ext. 3675 or 924-3528.

77 LINCOLN CONTINENTAL - am/fm, a/c, p/s, p/b, runs well, \$350. Hanspeter, Ext. 3382 or 3230.

76 TRANS AM - runs well, needs body work, best offer. Rich, 744-8910 after 5 p.m. & wknds.

75 SKYLARK - ugly but starts every morning, \$100. 929-5945 after 6 p.m.

75 DODGE DART - 4-dr., V-8, 4 new tires, runs well, asking \$500. 878-2015 after 2 p.m.

74 FORD F250 - 4x4, new 390, a/t, cap, 7" lift, alum. wheels, drive train completely rebuilt, 4-way plow, must sell, \$3,500. Rex, 474-5715.

73 FORD WAGON - good transportation, very reliable, \$600. Ext. 2043 or 435-4316.

72 VOLVO NORDIC TROOPER - 150k mi., elec. fuel inj., new tires, battery, runs well, some rust, \$400. Paul, 212-864-5755 eves.

70 CHEVY MALIBU - V-8, runs well, \$400. Vinnie, Ext. 2483 or 473-7906.

68 CAMARO - 350, 2 bbl., am/fm cass., a/t, p/s, headers, runs well, interior good, \$1,300 neg. Gary or Tracy, 929-4898.

67 MERCURY COUGAR XR7 - orig. paint, vinyl top, a/t, p/s, p/b, new tires, little rust, good cond., asking \$2,000, make offer. 331-1839.

66 MUSTANG - new brakes & tires, interior excel., runs well, needs paint, \$2,800. Marc, Ext. 2175.

TIRES - 4, 2:15R15, w/w, all-weather radials on Mopar rims, excel., \$125; 4, 195-14 radials. \$75. 289-8212.

PUSH BAR - black, for full-size truck, \$45. John, Ext. 3675 or 924-3578.

UTILITY TRAILER - plywood box on Chevy axle. Rich, Ext. 3386.

SNOW TIRES - 2, P195/75B14, very little use, \$10 ea. Stephen, 265-3982 after 6 p.m.

CAR RADIO - am/fm stereo, from '79/'80 Rabbit, \$30. Ralph, Ext. 5197.

VW RABBIT - 4-dr., gas, am/fm, good cond., \$990. Mark, Ext. 2024 or 281-5060.

### Boats & Marine Supplies

24' SEA RAY - 1976, fiberglass, Merc I/O, stand-up head, sink, stove, VHF, depthfinder, compass, sleeps 4, \$12,000. 744-0093 after 6 p.m.

21' PROLINE - 1988, center console w/seadrive, 115 h.p., Yamaha ob. Shoreline EZ-Load trailer, w/10,000 lb. elec. winch, \$14,500. 475-0580.

17' SPORTCRAFT BOWRIDER - 1981, Deep V, 470 Mercruiser, I/O, full canvas, trailer, life jackets, anchor, excel., \$5,000. Rod, 878-1580 after 6 p.m.

17' WINNER - 85-h.p. Johnson, excel. cond., new trailer, asking \$2,700. Bill, 924-1039.

OUTBOARD MOTOR - 1976, Evinrude, 25 h.p., long-shaft, manual start, recent overhaul, \$275. Brian, Ext. 2799 or 757-1581.

OUTBOARD MOTOR - 1985, Mercury, 90 h.p., w/controls & cables, 5 mos. left on warranty, excel. cond., \$2,100. Ext. 2705.

OUTBOARD MOTOR - 1984, Mercury, 90 h.p., missing power head, \$550; power winch, \$40; new Merc prop. \$60. Bart, Ext. 3457 or 924-6761.

### Furnishings & Appliances

FURNITURE - king-size brass bed, w/boxspring & mattress, matching end tables, 2 dressers, excel. cond. Johanna, Ext. 3499.

CHINA CLOSET - approx. 3 1/2'x6'h, contemporary, dark wood, excel. cond., \$50. Dan, Ext. 4987 or 698-7322.

FURNITURE - dining table w/4 chairs, \$30; sofa, \$50; convertible bed, \$40. Lin Geng, Ext. 3137.

FURNITURE - 3 chairs, wicker, antique, Bar Harbor style, w/cushions; baker's rack, 3 shelves, w/wine rack below. Carol, Ext. 4398.

KING-SIZE BED - Stearns & Foster, good cond., \$100. 286-1855.

FURNITURE - sofabed, loveseat, desk, dining set, all in good cond., cheap. Y.N. Sun, Ext. 7738 or Yung, 874-2838.

FURNITURE - coffee table w/sliding doors, hexagon table w/1 door, 2 table lamps, asking \$75 for all. 369-9879.

BEDROOM SET - triple dresser, w/2 mirrors, 2 nightstands, armoire, queen-size headboard, medium brown, finish, best offer. 929-8381.

LAMP - yellow, 27" tall, \$15; yellow braided oval rug, 5'x8 1/2', \$45. 286-0259 after 4 p.m.

### Tools, House & Garden

SPACE HEATER - elec. radiator, Welbilt, never used, paid \$40, sell \$30. Janet, Ext. 2345 or 929-3910.

CORD WOOD - 2 cords, oak, split & delivered, \$125 a cord. 878-6637.

SNOWBLOWERS - Sunbeam, 22", electric, push-type, \$100; Lawn Master, 20", gas, self-propelled, you assemble, \$100; baby swing, \$10. Ext. 2395.

TOOLS - Snap-on tune-up center, 3 meters, \$250; Snap-on brake bleeder, \$125; air-powered, 20-ton hydraulic jack, \$250, must sell. Rex, 474-5715.

FIREWOOD - seasoned oak, full cord, \$130 delivered. 732-2849.

TOPSOIL - fine screened, \$19 per yard, delivered, also sand & gravel delivered. Judi, Ext. 3293 or 924-9427.

### Sports, Hobbies & Pets

SKIS - 180 cm, Rossignol Competition, \$50; woman's Lange ski boots, size 8, excel. cond., \$30. L. Kukacka, 473-1157.

SKIS - man's, Lange, 170 cm, Salomon bindings, size 12 boots, \$150; Bell motorcycle helmet, white, size large, \$40. Ext. 2705.

EXERCISE BIKE - tubular design, handle moves, \$20. Dan, Ext. 4987 or 698-7322.

FISH TANK - 20 gal., w/hood & wrought iron stand, \$20 or best offer. 744-2411 after 6 p.m.

PIANO - Lester Betsy Ross spinet, light wood, includes bench, \$700. Tony, Ext. 3658 or 3637.

RADIO-CONTROLLED HELICOPTER - Super Mantis, 45 OS engine, 44" rotor, w/o radio, needs 4-channel radio, \$185. Scott, Ext. 7578.

RACING BIKE - 25" frame, 12-spd., fully equipped, 3 yrs. old, Motobecane Mirage, perfect cond., asking \$125. Viorel, Ext. 7049.

BIKE - Sears, 24" wheels, 10-spd., \$25. 751-1884 eves.

KEYBOARD - full-size, \$80. Ext. 2050.

TENNIS SNEAKERS - man's, Nike Baseline, size 11, \$25; man's figure skates, size 11, \$25. 589-6803.

GOLF SET - Pinnacle, metal woods, 1, 3, 5 + C custom, 4 wood Maggear VI pions 3, 4, 5, 6, 8, 9 PW (7 iron custom), SW shot saver, \$250. Ext. 4669.

DRYSUIT - Poseidon drysuit, large, like new, cost \$1,500, sell \$500. Rex, 474-5715.

GOLD TAGUE LIZARD - w/55 gal. tank, heat rock, water basin, \$150. 821-1042.

SAND-FILLED WEIGHTS - total of 151 lbs., 1 long bar, 10 lbs. ea., 2D bell bars, 1.2 lbs ea., all for \$25. 924-0960.

### Audio, Video & Computers

TV - RCA, 25", color, excel. cond., \$100. Ext. 2888 or 286-0422 after 6 p.m.

PC JR. - color, 284k, 1 disk, some languages, games, \$300 or best offer, Atari ST monochrome monitor, \$100; WordPerfect, \$75. Dave, Ext. 4148.

COMPUTER DESK - 52"x24", walnut, w/black top, \$60. Marie, Ext. 2907.

SEGA BASE SYSTEM - w/\$110 worth of games, hardly used, w/box, \$115 neg. Ext. 2760.

VCR - 4-head hi-fi stereo, top of the line, \$275. 345-5681.

POWER SUPPLY - 0-5 kV, 1 volt steps, 15 mA, rack mounted, \$160; 35 mm microfilm viewer, good cond., 19" screen, \$50. Scott, Ext. 7578.

TURNTABLE - old AR 33 rpm w/cartridge, good cond., asking \$20. Dave, 941-9022.

STEREO - am/fm, 8-track. Ext. 5286.

SPEAKERS - 3-way handles, 400 W, orig. price \$750/pr., sell \$250/pr. Ann, 345-5681.

### Miscellaneous

TICKETS - 2, Metropolitan Opera, family circle, A-106 & A-107, March 15, \$17 ea. 472-1243.

VALENTINE FLOWERS - heart vase w/carnations or roses, \$20 & up; single rose w/vase \$12, delivered Feb. 14. Cindy, 821-1560.

MAGAZINES - National Geographic, 20 yrs., \$20; Reader's Digest condensed books, hardcover, \$1 ea. Ext. 4848.

TICKETS - 2, Metropolitan Opera, Massenet's *Werther*, Sat. matinee, March 18, dress circle, \$47 ea. Carmen, Ext. 4135.

ANTIQUES - furniture, collectibles, clothing, frames, wood coats, by appointment. 744-2203.

BABY ITEMS - carriage, stroller, tandem stroller, car seat, baby swing, etc., all at very reasonable prices. Victor, Ext. 4612 or 395-5158.

AIRLINE TICKET - 1-way, Islip/Chicago/San Francisco, leave Islip March 7, 8:55 a.m., asking \$210. Bill, Ext. 4175 or Pager 445.

CRIB - w/mattress, \$40; baby swing, \$35, vacuum cleaner, \$25. Aoki, Ext. 3748 or 345-3271.

SWEATERS - new, handmade, imported, 50% discount; walking shoes/boots, woman's, 38 European size, leather, used once. Amalia, Ext. 3102.

SUITCASES - 2, 10"x16"x30" & 7"x29"x30", \$15 ea. Hong, Ext. 4440 or 4237.

AIRLINE TICKETS - 2, round-trip, JFK-San Juan, Feb. 18 to Feb. 25, \$317 ea. 475-0978.

CAR SEAT - & mesh playpen, child's, like new, \$25 ea. 744-9802.

BABY ITEMS - playpen, stroller, walker, booster, bath, toys. Yung, Ext. 7738 or 874-2838.

### Free

MOWER PARTS - Lawn Boy. Jerry, Ext. 3711.

### Yard & Garage Sales

MOVING SALE - bike, humidifier, food processor, blender, coffee maker, lamps, vinyl closet, pots & pans, much more. Yung, Ext. 7738 or 874-2838.

### Car Pools

BOHEMIA/OAKDALE - need 2 more drivers for car pool. Ext. 2314.

CUTCHOGUE - looking to car pool to Lab. Michael, Ext. 5277 or 734-7475.

### 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 HAMLET - quiet country lane, 2-bdrm., 2-bath, large kitchen, security & util., avail. immed., \$900/mo. Ext. 7607 or 286-0204.

CENTER MORICHES - spectacular Bay-front ranch, 3-bdrm., l/r, d/r, kitchen, fam. rm., \$900 or for sale. Ext. 5277 or 549-5802.

LAKE PANAMOKA, RIDGE - 1-bdrm. apt., l/r, d/r, kitchen, full bath, priv. ent., single pref., no pets, 1-mo. sec., \$550 incl. all. Ethel, 929-4528.

LAKE PANAMOKA, RIDGE - 2-bdrm. ranch, kitchen, d/r, l/r w/fp, washer/dryer, walk to priv. lake, large property, immed. occupancy, 5 min. from Lab. 929-3407.

MASTIC BEACH - small 2-bdrm. house, screened porch, large property. 360-3803 after 6 p.m.

MASTIC BEACH - 3-rm. apt., w/bath, kitchen, priv. ent., single or couple, \$700 incl. util. Ext. 2951.

MIDDLE ISLAND - 1-bdrm. co-op, l/r, d/r & kitchen, remodeled, 5 min. from Lab. \$650/mo. + electric, or buy for \$64,500. Bill, 924-1039.

N. PATCHOGUE - 1-bdrm. apt., patio, cable, priv. ent., single, \$600 incl. util. Dan, Ext. 2397 or 654-5607.

PORT JEFFERSON VILLAGE - 1 rm. & bath. 473-6432.

RIDGE - 2-bdrm. condo, furnished, wall-to-wall carpeting, washer/dryer, dishwasher, 5 min. from Lab. \$725/mo. Ext. 4525 or 981-4696.

SHIRLEY - share 3-bdrm. house, \$450 per person includes all. 399-1868.

SHIRLEY - 1-bdrm. apt., l/r w/fp, eik, full bath, priv. ent., 10 min. to Lab, \$650/mo. includes all. 399-1699 eves.