BROOKHAVEN BULLETIN
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BROOKHAVEN NATIONAL LABORATORY

# New Positron Beam Ready for Experiments

Late this summer, physicist Kelvin Lynn, Physics, with a consortium of universities and industry, succeeded in producing an intense, low energy beam of positrons in an 88-ton, concrete and lead blockhouse at the High Flux Beam Reactor (HFBR). To make the beam, they used the HFBR to produce an extremely radioactive source of positrons. This more intense positron beam will enable researchers to better utilize positrons to probe the surfaces of solids, and perform other solid state and atomic physics experiments.

Since he arrived at BNL in 1974, Lynn has built two laboratory-based, low intensity positron beams, which have been in operation since 1979. "However, there are very few experiments that don't still need more positrons," says Lynn. "We want to produce $10^8$ positrons per second with this design. Presently, the best laboratory beam is $10^6$, and when completed, this beam at Brookhaven will be 100 times more intense."

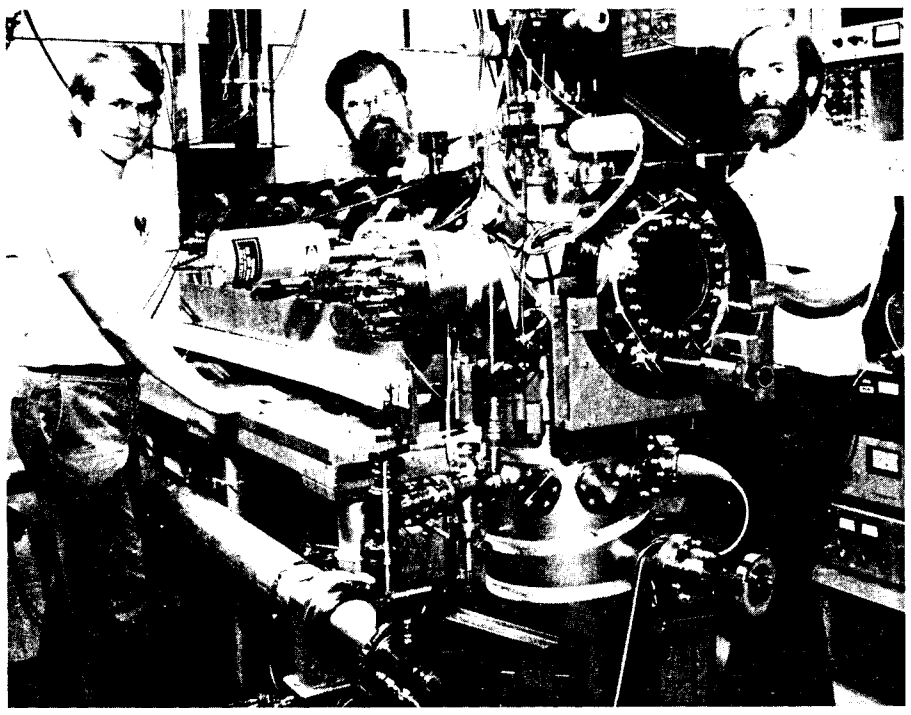
### Collaboration on the Beam

Work began on BNL's beam in early 1982, and involves technical associate James Rutherford, CCNY graduate student Marc Weber and guest senior mechanical designer Jeffrey Zahradka, with help from visiting assistant physicist William Frieze. The consortium, which includes Len Roellig of CCNY, Allen Mills of Bell Labs, and Stephan Berko and Karl Canter of Brandeis, joined Lynn in 1983 to perform two experiments and help finish the beam.

To make the positron source, principal technician Thomas Holmquist and technical associate Michael McKenna of the Reactor Division's Research Coordination Group irradiate a pellet of naturally occurring, non-radioactive copper, copper-63, with thermal neutrons in the HFBR for 12 hours to 2-1/2 days. Though the pellet is smaller than BB shot, 0.120 of an inch, profuse amounts of highly radioactive copper-64 ($^{64}$Cu) are produced because of the high neutron flux of the reactor. When protons within $^{64}$Cu nuclei change into neutrons, positrons are emitted having a range of energies given by the beta spectrum of $^{64}$Cu.

The copper pellet is then evaporated onto a single crystal of tungsten. Tungsten was selected as the substrate for the moderator because Lynn has shown that a single crystal of copper grown on the tungsten crystal is a good positron moderator.

If the copper is free of defects and has a large positron work function, the number of positrons which reach the surface of the source are maximized. The positrons are ejected with an energy of a few electron volts and a narrow energy distribution of about 70 milli electron volts. Positrons which are emitted perpendicular to the copper's surface constitute the low energy, monoenergetic beam.



Mort Rosen

Marc Weber (left), Jim Rutherford (center) and Kelvin Lynn stand by their positron beamline as it exits the blockhouse.

The positron beam is magnetically guided away from the copper source through a series of energy filters. It is brought outside the shielding house to remove any gamma rays that are coming from the copper pellet or from the fast positrons which have not been moderated. "At this point, we can easily vary the beam's energy by changing the voltage we apply to the source or to the grids in the beam line," explains Lynn.

"We then bring the beam into a surface chamber to do mainly solid state physics at the present time," adds Lynn. "However, there are a number of general and atomic physics experiments that can be performed with the beam."

Lynn and his colleagues first observed low energy positrons in the middle of August at a rate of $10^4$ positrons per second. After several modifications to the beam, they counted $10^6$ positrons per second by the end of August. Further improvements yielded $10^7$ positrons per second in mid-September. "We are steadily approaching the projected high beam intensity of $10^8$," states Lynn.

### Reactor-Based Beam Is Unique

"Presently, we are the only ones in the world who are using this means to make a stronger beam," says Lynn, "We think there a lot of advantages to a reactor-based beam compared with one produced using a linac, another experimental approach.

"First, we can do our experiments without affecting the normal operation of the reactor," explains Lynn. "A linac-based beam is the sole user of a linac when the beam is being produced. Second, we have no gamma-ray background, as does an intense positron beam produced at a linac. And third, ours is a continuous source which produces polarized positrons, and there are many experiments for which you want these characteristics."

Usage of the present beam will be divided between the consortium, to perform the following two experiments, and Lynn, to work on other research.

### A Variety of Experiments

The consortium is involved in two first-time experiments, for which they recently received a National Science Foundation grant. One, for which the group is joined by physicist Roy West of the University of East Anglia, England, is examining the angular distribution of gamma rays when positrons annihilate electrons on the surface of samples in order to study the electron momentum distribution of atoms on surfaces. "This is a new experiment and we are not sure how useful it is going to be because no one has ever done it," says Lynn.

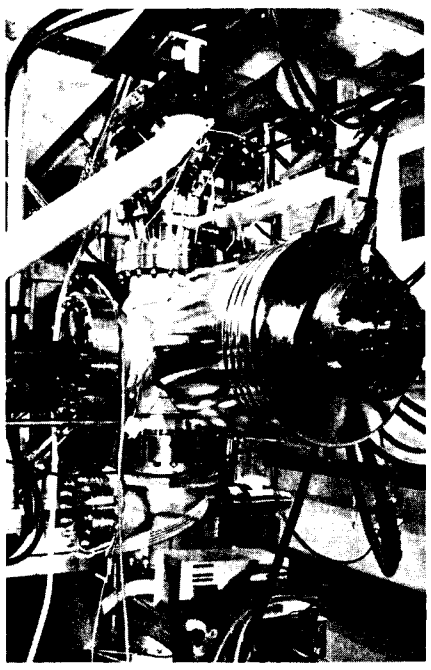
In the second experiment, they will use the new beam to form a collimated beam of positronium, the bound state of an electron and a positron, which will be scattered off surfaces to study surface structure. "We are also considering a look at the interaction of positrons and positronium in dilute gases to simulate outer space," says Len Roellig of CCNY. "We need an intense positron beam to detect any interactions because there are very few atoms in a gas and the probability of interaction is low."

Lynn would like to use the beam's spin-polarized positrons to study surface magnetism. Positron-atom and positronium-atom differential scattering could be measured using the beam's high intensity. "Allen Mills of Bell Labs suggests that we try to produce a very small-sized beam which would be used to make a positron microscope," Lynn says. "This would be a powerful tool for looking at condensed matter."

### Looking Ahead

If a proposed expansion to the HFBR is funded, then Lynn will build a newer, more intense, variable-energy positron beam in the new guide hall which can produce $10^{10}$ positrons per second. "With this flux of positrons in a small-spot size beam, we will reach a threshold of producing finite amounts of antimatter," says Lynn. "This will allow us to study positronium molecules and droplets, positron plasmas and the feasibility of building positron-electron lasers."

— Marsha Belford



Mort Rosen

A view of the beamline from inside the blockhouse.

# Shellabarger To Head Medical

Claire Shellabarger has been named acting chairman of the Medical Department. His appointment was effective this past Monday. Donald Borg, who was chairman for the past five years, will return to full-time research.

Shellabarger first came to Brookhaven in 1952, when he joined the staff at the Medical Department. He left in 1960 for the University of Michigan, where he was a professor of zoology. In 1968, he returned to Brookhaven's Medical Department as a senior scientist, and in successive years he served as assistant chairman, head of the Radiobiology Division, and coordinator of the Genetics and Biochemical Sciences Program.

His early research dealt with comparative endocrinology, especially with thyroid gland physiology and biochemistry in various classes of vertebrates. Later, his interest turned to experimental carcinogenesis, with concentration on radiation-induced breast tumors in rats. These studies have provided information concerning modification by diet and hormones of mammary carcinogenesis, as well as information on the interaction of ionizing radiation and chemical carcinogens. In a recent interview, Shellabarger said he is hopeful that at least some part of his research activities will continue.

Alex Reben

Claire Shellabarger

Shellabarger holds an M.A. in zoology and a Ph.D. in endocrinology, both from Indiana University in Bloomington.

## Upcoming BNL Lecture

**"Fuel Cells: The Promise and the Problems" is the topic to be discussed by James McBreen in the next Brookhaven Lecture on Wednesday, October 17.**

**A electrochemist in the Department of Applied Science, McBreen will begin his talk at 4:30 p.m. in Berkner Hall. The lecture will focus on his investigations into electrochemical power sources. Further details will appear in next week's Bulletin.**

## Inside Info

Ronald Peierls has been reappointed as chairman of the Applied Mathematics Department. Peierls has headed the department since 1979. In the memo to Applied Math personnel announcing the reappointment, Lab Director Nicholas Samios pointed out the significant role Peierls has had in the changing computing climate at Brookhaven.

According to Peierls, this is an exciting period because the technology of computing is changing rapidly. He adds that a long overdue modernization of Brookhaven's computing facilities has finally begun.

## Three Views On Aging

Edward Schneider, an Associate Director of the National Institute on Aging, opened the special public lecture series "Aging: Everybody's Doing It" this week with a discussion of the compelling need for aging research, a review of aging research to date and an overview of the direction of aging research in the future. Schneider's and two other lectures were given as part of the conference "Molecular Basis of Aging," the 33rd Brookhaven Symposium in Biology.

In his talk, "Aging Research: Challenge of the 21st Century," Schneider challenged scientists who predict that in the near future the number of very old people will not increase, that the average period of diminished vigor will decrease, that chronic diseases will occupy a smaller proportion of the life span, and that the needs for medical care in later life will decrease.

Schneider presented Sunday evening's Berkner audience with facts supporting his conclusions, along with the hope that once the problems our aging population faces are understood, more attention, support and resources will be given to aging research.

"If current demographic trends continue, increased numbers of Americans will live longer," says Schneider. "The unknown variable will be the health of this group. If the health of this group in the future is not considerably different from the health of the present group of elderly, then a huge proportion of the population will spend a bigger proportion of their lives afflicted with chronic diseases.

"Today, health-care resources are stretched to the point at which federal entitlement programs for the health care of the elderly have become a major political issue," adds Schneider. "Increased pressures on our limited resources will require difficult decisions in terms of the quantity and quality of health care for older Americans unless breakthroughs are made in aging research."

In the second lecture of the series on Monday night, Alex Comfort, world renowned for his work on the biological and social aspects of aging, talked about the political issues involving America's aging. Comfort stated that the old are going to play a very large part in deciding how health care is delivered because they are one of its biggest consumers in America.

"Elderly people have this devil's gift of leisure which gives them time to organize and lobby," explains Comfort. "They have a lot of political clout. Congress is beginning to feel their pressure, not just from the Gray Panthers.

"As one ages, one will have to decide whether to join a political organization that is specifically for the old or to work through existing parties," says Comfort. "Both ways are effective in changing the attitudes of society.

"I chose as the title for my lecture 'Living All of Your Life' because that is the task that lies before us all, especially before older Americans," says Comfort. "The art of being old is learning to play an effective game, and not an end game. I recommend that you cultivate what the British Army calls bloodymindedness, which ranges from being deliberately obstructive to standing up for one's rights."

On Tuesday evening, Lewis Thomas, whose credentials include membership on the Advisory Council of the National Institute on Aging, presented the final lecture of the series, discussing the concept of normal aging.

"The practice of geriatric medicine will change as its scientific basis becomes more solid and effective," says Thomas. "The proceedings of this 33rd Brookhaven Symposium in Biology have made it clear that the problem of aging is a proper field for scientific study and that it is one of the broadest of all fields in human biology.

"Obscured by the pathologies in aging is a quite different phenomena: normal aging," explains Thomas. "Not a disease, aging is a stage of living that cannot be averted or bypassed except in one totally unsatisfactory way. It is nevertheless regarded by our society as a disease in itself, a long illness or a slow death.

"If the science is successful, then we can look forward to the time when the disease states are lifted from the backs of old people. We will then be left to face nothing but aging itself, he says, adding, "If we could eliminate aging before death, I think that civilization would take a loss, and every individual would be deprived of an experience not to be missed.

"I conclude that the odds on normal aging, as I entitled my talk, are already better than ever before in human history, and with a lot of scientific work and luck the odds can become wholly on our side," adds Thomas.

# The Road Back

*Alcoholism is something that affects many Americans, some more, some less. This is one man's personal story and, in it, he relates how the Lab's Employee Assistance Program (EAP) helped bring him back to a productive life. We wrote the story from his answers to questions posed by the Bulletin and relayed to him by psychologist Judith Katsin, head of the EAP. We salute this employee for coming to grips with his problem, and we salute Judith Katsin and the EAP for being there when he needed them.*

I started drinking at 15. There were a lot of us who would hang around together and drink. We would have one of the older group go into the grocery store and get the beer, and we would all go in the woods, or sit in the car, and drink ourselves to death. Then, I didn't realize it was nearly "to death." It was just parties and fun. In those early years I never thought I would come to the point of almost killing myself.

As I later discovered, alcoholics very often come from alcoholic families. That was true in my case — both parents and my brothers. My father would go out nearly every night and when he came home, would be loud and boisterous and wake up the whole family. I knew he had a problem. But I was more concerned about my mother. Many times she fell asleep after drinking, and I would be afraid to go to sleep because she would also be smoking. I loved my mother, and it wasn't until years later when I went to alcohol education classes that I could accept she was an alcoholic.

It took me a long time, too long, to realize I had the same problem. The first indication was being arrested for drunk driving when I was 31 years old. Six years and four more arrests later, I ended up in jail for three days. I remember standing up against the bars of the cell and hitting my forehead on that cold metal. Being confined in prison is a hell of a feeling and I never want to be there again. It's something you just don't want to experience. I knew that if I didn't stop drinking, I would probably be there again, or else I would take my own life. In fact, when I came to Judith Katsin for help, I was feeling suicidal.

My life had become a mess. In the last two years before I stopped drinking, I had left the Lab. Then, I had financial problems; the bills added up and I couldn't pay them. My mother passed away. I was drinking much more heavily. I hadn't had a driver's license for a long time, but I drove anyway. I would have a lot of arguments with girl friends. A friend told me that when we were at a disco, I was being rowdy and obnoxious and making an ass of myself — and I couldn't remember it. This is called a blackout, and it's very, very scary to have someone tell you you did something that you can't remember at all.

I had been back at the Lab for several months before my fifth arrest. My drinking, except at the last, was mostly done on weekends. Because of this, Mondays were bad days. I would either not show up at work, or I wasn't as productive as I should have been. My co-workers would comment that I looked pretty down and hungover. I didn't drink at work but, otherwise, it was a world of drinking for me.

I never had tried to quit before because I didn't really think I had a problem. I tried to fool myself by switching from mixed drinks to beer thinking this would make a big change. It didn't. Alcohol is alcohol is alcohol. It seems that most people have to hit rock bottom before they take action. And "rock bottom" varies. One man I knew had 17 arrests for drunk driving before he quit. I thank God that all the times I was drunk, I never had a serious accident and killed someone. I was very, very lucky.

So I had gotten out of jail and was back at work. My life was on the skids and I was thinking of suicide after being locked up. In desperation, I confided in a co-worker and he suggested that I take advantage of the Employee Assistance Program and see Dr. Katsin. In fact, he made the first phone call to her for me. Then she asked him to put me on the line because she wanted to make sure I was legit. It was the first step on the road back.

Now, I have been off alcohol for two years. I just celebrated my second anniversary.

I don't think I could have made it without Dr. Katsin; working with her every week and being able to call her when I needed to, understanding why I had the alcohol problem I had, the relief of letting feelings come out, going from being a drinker to a non-drinker (an identity crisis she called it). Dr. Katsin also helped me with my legal and financial problems and in dealing with my family and friends who still drink. And, eventually, with her assistance I got my license back. She was there to help me solve my problems day by day, and that's how an alcoholic must do it, one day at a time. In the beginning I worried about who would see me going into her office and things like that. She was very discreet and there was no problem.

I am a recovered alcoholic and proud to say it. People ask if I am tempted to go back to drinking, and I only need to remember the cold image of the jail bars and that's enough. I was tested when a dear friend died suddenly, and at the funeral home I said to my friends, "If ever I would want a drink it would be now," but "I don't drink anymore."

There is definitely life after drinking. My girlfriends are glad that I have changed my life. I have a good feeling about myself. Before, half the time I didn't know what I was doing. Now, my head is on straight and I know where I'm going. Before, the disease controlled me. Now, I control it.

People have a lot of other problems besides alcohol, and I hope they use the Employee Assistance Program. It's there waiting for them. For people with serious problems, I hope they come for help before they do a number on themselves, or somebody else. But you have to reach out. When you're an alcoholic you have to decide for yourself to quit — nobody can do it for you.

## Reminder

The next Employee Health Seminar, featuring Colin Campbell, Director of the Long Island Council on Alcoholism, will be held on Wednesday, October 10, at noon in Berkner Hall. The subject will be, "How to know when someone has an alcohol problem and what you can do to help."

Alex Reben

**Brookhaven recently received an award from the Department of Energy recognizing the Lab's outstanding achievement in doing business with minority firms. Accepting the award from David Schweller (second from left), manager of DOE's Brookhaven Office, is Vincent O'Leary, associate director, who was joined in the occasion by James Desmond (left), business manager, and Richard Chester, BNL's small and small disadvantaged business liaison officer. Brookhaven's goal, set by DOE, was to purchase 3.8% of its required goods and services from minority businesses, and the Laboratory exceeded that goal. That's not easy, according to Chester, whose job it is to seek out vendors and work with them in their dealings with the Lab. "There are lots of minority firms, but most offer conventional products and services," he says. "Brookhaven's requirements are often unusual and take an extra effort by the Contracts and Procurements Division to meet this goal."**

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## Cooking Exchange

Ken Gall of Cooperative Extension, who is an authority on Long Island fish, will speak to the Cooking Exchange on Wednesday, October 10. He will demonstrate fileting and freshness testing, and answer questions on fish selection and preparation. "Fish of Long Island" dishes to be sampled are Blue Fish Salad and Squid Rings.

The Cooking Exchange is open to BNL employees and their immediate family members. Meetings are held on the second and fourth Wednesdays of each month from 12:30 to 2:30 p.m. at the Recreation Building. Babysitting is provided at 50¢ per child. Admission is $1, which includes copies of recipes, and coffee or tea.

If you have any questions, contact Dee Polychronakos at 744-3578.

## Golf

The final BGA tournament and end-of-the-year awards dinner will be held at the Rock Hill Country Club on Friday, October 19. The tournament will start at noon with a shotgun start and foursomes beginning simultaneously at various tees. The tournament will be followed by a hot and cold buffet dinner.

The entry fee is $11 for BGA members and $21 for non-members. The fee includes greens fee, tournament entry fee and cost of the dinner. The deadline for signing up for the tournament is Friday, October 12. All entry fees must be paid by that date. Checks should be made payable to the BERA Golf Association and should be sent to Joe DePace, Bldg. 515, Ext. 4123.

## Motorcycle Club

Bikers will meet on Monday, October 8, at 5:15 p.m., at the Recreation Building to organize fall foliage rides and discuss the past picnic and bike-a-thon. Hot dogs will be served. For more information, call Erno Ostheimer, Ext. 2674.

# BERA News

Blue Jays — League I. Coach Walter Chornoma, Plant Engineering, was awarded the first annual President's Award as the BNL Softball League's Man of the Year. This award was initiated by league president George Greene, DNE, to show appreciation for duties performed by an individual for the BERA softball program. Blue Jays team members are (left to right): top, Hank Arnesen, Luis Nieves, Dave Hansen, Dennis Hall; center, Walt Chornoma, George Oldham (Captain), Frank Palmeri, Larry Musso, Gerard Shepherd, Bob Medina; front, Jim Anandola, Nick Pisco, Kevin Cosgrove, Tony Mendez, Juan Alvarez.

Scram — League II (left to right): top, Mike Brooks, Haskell Frei (Co-Captain), Ray Karol, Doug Ports, Tom Holmquist; center, Craig Diaz, Joel Scott, Mike Brooks, Jr., Bruce Lein (Co-Captain), Dan Oldham, Harold Marshall; front, Al Queirolo; missing, Richard Adams, Michael McKenna, Lewis Snead, Masaki Suenaga.

## 1984 Softball Champs

Who Cares — League V (left to right): top, Jack Russell, Bob Malachowsky, Neal Jackson, Donna Riendeau, Doreen Hallinan; center, Peter Mortimer, Joyce Mortimer, Steve Green, Ron Ondrovic, Bob Gordon; front, Chris Weilandics, Peg Bogosian, Antoinette Carollo, Dru Acerra (Captain), Mary Durham, Alice Jiminez, John Hanlon; missing, Tom Sperry, Frank DeLuise.

Survivors — League III (left to right): top, Leroy James, Ken Sutter, Sydell Lamb, Jim Garrison; front, Sharon Smith, Bob Brown (Captain), Linda Woodson; missing, Cynthia Church, Randy Church, Karen Cone, George Greene, Henrietta James, Jackie Larrie, Dorothy Lester, Rosemary Taylor, Allen Woodson.

TNT — League IV (left to right): top, Stanley Mars, Frank Gaeton, Tom Russo, Elvira Sears, Arthur Coone, Barbara Jones; front, Howie Bell (Captain), Sherie Michaile, Frank Short, Susan Carlsen; missing, Herbert Bell, Earl Blanton, Jeff Gaffney, Barbara Johnson, Maureen McGee, Kenny Meade, Dawnita Robinson, Rose Scott, Debbie Spikes.

—photos by Alex Reben

## Volleyball

Vollyball players will meet at noon on Tuesday, October 9, in Room C of Berkner Hall, to discuss final scheduling and structuring of the league.

## Concert Correction

The guitar performance by Sharon Isbin will take place on Thursday, December 13, as part of the 1984-85 BERA Concert Series.

## Energy Savings For Homeowners

With winter looming, homeowners begin to think about conserving energy dollars. The Suffolk County Farm & Education Center, located in Yaphank, is offering a special day devoted to this wide-ranging topic.

On Saturday, October 13, from noon to 4 p.m., experts from Cooperative Extension will hold a variety of workshops. Topics are as follows:

**Window treatments** (noon to 12:30 p.m.) — This workshop will emphasize the "how-to's" of tightening up windows, caulking and the attributes of Roman shades.

**Solar energy overview** (12:30 - 1:00 p.m.) — Active and passive solar applications for the home will be discussed.

**Super insulation** (1:00 — 2:00 p.m.) — The new technologies available to homeowners will be reviewed.

**Energy conservation** (2:00 — 3:00 p.m. — A practical workshop of cutting energy costs through insulation and improving home heating and cooling systems. In addition, a video on "How to Decrease Your Electric Bill by 50%" will be run throughout the day.

**Moisture in the basement** (3:00 — 4:00 p.m.) — The methods for controlling unwanted water will be discussed.

Admission to the Farm and workshops is free. Pre-registration is required; call 924-4535, Ext. 507.

## Equipment Demo

IBM will demonstrate its System 9000 in Berkner Hall lobby on October 9 from 10:30 a.m. to 4:30 p.m. The 68000 microprocessor computer system from IBM Instruments (reference, Byte Magazine, PC Issue, Fall 1984) with real-time multi-tasking capability and both CSOS and Xenix (trademark of Microsoft under license from AT&T) operating systems will be available. The following software will be on hand for demonstration: Chromatography, FTIR, FTNMR, Graphics Programs.

## Arrivals & Departures

### Arrivals

| | |
|---|---|
| Stephen M. Bart | Physics |
| Eusebio Beniquez | S&ES |
| Michael J. Buckheit | S&ES |
| Waverly T. Busby, Jr. | S&ES |
| Thomas A. Craven | S&ES |
| Elke Dedner | S&ES |
| Richard Domenech | S&ES |
| Rajiv V. Gavai | Physics |
| Patrick J. Giambalvo | S&ES |
| Jodi Greco | Staff Svcs. |
| Gary M. Gross | S&ES |
| Michael P. Hurley | S&ES |
| Terrence F. Keough | S&ES |
| John M. Klein | S&ES |
| Brian W. McCarrick | S&ES |
| Kathleen A. McNaught | S&ES |
| Richard A. Miraglia | S&ES |
| Patrick J. O'Malley | DAS |
| Victor Pineiro, Jr. | S&ES |
| Carolyn R. Tracy | S&ES |

### Departures

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

| | |
|---|---|
| David A. Barge | Accelerator |
| Harold Bartlett | S&M |
| Lorraine G. Elmore | Physics |
| Howard J. Fales | Staff Svcs. |
| John F. Frasher | Accelerator |
| Steven W. Green | S&EP |
| Linda S. Hammer | MIS |
| John P. Stone | Medical |
| Seymour Holtzman | Medical |
| Antonia M. Licalzi | Physics |
| Melanie Meade | Medical |
| Till H. Metzger | DAS |
| Kurt F. Minati | Accelerator |
| Eugene A. Rosa | DNE |
| Lyle W. Smith | Accelerator |
| Patricia M. Tuttle | Accelerator |
| Emil Veakis | DNE |

## PC Users Meeting

The PC/Workstation group will meet on Tuesday, October 9 at 1:30 p.m. in the AMD Seminar Room. Kurt Fuchel will talk on "From Lotus to Symphony — Do You Need to Make the Trip?"

# Cafeteria Menu

## Week Ending October 12

**Monday, October 8**

| | | |
|---|---|---|
| Chicken rice soup | (cup) | .65 |
| | (bowl) | .85 |
| Beef teriyaki & 1 veg. | | 2.35 |
| Quiche lorraine & 1 veg. | | 2.00 |
| Hot Deli — Sausage & pepper hero | | 2.05 |

**Tuesday, October 9**

| | | |
|---|---|---|
| Lentil soup | (cup) | .65 |
| | (bowl) | .85 |
| Baked chicken quarter & 1 veg. | | 2.00 |
| Baked chicken half & 1 veg. | | 2.95 |
| Stuffed pepper & 1 veg. | | 1.95 |
| Hot Deli — Sloppy Joe | | 2.00 |

**Wednesday, October 10**

| | | |
|---|---|---|
| Split pea soup | (cup) | .65 |
| | (bowl) | .85 |
| Spaghetti and meatballs | | 2.15 |
| Veal rosemary over egg noodles | | 2.15 |
| Hot Deli — Top round of beef | (bread) | 2.05 |
| | (roll) | 2.20 |

**Thursday, October 11**

| | | |
|---|---|---|
| Beef noodle soup | (cup) | .65 |
| | (bowl) | .85 |
| Roast turkey w/1 veg. & stuffing | | 2.20 |
| Boiled brisket of beef, horseradish sauce & 1 veg. | | 2.20 |
| Hot Deli — Polish sausage & red cabbage | | 2.00 |

**Friday, October 12**

| | | |
|---|---|---|
| Egg drop soup | (cup) | .65 |
| | (bowl) | .85 |
| Chinese pepper steak over egg noodles | | 2.15 |
| Sweet & sour fish over fried rice | | 2.00 |
| Hot Deli — Fishwich | (bread) | 1.95 |
| | (roll) | 2.00 |

# Bowling

**Red/Green League**

High games were bowled by J. Connelly 222, T. Holmquist 222, H. Marshall 217, K. Asselta 204, H. Arnesen 204, K. Riker 203, N. Tyler 202, N. Combatti 200.

**Purple League**

Dick Adams had games of 209/210, Bob Jones 192, Sharon Moore 178, Mary Eggert 177.

**White League**

Ken Asselta rolled a 237/215 for a 657 scratch series, Ed Schwaner 203, Jim Griffin 201, Marge Belligan 193, Sharon Smith 179, Betty Jellett 177.

# 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, 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 Personnel Placement Supervisor, Ext. 2882.

**LABORATORY RECRUITMENT -** Opportunities for Laboratory employees.

2124. ADMINISTRATIVE/CLERICAL POSITION - Requires experience in the use of IPAP system, the ability to work independently and deal effectively with BNL and outside contacts. Will assist in the preparation of ILRs and PRs and the maintenance of records and files from conception to completion. Exposure to other data processing systems desirable. Some secretarial work required. Accelerator Department.

2125. P&GA SPECIALIST - Position in Micrographics section of P&GA. Duties include operation of information International Comp 80, film processing, copying and distributution of Computer Output Microfilm (COM) output. Shift work 0045 to 0845. Photography & Graphic Arts Division.

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

2126. TECHNICAL POSITION - Requires AAS degree in electronics technology or equivalent and a minimum of three years' experience setting up and maintaining electronic equipment. Will participate in the development of new instrumentation for the Heavy Ion Research Group. Mechanical skills necessary. Physics Department.

### Autos & Auto Supplies

73 CAPRI -runs, 90,000 mi., 2000 cc, auto., needs work, $85. Andy, Ext. 5010 or 44-5592.

77 PONTIAC ASTRE - 2 dr., 4 cycl., $850. 331-1718.

75 CORDOBA - new brakes, tires, carb., tranny, timing chain, reliable transp., p/s, p/b. 281-4646.

70 & 72 PLYM FURIES - some new parts, good tires, running but need repairs, both $100 firm. Miriam, Ext. 4407, 3072 anytime except Fri.-Sat.

66 CHEVELLE SS - 350, 4 spd., am/fm cassette deck, 4 BBL carb. enee, 399-1080.

76 FORD PINTO - station wagon, needs work, $550. Ed, Et. 7786.

84 FORD - 4 wheel drive, diesel, 10,000 mi., $12,000. 283-4375.

80 CHEVETTE - 4 cyl., 4 spd., 4 dr., 65,000 mi., runs well, clean, $2,600. 286-1074.

80 HONDA ACCORD - hatchback, good cond., 5 spd.,$3,400. 286-8356.

72 DUSTER PARTS - 6 cyl. eng., right fender, windshield. 727-3608.

72 VOLKSWAGON - 411, s/w, a/c, good interior/exterior, needs engine work. 360-7841, 6:30 p.m. (Tues., Wed. and Fri.)

77 CHEVY CAPRICE CLASSIC - 350, V8, 4 dr., sedan, Jensen stereo and tape deck. $2,400. 744-2783 in the a.m.

80 TOYOTA CELICA SHOP MANUAL - $14; set (4 books) 1984 truck shop manuals, $30. Gordon, Ext. 4095.

72 W BUG - roof rack, runs well, make offer. Russ, Ext. 3059 or 744-7242.

79 GMC JIMMY - H-C, am/fm stereo, 51,000 mi., excel. cond., $6,700. Fraser,Ext. 2043 or 286-3317 after 5:30 p.m.

75 MGV CONV. - 4 spd., am/fm 93,000 mi., good cond., $2,200. Mark, Ext. 2043 or 698-5748.

1 FORD PINTO - new starter, brakes, alternator, runs well, $400. 878-4304 after 5 p.m.

77 VOLARE - wagon, a/t, p/s, p/b, a/c, snow tires and rims, $1,700. Ext. 3664 or 689-8090 eves.

71 COMET GT 302 - V8, auto., buckets, tinted glass, p/s, $575. Tom, Ext. 4662 or 929-3566 eves.

81 MAZDA GLC - hatchback, stick, am/fm stereo, radials, body & mechaicals perfect, excel. commuter, $3,100. Ext. 7676.

DIRT BIKE - RM125 Boyseen, needs boost bottle, $625. John, 929-8287.

SOFT TOP FOR CHEVY BLAZER - white, w/hardware, excel. cond., $50. Ken, Ext. 2350.

CHEVY 283 - small block, running w/good power, glide transmission, $150 or best offer. Jim, 588-0677.

78 KZ 400 - new battery, tires, chain & sprockets, recent tune up, low mi., $750. 281-0360 after 6 p.m.

73 DUSTER - rebuilt engine and transmission, good cond., orig. owner, $1,500. Jackie, 732-4224.

MOTO CROSS EQUIPMENT - Bell Moto III helmet, $100; chest protector, $30; kidney belt, $15. S. O'Kula, Ext. 4167.

31 CHRYSLER MODEL B - 2 dr., rumble seat, all orig., excel., $9,800. Rosalie, Ext. 3160.

78 DODGE OMNI - 55K mi., 4 spd., 4 dr., hatch, perfect cond., $2,200. Ron, 732-1972.

79 IMPALA - garaged, salt-free, 20K miles, power steering, brakes, locks, a/c, one owner, $4,900 928-0281 eves.

81 HONDA DIRT BIKE - CR80, all redone, excel., $500. Ext. 7160.

53 CHEVY SEDAN - excel. cond., 57,000 orig. miles, very clean best offer, must sell. 722-3843.

74 TOYOTA WAGON - new paint, exhaust, auto. trans., runs well, $650. 585-5462 after 5 p.m.

60 CHEVY BEL AIR - 286-5829.

63 CHEVY BEL AIR - 2 dr., 6 cyl., very good running cond., orig. owner, 90K mi., sacrifice at $399. Mark, 286-4150.

CHEVY TRANSMISSION - turbo hydromatic 350, good cond., $100 or best offer. Jim, 588-0677.

81 FORD ESCORT L - auto., air, am/fm, very good cond., $3,200. John, Ext. 5279.

79 VESPA SCOOTER - good cond., 200 cc, 50-55 mpg, cruises 55 mph, $750. Nick, Ext. 2490.

75 FORD GRANADA - 8 cyl., a/c, p/s, p/b, 81,000 mi., new tires, $700. 751-3442 after 6 p.m.

73 MERCURY MONTEGO - 4 r., runs well, 67,000 orig. miles, $950. Peter Eterno, Ext. 4167.

77 TOYOTA COROLLA - very good cond., new brakes, tires, alt., battery, clutch, $2,200. Ext. 4768 or Ext. 2512 after 6 p.m.

71 PLYMOUTH DUSTER - priced to sell. Mike, 751-2149 after 6 p.m., all day Sat.

73 PONTIAC LE MANS - Sports Coupe, V8, runs very well, good battery and tires. Et. 2692 or 689-8665.

78 HONDA ACCORD LX - hatchback, p/s, p/b, a/c, 5 sd., am/fm stereo, new exhaust and brakes, $3,200. 422-1846 after 7 p.m.

PICK-UP CAMPER - 11', slide-in, self contained, sleeps 6, alum., step bumper, excel. cond., $2,395. 821-1081.

MUD & SNOW TIRES - (2) R78-K Dunlop steel radials on five hole Chrysler rims, $75/pr. Ext. 7518.

71 CHEVY IMPALA - V8, p/s, p/b, a/c, 82K mi., good cond., $1,100. Et. 2673 or 744-8632 after 6 p.m.

### Boats & Marine Supplies

17' COBIA VEE - 100 HP Johnson, both 1971, 1982 Dilly trailer, 3,000. Ext. 7115 or 744-5801.

27' BRISTOL WEEKENDER - 5 good sails, inboard diesel auxiliary, all in excel. cond. Kuper, Ext. 3311.

27' REVELCRAFT - Chrysler, V8, sleeps four, in water, good cond., will demonstrate, $1,200. Frank, Ext. 2022 or 399-4480.

25' O'DAY - 79 Knotmeter, VHF, extras, $16,000 or best offer. Ext. 7128 or 472-4196.

28' OWENS - very good cond., sleeps 4, head, stove, sink, fully equipped $2,400. 281-0360 after 6 p.m.

30' PACEMAKER - 1976, 270 HP, WC Crusader, cabin cruiser, excel. cond. 289-0012.

### Miscellaneous

REFRIGERATOR - good working cond., yellow, self-defrost, asking $125. 281-4646.

WOOD BURNING STOVE - Timberline, heats entire home, $200; baby's bassinet, complete, new $80, used 2 months, sell for $40. 929-4840.

10" BANDSAW - Edison, 1/2 HP, w/miter guide and stand, $110. 584-6002.

SINGLE TREADLE MACHINE - antique, in closed walnut cabinet, $65. 744-5317.

BDRM. SET - solid oak, brass trim, dresser, chest, hutch, desk, trundle bed, mattresses, $350. 265-0501.

LIGHTING FIXTURE - kitchen or dining room, fluorescent, brand new, $30. Susan, Ext. 4267.

MOVING SALE - guitar, couch, wheel barrow, metal shelf, work table and others. 261-7825.

BDRM. CHEST - small, $7; 30" doors, $5/ea.; floodlights, $2/ea.; wooden frame/trays, $1/ea. Ext. 4192 or 751-7787.

KITCHEN SINK- 2 tub, cast iron, 60" top, $50. J. Medina, Ext. 7636 or 924-6971.

PHOTO EQUIPMENT - enlarger, easel, Gralab timer, darklight trays, developer, magnifier, and more, $50. Jim, Ext. 2432.

WOOD BURNING STOVE- perfect cond. Ext. 4635 or 751-2860.

TV - 25", solid walnut, b/w, console, perfect picture and cabinet, $75. 878-2516.

DUCK DECOYS - black duck, brand new, in box. Ext. 5609 or 654-8648.

KEROSENE HEATER Sears convection, 19,700 BTU, $65; air cond., GE Carry Cool, $60. Gordon, Ext. 4095.

BEDROOM SET - six pieces, full size, no bedding, $150. Cathy, 654-5107 after 6 p.m.

TRUMPET - student model, Holton, nickel-plated, two mouth pieces, mute, music stand and case, $200. Richard, Ext. 3788.

FREEZER - GE, upright, 20 cu. ft., white, very good, $200. 269-9510 after 7 p.m.

FREEZER - Gibson, upright, 1 cu. ft., excel. cond., $100. Don, Ext. 2043.

HI-FI - blond mahogany cabinet, speaker and turntable, $50; 4 draw dresser, $35; window fan, $35. 265-0501 after 6 p.m.

LIONEL TRAIN LAYOUT - "027", 10'x16', many car, engines, track, etc., $400 takes everything, worth much more. H. Sauer, Ext. 3783.

REFLECTOR TV - Philco, 1940's, 16" screen, excel. cond.,3' by 3-1/2', cherry mahogany wood cabinet, $550. 281-3149.

MARQUISE DIAMOND RING - beautiful, 2 baguettes, total 1 pt., appraised $3,125, price, $2,000 firm. Mary Ann, 286-2435.

PINE CORNER CABINET - good cond., $75. 878-8458.

MAGAZINES - Popular Science, 1950-1965; Popular Electronics, 1960-1965, $3/yr. Victor, Ext. 2395.

TRACTOR - Sears 10 HP, 36" mower, snow blade, fertilizer spreader, needs engine, otherwise excel., $425. Ext. 7676.

REFRIGERATOR/FREEZER - Gibson 21" side-by-side, new compressor, gold, $250. 929-4840.

COMPACT STEREO - w/speakers, 6 months old, must sell. Lou, 698-6585 after 5 p.m.

VI.P. REPAIR KIT - large case w/texture molds, tints, heating iron, etc., $50. Al, Ext. 2043.

AIR CONDITIONER - Sears, portable, 4,000 BTU, $75; portable tape cassette player and recorded/attachments, $20; 52" ceiling fan, $40; (2) comm. type wheel barrows, $20/ea. 281-3686.

ENYCLOPEDIA - recent, complete, reasonable. Helen, Ext. 5158.

DINING ROOM SET - mahogany table, 3 leaves, pds, 6 chairs and hutch, $750. 732-3105.

AUTO FLASHER - Nikon EM and Hanimex, hardly used, $150. Pete DeLeo, Ext. 3397.

CELLO -3/4 size, $275. 673-1959.

ELECTRIC PIANO - Fender Rhodes, 73 stage model, excel. cond., $510. Bob, Ext. 4758.

LIVING ROOM SET - colonial, 3 pieces, nine foot section chair, excel., $150. 929-8287.

COLONIAL SECTIONAL - 4 pieces, sturdy, in good cond., 1 section needs cushion cover, you pick up, $50. 281-7720.

FREEZER - 17 ft., for trade or sale; 15 inch radial tire tubes, $2 each. Ext. 4098.

ATARI 2600 - w/12 game carts., $100 or best reasonable offer. S. O'Kula, Ext. 4167.

BIKE - man's, Raleigh Sprite, 21-1/2 in., 10 speed, still in box, $125. Janet, Ext. 2345 or 929-4688.

DINING ROOM SET - solid oak, blonde, table, 4 chairs, buffet, china cabinet, $400. 584-6002 eves.

WOMAN'S JACKET - tan suede, fringed yoke, size 5, good cond., $50; coat, size 5, full length brown suede, imitation fur collar, like new, $120. 473-5331 after 6 p.m.

PROJECTOR & CAMERA - 8/super 8 mm, both excel. $65/both. Carl, Ext. 4420.

RCA 13" COLOR TV - 9 months old, still under warranty, $150. Ext. 4768 or Ext. 2512 eves.

FORMAL DINING ROOM - 6 chairs, table, buffet, china closet, 1920 Vintage, good cond.,$900. 751-2149 after 6 p.m.

DINETTE SET - formica w/8 chairs, table 36 x 60", two ext. leaves, excel. cond., $150. Ext. 2476.

DRILL PRESS - bench top, 1/2 in. capacity, needs work, $15; GE electric dryer, new, $200. Victor, Ext. 2395.

PEWTER SPOONS - original thirteen colony beautiful embossing, pine rack, cost, $195, must sell, $100. Fred, Ext. 4261.

DRESSER - $25; metal wardrobe cabinet, $15; 3 mission oak chair, $20/ea., oak coat rack, $15. 878-6637.

CANADIAN HEMLOCKS - (Tsuga-Canadensis) field grown, 3 feet, $8/ea. 589-4363 after 6 p.m.

FOLD AWAY BED - on wheels, thick mattress, $35. 298-4398.

ENGAGEMENT RING - new, excel. cond., .3 carats, appraised value $700, asking $350. Larry, Ext. 4821 or 727-1412.

RED WOOL JACKET - stylish, never worn, $85, suit black with red pin stripe; stunning, worn twice, size 9. Janet, Ext. 2345, 929-8152.

### Car Pools

HUNTINGTON VILLAGE - Huntington Bay, 8:30-5, will accept paying rider. Ext. 7676.

PATCHOGUE - seat open on trans. van. Ext. 4669, leave name and ext.

### Real Estate

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

### For Sale

MILLER PLACE - colonial, 4 bdrms., formal l/r and d/r, country kitchen, family room w/brick wall fireplace, $158,000. 331-1718.

SO. SETAUKET - expanded 5 bdrm., colonial, cul-de-sac, 3 Vill. School Dist., 3-1/2 baths, 1/2 acre, low gas heat, assumable mort., 7-1/2%, possible mother-daughter, owner anxious. Ext. 3293 or 698-6437 eves.

### For Rent

BERKSHIRES CHALET - 3 hrs. from NYC, 3 bdrms., 2 baths, fully equipped kitchen, electric heat, deck with spectacular view, near lake, hiking trails, avail. weekends or weekly. 929-6946 after 6 p.m.

TANGLEWOOD HILLS - 4 bdrms., 2 bath, 2 car garage, all appliances, plus coal stove, landscaped 1/3 acre, mint cond., $850. 698-0770 or 744-9239.

ROCKY POINT - cape, 3 bdrms., 2 full baths, dishwasher, self cleaning oven, new cabinets, carpeting, large closets, fireplace, large basement, avail. immediately, $750+. 744-8659.

GORDON HEIGHTS - newly renovated, furn./unfurn., 1 bdrm. apt., private, many extras, ideal for working single/couple, no children or pets, $550 includes all. 698-1362 after 5:30 p.m. or weekends.

MANOR PARK AREA - 3 bdrm., 1-1/2 bath, no pet, 7 min. from Lab. 399-0188.

PORT JEFFERSON VILLAGE - 2 bdrm., spacious apt., harbor view, parking spot, no dogs, $595 including heat, 2 months security. 744-6160.

EAST PATCHOGUE- 3 bdrm. apt., avail. Nov. 1, $750 includes utilities. Joe, 475-8440 after 6 p.m.

### Wanted

PORTABLE ELEC. TYPEWRITER - J. Medina, Ext. 7637 or 924-6971.

SNOW TIRES G78X15 or equivalent. Ext. 4192 or 751-7787.

ROOMMATE - female, to share condo, Calverton Hills, 10 minutes East of Lab. $295 incl. all. Sandy, 369-0433.

COMMODORE 64/VIC 20 - disk drive, printer, expansion module etc.; portacrib, clean, good cond. 924-5192 eves.

RIDE - from Wading River to Stony Brook for two 8th graders, arrive before 8:10 a.m. Ext. 3372.

SERVICE MANUAL - for 77 Mercury Cougar. John, Ext. 3292 or 286-1348.

GIRL'S TAP SHOES - size 1-1/2 or 2; 16" tricycle in good cond. 298-4398.

HOUSE TO SIT - reasonable, Suffolk and Nassau areas. Ext. 3671 or 736-2131 eves.

### Free

MATTRESS - full size top, you pick up. 878-0717

AFFECTIONATE LOVING CAT - needs home immediately, declawed and spayed. Carol, Ext. 2907 or 698-8510.

### Lost & Found

FOUND - a tennis racket, in men's locker room on Sept. 13. Ext. 2073.

LOST - gold earring in AGS Bldg., or West Parking area, of sentimental value Ext. 4756.

### Services

BABYSITTER - experienced babysitting in my home, references avail., plenty of TLC, Bellport. Mary Ann, 286-2435.

BABYSITTER - avail. weekends, Wading River, Shoreham, Calverton areas, experienced teenager. Jessica, 929-4753 after 3 p.m.

FIRESIDE CHIMNEY SWEEPS - fireplaces, wood, coal and oil flues, caps relining, replacement parts, Lab discounts. 821-9690.

PIANIST- will play for any occasion, jazz, classical and contemporary music. Ian, 473-8150.

TREE PRUNING - at less than commercial rates. 281-2002.

WILL HAUL - wood, furniture, trash, etc., free estimates, efficient, courteous service. Mike, 331-5042.

HOUSE TO SIT - responsible, single male, non smoker, references avail. John, 473-0178 after 7 p.m.

MOORE WORD PROCESSING SERVICE - text inputting/editing mss, reports, bulk mailings, etc., reasonable. Chris, 475-1706.

PARTY TENT FOR RENT- we set up and take down, 20' x 30' for info., contact Fred Kuehl, Ext 7947 or 588-2268.

BABYSITTER - reliable, experienced teen, avail. nights and weekends, Miller Place area. Norma Jean, Ext. 3319 or 928-4048.

INTERIOR DESIGNER - trained, Cornell, Parsons, access to decorator showroms, most for your budget, free consultation. 757-5599.

BABYSITTER - mother to babysit your child in my home, any age. 924-8594.

JEWERY REPAIR - gold and silver. Dan Spandau, Ext. 2319.

HOUSESITTER - nonsmoker, free, references. 473-0178 after 6 p.m.

HOUSECLEANING - experienced, mature high school senior, does expert cleaning, Bellport area. Angela, 286-3209.

BABYSITTER - reliable, experienced teen, avail. nights and weekends. Mary, Ext. 2926 or 281-0268 eves.

MAGICIAN & CLOWN - make your child's party special, balloon sculpture also avail., taking Christmas show bookings now, reason. rates for package deals. 654-9094 after 6 p.m.

TENNIS LESSONS - experienced, reasonable. Ext. 2248.

LAND CLEARING - using excellent rake on JD 450 track loader, $45/hr. with operator. Tom, Ext. 4084 or 878-1060.

VIOLIN LESSONS - all ages, also Suzuki method. 821-0754.

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