

Probing The Bering Sea

The Bering Sea, cold and storm-tossed, is the home of one of the world's most productive fisheries, an area known as the "Golden Triangle," lying between the Aleutian Islands and the Pribilof Islands. During the last five years it has also often been the home of Terry Whitledge from Brookhaven's Department of Energy and Environment, who has been working on the Processes and Resources of the Bering Sea Shelf (PROBES) project.

The PROBES project is funded by the National Science Foundation's Division of Polar Programs, and its overall emphasis is on the effects of a vertical interleaving of inshore and offshore water, called "fingering," on the fishing and crabbing industries as well as on basic ocean ecology. This fingering effect is highlighted by a "unique oceanographic setting" according to Whitledge. The seashelf in the area is extremely broad, some 500-600 kilometers which, "allows us to observe the processes taking place at different levels in the water over a much longer distance than in the other areas in which we have worked," said Whitledge. "There are only two or three places in the world's oceans where the possibility of observing this exists," he added.

The shelf is divided into inner, middle, and outer domains according to water depth. It is in the outer domain, where the water is 100-200 meters deep that most of the fish are found, and in the middle domain, 50-100 meters deep, that shellfish, crabs and giant snails are taken by fishermen. This is due to the fact that plants sink to the bottom in the middle domain instead of being moved through the water as in other areas. Once on the bottom these plants are either consumed by the organisms living there, or they decompose, which leads to the very high ammonium concentration

found in the bottom water of the middle domain. The fingering effect is found between the middle and outer domains, and is created by temperature differences in the water with the inshore water being colder. These differences minimize the interchange of the water so that the fingers are persistent and can be measured. "The point I'm mostly interested in is, what mechanism is there for returning this ammonium to the upper region where it can be utilized as a nutrient," said Whitledge. "We feel the growth of plants near the surface is nitrogen limited because of a lack of this element, but we also think the fingers increase the enrichment of the upper layer," he continued.

To test this hypothesis scientists are now utilizing a cyclosonde, a device which runs up and down a wire to the bottom once an hour, measuring temperature, salinity and water speed and direction in a manner analogous to a weather vane. These measurements enable scientists to calculate how much of the bottom water will be returning to the surface. Whitledge himself is performing chemical tests with an autoanalyzer for nitrate, ammonium, silicate and total carbon dioxide dissolved in water samples obtained at a variety of depths. These tests are a chemical means of viewing the fingering effect, and Whitledge has been able to, "see fingers much more clearly than I had hoped," he said.

"We are not presently thinking of perturbing the system, we just want to understand the natural system in the area of the Golden Triangle," said Whitledge. If the fingering effect is found to increase the movement of nutrients to the surface it will help explain the abundance of fish in the area, since the plankton which lives within thirty meters of the surface and utilizes the rising nutrients is the



Terry Whitledge

beginning of the food chain which culminates in commercial fish such as the Pollack.

Whitledge first traveled to Alaska in 1978 and has returned there eleven times since then, five times to the Bering Sea. Life on board ship is anything but a vacation as work continues twenty-four hours a day, and storms, though usually brief, are frequent. "I remember one really bad storm when the oven door flew open and a roaster pan with our dinner it went rolling across the floor with the cook in hot pursuit," said Whitledge. "Of course half the people were in no condition to eat dinner anyway. Even the veterans get pretty cranky during a storm. It's a good thing they're (the storms) usually short or you'd see a lot more mass murders up there."

During a trip to the Bering Sea last year Whitledge had a chance to stop over for a few hours on the Pribilof Islands, the home of 400,000 seals and several million seabirds. It was there that Walt Disney Studios made the film "Seal Island." "When we landed on the island the sun was shining and

(Continued on page 2)

Report On Aerial Survey

Earlier this year, the Lab received preliminary results of an aerial radiological survey done at the request of DOE in May, 1980. When the results were compared with known on-site sources of radiation, there were a few surprises. Three previously unidentified small areas of low-level ground contamination were found by the survey.

Immediately, a team of health physicists from the Safety and Environmental Protection Division went out to check the areas — one near the Medical Research Center, another near Chemistry and the third near the Brookhaven Center, all open grassy spots. The first question — safety — was answered quickly. The radiation levels were low, and considering that no one lived or worked on top of these areas, there was no health hazard.

Then began the necessary task of answering the second question: What was causing the radiation? The S&EP health physicists became super sleuths as they launched into an intensive four-month investigation that was completed this week with a preliminary report citing contaminated fill as the culprit.

The report also identifies several more areas of low-level activity, which were found when the health physicists methodically checked what at first looked like anomalies in the aerial survey. The final list numbers eight, the new locations also being small grassy patches scattered around the site.

Surface soil samples and core samples were collected at each location. Laboratory analysis has indicated that cesium-137 appears to be the major man-made radionuclide present in the samples. Cesium-137 has a half-life of 30 years. It is commonly found in low levels in the soil because of fallout from atmospheric weapons testing during the 1950s and 1960s.

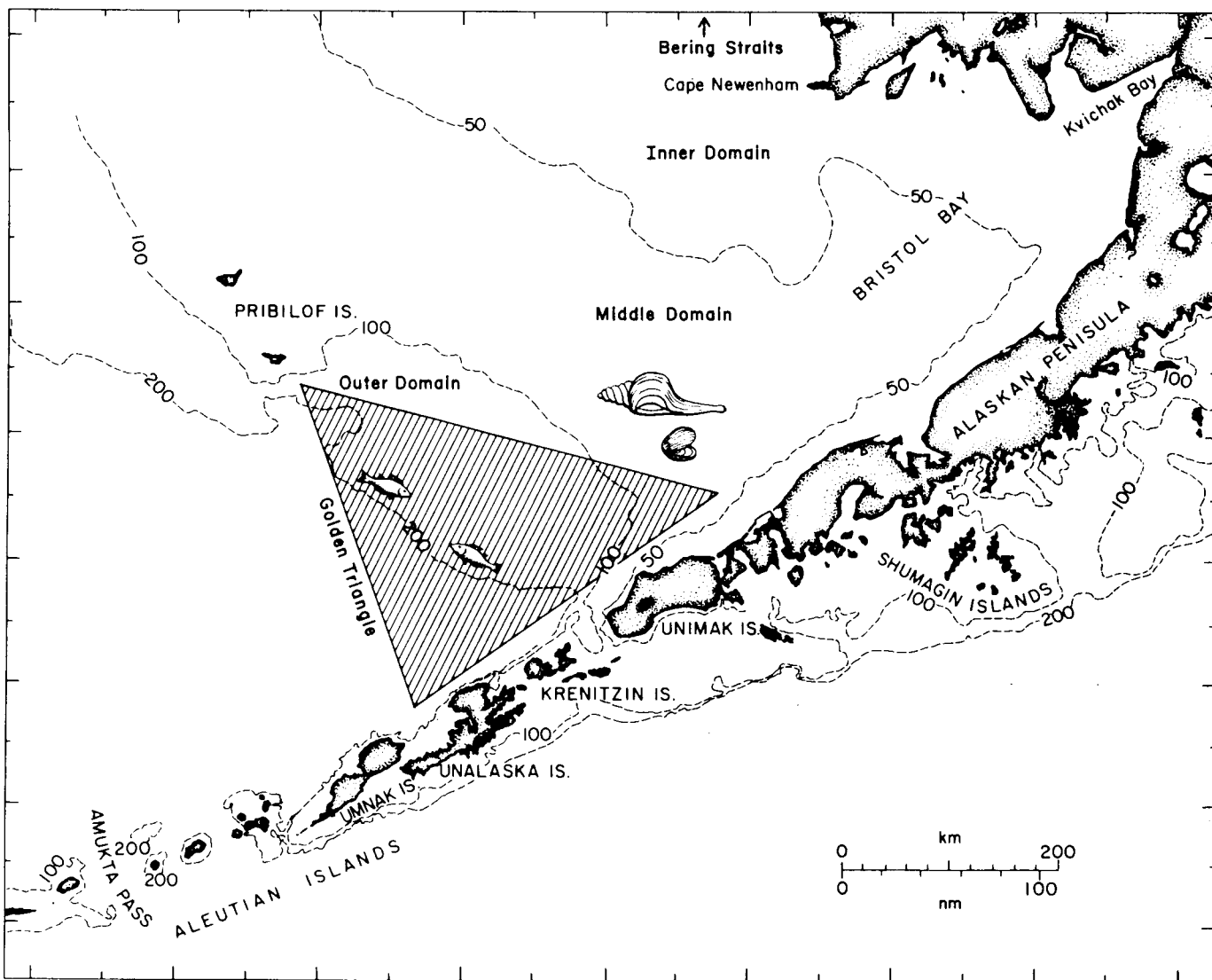
The amount of cesium-137 at the eight locations, however, generally exceeds the amount normally occurring due to fallout. Also, soil profiles of these locations, with just one exception, show the cesium nearly uniformly distributed in the top two to four inches. In contrast, soil profiles at the Smith mansion a half mile west of the Lab were compared to those at other locations throughout the U.S., and all show the maximum cesium-137 concentrations at the ground surface, where they would be expected due to fallout. Thus, fallout was clearly not the cause of radiation at the eight on-site locations.

The health physicists had other suggestions for possible causes, including airborne releases from the now decommissioned Brookhaven Graphite Research Reactor, which operated from 1950-67. While a careful search of the operating records for the Graphite Reactor pinpointed several isolated releases of low-level radiation, the releases were much too low to be connected with the cesium levels at the areas under investigation.

Accidental spills or improper disposal of radioactive material were also considered, but discounted as unlikely because contamination patterns due to spills or disposal were inconsistent with the soil profiles.

After a Lab-wide memo was sent out in mid-April, announcing the preliminary findings of the aerial survey,

(Continued on page 3)



Site of the "Golden Triangle" now being investigated by oceanographers.

A Greek Odyssey

Aristotle Onassis, Ulysses, Louise Chinn and Barbara Jones have all sailed the Greek Islands. But while Onassis had a home there and Ulysses was trying to get back to his, Chinn and Jones were on vacation. During their 13-day odyssey, they sailed a 29-foot yacht through the turquoise waters of the Ionian Sea.

Their voyage took shape at the National Synchrotron Light Source where Chinn designs printed circuit boards and Jones works for administration. A poster of the Greek Islands hangs on the wall of Chinn's office. Its beauty prompted the two women to begin looking through the travel section of the Sunday Times where Chinn first read about flotilla sailing.

For this type of travel, a fleet of sailboats, each crewed by four travelers, sails under the guidance of a pilot boat. To Chinn, who has been sailing ever since she could toddle, flotilla sailing seemed an ideal way to escape the tourist trail. And Jones was equally enthusiastic — even though she had never sailed before in her life.

After contacting the English-based company that offers these trips and reading their brochures, Chinn and Jones placed their names on a "Share-a-Yacht" list, hoping to find two other people with whom they might sail. They were matched with the Tarrs — Melissa and Andy, a captain in the U.S. Army stationed in Germany. Like Jones, neither of the Tarrs could sail. As the only one with any sailing experience, Chinn became the skipper of their 29-foot sloop, the Intrepid.

Shortly after Chinn and Jones met the Tarrs for the first time in Greece, the flotilla set sail. Recalling their first few days at sea, Chinn said, "I had three people who got on a boat and knew nothing. But they learned fast. They picked up very well on all the terms." Sailing has a jargon all its own. For example, port is left, starboard is right and ropes are sheets or lines. On most sailboats the lines are white; on the flotilla yachts some were red and some were black. This helped Chinn's crew to "learn the ropes" and to make a minimum of mistakes during the learning process.

Another thing that helped was the rapport that sprang up between the travelers. "We were able to work together very well," said Jones, "We did well for a group that had not met at all before."

The weather also cooperated — until their fourth day out. "It was cloudy with gale force winds," Chinn said. "At first we had our sails up, but we finally went under motor and put on

rain gear. At one point I had everyone put on life preservers."

The storm was a real eyeopener for Jones. "I learned to have a respect for Mother Nature, not to take unnecessary risks," she said. "At any point you can be out of control." But this turned out to be their only inclement weather; the rest of the trip was clear sailing, as they travelled from port to port, making the most of their eight independent sailing days. In all, the Intrepid visited 13 ports on five islands — Lefkas, Ithaka, Cefalonia, Meganisi, Dragonisi — and the mainland.

At each port, the yacht was a home away from home. On a typical day, Jones and Chinn would rise and leave the ship early in the morning to buy a loaf of bread fresh from a brick oven. This would serve as the basis for the breakfast and lunch they would eat on board while sailing to the next port. After docking, they would dress for dinner and head for a taverna — the local cafe — where they found themselves a bit of an oddity since women do not generally socialize in the tavernas.

It turned out that having a woman at the helm was also an oddity. Although the flotilla captain appeared surprised to learn that Chinn would guide the Intrepid, it wasn't until the trip was almost over that she found she was the first female skipper the flotilla had ever had.

While Chinn's responsibilities kept her on board, Jones was sometimes free to visit other boats while under sail. She found the other crews, mostly British and South African, somewhat more competitive. "Throughout the trip," she said, "people were watching each other in preparation for the race."

The race was held on their last day out. Jones and Chinn don't think anyone bet on them. Not only were they a young, inexperienced crew, but they were always the last boat into port at the end of the day's sail. And, true to form, they were the last to cross the starting line as the race began. Despite these drawbacks, the Intrepid sailed blithely past 10 other boats to place second, right behind a crew that was sailing the course for the third time.

It was a perfect way to end the perfect trip, according to Chinn, who said, "It was even more exciting than we had anticipated from reading the brochure. It wasn't just a vacation. It was much more to me." Jones agreed. "Every time I talk about this," she said, "I want to go back."

—Anita Cohen



During the race that capped her flotilla sailing vacation, Louise Chinn steers the Intrepid with her foot on the tiller and concentrates on maintaining a winning course.

Containers In Art



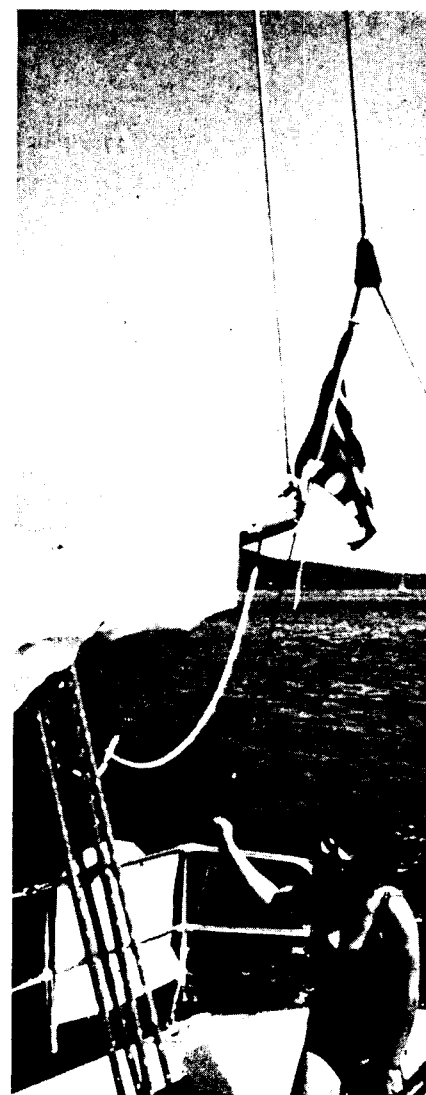
Artist Thaddeus Krumreich displays one of his paintings which will be featured next week at BNL in an art show centered around the theme of "Containers." Other artists who will exhibit their variations on this theme include Ernesto Chorao, Lillian Dodson, Elaine Haff, Kathi Ince, Elsie Manville, Po Kim, Richard Karwoski, Leatrice Rose, JoAnne Schneider, Peggy Watson, Margaret Weissbach, Nancy Wissemann-Wildrig, Victor Whitlock, Arline Wingate and Esterina Velardi. The artists work in a variety of media including oils, watercolors, porcelain and stoneware.

The show comes from the Elaine Benson Gallery in Bridgehampton and may be seen from 11:30 a.m. to 1:30 p.m., August 12 - 20, in Room B, Berkner Hall. Opening night is Wednesday, August 11 at 5 p.m. and all are invited to drop in and meet some of the artists.

Contract Ratified

On Thursday, July 29, the International Brotherhood of Electrical Workers Union ratified an agreement with Associated Universities, Inc. The principal provision calls for a general increase of 7 1/4%, plus a 1% craft differential, effective August 2, 1982. The agreement was the result of a provision for reopening the 1981-1983 Contract for economic items only.

The Union represents 570 bargaining unit employees in Plant Engineering, Central Shops, Supply and Material, Staff Services, Photography and Graphic Arts, and Safety and Environmental Protection (Firefighters).



Barbara Jones tries her hand at steering the sloop.

Special Tour

An entertaining and educational live stage show will be part of the Laboratory tour program this Sunday, August 8. Called "Energy Today and Tomorrow," the show is part of a special traveling program operated by the New York Power Pool.

Among the unusual electronic teaching devices featured in the show are an animated garbage can that demonstrates the value of recycling, a bicycle that generates electricity, an electrostatic precipitator to control pollution and an electric motorcycle. A demonstrator will use this equipment (and other devices) to describe today's sources of energy, methods used for power generation, possible future sources of energy and the social, economic and environmental choices we face when we use energy.

The show, which is designed to appeal to audiences of all ages, will be presented at noon, 1 p.m. and 3 p.m. in Berkner Hall auditorium. Visitors, who can arrive at the Laboratory any time between 10 a.m. and 3 p.m., can also take a two-hour guided tour of the Lab site and the Exhibit Center, either before or after any of the performances. Both the show and the tour are free.

Bering Sea

(Cont'd)

all of the two hundred residents were having something of a celebration," said Whitledge. The sun only shines an average of three to four days a year in the area, but on Whitledge's last trip, "something unusual happened, we saw the sun twice," he said.

Whitledge expects to be involved with work in the Bering Sea for another five or six years and hopes to travel to the area frequently during that time. "We have a good idea of what's going on in the outer and middle domains, next we'd like to study the inner domain in more detail," said Whitledge.

— Derek McCalmont

Diners Note

The Cafeteria will be closed on Saturday, August 7. On that day, Snack Bar Service will be available from 9 a.m. to 2 p.m. at the Brookhaven Center.

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Arrivals & Departures

Arrivals
Louise S. Silver Biology
Joyce Wund Personnel

Departures
This list includes all employees who have terminated from the Laboratory, including retirees:
Frank Chorzempa Central Shops
Susan J. Davis Ph. & Gr. Arts
Arthur F. Gremillion, Jr. Medical
Laine H. McCarthy Energy & Env.
Barbara J. Mulready Personnel
Raymond L. Rothamel Accelerator
Louis G. Stang Nuclear Energy
Robert R. Wessel Accelerator
Antonio R. Wijangco Physics

Notice to Visitors

The Public Relations Office has a limited supply of The Long Island Guide available for summer visitors. The Guide is published by Newsday and gives comprehensive information on where to go and what to do on Long Island. For your copy, call Ext. 2345, or stop by Public Relations in Bldg. 134.

Summer Concert

Works by Beethoven and Franck will be performed at an informal recital by summer students Barbara Litt and Stephen Naculich. With Litt on violin and Naculich on piano, the concert will begin at 5:15 p.m. on Tuesday, August 10, in Berkner Hall auditorium. The performance is free and everyone is invited to attend.

Bowling

Bowlers are still needed for the various leagues. If you are interested, contact either Carol Beckner, Ext. 3138; Charlie Bohnenblusch, Ext. 4758; or John Connelly, Ext. 3284.

Aerial Survey (Cont'd)

some long-time BNL employees suggested the S&EP team look into the Waste Management area, where low-level radioactive materials are stored. Through record checking and interviews with personnel who supervised the operation in the past, it was learned that in an effort to enlarge the area, several acres were scraped to a depth of seven to ten inches in 1954-55, again in 1958 and also in the mid-60s.

Since radiation survey instruments at that time detected nothing in the dirt, the topsoil was skimmed off and stored in the old landfill area for later use as fill. With today's more sensitive techniques, this would not have been done. A resurvey of the old landfill found an area that matches the cesium levels at the eight sites under investigation.

The clincher was a search of Plant Engineering records, coupled with interviews with old-timers from PE, which showed landscaping and fill work done at all eight sites the same years that soil had been removed from the waste management area.

Once the investigation was channeled in that direction, other things began to fall into place. Soil samples at the eight sites were grainy and sandy, matching the soil at the waste management area. Soil samples elsewhere were of compact biological material.

For the area near the Brookhaven Center, shape became important. In 1955, an old building was removed and the road connecting it to the Center was filled. The S&EP field check had revealed a contaminated area that appeared to follow the old road-

Kids At The Pool

Friday pool specials are held each week from 3:15 to 4:30 p.m. Children of all Laboratory employees are invited to join the fun. Following are the results of the last two week's races:

Friday, July 23, Kickboard Races
Age 4&5 - 1st- Heidi Abrams, 2nd- Karen Bebon, 3rd- Amy Colleran; Age 6&7 - 1st- Mary Ellen Wanderer, 2nd- Mike Wanderer, 3rd- Derek Durham; Age 8&9 - 1st- Shira Gal, 2nd- Keith Chan, 3rd- Amy Nicoilellis; Age 10+ - 1st- Jennifer Mc Nerney, 2nd- Keith Holden and 3rd- Jennifer Chan.

Friday, July 30, Relay Races
Ages 4&5 - 1st- Jennifer Johnson & Vanessa Murdock, 2nd- Matt Short & Supna Bhaghat, 3rd- Kerry Parsons, Neil Tuli & Nikhi Bhaghat; Ages 6&7 - 1st- Mary Ellen Wanderer, Rachel Thern & Shay Berant; 2nd- Rakesh Singh, Amy Colleran & Eric Thern, 3rd- Mike Wanderer, Derek Durham & Clara Chan; Ages 8&9 - 1st- Shira Gal, Ellen Barren, Ruth Ann Barren & Amy Nicoilellis; 2nd- Neesha Singh, David Short, Keith Chan & Kathleen Holden; Age 10+ - 1st- Jennifer Mc Nerney & Megan Holden, 2nd- Keith Holden & Jennifer Chan, 3rd- Karen Mills & Alyse Holden.

bed. Although there was no record of the source of fill, the shape of the area and the date of the project both pointed to contaminated fill as the source of cesium at that location.

Right down the line, the rest of the eight spots have a similar history. The animal facility was added to the Medical Research Center in the mid-60s, and completed in 1968. A parking lot was added, and the area landscaped. In 1966, a new steam line went in behind the Chemistry Department, and the area was backfilled and landscaped a year later. Sometime during 1967-68, a gas leak occurred in a pipe outside the Physics building. A repair was made, followed by filling and landscaping. Near Contracts and Procurement, a temporary building was removed, and a parking lot and grassy area installed. The Applied Math building was added on to Physics in 1966. All of these operations occurred during and shortly after the waste management area was scraped in the mid-60s.

Again, these areas do not present a health hazard for individuals working in them or using them for recreational activities. So no remedial action is planned right now. However, Plant Engineering maps have been marked so that future use of the soil in the old landfill will be restricted and construction projects in these areas will be properly monitored.

Now that the mystery has been solved, landscaping near buildings constructed within the time intervals of 1955-58 and 1966-68 are being examined. Also, small perturbations in the aerial survey that were not previously of interest are being looked at more closely. —Mona S. Rowe

Sign Up For School On Site

This month, while most college students are thinking about registering for the fall semester, Mary Cooper, an executive secretary at Applied Math, is thinking about her graduation. And while many other BNL employees are busy preparing the necessary paperwork to enroll in courses offered on-site by Suffolk County Community College (SCCC), Mary Cooper is preparing to receive an important piece of paper from SCCC — her diploma.

In working towards her A.A. in Business Administration, Cooper took all her spring and winter semester courses at BNL. Along with the encouragement she received from her supervisor John Denes and the staff at the Affirmative Action Office, that's what prompted her to go for the degree in the first place. "Because the courses were offered on site," she said, "I had no problems with transportation and it made my schedule a lot easier."

Scheduling was an important factor because, with five children, the Coopers are a busy family. This year several members of the Cooper family saw their efforts reach fruition. Besides her own graduation, Mary Cooper celebrated her husband's commencement from SCCC in May. In June, one daughter graduated from Howard University and another received her diploma from Riverhead H.S. A third daughter recently completed basic training for the U.S. Army.

Graduation may not become a family affair for all BNL students, but everyone is invited to follow Mary Cooper's lead and take courses on-site through SCCC. Registration for the Fall 1982 semester will be held August 18-26 in Room 112, Bldg. 460. Tuition is \$34 per credit and there are no addi-



Mary Cooper

tional school fees. Tuition can be paid with checks or money orders made payable to SCCC or with a VISA or Mastercard credit card.

Full-time employees who are interested in applying for a tuition refund should obtain the proper form from Personnel. Upon completion of 24 credits, SCCC will grant a General Equivalency Diploma to any student without a high school diploma.

Below is a listing of SCCC's on-site course offerings for next semester. These courses will be in session for approximately 14 weeks and the minimum enrollment for each class is 15 students. Books will be sold the first night of class and classroom locations will be announced later. For additional information about the on-site courses, call Renee Flack, Ext. 3316.

	Course	Cr.	Day	Hours	Start Date
AC11	Principles of Accounting I	4	T/Th	5:15-7:15	9/7
BA11	Functions & Environ. of Business	3	Th	5:15-8:30	9/9
BA58	Labor-Management Relations	3	W	5:15-8:15	9/8
DP11	Introduction to Computing	3	M/W	5:15-7:05	9/8
TE38	Digital Elec. III (Microprocessors)	3	M/W	5:15-7:15	9/8
HM46	Sexism and the Humanities	3	T	5:15-8:15	9/7
SP11	Elementary Spanish I	3	T/Th	5:15-6:50	9/7
PC11	Introduction to Psychology	3	M	5:15-8:15	9/13
ES17	Introduction to Weather	4	M/W	5:15-7:45	9/8
MA21	A Survey of Mathematical Reasoning	3	T	5:15-8:15	9/7

Women In Science

The next Women In Science meeting will be held on Thursday, August 12 at noon in Room A, Berkner Hall. At that time, the nominating committee will announce a proposed slate of candidates for the September elections. Physicist Eva Bozoki will talk about the National Synchrotron Light Source and conduct a tour of that facility immediately after the meeting. All summer visitors and students are invited to attend. Bring your own lunch.

Picnic Next Week

"Foods Of All Nations" will be available at the Afro-American Culture Club's second annual family picnic scheduled for Saturday, August 14. All BNL employees and their families and friends are invited to join Club members at Softball Fields 1 and 2 from 10 a.m. to 6 p.m. The Club's only request is that each group bring a "specialty" dish, sufficient for that party plus one additional person. Contributions will be accepted in lieu of a dish, and the Club will provide beer and lemonade.

Anyone who plans to attend the picnic should contact Mary Durham, Ext. 7982. While this will help the Club plan the festivities, no one will be turned away. Everyone is invited to enjoy the food, drink, games, contests, dancing and special entertainment.

Softball

Scores for week of July 26:

Leagues I and II
Blue Jays 12 - Roga 1
For the Blue Jays, G. Oldham was 3 for 4 with a home run. Dave Hansen had a home run and was 2 for 3, as was Larry Musso.
Ravens L* - Ice Pops 10
For the Ravens, Leroy James was 4 for 4 with 2 home runs. Ed Taylor, 4 for 5; Pat Ross, 4 for 6 with a home run; Jim Garrison, 3 for 4.
Moles 11 - Phoubars 10
The Moles won in 8 innings. S. Eiseman was 2 for 3 with a home run. D. Comstock was 4 for 4 and pitched an excellent game.
Six Pax 5 - Big Sticks 2
Leagues III and IV
AMD 23 - Lights Out 8
Dirty Sox 16 - Random Errors 4
E. Schmitt was 5 for 5 and E. Gill was 3 for 4 with a home run.
Electric Co. 15 - Titans 10
Walt Annand had 2 home runs; Mel Bonanno was 4 for 4.
Magnuts 10 - Medical 5
Makeup game: Lights Out 17 - Random Errors 7
League V
Nads 9 - Turkeys 5
3 double plays and home runs by D.J. Paquette and J.L. Ivette kept the Turkeys from winning.
Survivors vs. TNT
E-Z Riders vs. No Names
Games postponed
League VI
The Source 12 - Random Sample 10
Mole-Esters 20 - Mudville Sluggers 10
3 run home run by Mike Luban and a triple by Tom Carr.
Who's On First (win) - Who Cares (forfeit)
No Feedback vs. Who Cares
Game postponed.

Cafeteria Menu

Week Ending Aug. 13, 1982

Monday, August 9

Cream mushroom soup	(cup)	.65
	(bowl)	.75
Farmer's omelet & hash browns		1.75
Kielbasi & sauerkraut		1.85
Hot Deli: Baked ham	(bread)	1.80
	(roll)	1.90

Tuesday, August 10

Beef barley soup	(cup)	.60
	(bowl)	.70
Cheddar cheese steak & 1 veg.		1.80
BBQ spare ribs & black-eyed peas		1.90
Hot Deli: Roasted turkey breast	(bread)	1.80
	(roll)	1.90

Wednesday, August 11

Turkey noodle soup	(cup)	.60
	(bowl)	.70
Sauerbraten w. potato pancake & red cabbage		2.10
Stuffed cabbage & 1 veg		1.80
Hot Deli: Sausage & pepper hero		1.90

Thursday, August 12

Pork & cabbage soup	(cup)	.60
	(bowl)	.70
Beef Stroganoff on egg noodles		1.90
Baked lasagna & 1 veg. w/ garlic bread		1.85
Hot Deli: Sandwich steak w/peppers & onions	(bread)	1.85
	(roll)	1.95

Friday, August 13

Seafood bisque	(cup)	.65
	(bowl)	.75
Macaroni & cheese w 1 veg.		1.80
Southern-fried chicken & 1 veg.		1.80
Hot Deli: Corned beef on rye		1.80

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.

The vacancies listed below have been exempted by the Director's Office from the current freeze on open requisitions.

OPEN RECRUITMENT: Opportunities for present Laboratory employees and outside applicants.

1726. EXPERIMENTAL MACHINIST - Requires experience in job print interpretation, layout, and machine set-up. Candidates must demonstrate ability and imagination in all phases of machine work. Will function as all-round machinist for non-production work in research and development shop. Project assignments range from raw material work in research to final assembly. Central Shops Division. (Reposting of Job #1703)

1727. ENVIRONMENTAL SCIENCE ASSOCIATE - Requires MS in a numerate or engineering discipline complemented by a background in biology. Experience in the use of computer analysis techniques and a knowledge of techniques for modeling of environmental pollutants in the environment is desirable. Duties include analysis and interpretation of data related to a variety of energy environmental assessment problems. Safety and Environmental Protection Division. (Reposting of Job #1719)

Autos & Auto Supplies

JEEP SOFT TOP - & doors for CJ5, black, good cond., \$40; soft top boot, never used, still in pkg., will fit Jeeps thru '75, \$20; CJ tire w/rim, good rubber, \$15. Toni, Ext. 2907.

72 HONDA - 750cc, rigid frame, Amen-Springer, basket-case, 16" wheel, asking \$800. Dennis, Ext. 5385 or 654-2076.

CAR STEREO - Panasonic, am/fm, 2 speakers, asking \$75. Toni, Ext. 2907.

70 VW - Bug, good in & out, eng. needs work, asking \$400. James, 473-2059 eves.

79 HONDA HAWK - motorcycle, like new, \$995. 588-0805 eves.

75 FORD PICKUP - full 8' bed w/cap, racks, 4 new tires in good cond., \$2,500. Tony, 281-0350.

80 MAZDA - Sport Pickup, immac., stereo w/tape, 22,000 mi., 26 mpg. local, 40 mpg. hywy., cap. 727-7741.

77 AMC GREMLIN - new trans. & muffler, hi-mileage but good running cond., \$1,800. 878-4268.

70 MAVERICK - good mpg., fair body, new radiator, needs brakes, \$198. Ext. 3153 or 744-1418.

63 CHEVY NOVA - 4 dr., white/blue, runs. George Hrabak, Ext. 3536.

76 VW DASHER - 4 dr., auto., low mi., \$2,400. Ext. 2475 or 751-4539.

54 HUDSON - Hollywood, restored, 12 volt, new paint/inter., \$3,500; 74 AMC, 258 engine, reasonable. Jason, Ext. 3688 or 363-7032.

72 BUICK - Electra Limited, all power, excel. cond. in & out, \$995. Jack, Ext. 3040.

78 FIREBIRD - Formula 400, auto., power steering/brakes, a/c, am/fm cassette, Cragers, radial T/A, velour inter., \$5,500. 473-1573.

73 VOLVO - 164, reliable transportation. 286-0422 after 6 p.m.

77 BMW - 530i, 50,000 mi., air, sunroof, leather, stereo, 6 cyl., fuel-injected OHC, never on salted roads, immaculate, \$9,800. Peter, Ext. 3867.

76 JAGUAR - XJ6L, 4 dr., sedan, silver, good cond., all extras, \$6,925. 282-4883 before 10 p.m.

73 VOLVO - 2DSD, auto., am/fm, good cond., \$1,295. Jack, Ext. 3040.

CAMPER - Hi Low, easy tow, extras, new 3-way refrigerator. 281-8009 after 5 p.m.

77 FORD - Granada, 2 dr., 8 cyl., air cond., power steering/brakes, \$2,200. 584-5936.

77 CHEVY PICKUP - 1/2 ton, finished cap, trailer pkg., electric brakes, trans., cooler & hitch, 47,000 mi., \$3,500. 727-9197.

TIRE - Goodrich Lifesaver steel belted radial, GR78-15, new, \$50; mounted on new Ford rim, \$65. Ext. 4482.

73 TRIUMPH - TR-6, convertible, white/black top, excel. cond., \$3,500. 588-0512, 9:30-4:30 only.

CHEVY MONZA - Hatchback 2+2, 4 spd., 4 cyl., new season radials, rust-proof, 27,000 mi., excel. cond., \$4,550. 751-4822 after 3 p.m.

77 FORD - LTD II, p/s, p/b, a/c, cruise control, new tires, 74,000 mi., excel. cond., avail. after Aug. 31, asking \$1,850. Okuda, Ext. 3531.

79 HONDA - CM400T, 2,000 mi., garaged, must sell, \$1,000. 981-0181.

RADIAL TIRES - (2) P187 75R14, B.F. Goodrich Lifesavers, excel. cond., \$40. Mike, Ext. 3658.

67 PLYMOUTH - Belvedere, convert., V-8, p/s, auto., very good inter., runs well, in primer, \$550. Mike, Ext. 4666 or 475-0261.

79 HONDA - Z50R, red, hardly used, showroom cond., \$325. 878-0516.

74 MONTE CARLO - p/s, p/b, p/w, am/fm radio, good tires, runs well, body in good cond. Ext. 2021 or 878-8901.

71 PLYMOUTH - good mechanically, running cond., asking \$300. Ext. 2023 or 698-6585.

78 DODGE - Aspen, 6 cyl., p/s, p/b, a/c, am/fm stereo, cassette, \$2,750. 399-4972.

78 PINTO - 4 cyl., 4 spd., am/fm, 8-track stereo, good on gas, \$1,995. 732-8241 after 6 p.m.

80 FIAT - Strada, excel. cond., am/fm stereo, new radials, Rusty Jones undercoating, \$3,900. Ext. 2231 or 369-1829.

69 DODGE - 9 passenger wagon, old, reliable, \$250. 472-1875 after 5:30 p.m.

70 DODGE WAGON - 1 yr. on rings, 225 CID, 6 cyl., auto., p/s, body rust & dents, runs well, \$500. Joe, Ext. 2897 or 281-7683.

74 CHEVY IMPALA - 4 dr., a/c, p/s, p/b, new tires, tune-up, excel. cond., available after Aug. 24, asking \$1,000. Kumakura, Ext. 2719.

Boats & Marine Supplies

22' SEAFARER SLOOP - loaded, 6 hp Evinrude, VHF, DF, custom interior, dockage paid, \$8,500. Bob, Ext. 4527.

15' CROSBY - 40 hp Evinrude motor, new battery, key start, Cox trailer, \$1,750. 473-3777.

13' BOSTON WHALER - 40 hp Johnson, trailer, excel. cond., \$1,500. 878-2615.

20' BEACHCOMBER - 1980 Cruiser, 150 hp Johnson, power trim/tilt, Cuddy cabin, porti-potti, compass, horn, windshield wipers, bilge pumps, full canvas, E-Z Load trailer, electric double cable winch, immaculate, \$11,500. 981-5993.

21' REINELL WEEKENDER - 1975, 188 Mec I/O, fully loaded, sleeps 4, dock paid till Oct., mint cond., must see, \$7,000 neg. Bob, 481-7194.

24' SEA RAY - 77-78 Cuddy cabin, 250 Mercruiser eng., IEO-VHF Coast Guard pkg., \$11,900. 987-9600.

15' FIBERGLASS BOAT - w/eng. & trailer, needs work, \$500 firm. 363-6850 eves.

16' THOMPSON - wood, 60 hp Evinrude, new power-pac, galv. trailer w/electric winch, \$1,000. Ext. 4630 or 751-2117.

JOHNSON - 2 hp, just tuned, \$150. Ext. 3773 or 878-8113.

19' SAILBOAT - fiberglass over wood, needs some work & TLC, \$750. 929-8475 after 6 p.m.

SAILFISH SAILS - old but OK, \$100. Ext. 4730 or 744-6938.

19' O'DAY MARINER - sleeps 2, 4 hp Evinrude, trailer, spinnaker, extras, \$5,000. J. Olson, 289-8629 after 7 p.m.

Free

RIMS - (2) 15", for Ford station wagon. Ext. 2906.

MALE KITTENS - loveable, adorable, need good homes. Ext. 2980 or 289-0532 after 6 p.m.

16' SAILBOAT - and/or wood rowboat, both need work. Ext. 3715 or 689-8229 after 6 p.m.

FRENCH DOOR - 6 ft. opening w/screens, 3 sinks, 1 bathroom vanity. You pick up. Tom, Ext. 7115 or 744-5801.

Yard Sales

YARD SALE - August 6, 7, & 8, moving, must sell everything, 339 S. Ocean Ave., Patchogue.

MOVING SALE - Yaphank, Sat. & Sun., 9-6, single bed, linens, elec. blankets, rugs, books, lamp, records, etc. Gene, Ext. 4393 or 924-3419.

MOVING SALE - Aug. 7 & 8, 10-5, furniture, appliances, yard tools, firewood, work bench, much more, must go, 12 New York Ave., Stony Brook.

Miscellaneous

DINING RM. SET - oval table w/leaf & pads, china closet, sideboard, 4 chairs, \$150. Ext. 2208 or 289-5688.

FARBERWARE APPLIANCE - Open Hearth, large size, like new, \$45. 588-3779.

HONEY - new crop, local wildflower, unfiltered, unheated, 1.75 lb. George, Ext. 2419 or 744-3289.

ORIG. WATERCOLORS - (2) by late Oakdale artist, 17x21, bamboo framed, colorful, oriental dancers, sacrifice, \$80. 589-5126.

SCREENHOUSE - for your backyard or patio, 12 sections & extra roof, \$95 firm. 281-8272.

IRRIGATION PIPES - (2) 20' aluminum lengths, standard farm hookup, (2) 12" risers, no sprinklers. 727-0505.

FREEZER - upright, 6'x3'x20" deep, not new, but all OK, \$75. 924-6751 eves.

WOOD - approx. 1/2 core, not split, asking \$70; Midland CB w/power mic., 23 channel, asking \$60. Fran, 399-4822.

WALL OVEN - Tappan, gas, \$30; gas cooktop, \$30, Hotpoint portable dishwasher, \$50. 929-4886 after 5 p.m.

CLAM RAKE - 16 tooth, \$25; 18 tooth, \$20; cull rack, \$10. Rich, 286-3235.

LADIES BICYCLE - 10 speed, custom made, new cond., \$100. 924-3328.

SOFA - green Provincial, best offer; gold vinyl hassock, \$15. Lynn, Ext. 2780.

TYPEWRITER - IBM electric; Royal office typewriter, reasonable; forced air electric heater, 363-7032.

SLING-BACK CHAIRS - Rattan w/cushions, need some fixing, 2 for \$25. 286-0422 after 6 p.m.

GAS RANGE - continuous clean, 2 yrs. old, \$200; electric dryer, \$100; free delivery. Ext. 3913 or 475-8099.

EXTERIOR DOOR - 32", pre-hung, new, unfinished, never used, upper 3 glass sections, bottom wood, \$75 firm. Ext. 2906 or 929-6189.

GOLF CLUBS - & bag, Spalding Tournament, 4 woods, 8 irons, 1 dynamiter, 1 putter, good cond., \$75. J. Candiano, Ext. 4144.

MEN'S BICYCLE - Raleigh, 21", 3-speed, rear bags, good cond., \$50. Glauco, Ext. 4353.

PHOTOGRAPHY BOOKS - (6) Time-Life, dealing w/35mm photography, beautiful, must see, \$50 sacrifice. 589-5126.

WINDOW COMBINATION - 114" long, 48" high Thermopane picture window, 2 side windows, storms & screens, Phil, 363-2070 eves.

ARCHERY TARGET - best grade, like new, \$10; metal detectors, new & used, Al Campbell, Ext. 3354 or 727-3731 after 5:30 p.m.

BEDROOM SET - Contemp. double bed, \$100; headboard, \$10 negotiable. Ext. 2969.

STOVE - 4 burner, oven, builders model, \$150. 981-4177.

STEREO AMPLIFIER - Bogen, excel. cond., like new, 35 watts per channel, \$60; upright organ, Magnus Mode #535, 42 watts, \$60; Siltronix 0-1500 watt meter, 2-50 MHZ, \$50. 751-6418.

STEREO - York console, am/fm, cassette recorder, wood grain cabinet, glass doors, 2-36" speakers, headphones, \$250. Dawn, 736-2309.

DINING ROOM SET - Trestle table, 2-leaves, 8-chairs, asking \$400. 581-7656.

SPEAKER SYSTEM - Ultralinear 200, 3-way acoustic suspension construction, 12" woofer, high efficiency, good sound w/low to medium powered amplifier, cost \$300, will sell at \$125/pr. Ext. 7535.

MEN'S BICYCLE - Fuji, good cond., \$100. Bob, Ext. 4637 or 692-8659.

SECRETARIAL DESK - L-shaped, w/5 drawers, black metal w/walnut finish formica top, asking \$50, 281-0804 eves or weekends.

REFRIGERATOR - Admiral, 11 cu. ft., 7 yrs. old, \$75. Ron, Ext. 7101 or 289-1003.

TV - 21" Motorola, b/w, console, \$20; boy's ice skates, sz. 4, \$5. Ext. 3129.

CRIB - portable, like new, \$25. 698-6585 after 5 p.m.

KITCHEN OVEN HOOD - stainless steel, 36", \$10; dehumidifier, old, runs, \$10. (2) RCA TVs, 17" b/w, same model, 1 works, both for \$10. Victor, Ext. 2395.

CHAIN SAW - 18" Sears, used one season, \$100 takes it. Carol, 289-3917.

SOFA/SLEEPER - Castro, queen size, \$50; portable bed, \$10; night stand, \$15; color TV, \$40. 928-9448.

WEIGHTS - barbell-dumbell, \$20; crib, \$15; good, heavy formica table, 42"x60" opens to 83", \$18; highchair, \$12; 1931 Royal small portable typewriter, good, \$35; 2 end tables, \$15; 4 doz. qt. canning jars, \$12. 727-1617.

SEWING TABLE - antique, 19-1/4"x36", w/folding legs, excel. cond., \$25; mahogany D. Phyle dining table w/3 leaves, padding, 4 Lyre back chairs, 2 arm chairs, credenza, excel. cond., \$1,200; Exercise cycle, w/adjustable tension, practically new, \$75; desk, maple knee-hole w/7 drawers & glass top, like new; (2) applique quilts, brand new cond., beautiful handiwork, \$200/pr. 589-3269.

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

MIDDLE ISLAND - 2/3 bdrm., 1-1/2 bath, kitchen, l/r, garage, 1/2 acre, north of Rte. 25, \$35,500. Joann, 744-2821.

CONDO - Birchwood at Blue Ridge, 15 min. from Lab., 3 bdrms., many extras, facing golf course, low \$60's. 698-7213.

POCONOS - vacation campsite w/sewage, water & elect., 1-1/2 hr. from NYC, lake, pool, club house. 928-0066.

CENTER MORICHES - corner fenced lot, Holiday Beach, ideal location w/waterview, price negotiable, must sell. Baldwin, 289-1568.

RICHMOND, R.I. - wood building lot, 1.13 acres on Rt. 2, ideal for split level or earthburn home, very low taxes, \$9,000. Steve, 728-9165.

WADING RIVER - property north of 25A, exclusive area, lovely wooded bldg. plot, slightly under 2 acres, owner asking \$24,500. 928-0158.

MASTIC BEACH - 4 bdrm. cape, d/r, l/r, w/Franklin, eik, full porch, low taxes, walk to bay & stores, gas hot water & cooking, Farmers Home 8-1/2%

mort., (80x100 adjacent reasonable), \$24,000. 281-0360.

For Rent

ROSEAU, DOMINICA, W.I. - new 2 story office building, convenient location, will be available in Sept. Ext. 2487 or 928-6930.

CENTER MORICHES - 5 rm., 2 bdrm. apt., heat & hot water incl., adult couple w/no pets preferred. 878-1561.

SHOREHAM - spacious house, excel. cond., beautiful secluded grounds, walk to beach, avail. now for 1 yr. 744-6804.

SHIRLEY - 3 bdrm. ranch, bsmt., attached garage, wood floors, eik, 2 mo. security, \$375/mo. 878-1707.

WADING RIVER - cliff house with panoramic view of L.I. Sound, 2 bdrm., cathedral ceiling, stone fireplace, Sept. thru June, \$350/mo. Ext. 2440 or 929-8165.

N. PATCHOGUE - very clean studio, kit., bath, private entrance, cablevision hook-up, must see, 11 mi. from Lab. Carol, Ext. 5042 or 289-3917 after 5 p.m.

Car Pools

BELLPORT - need additional members for existing 3 person car pool. George, Ext. 7654.

SHIRLEY - Summer student, desperately needs ride from Shirley R.R. every morning at 8:22 a.m. Maggie, Ext. 2285.

Lost & Found

LOST - blue, 3-speed bike at Cafeteria 7/23, #815-6, Bookless, Ext. 4510.

LOST - shopping bag containing misc. items, in swimming pool area, Friday, 7/30. Ext. 2073 or 928-8071.

FOUND - Motorcycle helmet, near south gate, 5 p.m. Wed. Don, Ext. 4821.

LOST - Baroque pearl, and gold chain. High sentimental value. Reward for returning. Ext. 4879 or 4142.

Wanted

RIMS - 14" & shop manual for 1971 Plymouth Valiant, George Hrabak, Ext. 3536.

CLAM RAKE - reasonable. Barbara, Ext. 3319

TIRES - C78-13, good to fair cond. Susan, Ext. 4267.

MOTOR - for Suzuki RM80cc, 90cc, 125cc, reasonable. Glenn, 732-3350.

MOLDS - for casting metal miniatures, military figures, cartoon characters, farm animals, etc. Tony, 475-5688.

DESK - office type, metal with swivel chair, would like 30x60 double pedestal, reasonable price. Andy, Ext. 3264.

UTILITY TRAILER - 4 ft. wide bed, approx. \$100 to spend. 924-6751 eves.

PARROT CAGE - 36" or larger. Paul Darnell, 924-6478.

APT/HOUSE - no higher than \$400/mo. incl. all, 1-2 bdrm., must allow child & dog, need by 8/25/82. Dawn, 736-2309.

PHYSICS INSTRUCTOR - part-time, Introductory Physics I, a.m., MWF, Dowling College, Dean of Faculty, 589-6100, Ext. 382.

PROF. P.A. SYSTEM - amplifier & speakers wanted. 924-0960 after 5 p.m.

APT - furnished in Rocky Point for senior citizen, walking distance to 25A, Sept. occupancy. 928-2803.

BIKE CARRIER - for car, good cond., reasonable. Victor, Ext. 2395.

TRAINS - Lionel, any "0" gauge or "027" gauge cars, track and equip. Frank, Ext. 3120.

Services

Services are listed as a courtesy to BNL employees. They are neither screened nor recommended by the Bulletin.

CARPETS INSTALLED - quick dependable service, free estimates, repairs. Jim, 821-0187 after 5 p.m.