

## Detectives Of The Deep

Brookhaven's oceanographers are engaged in a continuing study of the New York Bight for ERDA in an attempt to understand the complex biological and physical processes that occur in that area. On occasion, they are assigned to analyze the ecosystems of seas far removed from Long Island.

Several members of the group have just returned from investigating the waters off Peru. This trip was part of the Coastal Upwelling Ecosystem Analysis, a National Science Foundation project, under what is known as the International Decade of Ocean Exploration, first proposed by President Johnson and implemented in the early seventies.

The Peruvian research cruise was headed by John Walsh, who is in charge of the Oceanographic Sciences Division, which was established in DAS about a year ago. Staff members on this venture included biological oceanographer Terry Whitlege, biologists Dave Grill and Evarina Wold, chemist Charlie Patton and graduate students Creighton Wirick and Andy Stoddard. Other members of the team were scientists from Duke University, the University of Alaska, SUNY at Stony Brook, and Instituto Del Mar Peru.

The area selected for this particular investigation is one of the largest anchovy fisheries in the world, off San Martin on the west coast of Peru. In 1969 the catch in this area peaked at 10 million metric tons. Now the catch is down to three million metric tons. Why? They don't know for sure and there are several parts to the problem.

A coastal upwelling is a process where the wind blows from the south towards the equator and the water on the surface is blown off the coast to the deep ocean, in a process known as Ekman transport. The cold water which is brought up from the deep near the coast contains a lot of nutrients and the fish flourish. Every seven or eight years in Peru, a phenomenon called "el niño" occurs. It is the reverse of the coastal upwelling - the wind decreases and warm surface water comes down from the equator and covers the upwelling areas, which are normally cold. The warm water contains few nutrients, hence little phytoplankton or zooplankton are able to live and the anchovies disappear. After such a disaster, it takes about a year for the fish catch to return to normal. The last "el niño" was in 1972.

Besides this natural phenomenon which depletes the fish catch, overfishing is a problem which Peru would like to control. The anchovy is catchable in six months, whereas a sardine takes three to four years to mature. As Whitlege says, "If you have an 'el niño' one year, there are not many anchovies spawned, and so there are not many to come back to spawn the next year. And when you have heavy fishing on top of that, it takes a long time to recover." Apparently, there are very few large adult anchovies left.



Terry Whitlege and Creighton Wirick aboard the research vessel *Eastward* in Peru.

—Photo by Stoddard

Another industry in Peru that was directly related to the fish population is now practically moribund. Before the fishing industry got underway in 1958 there were 30 million birds. The birds would catch fish, then defecate only on the islands, thus providing large guano deposits. As fishing increased, the birds decreased to about 8 million. Now there are only two to three million birds and the guano industry has gone under.

According to Whitlege, "The concept in doing ecosystem analysis is to understand the system well enough so that you know how to regulate it, or interact with it." The basic question asked by the researchers on this trip was, "How far offshore does the influence of the coastal upwelling go, and how far can we expect to see nutrients, phytoplankton and zooplankton offshore, and what are the spatial distributions of organisms and their food?"

From their ship, the research vessel *Eastward*, owned by Duke University, the group took basic chemical and biological measurements of the amount of nutrients, phytoplankton and zooplankton found in the water. In addition, they did special experiments on nutrients to find out how fast plants take them up; on phytoplankton to determine its growth rate; and they did respiration and excretion studies of zooplankton and fish. Water samples were taken as far as 100 miles from shore and the nutrients were still found in large amounts.

Although it is too early to evaluate their findings, they did make an interesting observation during their experiments. In an area offshore, where the continental shelf is wide, they found that the patches of nutrients or phytoplankton seemed to be smaller and more widely scattered than in the regions over the shelf. This is interesting because it shows that zooplankton would have to search further in the offshore areas

than in the nearshore areas to find food. The wide shelf in Peru is similar to the width of the shelf in the New York Bight. There would not seem to be much of a connection between these two regions, but Whitlege says that recent calculations indicate the amount of fish that live on a per unit bottom area, is about the same for both continental shelves.

The researchers are always on the lookout for relationships among the ecosystems. For instance, if they come across interesting phytoplankton or zooplankton in Peru, they will watch for it in this area. Also, many of the same methods used in the upwelling programs are employed in the ERDA program in the New York Bight.

Though the oceanographers go on a "cruise" they are not lolling about the decks basking in the sun. Samples taken are processed immediately aboard ship and this requires working around the clock. As Whitlege says, "Things change rapidly in the ocean. The more measurements you make close together in time, the better you can connect these measurements." Also, instrumentation and ship time are expensive and every minute is used efficiently.

They did not run into any unusual problems at sea, but two of the researchers nearly had a disaster on land. For various reasons there had been some uprisings in Peru and a curfew was imposed. At that time it was the practice of the newspapers to publish weekly figures on the number of people shot for non-observance of regulations. As the researchers were sauntering along during the day, they stooped to read a sign which had fallen down. Just as they were discovering they were on a military installation, they heard a clip being put in a machine gun. A nervous soldier was preparing to add them to the statistics. Fortunately, they were able to explain them-

## Lab Is Host To APS Meeting

The Annual Meeting of the American Physical Society's Division of Particles and Fields will be held October 6 through 8 at Berkner Hall. Between 200 and 300 participants, many of them old acquaintances of Brookhaven who have carried out experiments at the AGS, are expected to attend the meeting. Preparations for this conference, the first APS Divisional meeting to take place at the Laboratory, have been going on for nearly a year.

The main purpose of the meeting is to provide participants with a review of the latest developments in the field of high energy physics. Normally, there is an international conference every two years which carries out this function on a world-wide basis. This year, however, that conference took place in the U.S.S.R. and U.S. participation was limited.

Of special interest will be a number of talks on the subject of charmed particles, the first example of which was probably a bubble chamber event found at Brookhaven and reported in the spring of 1975. Professor Sheldon Glashow of Harvard, one of the originators of the charm concept, will be the banquet speaker on Wednesday night.

An exhibit relating to the ISABELLE proposal will be set up in Room B of Berkner Hall during the conference. Space permitting, the sessions of the conference will be open to all Brookhaven staff.

## Flu Vaccinations

Associate Director Victor P. Bond has announced that the Laboratory will participate in the national swine influenza vaccination program this fall.

Under the medical direction of Dr. Love, employees will be given the vaccine as soon as supplies are available. Although it is by no means definite, present indications are that the vaccine will be on hand in this area in early November.

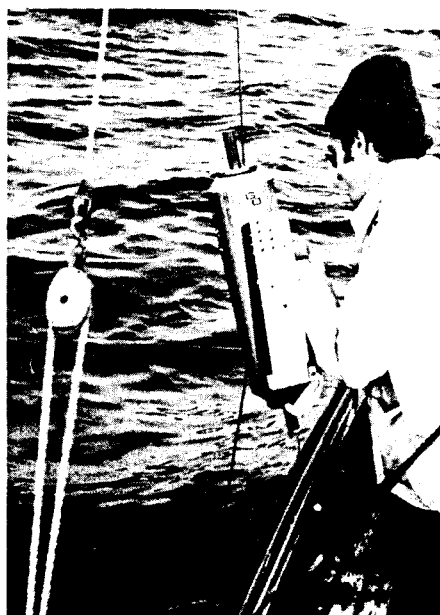
Gerald Kinne, Director's Office, will be in charge of the administration of the program. At the appropriate time, a letter will be sent to all employees giving full information and enclosing a consent form which must be signed by all participants.

Kinne stressed that the vaccinations are not mandatory, but are on a voluntary basis and that employees who are undecided as to whether or not they should have the vaccination, should consult their physician.

As they become known, further details about the swine flu vaccinations will appear in the *Bulletin*.

selves in broken Spanish and lived to sail again.

The explorers of the deep expect to return to Peru in the spring to complete their studies, but their principal occupation here is to try and determine the productivity of the ocean right next door.



In home waters, about 3-4 miles out of the Shinnecock Canal in the Atlantic, the ocean-going scientists get water samples for ecosystem analysis. They are taking samples at the same spot for at least a year for ERDA's High Resolution Biological Time Series. From left, Charlie Patton and

Dave Grill, at daybreak, load up a chartered research vessel in Southampton; Creighton Wirick lowers an experimental zooplankton chamber; Paul Falkowski takes water samples for biological and chemical measurements; Dave Grill prepares a Niskin sampling bottle.

## Inside Operation Sail

John R. Apel, who is director of NOAA's Pacific Marine Environmental Laboratory in Seattle, Washington, was one of the lucky ones who participated in Operation Sail, before, during and after the Bermuda-to-Newport race, and in the spectacular parade of ships in New York on July 4.

He will be in this area in early October and has agreed to give a talk on "A Wet-Deck View of the Tall Ships," scheduled for October 11, in Berkner Hall at 3:30 p.m. and again at 8 p.m. Dr. Apel will illustrate his talk with nearly 100 slides taken during those exciting days.

He was on the *Westward*, a research and training staysail schooner, and was returning from Miami where he had been engaged in experimental work, when the *Westward* was assigned to furnish weather information for all the tall ships. In addition,



John Apel aboard the *Westward* during Operation Sail.

the ship was entered as the official NOAA B class entry in the race. It is expected that, in his afternoon talk, Dr. Apel will emphasize the research and support roles played by NOAA (National Oceanic and Atmospheric Administration) in Op Sail, and that the evening lecture will be more general.

Apel was educated in physics at the University of Maryland and The Johns Hopkins University and entered oceanography from a background of plasma physics in 1970. As research specialties he counts waves and instabilities in fluids and remote sensing. He holds professorships at the Universities of Washington and Miami. Dr. Apel is a consultant to numerous governmental agencies and the United Nations, and is the recipient of a Department of Commerce Gold Medal in 1974 for his work in satellite oceanography.

## Dyer-Bennet Concert

Those who were disappointed in June when the scheduled performance by Richard Dyer-Bennet had to be cancelled at the last minute because a sudden cold took away the singer's voice, will be pleased to know that the concert has been rescheduled for Sunday evening, October 10, at 8:30 p.m. in Berkner Hall. Dyer-Bennet, accompanied by pianist Nancy Garniez, will sing "The Lovely Milleress," his own English translation of the text of Schubert's great song cycle "Die Schoene Muelllerin." Admission to this special concert will be \$3 for adults and \$1.50 for students and persons over 65.

Richard Dyer-Bennet, renowned as a singer in the minstrel tradition, began his professional career in a New York night club in 1941 and made his first recording and his radio debut in the same year. He made his first national concert tour under S. Hurok in 1945-1946, and from then until 1970 he toured the U.S.A. and Canada giving over 600 concerts. He now has a full teaching schedule as a Professor in the Theater Arts Department in SUNY at Stony Brook, but still finds time for a few concerts around the country each season.

Although known as a minstrel, Mr. Dyer-Bennet possesses a true lyric tenor voice suited to more formal songs. He long wanted to sing Schubert's song cycle in English, "being accustomed to telling my tales to an audience in a language we share." Since no good translation was available, he made

## Arrivals & Departures

### Arrivals

Jean Barrette.....Physics  
 Gilbert M. Brown.....Chemistry  
 Wayne M. Dankner.....App. Science  
 Robert P. Keefe.....Biology  
 Robert J. Miles.....Plant Engr'g.  
 Mary Pat O'Brien.....Safety & Env. Prot.  
 Sawang Prachuktam.....App. Science  
 Alex J. Reben.....Ph. & Gr. Arts  
 Pradip Saha.....App. Science  
 William G. Shier, Jr. ....App. Science

### Departures

Carol K. Bodin.....App. Science  
 Mei Han G. Chou.....Chemistry  
 William P. Costello.....Purchasing  
 Joanne M. Ferrante.....App. Science  
 Jane B. Garron.....Personnel  
 Frank A. Hutton.....App. Math.  
 Tatsuo Ido.....Chemistry  
 George J. Kapner.....Purchasing  
 Kathleen T. La Placa.....AUI  
 Hanna Maluszynska.....Chemistry  
 Roberta Phillips.....Ph. & Gr. Arts  
 Ching-Hui Wu.....Medical

## Upton Nursery School

Upton Nursery School for three and four year old children of BNL employees still has a few openings. The school is a cooperative in which the parents assist the teachers at each session. The program is varied, including outdoor activities, crafts, music, art and some field trips.

There are two and three day a week sessions, tuition is \$24 a month for two days a week and \$35 a month for three days a week.

For further information call Sharon Paschos at 928-4270.

## For The Student

Do you have a youngster who struggles with homework, hates to read or faces the College Boards? If so, you may want to take advantage of the Reader's Digest "Back-to-School Specials" now available at substantial savings to Laboratory employees.

Kenneth Batchelor, President of the BERA Executive Board, has arranged the offering with the Digest's Educational Division. Known for its Skill Builder Reading Series, the Division is releasing selected products to the public for the first time in 30 years.

The Division will also be giving a price reduction on a twin-pack that includes the Reader's Digest Do-It-Yourself Manual and the Complete Guide to Sewing.

Brochure/Order Forms - with photos, description, and prices - are available at the BERA Sales & Services Office in the Cafeteria.



Tenor Richard Dyer-Bennet and Pianist Nancy Garniez, who will appear in Berkner Hall Sunday evening, October 10.

his own. He has just finished recording it and will present it in New York's Lincoln Center in January, followed by other performances around the country. The Brookhaven audience will enjoy a preview.

Although this program should be enjoyable for young people, Dyer-Bennet states that it probably is not suitable for young children. Parents should use discretion.



Savino drove his electric car to work on Monday via the back roads and it only took him about 15 minutes more than usual. He averaged about 30 miles an hour.

## Electric Runabout

There is an orange 1971 Simca gliding around the environs of Bayport which may look like an ordinary car, but it isn't. It has been converted into an electric car by Joe Savino, a Laboratory electrician, not just as a conversation piece, but because it is a step toward dealing with what he considers the "big 3E problems of today - energy, environment and economy."

Although he had been toying with the idea for some time, he really started to think seriously about it after attending an electric vehicle symposium in Washington in 1974. The information he gained there, plus his experience working on electric fork trucks and other electric vehicles at the Laboratory, got him moving in the fall of 1975. He worked nights in his garage for nine months and by the beginning of August, the car was ready for the road.

Savino's electric vehicle has a top speed of 40 miles per hour on the level and a range of up to 50 miles. Of course, the car does not have the acceleration of an internal combustion engine and the slower pace takes getting used to. However, "It's just a question of changing your attitude about driving," Savino says.

The converted Simca replaces a larger car which his wife used to drive, and which she didn't really need for short hops around town and to and from her job at the local high school. She says that "It is an eerie feeling to drive the car. When it is stopped for a light, nothing is heard. People stop to stare at it when it is in motion - they know something is different but they don't know what. Also, dogs don't chase it."

Although electric cars on the market range from \$3,500 to \$15,000, Savino's car cost him about \$1,200, including the price of the car itself. The purchase of twelve 6-volt batteries at about \$500 was the main expense. "It's like buying fuel in advance," he says. Instead of 25 miles to a gallon, he gets about 25 miles to 10-12 kilowatts of electricity at 5¢ a kilowatt. He has a separate electric meter for the car in his garage.

The batteries are located in the back of the car in specially designed boxes. The 3-speed semi-automatic transmission was retained through an adaptor plate designed by Savino and his 17-year old son, Mike. Another son, who is an engineering student at MIT, also helped out this summer. The innovative Savino also designed his own 72-volt electric heater and kept the existing 12-volt battery for the contactors, lights, radio and other accessories. He designed and built the battery charger and makes

the point that all batteries can be charged at night during off-peak hours.

Dashboard instruments were replaced with a voltmeter and a D.C. ammeter so the driver knows the amount of current being drawn from the batteries for various driving situations.

Curb weight of the vehicle, with the on-board charger and batteries is just under 3,000 pounds. To compensate for the added weight, special shock absorbers were installed.

Savino is not ready to call it a day. He is continuing to experiment with slight adjustments and finer tuning to accomplish a



Joe Savino gave his e-Car a booster charge at the Lab before he drove it home. He figured he had used about half his "fuel" on the trip here.

longer range between charges and higher speed capability.

As far as he knows, there are only about 100 people who have converted their cars to electric, but he would like to see more do so. According to him, some large companies are now getting involved as the government is releasing money for research. Although the present electric car is not suited for long-range driving, Savino feels "It definitely has a place as a second car in the family." He expects his vehicle to serve this purpose for a long time and notes that some electric cars used for milk delivery in England have lasted for 25 years.

Avoid changing thermostate settings more than twice a day. Changes are costly.

## BERA Concert Series

1976-1977

BERA is pleased to announce the program of another outstanding concert series. Please take note of the dates now and think about the block ticket bargain - five concerts for \$15! Last season was a record breaking success; let us make this another one.

- October 20, 1976 — Kenneth Cooper, Harpsichordist
- December 8, 1976 — Ruth Laredo, pianist, and Paula Robinson, flutist in a joint recital.
- March 8, 1977 — Juliana Markova, pianist
- March 28, 1977 — Narciso Yepes, classical guitarist
- May 4, 1977 — The Concord String Quartet

All programs are in Berkner Hall at 8:30 p.m.

Blocks of five or more tickets purchased at or before the first concert are \$3 per ticket. General admission is \$4; Students and persons over 62, \$2; Persons under 18, \$1.

**BROOKHAVEN BULLETIN**

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**BERA Special On The Way**

After last year's popular dinner-theatre-dance combo, the BERA Special Events Committee knew it would have to work hard to top that.

And it's just likely that they've done it with the double billing on Sun., November 7, of the internationally known Ambassador of Jazz, Lionel Hampton, and the Italian comic, Pat Cooper. A 30-minute intermission between the two shows will allow you to nibble all the cheese and sip all the wine you want for \$9 per person, or \$17.76 a couple (in honor of the Bicentennial). In addition, two cash bars will be open before and after each show.

You can take your pick of two complete show sets: 4-6 p.m. or 7-9 p.m. But remember this dynamic package is available only one Sunday: November 7.

Reserved seats will go on sale on October 15. Watch the *Bulletin* for details. And plan to end your Bicentennial year at BERA's Very Special Event '76.

**BNL Spreads The Word**

Brookhaven is participating in Energy Expo '76, a show sponsored by the Nassau County Bureau of Energy Resources, September 30 through October 4, at Nassau Beach in Lido. The theme of the exhibition is energy conservation and production and is expected to draw large crowds of homeowners and students.

The Laboratory's exhibit is an attractive panel display, produced by the Public Relations Office, consisting of photographs and copy explaining various areas of research at Brookhaven in solar, nuclear and wind energy, as well as information on the energy conservation house, polymer research and environmental studies. Included in the exhibit is a working model of an Ericsson steam engine powered by hydrogen stored in dry metal hydrides.

This month the portable exhibit is also scheduled to appear at a Science Teachers Exhibit in Huntington October 7, and at the Homecoming/Open House at the State University of New York at Farmingdale on October 9.

**Official & Special Events**

**Tuesday, October 5**  
NY Chapter of Health Physics Society & Radiological Medicine Physical Society

**Wednesday, October 6**  
Particles and Fields '76 (6-8)

**Sunday, October 10**  
Concert

**Tuesday, October 12**  
Committee on Alternative Nuclear Energy Sources (12-13)

**Wednesday, October 13**  
Interdepartmental Committee for Atmospheric Sciences (13-14)  
SUNY at Stony Brook Tour

**Thursday, October 14**  
Air Pollution Control Association

**Pool/Gym Closing Cancelled**

Due to a change of plans in maintenance work scheduling, the pool, gym and locker rooms will not be closed this weekend, October 2 and 3, as previously announced.

Locker users will not be required to clear out their lockers.

**Adult Swimming Lessons**

If enough people are interested, an adult swimming instruction course for beginners and intermediate swimmers will be offered as soon as arrangements can be made.

Call the Recreation Office, Ext. 2873, to register your interest.

**Service Awards**



At a party held recently in the courtyard of the AGS, Mark Barton, chairman, presented service awards for the entire year 1976 to members of the Accelerator Department. Above are those who received 20 and 25 year awards and, second from left, Marty Plotkin who will be eligible for his 30-year award in November. Seated (from left), R.F. Glasmann, M. Plotkin, T.B. Scheuerer, J.F. Donnelly, P.R. Hichborn, H. J. Lutz. Standing (from left), B.F. McLaughlin, E.F. Meier, J.C. Balsamo, H.N. Brown, W.G. Walker, R.K. Stoehr, C.R. Staal, D.A. McCutcheon. Not present were H.E. Bumstead, A.L. Monardi, R. Smith (25 years), and C.D. Freeman (20 years).



Ten year awards were received by the following: Seated (from left) O. Kochman, L.N. Blumberg, M. Month, L. Kouchinsky, A. J. McGeary, L.E. Toler, R. J. Ferdinand. Standing (from left) C.R. Wilson, S. Naase, G.W. Cornish, Jr., V.M. LoDestro, G. J. Novak, L.D. Hawkins, J. Aggus, F. Atkinson, A. J. Krupien. Not present were J. Claus, R. J. Kiely, R.F. Lankshear, and A.W. Maschke.



Medical Department service awards were presented recently to Alfred Celentano (25 years) and Richard Skelton (20 years). Department Chairman Dr. E.P. Cronkite (right) made the presentation.

**Mountain Club Meeting**

There will a meeting on Tuesday, October 5, at 7:30 p.m. in the Rec Hall. Plans for the October 16-17 backpacking trip will be discussed.

There is also a one-day canoe trip on the Carman River in the works for late October.

Anyone interested in these trips or other outdoor activities should attend this meeting. Some slides of eastern hiking will be shown and refreshments will be served.

**Bayport-Bluepoint Schools Ask For Volunteer Help**

Residents of the communities of Bayport and Bluepoint are invited to help at the James Wilson Young High School in enriching and supplementing educational services.

Volunteers are needed for tutoring in science; musicians in assemblies, rehearsals and concerts; library aides; receptionists; and artists to widen the horizons of the uninitiated. Such service, according to Principal Michael Palermo, will enrich the entire community and improve the school.

Further definition of the volunteer aide proposal can be obtained from Mr. Palermo by calling 472-1800, ext. 51.

**Cafeteria Menu**

**Week Ending October 8, 1976**

<b>Monday, October 4</b>	
Tomato Vegetable Soup	
Keilbasy & Sauerkraut	1.10
Grilled Ham Steak & 1 veg.	1.25
<b>Tuesday, October 5</b>	
Cream of Potato Soup	
Southern Fried Chicken & 1 veg.	1.10
Macaroni & Cheese & 1 veg.	1.00
<b>Wednesday, October 6</b>	
Beef Barley Soup	
Tuna Noodle Casserole	1.10
Veal Pattie Parmigiana & 1 veg.	1.20
<b>Thursday, October 7</b>	
Chicken Noodle Soup	
Chili Dogs & Rice	1.00
Broiled Beef Liver & Onions & 1 veg.	1.10
<b>Friday, October 8</b>	
New England Clam Chowder	
Broiled Filet & 1 veg.	1.15
Roast Sirloin of Beef & 1 veg.	1.30

**Sports News**

**Bowling**

**Red League**

"Congrats" this week to J. Scesny and J. Pukit for earning their club awards. J. Scesny bowled 250/226/664 scratch, 706 gross series. J. Pukit had a 223/579 scratch, 711 gross series. R. Larsen missed his award by 2 pins with a 598 scratch series. Other high games were R. Jones 237, R. Larsen 227, J. Roesler 225/200, K. Riker 221, F. Stahman 207, J. Connelly 205/202, M. Bull 203, E. Meier 200. Great bowling guys!

**Black & Blue League**

The Hot Stuffs and the Quiet Ones have taken a quick lead and are tied for first place. High game for 9/15 was Pat Oster 177. High gross pots were won by Pat Lebitski and Fred Hohmann. High gross pots for 9/22 were won by Jean Sells and Fred Hohmann. Any bowlers wishing to join the players pool for this league should contact Lew Jacobson Ext. 2462.

**Pink League**

High games for the night were Grace Fales 190, Helen Keeley 185, Carol Beckner 182, Doris Pion 179, Lindora Boyd 176, Marge Stoekel 176, Renie Rosati 173, Jo Gazzola 170. High gross pot was won by Grace Fales with 238.

**Purple & White League**

The Flounders are still holding the lead. High games were John Ericksen 184, Jean Penoyar 162. Art Lipman rolled a 526 scratch series.

**Golf**

The results from our August tournament at Riverhead are finally in. Ed O'Connell played one of his better rounds of the year and fired a two over par 74 to win low gross honors. Joel Magee shot a 66 to take low net honors, beating Les Lawrence by a single stroke.

The finals in the team competition will pit the team of J. Dioguardo and M. Iarocci against J. Detweiler and J. Petro. In the singles competition the semi-final matches have P. Bond vs. T. Iarocci and D. Hildenbrand vs. J. Detweiler.

**Tournament Notice**

An end of the year tournament will be played at Rock Hill Country Club on October 7. It will be an 18-hole tournament with tee off times starting from 12 noon on. Green's fee is \$5; entry fee, \$2; prizes will be awarded for low gross, low net, longest drive and closest to the pin. The tournament will be followed by a beer party at the Recreation Hall. For information call George Korhut, Ext. 2021.

**BNL Run & Cycle Races**

The annual BNL Run & Cycle races will be held this Sunday, October 3, and are open to BERA members, their families and guests.

The distances of the runs will be 5, 10 and 20 kilometers, and will start at 10 a.m., rain or shine.

The cycle race will commence at 11 a.m., however in the event of heavy rain, the race will be rescheduled for October 17. Helmets are recommended for cyclists.

The locker room and showers will be open for use, and the races will start and end at Berkner Hall.

The BNL Radio Club has again volunteered to serve as route monitors, relaying the position of the participants back to the central command station located at Berkner Hall.

Trophies and medals will be awarded along with certificates for all finishers. For further information about the foot races contact Gus Prince, Ext. 2901 or Bill Thomlinson, Ext. 3978 and for the bike race, Gerry Morgan, Ext. 4841.

**Missing**

Some time ago a set of Cargille Refractive Index liquids was borrowed from the Microscopy Lab. The record of the borrower was lost. Will the borrower please call J. Kelsch, Ext. 4203?



## Classified Advertisements

### Placement Notices

Each week the Personnel Office lists personnel placement requisitions, currently being processed. The purpose of these listings is, first, to give notice of all non-scientific staff positions being filled and, second, to give employees an opportunity to request consideration for themselves through the Personnel Office. In filling vacancies, the Laboratory's objective is to give first consideration to present employees, as follows: employees within the immediate group having the vacancy, employees within the department or division, employees within the Laboratory as a whole.

For further information regarding a placement notice, or to request consideration for an available position, contact Supervisor, Personnel Placement & Development, extension 2874 or 2882.

211. ENGINEERING SERVICES ASSISTANT - Seeking individual experienced in engineering reproduction systems including microfilming and ozalid machine operations. Mechanical Engineering Division.

212. HEAVY EQUIPMENT MECHANIC-OPERATOR - Under minimum supervision maintains, operates, and repairs all material handling, earth moving, road and ground maintenance, and similar equipment, including complete repair and maintenance of gasoline and diesel engines and the use of required machine tools. Plant Engineering Division.

213. SECRETARY - Temporary part-time position involving secretarial assistance to members of the Office of Scientific Personnel. Position requires demonstrated ability to handle a variety of complex administrative and personnel situations. Director's Office.

214. TECHNICIAN - Temporary position. Applied Mathematics Department.

215. SECRETARY - Temporary position. AAS degree or equivalent in secretarial science. Department of Applied Science.

216. SENIOR PERSONNEL REPRESENTATIVE - Bachelor's degree or equivalent with ability to design and conduct personnel training and development programs. Requires excellent oral and written communications skills. Personnel Division.

217. POTENTIAL OPPORTUNITIES - The Department of Applied Science is seeking engineers and analysts for challenging programs directed toward the resolution of energy problems. Assignments, in the National Center for Analysis of Energy Systems, require relevant academic credentials ranging from BS through PhD and demonstrated experience in the following areas:

- FOSSIL FUELS ENGINEERING - Experience in fossil energy, particularly coal. Position involves the use of quantitative methods for evaluating advanced technologies and interpreting output of mathematical models.

- ELECTRIC UTILITY ANALYSIS - Experience in electric utility planning or operations. Position involves planning and monitoring the work of subcontractors studying the problems of introducing new energy conversion systems into electric utility systems.

- DATA AND SYSTEMS ANALYSIS - Experience in utilizing mathematical models. Analyze and work with various models of energy systems. Perform evaluations and comparisons of these models.

Experience in technical statistical research projects. Assist analysts in the formulation and quantification of regional energy models. Collect and analyze data.

Experience in scientific or technical programming of digital computers. Aid energy systems analysts and modelers in designing and analyzing results of computer runs.

Individuals interested in obtaining further information may call John Burdick on Ext. 2882 or 2888.

218. LABORERS - Two positions. Plant Engineering Division.

### Autos & Auto Supplies

TIRES - 2 heavy duty truck tires, 7x17.5 tubeless, like new. \$10 ea. Mac, 929-0296.

68 OPEL WAGON - 59,000 mi, CB hookup, 4 spd, 28 mpg, custom interior, chrome rims w/50 series tires, excel cond. Asking \$775. Billy, 281-5066.

69 CADILLAC - Sedan de Ville. \$940. Ext. 3267, 473-2594.

70 PLYMOUTH FURY II - Ac, auto trans, high mi, good cond. \$550. 281-0493.

68 VW BUG - Good cond in & out, 2 extra snows, 76,000 mi. \$700. Nishikawa, Ext. 4329/4331.

71 DODGE SPORTSVAN - Blue, auto trans, 225 V6 eng, needs work. Ext. 3592.

74 VW DASHER - Excel cond, ac, am/fm, 22,000 mi. \$3500. 475-1234 after 6.

74 SUPER BEETLE - Volkswagen, excel cond, owner in service, must sell. 929-6293 after 5.

72 VW BEETLE - Excel cond, inside & out. \$1495. Ernie, Ext. 4255.

65 PONTIAC - Catalina, 8 cyl, auto, ps/pb, new battery, muffler, tires, good cond. \$300. 286-8119.

75 DODGE - Club Car, auto, 4 wheel dr truck, ps/pb, 4 new wide sand & road tires, 4 mud & snow tires, 13,000 mi. \$5500. Hein, 744-6210.

72 CHEVY VEGA - 48,000 mi, 15,000 on new eng, good tires, body is poor. \$600. E. Norton, Ext. 4355.

74 GREMLIN - 6 cyl auto, ps, radio, low mi, \$2500. 585-7094 after 6.

71 OLDS 88 - High mi but runs good, needs minor repairs, best offer over \$300. John, 732-2472.

VW MUFFLERS - 2, never used. \$10 each. Joe, 286-1137.

BUMPER - Step down for '72 Chevy pickup. Bob, 475-4382.

72 PINTO - 30,000 mi, very good cond. \$1175. 281-6191 after 5.

70 FORD LTD WAGON - Needs muffler. Asking \$1050. 924-6836.

70 CHEVY IMPALA - V8, 4 dr, hdtp, auto, ps/pb, new tires, brakes. Best offer. 473-7993 after 5.

68 PONTIAC WAGON - High mi, roof rack, radio, ps/pb, good rubber, new carb, good cond. \$550. Frank, Ext. 2048.

VW BUS SEAT - For rear, new; 2 Ford HD oil filters. 286-8353.

67 PLYMOUTH FURY III - 2 dr, ps/pb/ac, am/fm, auto trans, good body, good motor. \$500. Peter Rudman, Ext. 4498.

72 HONDA 70 - Road & trail, good cond, low mi, must sell. Ext. 4132, 924-4328.

66 OLDS - Dynamic 88 convertible, good running cond, needs tires. \$250. Jerry, 289-6532.

71 YAMAHA 250 - Enduro, \$375, very good. 727-0092 after 6.

70 GTO - Auto, ac/ps, am/fm, many extras, low mi, clean. \$1800. 732-7049.

DATSUN 510 - 4 dr, std trans, 72,000 mi, 2 Semperit steel-belted radial tires, excel cond. Nancy, Ext. 3404, 744-8487.

73 FIAT - 128, 4 dr, 4 spd std, yellow, very good cond, will consider trade for bigger car. Jacques, Ext. 2285, 246-8780.

MOTOR OIL - Kendall's best & others. \$16/case. Ed McKenna, Ext. 4597.

73 EL CAMINO - Good cond, ps/pb/at, am/fm radio, new tires, new paint job, 38,000 mi. \$2300. George, Ext. 4212, 727-6676.

4 CHROME HUB CAPS - For 16-5 rim on 4 wheel dr Chevy pickup. \$30. Ext. 2043.

73 JEEP - CJ5, 33,000 mi, warn hubs, 6 cyl, gauges, rear seat, trailer hitch, excel. 732-1298.

TIRE - 6.95x14, mounted on Comet or Mustang rim, excel cond. 472-0552 after 5.

72 HONDA CB450 - Blue, new rear tire, not used this season, 9400 orig mi, stock. \$750. C. Nauman, Ext. 3412, 286-3764.

2 WHEELS - 15x7, Chrome spoke w/G78 tires, for Ford truck or van. \$70. Bill, Ext. 4434.

65 FORD WAGON - 71,000 mi, auto, ps, runs well. \$350. 588-0068.

72 FORD LTD - Auto, 4 dr, hdtp, vinyl roof, ac/ps/pb/p windows, very good cond. Ext. 2972.

74 FIAT - 128, 24,000 mi, dark blue, radials, radio, excel cond. \$1800. Bob, Ext. 3312.

72 VEGA HATCHBACK - New engine, body excel, 4 spd, \$995. J. Davis, Ext. 4505, 473-1523.

66 DODGE DART - 2 dr, good eng & tires, needs body work. \$125. Ralph, Ext. 4673.

### Boats & Marine Supplies

SUNFISH - Light, older boat, good cond, white sail w/window. \$300. Ext. 4238, 286-3509.

18' THOMPSON - In/outboard, rebilt eng, new manifold, many accessories, Cox Tandem trailer w/elec winch, A-1 cond. O. Booker, Ext. 4719, 727-5912.

TRAILER - 13' Shasta, excel cond, fully equipped, self-contained, elec brakes & mirrors. 727-1622.

24' TYLERCRAFT - Twin keel fiberglassed sloop, shallow draft, main, jib & Genoa, fully equipped, excel sailboat for family cruising. George, Ext. 3039/3050, 744-2549 after 6.

12' ALUM VEE BOAT - & trailer, used in fresh water. \$250. 585-7094.

8' SAILING DINGHY - Fiberglass, cost over \$300, make offer. 472-0552 after 5.

MUSHROOM ANCHOR - 40#, (2) 8' oars; gas cans, make offer. 472-0552.

OUTBOARD - British Seagull, 2 1/2 hp, 40 plus long shaft, used less than 12 hrs, w/carb cowl, excel cond. \$280 new, sell \$200. C. Nauman, Ext. 3412, 286-3764 eves.

CLAM RAKE HEAD - 22" 2 1/2 teeth. \$25. Ext. 2043.

34' CLAYTON - Sportfisherman, twin 1975/255 hp Palmers, fresh water cooled, CB, VHF, Raython recorder, 2 chairs, fly-bridge, out-riggers, hot water. \$7,000. 878-0840, 878-4883.

### Miscellaneous

BULLDOZER - John Deere, M.C. & trailer, good running cond, good landscaping machine. \$800. 929-6424.

ELEC SISSORS - Used once, \$7; child's hobby horse, good cond, \$4; elec wall clock, good cond, \$3. O. Booker, Ext. 4719, 727-5912.

9" B&W TV - Portable, Sharp model 3M-46, 6 months old. \$75. Peter Rudman, Ext. 4498.

POCKET CALCULATOR - Texas Instruments SR 50-A, 6 months old. \$50. Peter Rudman, Ext. 4498.

DIGITAL CLOCK RADIO - Am/fm, 6 months old. \$20. Peter Rudman, Ext. 4498.

VICTORIAN CONVERTIBLE COUCH - No mattress, free to good home. Ext. 3612, 744-9827.

FIREPLACE - Artificial brick w/screen, 12' raised hearth w/slate top. Ext. 4547, 289-7470.

DUCK DECOYS - Set, \$12; ladies ice skates, size 8, \$5; tin wash boiler & cover, \$8. 727-1617.

EVERGREENS - Approx 2' high, \$1.75 each; 4 old milk cans, \$7, \$8, \$9, \$10. 727-1617.

SNOW PLOW - 12 volt elec hydraulic, 6' blade. \$250. Richie, 924-4228, 924-3797 after 6.

HOUSEHOLD ITEMS - Twin bed box spring, portable dishwasher, kitchen table, coffee & end tables, vanity chair. Best offer. 286-1688.

PORTABLE STEREO - Super Macy twin speaker, good cond. \$25. Diana, 589-2338.

26" GIRL'S BICYCLE - Good cond. \$30. Diana, 589-2338.

PRINTING CALCULATOR - 4-function SCM Marchant, memory, 2 register fields, adj decimal, orig over \$1000, factory record. \$200. Curtiss, Ext. 4608.

PUMP & TANK - Deep well pump & motor for 100' or better, 80 gal tank, 1 yr old. \$75. Pete, 732-7625.

POMERANIAN - Black male. \$75. Lehmann, Ext. 4280, 281-3992 after 5.

24" MEN'S FRENCH 10 SPD - Excel cond. Marty Bergoffen, 286-8140 after 3.

FREE GREAT DANE - 3 yrs old, lovable. 878-4077, 698-0792.

BICYCLES - Boy's 24", \$15; 26", \$15. 363-6049.

24' MOTOR HOME - Concord, 1973, sleeps 8, low mi, good cond, bike rack. 587-3192.

YARD SALE - Oct 1-2, 10-4, 6 Arthur Ave, Brookhaven.

HORSE PRINTS - 12 black & white prints of horses, framed. \$150 for all or will separate at \$15 each. Jean, Ext. 3298.

HORSE BOOKS - Amer stud book, 1973 ed, 2 vols, \$75; Horseman's Encyclopedia, \$10; The Grand National, \$10. Jean, Ext. 3298.

SHOES - Men's size 9M, shirts, \$3 ea. Ext. 3609.

BLAZER - Size 12, \$4; coat, size 12, \$8; jeans, 32-30, \$5. Ext. 3609.

GARAGE SALE - Sat. Oct 2, 10-4, 25 Thornhedge Rd, Bellport.

KITCHEN UNIT - 3-way, refrigerator, oven, burners & stainless steel sink. \$170. Ext. 3490.

KITCHEN TABLE - 42" round w/leaf & 4 chairs, green floral print. \$85. 589-6243 after 5.

AM/FM STEREO RADIO - In colonial cabinet, all GE, fine cond. \$75. 585-7094.

ZENITH RADIO - Table model, beautiful chassis, needs minor repair, am/fm, cheap. Ext. 3555.

71 APACHE EAGLE TENT CAMPER - W/canopy, sleeps 4, adults & 2 children, good cond. \$350. Ext. 2634.

SLIDE PROJECTOR - 35 mm slides, Argus, automatic, semi-auto & manual, perfect cond, rarely used, too heavy for me to tote around. Ext. 3555.

PORTABLE TV - Westinghouse, works perfectly in shop but hexed in my apt, negotiate. Ext. 3555.

SPINNING WHEEL - Operating cond. \$200; wheel chair, Gendron, like new. \$85. 473-5585.

ROCKING CHAIR - Gold, \$45; chrome standing lamp w/glass table, \$20. 698-3856.

OAK WOOD - 22 discs from a 30' tree trunk, \$15. 286-8353.

YARD SALE - 720 Mastic, Mastic, Sat Oct 2, 10-4.

BROWNIE UNIFORM - Size 8, worn 1 term, jumper, blouse, slacks, belt, change purse, tie. \$5. 286-8805 eves.

RADIO ELECTRONICS - 1966-73, Popular Electronics, 1972-3; Electronics World, 1968-71; QST, 1960-9; Stereo Review, 1971-3. Best offers. Ext. 4091.

DISHWASHER - Butcher block top, portable, convertible. Hot Point, used 11 months. \$200. Ext. 3128.

PACHYSANDRA - Good ground cover, 55 plants for \$4. Peter, Ext. 2540.

YARD SALE - Sat, Oct 2, 8-5, 90 Lakewood St, Patchogue.

POLAROID CAMERA - Big Shot, like new. \$16. 472-0552 after 5.

SONY PORTABLE TV - Transistor, w/power pak, make offer. 472-0552 after 5.

67 TENT TRAILER - Apache, sleeps 6, canvas, 2 yrs old, sacrifice. \$450. Fred, 289-1041.

GM INFANT LOVE SEAT - \$10. Owen, Ext. 2056.

20" GIRL'S BICYCLE - Hi-rise, banana seat, \$10. Frank, Ext. 4839, 732-4224 after 5.

27" BOY'S BICYCLE - 10 spd Huffy, black, 1 yr old. \$50. Ext. 4839, 732-4224.

FOOTBALL CLEATS - Size 8, cost \$20, used twice. \$10. Ext. 4047, 4090.

ORGAN - Conn, double, keyboard, rhythm section, excel cond. 722-3251.

SM REFRIGERATOR - For office or bar, excel cond. \$100. 281-3205 after 4.

BEDRM SET - Walnut, triple dresser w/mirror, double bed, box spring & mattress, 2 night tables, chest of drawers, very good cond. Ext. 2977.

RUGS - 7x8 1/2, orange-red; 5x7 lime green, \$5 each; bureau, 3 drawer, refinished, very sturdy, \$15. Nancy, Ext. 3404, 744-8487.

DIVING GEAR - Calypso III regulator w/Dacor underwater pressure gauge, USD buoyancy compensator vest, weight belt w/20 lbs of weight; clam rake. Nancy, Ext. 3404, 744-8487.

KENMORE GAS RANGE - Eye level oven, lower oven broiler, 4 top burners, like new. \$225. 981-3371.

GARAGE SALE - 183 Hampton Ave, Mastic, 281-4371, moving, household items, winter coats & ladies gowns, like new. Oct 2 & 3, 10-5.

SKIS & BOOTS - Poles, excel cond, boot size 9 1/2. \$75. Ext. 4095.

BICYCLE - W/newspaper rack, very good cond. \$8. Ext. 4612.

HARMONY GUITAR - Concert grand case, shoulder strap, music stand. \$50, complete. Ext. 4612, 289-0687 after 5.

Ads left out of this issue because of lack of space need not be re-submitted in order to run in next week's issue

GUITAR - Excel for young beginner, \$5; hamster or gerbil cage w/wheel, bag of cedar shavings, water bottle, \$7; lawn mower, easy spin, excel cond. \$20. Nancy, Ext. 3404, 744-8487 eves.

### 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

MT SINAI - 3 bedrm ranch, 1 1/2 baths, cathedral ceiling, all appl, 2-car garage. Sell or rent. \$350/mo. Ext. 3403, 473-4757.

SHOREHAM - 4 bedrm contemporary, 2 1/2 baths, treed, 3/4 acre w/white birch, fp, full basement, balcony w/water view, beach rights. \$65,000. 744-2268 after 5:30.

MILLER PLACE - 3 bedrm ranch, 2 baths, eat in kitchen, garage, 1/2 acre. 744-2821.

PATCHOGUE VILLAGE - 3 bedrm ranch, expansion attic, basement, country kitchen, attached garage. \$34,000. Ext. 2290, 475-7094.

WANTED - Children w/parents for our nice custom cape, fenced yard, basement, patio, sandbox, 4 bedrooms, Mid Is Schools. \$33,500. 924-8813.

WADING RIVER - 3 bedrm, lovely 1/2 acre wooded lot, 2 car garage, basement, priv beach, fireplace. \$38,500. Ext. 3535, 929-6940.

CLEARWATER BEACH - 100x150 bldg plot nr Gardiner's Bay, E Hampton Township, walk to private beach, marina rights. \$13,500. Ext. 3469, 281-4371 after 6.

SOUND BEACH - 3 bedrm, 1 bath, oil hot water, 1/2 acre landscaped, 10 min walk to priv beach, low 30's. Ext. 3766, 286-0123 eves.

ROCKY POINT - Energy saving custom blt ranch, poss m/d, 600 ft to LI Sound, all brick, owner will hold 2nd mort. \$41,000. Sheldon Katz, 744-7861 after 6.

PATCHOGUE - House on lake, 3 bedrm, sunken living rm, basement w/bar, fp, patio, w/w carpeting, 3 refrig, many extras. \$48,000. 475-1504.

### For Rent

MILLER PLACE - Furn 3 bedrm house, 2 baths, fp, all appl, wooded acre, couple preferred. Oct/Nov '76-July '77. \$350/mo. Ext. 3821, 473-6624.

MASTIC - 2 bedrm unfurn house, close to Lab, avail Sept 15, \$200/mo. 281-7663.

FURN RM - Kitchen priv, sitting area, female, Lundgren, Ext. 3800, 585-0461.

VT CHALET - Fall foliage, sports, near ski country. 757-5599.

### Wanted

BOOKCASES - Type w/stacked horizontal sections w/glass doors. L. Phillips, Ext. 4235.

TYPEWRITER - Good working cond, reasonable. Ext. 4551, 325-0013.

LG ENGLISH PRAM - For lg baby, good cond, reasonable. P. Melvin, 727-2896.

TENOR SAX - For beginner, reasonable. 286-3508.

STRING & WIND PLAYERS - Interested in playing in chamber orchestra. 286-9452, eves or 475-9294, 345-3027.

ELECTRIC TRAIN SET - 473-0599.

SINGER ATTACHMENT - Buttonholer, for old fashioned straight needle machine, 201 or 15 series. 473-8739.

DATSUN PICKUP TRUCK - '74 or '73, prefer w/cap. Nancy, Ext. 3404, 744-8487.

BABYSITTER - For 6 month old girl, in my home, Mastic Beach, approx 1 1/2 days/wk, exper, refs. Bette, 281-7763.

PERSON KNOWLEDGEABLE - About wild mushrooms & willing to share same. Please call 924-4070.

COW MANURE - Charlie, Ext. 2949, 924-8523.

HOMES FOR KITTENS - Assorted, long & short haired. Carol, 473-6934.

2 BEDRM HOUSE - Patchogue/Yaphank area for young couple w/child, need for Nov occupancy, Ext. 2238, leave message for Pauline.

### Car Pools

STRATHMORE LEVITT/MT SINAI - Crossing Canal Rd & Plymouth, join existing car pool or form new one. Ext. 4260.

### Services