BROOKHAVEN BULLETIN
Vol. 36 - No. 24 June 18, 1982
BROOKHAVEN NATIONAL LABORATORY

Oil Refit Options Evaluated

REFOIL is an acronym for an evaluation of refit equipment for residential oil burners tested in the field (known as the BNL Oil Refit Option Qualification Field Test Program). Bob Hoppe of DEE's Architectural and Building Systems Division was Project Manager of the program which began in October 1979 and concluded in October 1981. The evaluation was done in support of DOE's Multi-state Fuel Oil Conservation Marketing Program.

To conclude the BNL program, Hoppe and his associate Bill Graves have co-authored BNL Report 51555, Field Tests of Refit Equipment for Residential Oil-Fired Heating Systems. The essence of that report, which is now being printed, is summarized here.

In 1978 home heating oil cost about 55¢ a gallon. By 1979 this figure had risen to 85¢, and in 1980 it averaged $1.12. Homeowners looking for ways to combat these rising fuel costs found many refit options on the market, each promising to increase oil burner efficiency. But how can a homeowner wade through all the advertising claims to find the product or products that represent the wisest choice in terms of savings? That's where REFOIL comes in.

The primary purpose of the REFOIL program was to provide an unbiased assessment of the relative performance of several refit options and combinations of options being widely merchandised. Because REFOIL was a field test, as compared to a laboratory test, it offered a closer approximation of what a homeowner might expect from the various options considered.

The REFOIL field testing took place here in Suffolk County. Of the 250 homes involved, 200 used forced hot water heating systems with boilers and were located in one development. Fifty homes had warm air heating systems employing furnaces and were scattered throughout the county. All the homes were serviced by the same oil dealer who was able to provide oil delivery data from 1978. This dealer also performed all installations and monitoring and kept a record of service calls and complaints.

Restricted by time and other constraints, the REFOIL evaluation had to be limited to only a few of the many options being merchandised at the program's inception. As a starting point, it was decided that the selection of options and combinations of options should be built around the use of the retention head burner (RHB). The results from BNL laboratory testing had already shown that RHBs generally offer substantial fuel savings at a reasonable cost with few service problems. Thus, the RHB became the option against which other equipment was assessed.

Besides the RHB, four other types of refit options were selected for the REFOIL test: the vent damper, the flue heat exchanger, the double setback thermostat and the boiler temperature programmer (see "Option Glossary").

How these options were distributed throughout the test houses is shown in Table 1. Not all of the 250 houses initially involved in the REFOIL program yielded suitable data. The data on which REFOIL's conclusions were based were taken from 45 homes with furnaces and 169 equipped with boilers.

The boilers tested included two models, a vertical-tube steel dry-base boiler without baffles and a vertical-tube steel wet-leg model with baffles. Both models used tankless coils for heating domestic water and were initially equipped with conventional burners. As shown in Table 1, over half of those burners were replaced with retention head burners. The other four refit options were tested in various ways and, in some cases, in combinations.

Performance should be assessed on two levels - how well the option does its job and how economical it is to use. To make this assessment, REFOIL relied on an analytical method that characterizes the fuel consumption of each house over periods of about one year before and after the refit equipment was installed. This method of calculation was constrained by the overall thrust of the program which called for no instrumentation, commercial standards of installation, maintenance and fuel delivery, and accomodation to the wide range of behavior expected of homeowners. An additional problem was the use of oil for both space heating and domestic hot water in the homes chosen for the testing.

The results of the analysis are shown in Table 2, which is keyed to Table 1 by group number. Each device is ranked by its expected payback period - the time it takes to pay for itself in fuel economy. Table 2 also indicates the percentage of fuel that a homeowner could typically expect to save by use of the options described. Here are the major results of REFOIL for each device.

Retention Head Burner (RHB) -As an individual option for boilers, the benefit of an optimized RHB installation, as opposed to a routine installation, is shown by the 19% fuel savings vs. 12% savings. Fuel savings with warm air furnaces are lower, at 11%.

Vent Damper - The vent damper produced typical fuel savings of 9% when used as an individual option for boilers with conventional burners. For boilers and furnaces with an optimized RHB, the vent dampers yielded small additional savings.

Flue Heat Exchanger (FHE) - Tested as an individual option on boilers with conventional burners, these devices produced fuel savings of 10%. A heavy accumulation of soot observed at the end of the test indicates that higher fuel savings might be realized with frequent cleaning, but at an increased cost for maintenance.

Double Setback Thermostat (DST) - As an individual option tested in homes with boilers equipped with conventional burners, the DST offered the best payback period, with fuel savings of 11% (see DST + BTP below).

Boiler Temperature Programmer (BTP) - When used only with the optimized RHB, the BTP produced a small additional reduction in fuel use. Greater savings may be possible with better understanding and use of the device (see DST + BTP below).

DST + BTP - When the DST was combined with a BTP, an effective controls package was created yielding typical fuel savings of 19%. It must be noted, however, that these savings are based on tests in homes that were unoccupied during the day, permitting both day and night setback contribution by the thermostat(s). The two devices appear to be working together, with the thermostat reducing the heating load and the BTP modulating boiler response to the load. The performances of these controls is dependent on the settings made by the homeowner and by proper installation. REFOIL suggests that this controls package plus a retention head burner offers a refit package of high potential for homeowners concerned with conservation.

Table 1
Equipment Tested in REFOIL — Groups and Distribution

	Groups with Boilers with RHB Refit				Groups with Boilers with conventional burners				Groups with Furnaces	
Options	1	2	3	4	5	6	7	8	9	10
Retention-head burner routine installation [1]	*									(RHB existing)
Retention-head burner optimized installation[2]		*	*	*					*	
Boiler temperature programmer			*					*		
Vent damper				*	*					*
Flue heat exchanger						*				
Double setback Thermostat							*	*		
Number of houses	24	28	21	20	19	22	18	17	28	17

[1]For routine installation, combustion chambers were inspected, repaired or relined as necessary before the RHB was installed and tuned. The heat exchanger was visually inspected and cleaned only if obviously excessively sooted.

[2]For optimized installation, combustion chambers were inspected, repaired or relined as necessary before the RHB was installed and tuned. Heat exchangers were mechanically cleaned. RHBs were fitted with a smaller nozzle and air leaks around the mounting flange, the blast tube or to the combustion chamber were sealed. Defects in the insulating jacket were repaired and baffles were added to fire tubes that lacked them.

Table 2
Ranking of Refit Devices

Group No.	Option	Typical Fuel Savings %	Purchase Price $	Payback Time (months) Small House	Payback Time (months) Large House
BOILERS					
7	DST*	11	80	9	9
8	DST + BTP*	19	395	19	11.5
2	RHB, optimized installation	19	410	20	10
1	RHB, routine installation	12	325	25	13
3	RHB, optimized installation + BTP	21	678	30	15
5	Vent Damper	9	295	30	15
4	RHB, optimized installation + Vent Damper	20	703	32	16
6	FHE	10	520	48	24
FURNACES					
9	RHB, optimized installation	11	410	34	17
10	RHB, optimized installation + Vent Damper	11	703	59	29

*Installed in houses unoccupied during the day.
ASSUMPTIONS: The price of oil is assumed to be $1.30/gallon.
The small house is assumed to have a single heating zone and to consume 1000 gallons/year of oil. The large house is assumed to have two heating zones and to consume 2000 gallons/year of oil.

Option Glossary

Baffles — These are plates that alter the flow of hot gases through a boiler equipped with a fire tube heat exchanger. Also called turbulators, these devices were not tested separately in REFOIL; rather they were installed in combination with the retention head burner to contribute to an optimized installation.

Boiler Temperature Programmer (BTP) — After sensing outside ambient temperature and boiler temperature, the control device tested modulates boiler water temperature to meet the required heating loads. To have hot water available at appropriate times, the BTP is designed for the homeowner to set and maintain the high temperature intervals.

Double Setback Thermostat (DST) — This owner-operated control on the heating system permits the homeowner to select two temperature settings, each of which is activated twice a day. Typical settings might call for 70°F from 6:30 to 8:00 a.m., 55°F from 8:00 a.m. to 5:30 p.m., 70°F from 5:30 to 9:30 p.m., and 55°F from 9:30 p.m. to 6:30 a.m., thus restricting the 70° heating loads to times of usual occupancy by a working family.

Flue Heat Exchanger (FHE) — While the burner is firing, this secondary heat exchanger, located in the stack, recovers heat from the stack gas. REFOIL tested only the gas-to-boiler water type of exchanger which, in essence, extends the heat transfer surface of an existing boiler.

Retention Head Burner (RHB) — Unlike conventional oil burners, RHB features a design that generates an intensely mixed, stable flame with some recyling of hot gases. This improves combustion and heat transfer efficiency and decreases air flow through the boiler while the burner is not firing. The RHB replaces one of the major components of the heating unit and may be refitted to most boilers and furnaces. High speed (3,450 rpm) RHBs were used in REFOIL, but similar results are expected from low speed units.

Vent Damper — Installed in the exhaust stack, these options close automatically to minimize stack losses while the burner is not firing. The one type tested featured a three-minute time delay before closing, to purge any residual odors from the system.

Affirming Affirmative Action

After seven years as Affirmative Action Assistant to the Director, Harvey Thomas has returned to a more technical world. An electrical engineer at BNL for 20 years before he took on the affirmative action job, Thomas is now working on reactor safety studies with the human factors analysis group in DNE's Engineering and Risk Assessment Division, and part time in the Affirmative Action Office. Recruitment efforts are now under way to locate his replacement. Candidates will be considered from

Doug Humphrey

Harvey Thomas

both inside and outside the Laboratory.

The other day Thomas talked about affirmative action - where it has been and where it is going. As head of the affirmative action program at the Lab since 1975, Thomas noted that much of his time was spent in solving and resolving the underutilization and underrepresentation in employment and in the achievement of promotional opportunities for minorities, women, disabled veterans, Vietnam veterans and the handicapped. The main difficulty, says Thomas, is that everybody has a different understanding of affirmative action.

Affirmative action, as we know it, came about as a result of the civil rights movement of the 60s. When it first started, it dealt with correcting economic and social discrimination in relation to Blacks. In time, by Executive Order, other ethnic groups were included, namely, Hispanics, Native Americans and Asians, under the umbrella classification of minorities. Subsequently, women were recognized as a separate protected category in 1971 followed by disabled veterans and Vietnam veterans in 1972. The Rehabilitation Act of 1973 expanded the protected groups to include handicapped persons.

Over the years, says Thomas, all these groups competed for the same jobs, to a certain extent. He thinks that, in this society, there are people who have been more disadvantaged than others, and that priorities have to be established. He says that disadvantage is demonstrated by lack of support structures, salary differentials for equal work, lack of opportunities for promotion and insufficient representation in the higher paid jobs.

What Thomas would like to see is parity representation in the job market, i.e., representation according to the population percentages. If seven percent of the population is, say, Hispanic, then they should have approximately seven percent of the jobs in the area. But in order to take advantage of the job openings, they must be qualified.

And that is where training comes in. Thomas thinks this is vital and says "you are not giving people preferential treatment because you train them; there is also a payback to the company in having a trained person." In recruiting, he cites that the company might find someone who has some of the qualifications necessary, but not all, and this lack can be made up by training. "In some instances," he says, "on-the-job training works quite well."

At the Lab, minority representation in professional categories has doubled in the last seven years; at the technician level it is up 10%; women professionals increased by 50% and in the officials and managers category by 80%. Thomas attributes this growth to the continuous efforts and commitment of the BNL staff.

The objective of affirmative action, says Thomas, is to establish an equal opportunity environment, and increase the utilization of disadvantaged groups. Thomas says "everybody starts out with some sort of bias." What affirmative action has done is to force companies to look at their selection and evaluation procedures from this point of view, and put such procedures on a less subjective basis. Thomas thinks that minimizing the impact of this bias is affirmative action's greatest contribution.

He believes that affirmative action offices are here to stay. "You need a continuing commitment from the company," says Thomas, "and an affirmative action group to develop and monitor the program. You might say we act as a catalyst, and maybe as a conscience."

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.

Nursery School

Newly-elected officers for the Upton Nursery School 1982-83 school year are: Co-presidents, Donna and Robert Miltenberger (924-0590); Secretary, Lois Ribaudo (924-0112); Treasurer, Marie Losquadro; and Enrollment Chairperson, Dorey Panno (924-5495).

The Upton Nursery School is still accepting applications for the upcoming school year. The school offers classes for three and four-year-olds, two or three mornings a week. For applications, contact the co-presidents, secretary or enrollment chairperson at the phone numbers listed above.

Theater Group

The Theater Group will meet at 8 p.m. on Wednesday, June 23 in Berkner Hall auditorium. The main item of business will be the election of officers for the next year. The slate of candidates is:

President - Karl Swyler
Vice President/Treasurer - Kurt Fuchel
Secretary - Penny Baggett
House Committee Chairman - Bob Kinsey
Program Committee Chairman - Tony Fainberg
Advisory Committee Chairman - Bill Love

Nominations will also be accepted from the floor. All members and prospective members of the Theater Group are urged to attend.

NYC Train Trip

The Hospitality Committee is planning a group railroad trip to New York City on Wednesday, June 30. Departure will be at 7:55 a.m. from the Patchogue LIRR station. Round-trip fare for adults is $3.50; children under six years ride free.

Reserve a ticket by sending your fare through the U.S. mail to P.O. Box 322, Upton, New York 11973, no later than Thursday, June 24. Please make checks payable to Brookhaven National Laboratory," and put the date of the trip, your BNL life number and your telephone number on the check. Your tickets will be given to you on the train. Refunds will be made only if cancellations are received by the Monday morning preceding the trip.

For those who are interested, side trips to the Stock Exchange, South Street Seaport and Museum, and the World Trade Center have been planned for this trip. We will travel to these places as a group; however, each person will be required to pay his/her own admission fees.

At The Library

The June shipment of approval books has been received at the Research Library. They will now be located at the Circulation Section of the Research Library, and will be available for inspection Monday through Friday, 8:30 a.m. to 5:00 p.m.

On Camera

Reporter: Derek McCalmont **Photographer: Doug Humphrey**

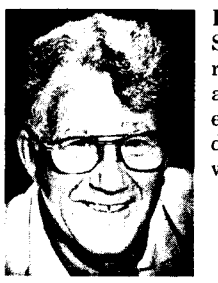
What is it that takes only 5-7 minutes, is virtually painless, lifts your spirits and can save a life? It's donating blood in the 12th Annual Summer Blood Drive on June 23 and 24 between 10 a.m. and 3 p.m. at the Gym. According to Len Emma (Director's Office) pledges are running considerably behind those of previous years. Send in your pledge card today, or use the form below. For information, call Len Emma or Elaine Liguori on Ext. 3334.

Previous donors are often enthusiastic about their experiences, here is what some of them have to say:

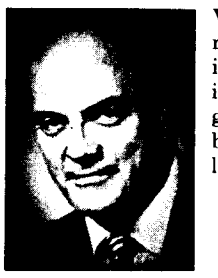
Patti Bender (Plant Engineering): "Some people wait until someone in their immediate family is in trouble before they donate blood. As far as I'm concerned, that's too late."

Kay Hunt (Personnel): "I'm a people person, I like to help, and I'm healthy. There's no reason not to donate."

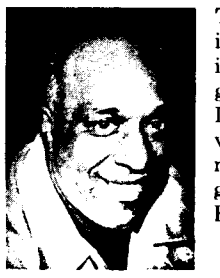
Virginia Pond (Biology): "Nobody likes needles, but there's nothing to be afraid of, you get the best care in the world."



Pat Glynn (Staff Services): "You should remember that it will always help somebody else, none of the blood donated ever goes to waste."



Vincent O'Leary (Director's Office): "There is a vital need for blood in the community, surgery sometimes has to be delayed due to a lack of blood."



Ted Johnson (Medical): I've been donating blood ever since I got out of high school. I donated in the service, and I've been donating since the program started here at Brookhaven."

Name
Bldg. #

Please Print

BROOKHAVEN NATIONAL LABORATORY
BLOOD DONOR PLEDGE

I pledge to donate blood during the 1982 BNL Blood Drive to be held at the Gymnasium from 10:00 a.m. to 3:00 p.m., Wednesday, June 23 and Thursday, June 24.

Please **do not** indicate a preference unless necessary. I can donate only

on (day)..... at (time).....

Signature ..... Life #.....

Dept. ..... Lab. Phone.....

Please return this completed pledge to L.C. Emma, Bldg. 460, prior to June 15.

Summertime Is T-Shirt Time

T-shirts commemorating "Brookhaven National Laboratory - Summer '82" are now being made

available to all employees, students and guests for only $5 each, including tax. The T-shirts are royal blue with white printing and are made of 50% cotton and 50% polyester for minimum shrinkage. They are available in unisex adult sizes: small (34-36), medium (38-40), large (42-44), extra-large (46-48); and unisex children's sizes: small (6-8), medium(10-12) and large (14-16). T-shirts must be ordered on or before July 1, and each order must be accompanied by payment in the form of either cash or a money order made payable to "Renee Flack - T-Shirts '82." No personal checks please. Bring or mail orders and payment to Renee Flack, Room 112, Bldg. 460, Ext. 3316. Please allow two weeks for delivery.

BROOKHAVEN BULLETIN

Published weekly
for the employees of
BROOKHAVEN NATIONAL LABORATORY

BERNICE PETERSEN, Editor
MONA S. ROWE, Assistant Editor
ANITA COHEN, Reporter

35 BROOKHAVEN AVE., UPTON, N.Y. 11973
Telephone (516)282-2345

CREF Values

June	51.94	July	51.19
August	48.26	September	45.89
October	47.61	November	49.61
December	48.33	January	47.49
February	44.88	March	44.48
April	46.32		

May $44.53

I.B.E.W. Meeting

Local 2230, I.B.E.W. will hold its regular monthly meeting on Wednesday, June 23, at 6 p.m. in the Knights of Columbus Hall, Railroad Ave., Patchogue. There will also be an afternoon meeting at 2 p.m. for shift workers in the Union office at 31 Oak Street, Patchogue. On the agenda will be regular business, committee reports and the President's report.

Please Note Date.

Arrivals & Departures

Arrivals

Deborah G. Keimig ..... S&EP
Bruno M. Mannarelli ..... Biology
Joyce O. Mortimer ..... Fiscal
Gary S. Perri ..... NSLS

Departures

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

Lawrence A. Beck ..... Biology
Joseph Dovydaitis ..... Accelerator
Audrey M. Harson ..... Fiscal
Robert H. Whisker ..... Director's Ofc.

WIS Meeting

The Women in Science will hold an important business meeting on Wednesday, June 23, at noon in Room A of Berkner Hall. A committee will be selected to nominate officers for the next year. Also to be discussed is legislation proposed by the Task Force on Women's Issues which is pending in the State Legislature. Everyone is invited and bring your own lunch. WIS also wishes to extend a special invitation to all summer guests and students.

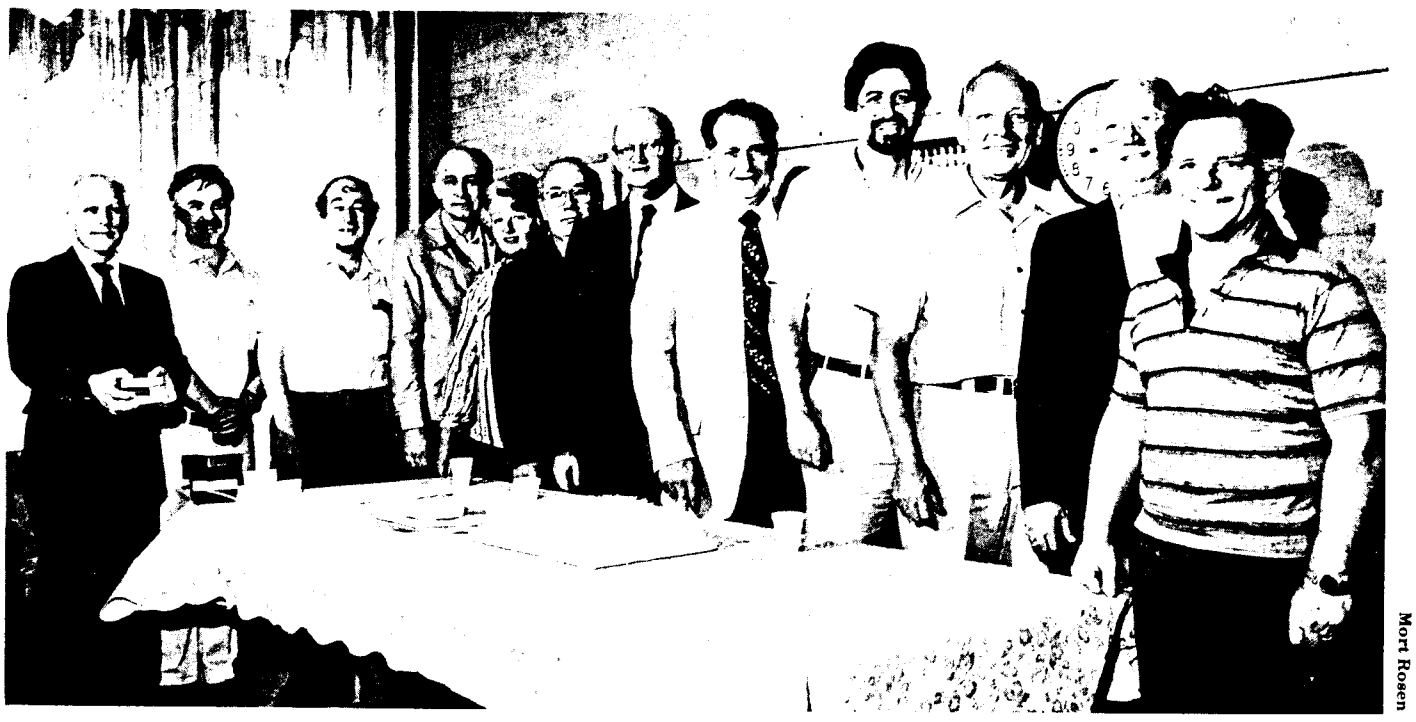
Quilting Club

The next meeting of the BERA quilting club will be held in the Recreation Building on Tuesday, June 22 at 7 p.m. New members are always welcome; bring your hand sewing projects with you to work on. There will also be a demonstration of the technique of needlepunch. For more information call Bernie Benz, 928-1068.

Picnic '82

This One's For You!

Saturday, July 17
Ticket sales end July 2
Tickets available from
Blanche Laskee, Bldg. 185, Ext. 2873
Betty Pergan, Bldg. 179A, Ext. 2937
Rosalie Piccone, Bldg. 355, Ext. 3160
Marge Stoeckel, Bldg. 134, Ext. 2459
BERA Film Service Office
$2.50/person — under 3 free
Refreshments...Entertainment
Contests



Mort Rosen

A reception was held last week in Physics for members of the department observing recent BNL anniversaries. Above left, Arthur Schwarzschild, chairman, presents awards to: Larry Trueman, Elliot Auerbach, Dick Strand, Toni Weiss, Al Roebuck (20 years); Rudy Sternheimer (30 years), Carl Cantera (25 years), Jim Hurst (20 years), Bill Espensen (30 years), Bernie Comfort (25 years), and Frank Merkert (20 years).

Great Adventure

Enjoy a day of great adventure on Saturday, July 31 by joining those taking a special trip to the Great Adventure Amusement Park and Safari Park in New Jersey. The minimal fee of $20 per person includes transportation to and from the park in a luxury air-conditioned coach and admission to the amusement park and Safari for eight hours of fun. Seating on the coach is limited to 48 people, so tickets will be sold on a first come, first served basis. To reserve a seat, bring or mail your $20 - cash only - to Renee Flack, Room 112, Bldg. 460, Ext. 3316, on or before July 13. The coach will leave from the Brookhaven Center on July 31 at 8 a.m. sharp.

Volleyball

All players on both the Mixed and Open Leagues please note that the annual Volleyball awards party will be held on June 25 at 5 p.m. at the Recreation Hall. Refreshments will be available.

Softball

Scores for week of June 7

Leagues I and II

Six Pax 17 - Ice Pops 4

Craig Erick and Frank Gaetan had home runs for the Six Pax.

Blue Jays 17 - Moles 7

For the Moles, Steve Eiseman and Bill Byrnes were 2 for 3, Steve also had a home run. For the Blue Jays, Frank Palmeri was 3 for 3, George Oldham and Larry Musso were 3 for 4.

Phoubars 8 - Roga 2

Ravens 22 - Big Sticks 14

For the Ravens, Leroy James was 3 for 3 with 2 triples, a home run and 8 RBI's. Ed Taylor was 3 for 4 and Greg Mack was 3 for 5 with a home run.

Leagues III and IV

Titans 36 - Random Errors 3

Electric Co. 11 - Dirty Sox 1

AMD 18 - Medical 17

Bob Barone and Bob Eich went 4 for 5. Homers by Barone, Eich, Kessler and Litcher.

Magnuts 17 - Lights Out 3

Lou Russo had a home run.

League V

Turkeys 9 - NADS 8

Winning run scored by George Greene's home run.

Survivors 14 - TNT 6

E-Z Riders 10 - No Names 3

Dennis Hall's enormous home run, along with his 4 RBI's gave the E-Z Riders the edge.

League VI

Underalls vs. Mole-Esters

Game rained out.

Who's On First 15 - Mudville Sluggers 11

The Source 8 - No Feedback 7

Random Sample 7 - Who Cares 6

Soccer

The Soccer club has resumed its outdoor season. Pick up games are held every Monday at the BERA recreation field on Brookhaven Avenue. Games start at 5:30 p.m. Everyone is welcome to play. Any inquiries may be directed to Dave Cox, Ext. 3818, or to Enrique Abola, Ext. 4383.

Swimming Pool

The pool will be closed during the holiday weekend, July 3 through July 5.

Summer Schedule
(Starting July 6)

Monday through Thursday
11:00 am to 1:30 pm employees only
1:30 pm to 3:00 pm children's
3:00 pm to 9:30 pm employees/families/guests

Friday
11:00 am to 1:30 pm employees only
1:30 pm to 3:00 pm children's lessons
3:00 pm to 4:30 pm children's pool special
4:30 pm to 9:30 pm employees/families/guests

Saturday and Sunday
1:00 pm to 6:00 pm employees/families/guests

Entrance Fees

Daily Admissions:
$1.25 employee
$1.25 family member
$1.75 guest

Season Tickets: (valid to September 5) $23.00 individual
$33.00 family

Season tickets are sold at the pool during open hours to employees and immediate family members.

Guest Ruling (Applies to all recreation facilities)

One Guest - An employee is allowed to bring one guest per visit without special permission or prior arrangement. The guest must be accompanied by the employee.

Two to Five Guests - Advance arrangement for two to five guests may be made at the Recreation Office. (No more than five guests per employee is ever permitted.) When such an arrangement is made, the Recreation Office issues an admission card stating the sponsor's name and life number, the number of guests permitted, the date of visit, and the facility to be visited. Guests must be accompanied by the employee, who will be requested to show the admission card at the main gate and at the swimming pool ticket desk.

Sponsoring employees are responsible for their guests during the entire time they are on site.

Gym Schedule

Sat. 6/19
Open 10 a.m. to 6 p.m.
Sun. 6/20
Closed
Mon. 6/21
Open 11 a.m. to 2 p.m.
and 5 p.m. to 9:30 p.m.
Tues. 6/22 — Sun. 6/27
Closed for Blood Drive
and maintenance.
Mon. 6/28 — Fri. 7/2
Open 11 a.m. to 2 p.m.
and 5 p.m. to 9:30 p.m.
Sat. 7/3 — Mon. 7/5
Closed for holiday wknd.
Tues. 7/6
Open, normal schedule.

Saturday open hours at the Gym will be discontinued from 6/26 until the second weekend in September.

Tennis

Players are reminded that rules for court use are posted at the BERA Film Service Office and at courtside.

Cafeteria Menu

Week Ending June 25, 1982

Monday, June 21

Spinach egg drop soup	(cup)	.60
	(bowl)	.70
Chicken livers & onions w/1 veg.		1.75
Ham & broccoli crepes & 1 veg.		1.80
Hot Deli — Baked ham	(bread)	1.80
	(roll)	1.90

Tuesday, June 22

Chicken & rice soup	(cup)	.60
	(bowl)	.70
Meatloaf w/mushroom gravy & 1 veg.		1.80
Sweet and sour pork on fluffy white rice		1.85
Hot Deli — Knockwurst & kraut on rye		1.80

Wednesday, June 23

Navy bean soup	(cup)	.60
	(bowl)	.70
Country-fried steak & 1 veg.		1.95
Ziti "all you can eat" w/thick meat sauce & garlic bread & 1 tossed salad		2.10
Hot Deli — Roasted top round of beef	(bread)	1.90
	(roll)	2.00

Thursday, June 24

Minestrone soup	(cup)	.60
	(bowl)	.70
Beef burgundy over egg noodles		1.95
Breaded pork chop & 1 veg.		1.90
Hot Deli — Monte cristo		1.80

Friday, June 25

Manhattan clam chowder	(cup)	.60
	(bowl)	.75
Fresh fish fillet w/shrimp sauce & 1 veg.		1.75
Western-style chili on fluffy white rice		1.80
Hot Deli — Veal pattie & pepper hero		1.90

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.

LABORATORY RECRUITMENT: Opportunities for present Laboratory employees.

1707. CRAFT APPRENTICE - REFRIGERATION/AIR CONDITIONING (2 openings) - Participate in a formal, four-year training program during which time the apprentices receive on-the-job instructions and enroll in outside study programs in subjects related and supplementary to their occupations.

At the successful completion of the four-year program, the apprentices will be graduated to the position of Refrigeration and Air Conditioning Engineer.

The position description for Refrigeration and Air Conditioning Engineer is as follows:

> Under minimum supervision constructs, installs, repairs, maintains and operates refrigeration, air conditioning, ventilating and auxiliary and related equipment.
>
> Will perform the same work on air compressors and vacuum pumps whether or not associated with the above equipment.

1708. CRAFT APPRENTICE - MACHINIST (2 openings) - Participate in a formal, four-year training program during which time the apprentices receive on-the-job instructions and enroll in outside study programs in subjects related and supplementary to their occupations.

At the successful completion of the four-year program, the apprentices will be graduated to the position of Experimental Machinist.

The position description for Experimental Machinist is as follows:

> Works on various materials from prints, sketches, or verbal instrucitons. Sets up and operates machine tools and also performs benchwork on jobs where standards of operation may require unique application. Performs layout, preparation, measurement, setup, assembly and installation. Makes own tools, performs maintenance incidental to operation of machines, and may specialize.

Applications for the Apprentice Program are available in the Personnel Office.

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

1709. PATENT ATTORNEY - Requires a minimum of two years' experience in patent applications and an undergraduate degree in a technical concentration. Will be responsible for all phases of patent activities including review of publications for patent potential, preparation of patent disclosures and preparation and prosecution of patent applications. Director's Office.

1710. ELECTRICIAN A - (4 temporary positions) - Under minimum supervision lays out, constructs, installs, maintains, repairs and operates electrical systems, equipment, controls and related devices. Requires minimum of five years' industrial electrician experience. Plant Engineering Division.

1711. TECHNICAL POSITION - Requires AAS in electronic technology/engineering science or equivalent and knowledge of rf and high voltage systems. Experience with analog and digital control systems desirable. Accelerator Department.

Autos & Auto Supplies

77 TRUCK CAMPER - 11-1/2' Aristocrat, loaded, mint cond., must sell. Mike, 878-1325.

59 ENGINE - 389 cu. in., overhauled, cheap. Tom, 698-9130.

73 CAPRI - 40,000 orig. mi., needs front fender & hood, $800. Ext. 3558 or 473-0484.

80 DATSUN 200SX - 22,000 mi., auto., a/c, am/fm. Fran, 567-6619.

79 YAMAHA - XS Eleven, many extras, 4,300 mi., mint cond., $2,800. 981-0025.

TIRES - (2) 215/75-15's, $30; (2) L78-15's, snows, $15; (2) FR78-15's, $15. Greg, 399-4213.

72 DATSUN 240Z - eng. excel., needs some body work, fun car, $1,500. George, Ext. 7672 or 878-4383.

80 TRIUMPH TR7 - white, convertible, extras, 17,000 mi., $6,900. Klein, Ext. 2294 or 298-8805.

79 HONDA CM400T - 2,000 mi., garaged, must sell, $1,100. 981-0181.

79 HONDA HAWK - 400cc, almost new cond., asking $1,200. 588-0805 eves.

79 MGB - convertible, 2 tops & hood cover, 31,000 mi., new tires, brakes, complete tune-up, am/fm, 8-track stereo, undercoating & 5 yr. rustproofing, good cond. 878-0516.

80 MAZDA SPORT PICKUP - immaculate, stereo w/tape, 22,000 mi., 26 mpg local, 40 mpg highway, cap. 727-7741.

SHOCKS - rear spring loaded levellers for GM intermediates prior to 1978. Ext. 3919.

MOTORCYCLE FAIRING - Wind Kutter, $125 firm. 654-0769 after 6 p.m.

70 TOYOTA COROLLA - 4 spd., blue, eng. excel., body fair, garaged for years, $850, negotiable. Sam, Ext. 4138 or 751-9096.

71 VW SUPER BEETLE - 7,000 mi. on new eng., new tires, $1,325. Saed, Ext. 4389 or 331-1665.

CAP - 8' aluminum, rack, door, paneling, $120. Rick, 724-2886 after 7 p.m.

76 VW DASHER - 4 dr., auto., $2,400. Marj, Ext. 3396.

69 TOYOTA CORONA - red, rebuilt eng., new starter & voltage regulator, new paint, very good cond., $800. 751-7140.

70 FORD HEADS - valve covers, completely reworked, like new, asking $100; set intake manifold, $35; Ford carburetor, new, 4 barrel, never used, asking $75. 744-9802 after 5:30 p.m.

76 PACER - silver, 6 cyl., p/s, p/b, a/c, auto., low mi., good cond. 751-6734 after 6 p.m.

75 CUTLASS SUPREME - 2 dr., excel. cond., 46,000 mi., a/c, reg. gas, am/fm, 350 eng. Sharon, Ext. 3513.

FORD RIMS - off Mach I Mustang, set of 4, excel. cond., $75. 744-9802.

76 HONDA - 550(4), 13K easy miles, fairing, trunk, rollbars, backrest, cruise control, mint, extras. Ext. 3319 or 744-9802.

HONDA - 750cc, many extras, must sell, mint, $1,495. 698-5088.

65 YAMAHA - 250cc, extra eng. & misc. parts, $175. Lee, Ext. 7629 or 929-3023.

78 GOLDWING HONDA - GL1000, 4,000 mi., like new, $2,600. 473-8783.

Boats & Marine Supplies

20' BAYLINER - Liberty 130, Volvo I/O, cabin, trailer, extras. John, Ext. 4973 or 541-4792.

18' FIBERGLASS CABIN CRUISER - 80 hp Evinrude, depth finder & extras, $3,200. Carl, 281-7627 after 5 p.m.

18' INVADER - 1977, 85 hp Mercury, power, trim, shoreline trailer, excel. cond., asking $4,200. 286-0372.

28' SILVERTON - all glass, sleeps 4, 255 Palmer F/W/C, FB, dual stations, full instruments upper & lower, many extras, $14,500 firm. 698-0830.

12-1/2' WIND SURFING BOARD - fiberglass, new, complete, $550. Dinos, Ext. 4666 or 477-1783.

Free

KITTENS - (5) kittens must find homes or be destroyed. Help us save them! Ext. 5167.

HUSKY/SHEPHERD - for adoption into good home, 1 yr. old, female, very gentle, loves children. Ron, Ext. 3887 or 286-0353 after 6 p.m.

Yard Sales

YARD SALE - June 19 & 20, 10 a.m. to 4 p.m., 9 Locust Road, Brookhaven.

Miscellaneous

KITCHEN APPLIANCES - 40" range & range hood, refrigerator, dishwasher, s/s sink, all in good cond. Ext. 4054 or 289-1989.

ENLARGER - "Fotolarger" from Testrite Co., 50mm & 75mm lens, 35mm & 2-½ sq. neg. carriers, new, $100. 286-3377 after 6 p.m.

"KRESNO" - airtight wood & coal stove, almond enamel finish, glass front. 878-1759.

G.E. AIR CONDITIONER - 14,500 BTU V115, 7-½ amps; TV reclining chair, new cond. Ext. 3392 or 475-8330.

GO-CART - 5 hp Tecumseh eng., runs well, has kill switch, comfortable vinyl seat, $25 firm. 878-9430.

DEEP WELL PUMP - 2 stage, 1 hp, $95. 924-3565.

GENERATOR - 15 KW single phase, good cond. 325-0193 after 5 p.m.

FISH TANK EQUIPMENT - (4) boxes, $25; large bicycle basket for newspaper carrier, new, $10. Ext. 5241 or 286-3377.

KENMORE CHEST FREEZER - 15 cu. ft., excel. cond., $200. 929-6494.

FREEDOM FONE - cordless telephone #3050, new, $269; telephone dialer, 30 nos., new, $80. Paul, Ext. 4665 or 727-4859.

MODERN BEDROOM SET - double bed w/bookcase headboard, triple dresser, chest of drawers, (2) night stands, excel. cond., $600. Bob, 473-3987.

1965 SPECIAL MINT SET - with 40% siver half, $5. Hugh, Ext. 4424 or 924-3293.

BARRON'S REGENTS BOOKS - French textbooks; oil burner head. Ext. 3701.

BEDROOM FURNITURE - (4) pieces, $150; double bed, $50; oval rugs; freezer, $75; wash. machine, reasonable; dresser; mud/snow tires, P20575R15, $30/ea. Ext. 2969.

YOUTH BED - w/mattress, good cond., $50. 698-6437 after 6 p.m.

DIAMOND RING - .56, unique and unusual, must sell, make offer. Ext. 5138 or 929-4237 eves.

ANTIQUE TRUNK - heavy leather, 38x21x13, $250; 6 gal. Lowell stoneware crock, $75. 929-4096.

ROTOTILLER - 8 hp, Montgomery Ward, heavy duty, runs well, $225. C. Goodzeit, 286-0271.

SPEAKERS - (2) Lafayette model #1108, 3-way Hi-Fi speakers, perfect cond., $65. 732-5829.

ELECTRIC WELDER - Lincoln, 180 amp, 2 cyc. Wisconsin engine, 99% rebuilt. 878-1561.

MAPLE BEDROOM CHESTS - (2), night table; mahog. corner cabinet, buffet, chairs, table; leather top tables, end, coffee, all excel. cond. Bailey, Ext. 4461 or 475-7733.

FREEZER - excel. cond., paid $625, asking $300, you pick up. Chris, 475-1706.

SOFA - converts to queen bed, good cond., $150 or best offer. 698-6437 after 6 p.m.

AIR CONDITIONERS - Sears and G.E., 5,000 to 8,000 BTU. Arnie, Ext. 4161.

ELECTRONIC MEDICAL THERMOMETERS - new, $10/ea. Charlie, Ext. 3935 or 325-0968.

TIME/LIFE PHOTOGRAPHY SERIES - 35mm, six books, brand new, cost $90, sacrifice $50; original painting, B.B. McManus, late Oakdale artist, bamboo framed watercolors, have museum sales slip, sacrifice, $40/ea. 589-5126 after 5 p.m.

BLACK LEATHER JACKET - ladies, size 12, excel. cond., cost $150, selling for $100. Chris, 475-2461.

STEREO CONSOLE - Grundig Majestic, beautiful piece of furniture, electronics needs work; scanner, HF, VHF, UHF, 10 channel, extra cards programmable. Carl, 281-7627 after 5 p.m.

BABY CRIB - w/mattress, $24; changing table, $6; kitchen table with (2) chairs, $25; coffee table, $5. 821-1435.

WASHING MACHINE MOTORS - used, good for work bench grinders, etc., $5/ea. Pete, Ext. 3516.

MICROWAVE - new G.E. Spacemaker, over-stove mount, all auto. features, warranty, save $200, asking, $475. Ext. 3985 or 265-3612.

POOL - 24'x4', w/all equip., will sell total $175, or parts; dehumidifier, 10 qt., $50; chandeliers, buffet or dresser, 5'x18"x30"h, $125. Jake, Ext. 4532.

BICYCLE - 20" Ross convertible, great for beginners, $40. George, Ext. 4460.

LIVING ROOM SET - sofa bed, (2) chairs, coffee table, (2) end tables, $225 firm. Bob, 878-0598 or 878-0831 eves.

BICYCLE - women's 5 spd. Huffy, 27" wheels, like new, asking $75. 473-2861 after 6 p.m.

ELVIS PRESLEY RECORDS - some in mint cond. 929-6692.

8-TRACK PLAYER/RECORDER - fast forward, replay, dual recording meters, $50. George, Ext. 4612 or 289-0687.

FREEZER - not new, 6'x3', upright, works fine, $75. 924-6751 eves.

IRRIGATION PIPE - (3) 20' aluminum lengths, standard farm hookup; (3) 12" risers, no sprinklers, $75/all. Jack, Ext. 3260.

ACCORDION - Excellsior, full size, 3 tone switches, very good. 929-6172.

POOL TABLE - full size, slate bed, carved wood base, fully pocketed, balls, cues, excel. cond., $450. Ext. 3698 or 673-6730.

OLD CHINA CLOSET - and matching buffet. 475-1278 after 5 p.m.

WALL OVEN - Tappan, $30; gas cooktop, $30; both for $50; portable diswasher, $60. 929-4886 after 5 p.m.

SIMMONS HIDE-A-BED - double, cash & carry, $50. Jim, 473-0695.

KING SIZE BED - King Koil, excel. cond., complete, orig. price $599, now $250. 924-8297.

BANJO - 4 string tenor, good beginners, $60. Tim, Ext. 3436 or 727-7741.

PHILCO AIR CONDITIONER - 6,600 BTU, 7-½ amp, 115 V, good cond., best offer. Ext. 4341 or 475-4005.

MOVIE CAMERA - super-8 sound & projector, Bell & Howell, hardly used; baby items, carriage (Builtrite), playpen, highchair, stroller, crib; Singer sewing machine w/cabinet, hardly used. 331-1572 after 6 p.m.

AQUARIUM - 20 gal. w/all access. and (4) tropical fish, $25. Lee, Ext. 7629 or 929-3023.

BICYCLE - 26" Schwinn Varsity, boy's 10 spd., good cond., $60. Jodi, Ext. 4923.

KITCHEN CABINETS - solid pine (base and wall), custom built, wrought iron hardware, porcelain knobs, suspended drawers, excel. cond., simply don't fit new kitchen; women's bicycle, 26" Schwinn, coaster brake. David, Ext. 7646 or 286-8229.

FORMAL GOWN - pale yellow, worn once, size 9, paid $75, now $45. 744-9677.

LINGVAPHONE - Japanese language course, instructions, explanatory notes, vocabulary books, reader cassettes, excel. cond., $150. 472-1397.

STEREO SPEAKERS - pair, Sound Design, new $45; sandwich grill, $3. Ann, 286-2280.

COLOR TV - RCA XL100, 19", like new cond., $225. John, Ext. 5152 or 281-2471.

DESK - w/attached typing table, $60; Zenith 25" console color TV; very good cond., asking $260. 281-0804 eves/weekends.

CHERRY WOOD DRESSERS - (2), night stand & large mirror, $250 firm; custom made champagne velvet couch, sacrifice $250 firm. Ext. 3755 or 878-1920, 878-9571.

GOLF CLUBS - set of four matched woods (1,2,3,4), Spalding, Parfile, with head covers, good cond., $30. Ext. 2101.

ROTOTILLER - Sears, 6 HP, good cond., $300. 924-6582.

BUNK BEDS - twin size, w/matching desks, chairs and dresser, asking $250. 261-7825.

FIREPLACE SCREEN - drawstring curtain, w/brass trim, $20. Ext. 4070 or 475-7272.

MARIGOLDS - mixed colors, $1.10/dozen. Bill Stars, Ext. 4278 lunchtime or 298-9648 eves.

ANTIQUE BRASS BED - double, approx. 100 yrs. old, excel. cond., $650. 744-1081.

CARTRIDGE DISK DRIVE - Diablo model 44B, 10 mega bytes, factory refurbished. 289-5704 after 5:30 p.m.

FIREWOOD HOOP - black, $10; childs dresser, white, $18; rug, 10x12, tan, $25; generator to make electricity, $200; tricycles, $5; teen's desk, $20; work bench, 6', $15; air conditioner, 11,000 BTU, 110 voltage, Sears 150, excel. cond. 286-8554.

BEAGLE PUP - AKC, 10 mos., male, loves children, sacrifice, owner allergic, $85. After 6:30 p.m. 821-0692.

PORTALUME WINDOWS - and screens, assorted sizes, good cond., used, $7 each. Ext. 7611.

GERBIL FUN HOUSE - complete w/black male gerbil, $8. Ext. 2500.

KIRSCH DECORATOR RODS - new, half price; wallpaper pastes; carpet dolly; mixer for 5 gal. pails. 928-8562 eves.

Ads left out of this issue due to lack of space need not be re-submitted to appear in next week's issue. Please note that ads may not be more than 15 words long and must be received in the Bulletin office by 4:30 p.m. Friday, for inclusion in the following week's Bulletin.

TV - air cond.; furniture; appliances; must sell, moving. Alex, Ext. 4704 or 928-1124.

CARPETING & PADDING - 12'x13', chocolate brown, bound on all sides, asking $200; dog run, 50 ft., wire covered w/vinyl, used only 2 weeks, $15. 821-9395.

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

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

SHOREHAM/WADING RIVER - 4 bdrm.colonial on acre, Axeman-Anderson boiler, 12" insulation, deck, full basement, quiet location, mortgage assumable at 10%, $89,900. Lee, Ext. 7629 or 929-3023.

WADING RIVER - custom built, 4 bdrm. colonial, 2 baths, d/r, den, f/p, 2-car garage, full basement, private beach. Ext. 7727 or 929-4631.

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

Rent

SOUTH JAMESPORT - Enjoy the good life! Cozy older home in country setting, 3 bdrm., l/r, d/r, kit., porch, utility rm., walk to beach, 30 min. from Lab, avail. Sept. 1, $300/mo. + util. Walt, Ext. 2907 or 698-0576.

VERMONT - 3 bdrm. house, fireplace, fully equipped, beautiful view, hike, fish, canoe, summer theatre, auctions, alpine slide, family oriented, reasonable, avail. weekly or weekends. 732-6499 after 6 p.m.

BELLPORT - house on the beach, next to Bellport golf course, 3 bdrm., furn., tenant must take care of dog, July 31 to Sept. 3., reasonable rent. 286-2155.

BELLPORT - 1 bdrm. furn. apt., no lease. 286-8740 after 8 p.m.

Car Pools

ROCKY POINT - summer student needs ride, will share expenses. Eileen, Ext. 4461.

STRATHMORE/STONY BROOK - established car pool needs rider/driver. Morris, Ext. 4192.

STONY BROOK - near train station. Jay, Ext. 4994.

SOUND BEACH - need ride to and from BNL, have no car, will pay fare for gas, 8:30 to 5:00. Tom, Ext. 2515 or 2516.

EAST ISLIP - 3-man pool desires other riders/-drivers. Jake, Ext. 4532.

NORTH BELLMORE - need ride from North Bellmore to Lab and return daily. Pat, Ext. 3671.

BAYSHORE/BRENTWOOD - driver needed for 5-person car pool. Rich or John, Ext. 4308.

Lost & Found

LOST - near Bldg. 902B, large brown Intra-Lab mailer containing calculations and a paperback. Gerry, Ext. 4841.

Wanted

AMBITIOUS PERSON - $200-$300/month, 6-8 hrs./wk. 698-5861 after 7:30 p.m.

CLOTHES DRYER - Lilco gas, appearance unimportant, good running cond. 654-0769 eves.

"LIVING ITALIAN" - on cassette or records. Ext. 3701.

DRUM SET - used, good cond., reasonable. Bob, 732-9517 eves.

FISHING POLE - 9' to 12', one piece, reasonable. Victor, Ext. 3357.

TIRES - C78-13, 700-13, or 650-13, good to fair. Susan, Ext. 4267.

TIRE & WHEEL - for trailer, size 480x8, good cond. Ed, Ext. 5174.

METRONOME - also Badminton rackets. 581-7656.

APARTMENT - 1 bdrm., Setauket/Port Jefferson/Mt. Sinai area, need beginning of July. Nick, 928-9000.

TENNIS PLAYER - female, intermed., lunchtime play, 3 days/week. Marcie, Ext. 5294.

MATURE WOMAN - for child care, 3 days/week, our home, own transportation, Center Moriches. Roger, Ext. 3578 or 878-4864.

MOTORCYCLES - bent or broken, any age or cond. Kevin, 281-8031.

UTILITY TRAILER - 4' wide bottom, approx. $100. 924-6751 eves.

ORGAN INSTRUCTOR - my home or yours. Ext. 4303 or 878-1688 eves.

WOODEN KITCHEN CHAIRS - wooden wardrobe, wooden headboard for double bed; household tools needed for new (poor) homeowners. Ext. 3636 or 369-2151 after 6 p.m.

HOUSE TO RENT - 3 bdrms., Bellport area. Sept. '82 - Sept. '83. Becky. Ext. 4386 or 286-8807 eves.

APARTMENT - 1 bdrm., near Lab. Jain. Ext. 2710.

FENCE - 90'x5', vinyl w/hardware incl. (2) 6' driveway gates. Victor, Ext. 2395.

SOMEONE TO MAKE SLIPCOVERS - and curtains of professional quality at reasonable prices. 286-8664.

CANOPY - F/18' trailer w/poles, reasonable. Ext. 2964.

HOUSE/APARTMENT - for professional couple, from 8/1/82. Janet, Ext. 4420 or 928-5408 eves. & weekends.

DRAFTING TABLE - or easel for student. 744-5553.

70 DUSTER FRONT BUMPER - without dents, will pay cash plus replacement. Tim, 727-7741.

BABYSITTER - Westhampton Beach area, 1 p.m. -10:30 p.m, mature person w/own transportation to my home preferred, need immed. 288-6367 mornings.

REAR END PARTS - for 1970 Ford Fairlane 500, reasonable please. 924-6906 after noon.

DO YOU LIKE WORKING WITH PEOPLE? - Call for interview and appointment, part time only. 732-6647.

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