BROOKHAVEN BULLETIN
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BROOKHAVEN NATIONAL LABORATORY

A Moving Experiment

At first glance the rectangular building on the north side of Bldg. 912 doesn't look very unusual. But a long enough look reveals that this is no ordinary structure. It moves.

The movement of this building is critical to experiment 755, now under way at the AGS. The moving force behind this moving experiment is Quantum Chromodynamics, or QCD. Experiment 755 is designed to test some of the predictions of this theory which hypothesizes that hadrons are made up of quarks and gluons. The latter provide the strong force which holds the quarks together.

For this test, BNL physicists Don Barton, Gerry Bunce, Alan Carroll and Yousef Makdisi are collaborating with researchers from the University of Minnesota and Southeastern Massachusetts University. Their study is entitled, "π-p Two-Body Exclusive Reactions at 90° in the Center of Mass System."

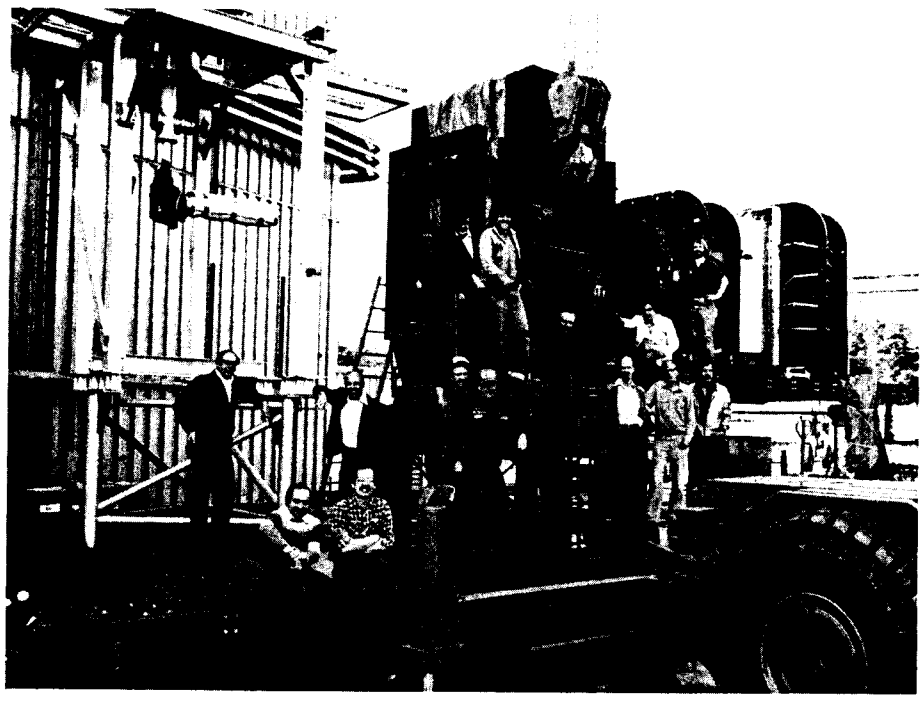
"π-p" is physics shorthand for the collision of a beam of pions (π) from the AGS with a liquid hydrogen target of protons (p). Theoretically, two quarks make up a pion and three a proton. After a collision, these quarks can recombine to form specific final states. The experiment will measure the rates of certain reactions to test if any are enhanced or suppressed compared to others.

The rarity of these exclusive reactions demanded a very high intensity, high energy beam — thus, the C1 beam line at the AGS. But space around C1 was limited and, since 755 requires a very wide space in which to move, the experiment was erected in the external experimental beam area of the AGS as an extension to both Bldg. 912 and beam line C1.

The equipment in experiment 755 should be capable of changing angles to accommodate different energies. This was accomplished with the movable platform designed by mechanical engineer John Walker and detailed by Hank Thorwarth. Not only can the platform rotate from 0° to a maximum of ±25° by moving around a pivot situated right under the target, but its downstream section tilts up and down, to catch the particles bent through a magnet, for momentum analysis.

Trajectories of the outgoing particles can be measured in the two arms of the spectrometer. A magnetic arm identifies stable particles — the ones that will not decay immediately. The non-magnetic arm records and measures the by-products of the newly-formed particles as they decay.

Construction on the movable structure began in November 1981 on a very tight schedule that called for completion by mid-May 1982. Snow and sleet fell as the concrete was poured, and the platform grew under the protection of circus tents. Makdisi said reaching their goal was a cooperative effort. Among those he credits are Bernard Rifkin, Tony Scheschowitz and others from Plant Engineering who designed the pads on which the experiment rests; liaison engineer Jim Mills who had overall responsibility for the project; Steve Gushue, who designed the drift and proportional chambers, which were built by technicians George Grego and Ed Bihn; technicians Fred Kobasiuk, George Martin and Charlie Bloxon, who put the movable platform together; and the Experimental Areas Group in the Accelerator Department who aided in the construction effort.



Mort Rosen

Assembled on the platform of Experiment 755 during its construction are many of those responsible for its completion: (upper level, from left) Fred Kobasiuk, John Walker, Kevin Barnes, Charlie Bohnenblusch, Frank Karl, Dave Wahl; (standing on platform, from left) Bob Meier, Lou Addessi, Frank Strelecki, Stan Carde, Don Barton, Alan Carroll, Robert Ritter; (seated, from left) Yousef Makdisi, Michael Shupe.

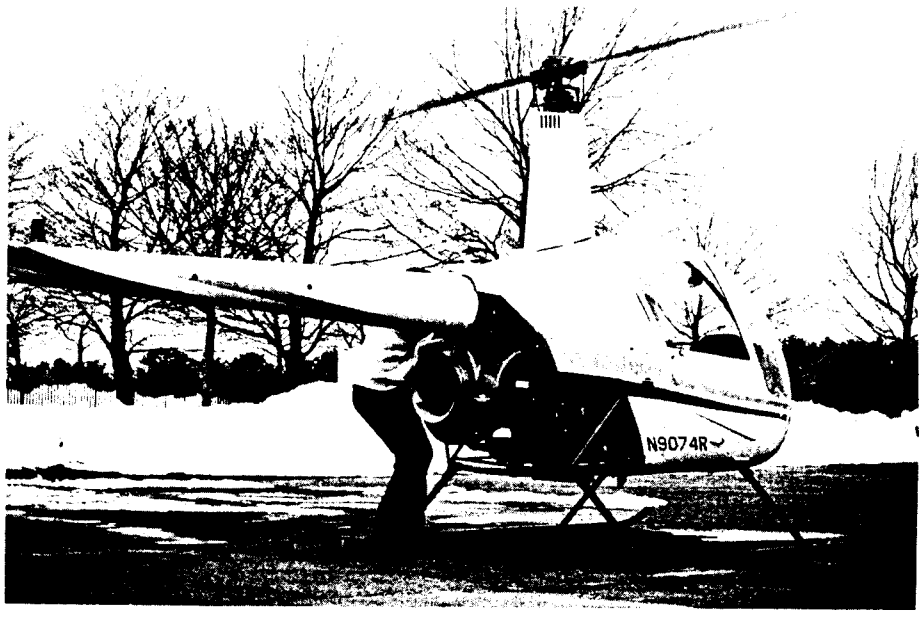
Makdisi also points out that, "Due to the ingenuity of people around here, most material was salvaged. A major portion of the steel for the platform, for example, came from the old bubble chamber support system. And the steel for the analyzing magnet was cut and salvaged from existing pieces, which saved us a huge sum of money."

The whole point of the construction rush was to test the equipment towards the end of the slow extracted beam (SEB) run in FY'82. In that run, the experimenters tuned the apparatus and logged in about three days worth of physics data. This was used for debugging purposes, in preparation for the "real" run which started early this month, when the SEB came on for this year. According to Makdisi, "The experiment is in a tight, but amicable race with certain theoretical physicists who are busy calculating the predicted rates based on QCD theory."

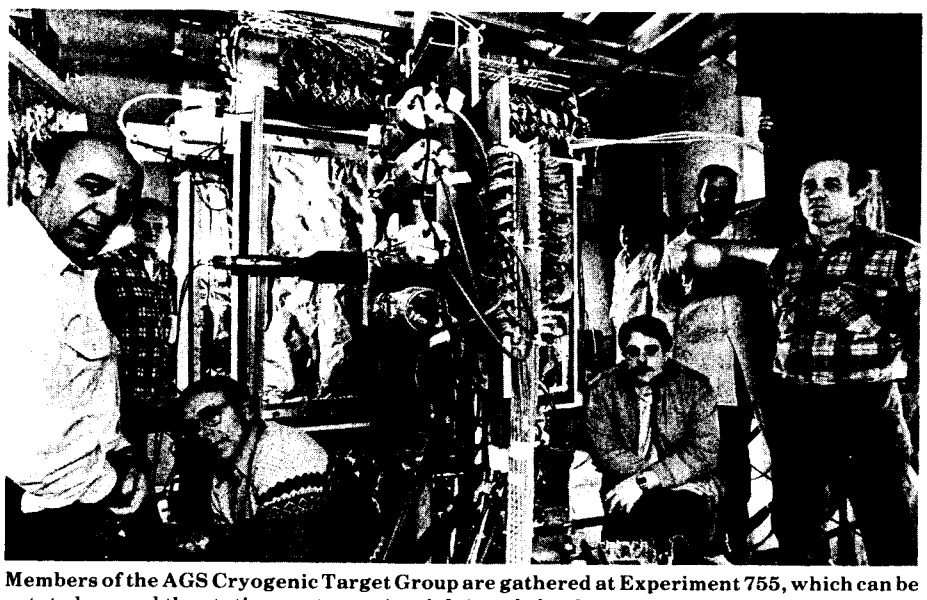
"This apparatus is quite flexible," Makdisi said. "We envisage a number of experiments that can be done on it. In fact, we are already looking forward to using it for an experiment with polarized proton beams which are expected to be the new feature in the AGS in the near future."

Teamwork Made It Work

Speed was of the essence on Wednesday, when a short-lived radiotracer was rushed by helicopter to the Health Sciences Center at SUNY Stony Brook. The radiotracer was 2-deoxyglucose labeled with carbon-11, which has a half-life of 20 minutes. It was made in the Lab's 60-inch cyclotron for a Chemistry Department experiment in collaboration with Stony Brook and the University of Pennsylvania. The Health Sciences Center has special medical equipment needed for the experiment, which produced data on glucose metabolism in connection with PETT research. On Wednesday, everything went like clockwork. BNL police delivered the freshly-made radiotracer to the waiting helicopter in less than two minutes. The pilot picked up the container, took to the air and landed at Stony Brook in less than ten minutes. And the radiotracer was in the hands of the experimenters before the 20 minutes were up. Since the experiment must be done several times to gather enough data, this quick lift will be repeated.



Peter Horton



Doug Humphrey

Members of the AGS Cryogenic Target Group are gathered at Experiment 755, which can be rotated around the stationary target (at right) made by the group. Left to right are: (standing) Louis Addissi, Richard Lehmann, Carlyle Murray, Leonard Kalmar, and William Sieger; and (kneeling) Robert Meier and Arnold Esper. Missing from the picture are David Derryberry, Craig Erick, Daniel Kaczmarczyk and David McCutcheon.

Right On Target

When the AGS began its slow beam program early this month, five new cryogenic targets were in place on the experimental floor, ready for the first pulse of protons that will surge out of the machine. It was a time of anticipation for the physicists, who are interested in the spray of particles that will result when the proton beam hits a target. For the target makers, it was the culmination of another period of target building, one that has been repeated over and over for almost a quarter of a century.

The Cryogenic Target Group was formed in 1959, first to make targets for the Cosmotron, and now for the AGS. Some of the targets have played important roles in significant experiments, like the ones that garnered a Nobel for Sam Ting and another for James Cronin and Val Fitch. But the target group doesn't regard those targets with any special affection. All of their targets are special, each one carefully crafted to perfection.

According to Arnold Esper, the group's supervisor, 80 percent of the slow extracted beam experiments at the AGS use cryogenic targets. Most contain liquid hydrogen, kept at —423°F. They range in size from a cigarette lighter to a culvert, and they can hold anywhere from one-third to 100 liters of hydrogen.

Target making begins with a meeting with the experimenter, who al-

(Continued on page 2)

Target (Cont'd)

ready has in mind a basic configuration for the target. Group leader and engineer Robert Meier takes the given parameters and designs the target, which consists of a flask to contain the hydrogen and a vacuum chamber around the flask to insulate it from outside temperatures. Design engineer Louis Addissi helps in the design and also draws blueprints. Construction is done by the rest of the group: technicians Craig Erick, Daniel Kaczmarczyk, Leonard Kalmar, Richard Lehmann, David McCutcheon, Carlyle Murray, William Sieger, and electronics technician David Derryberry.

From design to finish, each target takes about 1,000 hours to build, says supervisor Esper, who adds that some work is also done by Central Shops.

But building is only half the job. The targets must work perfectly when they are installed, because experiments are tightly scheduled on the AGS and there is no time to waste on fixing mistakes. So before installation, each target is given rigorous cold tests and pressure tests. If something is going to fail, it happens then, says Esper.

He says testing is also done for another important reason — safety. Hydrogen is explosive. Even a rapid expansion, as might occur because of a leak in the vacuum system, can cause an explosion.

Because of safety concerns, other precautions are taken as well. The design of all new cryogenic systems is reviewed by a cryogenic safety committee, made up of engineers and scientists. After the targets are installed, they are also checked by a safety engineer.

All of these efforts have paid off. The group has a perfect safety record. They can't afford to learn by mistakes.

When the AGS turned on its slow beam this month, the target group went on shift work to provide around-the-clock operation, maintenance and repair of their targets. When the slow beam run is over, they will take the targets off the floor and begin again, designing, building, testing.

Esper, who joined the group 22 years ago as a junior technician, says the work never gets boring because it has so many phases. He adds that each target they build is one-of-a kind, which gives everyone new problems to work out, making the job continuously interesting and challenging.

—Mona S. Rowe

DP Courses

The Applied Mathematics Department has scheduled the following data processing courses to begin at 9 a.m. on the dates indicated:

Introduction to the UNIX Operating System (MWF) Feb. 28 - March 4.

Introduction to Arpanet (T) March 1.

Introduction to Scientific Information Retrieval—DBMS—(MWF) March 7 - 11

Data Transfer Methods (T) March 8.

Introduction to Graphics Languages and Devices (MWF) March 14 - 25.

For more information, call Ronald Wittlock at Ext. 4112.

Son Seals

Blues And Jazz At Berkner

Throughout February, the Afro-American Culture Club has celebrated Black History Month by presenting a variety of black talent. These performances conclude on Saturday, February 26, with An Evening of Blues and Jazz. The program, sponsored by BERA, will begin at 8 p.m. and will feature Son Seals and his Blues Band. Also appearing at Berkner Hall will be Doug "Harmonica" McLean and his Blues Band and the MJB Jazz Trio.

"Imaginative songwriting, passionate singing and blunt, powerful guitar. Throat-ripping drive as a vocalist, and his delivery is as sharp as a stiletto point." — that's how Rolling Stone described Son Seals, for whom blues was a birthright. His father ran the Dipsy Doodle Club in Osceola, Arkansas, and Seals grew up surrounded by great bluesmen.

Son Seals has appeared on two specials for cable television — "The New Blues" and "Blues — Living and Legend." Recently, he has headlined music festivals in several major cities, including Memphis, Houston, Philadelphia, Edmonton and Boston. At the ChicagoFest, he recorded the Grammy-nominated live album "Blues Deluxe." Other Seals' recordings are "The Son Seals Blues Band," "Midnight Son," "Live and Burning" and "Chicago Fire." In his live appearances, Seals has worked with such performers as Bonnie Raitt, George Thorogood and Clarence Clemmons.

Doug "Harmonica" McLean is nicknamed for his virtuosity on the blues harmonica. He began his professional career with Blue Labor Records and toured with Louisiana Red from 1975 until 1980. Since then, he has had his own blues band. He and his group have shared the stage with Son Seals before. Others they have performed with are B.B. King, Muddy Waters, John Lee Hooker, Odetta, Sam & Dave, George Thorogood and Pinetop Perkins.

Rounding out the program will be the MJB Jazz Trio. The trio includes leader and pianist Margaret Fonville, bass player Jim Brown and drummer Billy Sells. With vocalist Jean Sells, the MJB Jazz Trio has been performing in the Long Island area for 25 years. Playing their musical mixture of pop and jazz, the trio has appeared with Roland Kirk, Mel Lewis and Thad Jones.

A Macrame Exhibit will be on display in Room C, Berkner Hall, that evening, from 7 to 11 p.m. Macrame is the art of typing threads or cords into knots to form geometrical designs. The show, which is being presented by Ella McLean, Virginia Eleazer and Barbara Roberts, can also be viewed on Friday, February 25, from noon to 1:30 p.m.

Tickets to "An Evening of Blues and Jazz" are $9 each and can be purchased from any of the following people:

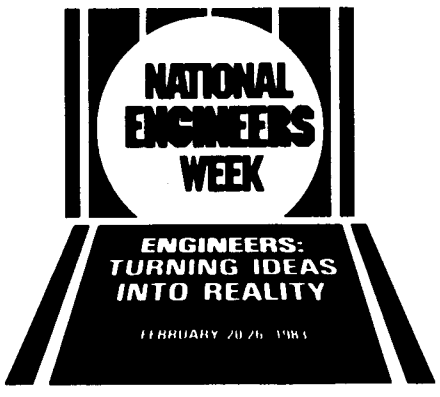
Name	Bldg.	Ext.
April Donegain	197	2903
Mary Durham	464	3427
Sandra Green	535	4933
Michele Henderson	555	4303
Frances Ligon	460	3316
Mac Thomas	318	2959

Or send a check, payable to BERA, to Afro-American Culture Club, P.O. Box 441, Upton, New York 11973.

Afro-American Club

Rev. Charles A. Coverdale of the First Baptist Church of Riverhead will present a slide show on Southern Africa on Wednesday, February 23, at noon in Room A, Berkner Hall. In early 1982, Rev. Coverdale went on a fact-finding mission for the Organization of African Unity. His slide presentation highlights this trip, particularly in Zimbabwe and South Africa

The Club is also sponsoring a Macrame Show in Room C, Berkner Hall on Friday, February 25 from noon to 1:30 p.m., and on Saturday, February 26, from 7 to 11 p.m., in conjunction with An Evening of Blues and Jazz. Macrame is the art of tying threads or cords into knots to form geometric designs. This show is presented by Ella McLean, Virginia Eleazer and Barbara Roberts.



As part of the observance, some local companies and engineering societies are providing displays, films and lectures at the Mid-Island Shopping Plaza in Hicksville on February 24, 25 and 26.

Lindsay Says Goodbye

In 1949, a young man came to Long Island to look for a job. The plant he was working at in Syracuse had shut down and since his wife was from Sayville, he decided to explore job opportunities on Long Island.

As luck would have it, Brookhaven Lab had an opening for a station operator. Paul Lindsay was offered the job on the spot.

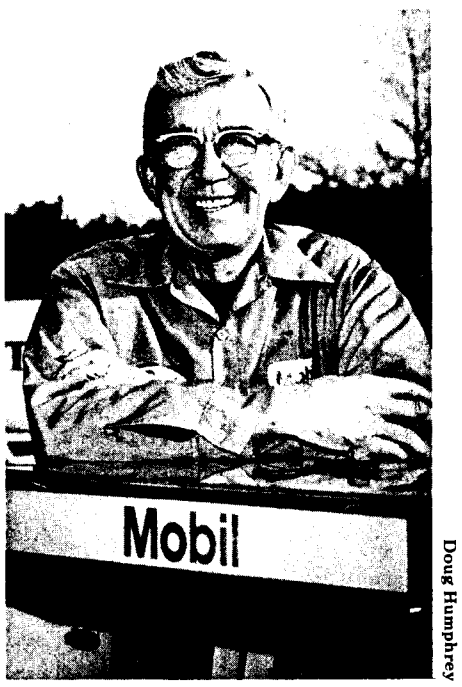
"They just needed someone, and I was there," he said. Now, 33 years later, Lindsay will retire at the end of this month.

When asked about what he remembers of his early days at BNL, Lindsay recalled that the original gas station was located in an old Army chapel on Technology Street, with the front half being used as a gas station and the back half a four-room apartment, where Lindsay lived with his family for five years. "At that time the whole Lab was Army barracks. The graphite reactor hadn't been completed, the hospital was up in the apartment area and gas was 25¢ a gallon!"

Is there anything unique about Lindsay's service station? Not really, he says. "I have good and bad years like everyone else. My customers come from as far as Queens and Montauk, and my prices must remain competitive if I want to attract business." The only differences, he says, are that the hours are better and that his station provides a convenience to Lab employees that other stations don't.

Lindsay's plans for retirement include traveling to the West Coast with his wife, Grace, who has never been west of the Mississippi. After a month to six weeks of traveling, Lindsay will return to his Patchogue home and resume his hobbies of refinishing antique furniture and building new furniture. He is also looking forward to spending time with his three daughters and two grandchildren, one of whom "just happened" last month.

Lindsay says that over the years he has come to feel a part of the BNL family, although he's actually self-employed. He enjoys access to Lab facilities, such as the pool, and is frequently invited to various BERA activities.



Doug Humphrey

Paul Lindsay

"I've had some good customers over the years and made a lot of friends here at BNL," says Lindsay. "Mostly, I just want to thank everyone here at the Lab." — Liz Chrien

The New Owner

Taking over the operation of the service station at the Lab is Charles Baldwin of Petroleum Ventures, Inc. The contract has been awarded to Baldwin, effective March 1. The new operator is the owner of two stations in Nassau County, and will provide a wide range of auto repair services and N.Y.State inspection services at the Upton station. Gulf gas will be in the pumps, and Gulf credit cards will be accepted for all services. Master Card and Visa may be used for auto repairs only. As a transition convenience for Lab employees, all major gas credit cards will be accepted during the month of March.

Lecture Reminder

Senior physicist Ling-Lie Chau will present a Brookhaven Lecture on February 23 at **4:30 p.m.** Her subject will be "Frontiers In Particle Physics." Please note the new time for Brookhaven Lectures.

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

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

Fling Into Spring

If a taste of spring is what you're yearning for, the BERA Spring Fling can satisfy that craving. The flowery festivities will take place on Friday, March 11, in Berkner Hall.

For only a $3 ticket, you can welcome the vernal equinox a bit early as the cafeteria is transformed into a bower of flowers. There, in the Blossom Ballroom, you can swing and sway to the music of Charlie Zein and the Newports. Or boogie down to Mr. "T" (Eddie Taylor), who will be playing your favorites in the Daisy Disco.

The "Forsythia Follies" are scheduled to begin midway through the evening. On stage in Berkner auditorium the Pussywillow Players — your favorite BNL artists — will star in the "Rosebud Revue."

A cash bar will be available throughout the evening and bargain rates will prevail at concessions offering hot and cold snacks.

Tickets, at $3 each, can be purchased at the BERA Sales Office, or from any of the people listed below.

Name	Bldg.
Pat Towey	120
Marge Stoeckel	134A
Lew Jacobsen	134C
Betty Pergan	179A
Blanche Laskee	185
Whitey Caiazza	197B
Lois Marascia	197C&D
Nelson Tyler	211
Rosalie Piccione	355
Chuck Watson	422
Ed Iberger	452
Irma Montanez	460
Irene Steele	463
Pat Aud	475
Pat Carr	490
Liz Mogavero	510
Cheryll Christie	535A
George Walczyk	535B
Bonnie Wesolowski	555
Jeannette Thiede	725
Sandi Lane	830
Anne Flood	902
Audrey Karzenski	911

CREF Values

January	47.49	February	44.88
March	44.48	April	46.32
May	44.53	June	43.34
July	42.41	August	47.05
September	47.32	October	52.59
November	54.78	December	55.73

January $57.59

Quilting Club

The Quilting Club will meet Tuesday, February 22 from 9:30 - 11:30 a.m. at the Brookhaven Center. Quilt blocks will be made and awarded to a lucky participant. Bring sewing tools and small amounts of cotton or cotton blend fabrics in red and yellow prints. You will need a 7" square piece of each of the two fabrics for each block you intend to make and contribute to the group project. For more information call Bernie Benz, 928-1068, or Beth Pile, 475-8099.

Dining Out

What's your favorite restaurant? The Public Relations Office would really like to know. It's time to update an outdated restaurant list maintained for newcomers and visitors to the Laboratory, and your input would be very helpful. If there's a restaurant within a 20-mile radius of BNL that you feel should be on this list, send your recommendation to Public Relations, Bldg. 134, by March 4. Be sure to indicate:

- the name, address and phone number of the restaurant.
- the type of food served.
- the general atmosphere; i.e., family-style, intimate, fast food, etc.
- price range.
- what rating you would give it.

Cooking Exchange

German Cooking will be the topic at the next meeting of the Cooking Exchange on Wednesday, February 23 at 12:30 p.m. in the Recreation Building. A charge of $1.00 entitles each person to copies of the recipes and sampling of foods. Babysitting is provided at 50¢ per child. For more information call Bernie Benz, 928-1068, or Adrienne Usher, 289-7658.

Day Care News

Those who are interested in learning about the Kids R Us Day Care Center, Longwood Road, Middle Island, can meet some of the staff in the Berkner Hall lobby on February 23 and 24 from 11:30 a.m. — 1:30 p.m. Samples of the children's arts and crafts will be on display, and staff members will have pertinent information on hand, including pre-enrollment forms.

Cafeteria Menu

Week Ending February 25, 1983

Monday, February 21		
Snack bar service - 9 a.m. to 2 p.m.		
Tuesday, February 22		
Cream of chicken soup	(cup)	.65
	(bowl)	.75
Beef liver & onions w/1 veg.		1.80
Turkey chow mein on rice		1.85
Hot Deli: Barbeque top round of beef	(bread)	1.95
	(roll)	2.05
Wednesday, February 23		
Turkey rice soup	(cup)	.65
	(bowl)	.75
London broil & 1 veg. w/mushroom gravy		2.10
Chicken cacciatore & 1 veg.		1.95
Hot Deli: Hot pork sandwich w/country-style gravy	(bread)	1.85
	(roll)	1.95
Thursday, February 24		
Split pea soup	(cup)	.65
	(bowl)	.75
Meatcakes & onions w/1 veg.		1.80
Roast turkey w/stuffing & giblet gravy		1.90
Hot Deli: Veal pattie parmesan hero		1.95
Friday, February 25		
Manhattan clam chowder	(cup)	.65
	(bowl)	.75
Ham steak w/orange mustered sauce w/1 veg.		1.85
Beef burgundy on rice		1.95
Hot Deli: Breaded fish fillet hero		1.95

The winner of last week's drawing for a chocolate heart was Richard Larsen, Physics Department.

Doug Humphrey

The sculpted "Self Portrait" by Patricia Stone, shown above, is only one of the works in the BERA Members Art Exhibit now on view in Room B, Berkner Hall, from 11:30 a.m. to 1:30 p.m. weekdays through February 25. Virginia Sayre (at right), a member of the Art Committee, reviews a list of contributors to the exhibit. Contributors are requested to pick up their works on Friday, February 25 between 12:30 p.m. and 3 p.m.

IBEW Meeting

Local 2230, IBEW, will hold its regular monthly meeting on Monday, February 28 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.

Bowling

White League

High games were bowled by J. Griffin 257/212/629 scratch series, E. Liguori 210, B. Belligan 211, D. Adams 202, K. Asselta 200, S. Smith 197, P. Manzella 189, K. Griffin 183.

Red/Green League

C. Bohnenblusch rolled a 239/631 scratch series, J. Ferrante 225/619 scratch, K. Asselta 222/601 scratch, R. Sick 227, J. Morris 216, J. Muller 205/721 gross series, R. Larsen 203, R. Jones 202, L. Schairer 202, J. Connelly 202, G. Meinken 200.

Purple League

E. Meier had a 239/571 scratch series, B. Benson 233/573 scratch, B. Bergoffen 204, L. Barberich 198.

Pink League

High games were bowled by R. Rosati 187, M. Apelskog 173/165, K. Kissel 169/169, J. Thiede 166, D. Johnson 168/192/180, S. Moore 167, M-G Meier 166/201, H. Keeley 203/194.

Applications for the March 13th Scotch Doubles are still available at the BERA Sales Office.

Seed Testing Tips

If you've got leftover seeds from previous years and you're wondering whether they're worth keeping, here are some tips from the Cooperative Extension Association of Suffolk County.

Set 20 to 50 seeds on a moist blotter or doubled paper towel laid on a plate. Cover the seeds with clear plastic and keep them at room temperature, remoistening as necessary for two weeks. Germination times will vary depending on the kinds of seeds.

As they germinate, count how many seeds have sprouted to find the ratio you can expect to germinate in the garden. Compare this with the germinating percent usually printed on the seed packet, and you can judge the degree of the seed's deterioration. Knowing this, you can sow more thickly as necessary to compensate. Of course, if no seeds sprout, throw the batch away and get new ones.

Diners Note

The Center Club will be closed Sunday, February 20, the day preceding Washington's Birthday. However, it will be open on Monday evening, February 21 at 5 p.m.

The cafeteria will be open from 9 a.m. until 2 p.m. on Saturday, Sunday and Monday, February 19, 20 and 21.

The vended food service in Building 912 is in operation continuously.

Volleyball

Mixed League

A Division

Standings as of 2/14:

Mixed Ups	10-2
Dinkers	8-4
Teddybares	8-4
EPOs	6-6
Nuts and Bolts	3-9
Nuclear Wastrels	1-11

B Division

Final standings for the 1st half:

TNT	21-6
Semi-Tough	20-7*
Phoubars	20-7*
Up Fagrabs	17-10
Puff and Stuff	15-12
Chunga's Revenge	13-14
Screwballs	11-16
KMA	8-19
Nuke Yorkers	8-19
Quirks	2-25

*will play-off for 2nd place. Congratulations to TNT as winners of the first half.

Results as of 2/14:

Semi-Tough	13-2
TNT	11-4
Phoubars	9-3
Up Fagrabs	9-6
Puff and Stuff	7-5
Nuke Yorkers	4-5
Chunga's Revenge	4-8
Screwballs	2-7
KMA	2-7
Quirks	2-10

Open League

Results as of 2/19:

FRE8D swept Brewmasters, 15-2, 15-5, 15-10, and 15-7. Phoenix over Raiders, 15-6, 15-12, 15-1, and 10-15. Half-Lifes split with Random Errors, 0-15. 15-5, 15-8, and 1-15. *Highlights*: The Raiders finally ended Phoenix's winning streak at 47 games.

Standings as of 2/9:

Phoenix	7-1
Raiders	5-3
FRE8D	4-4
Random Errors	4-4
Brewmasters	2-6
Half-Lifes	2-6

Arrivals & Departures

Arrivals

Norene G. Lucas ..... NSLS
Robert J. Mayer, Jr. ..... Plant Eng.

Departures

None

Classified Advertisements

Placement Notices

The Laboratory's placement policy is to select the best-qualified candidate for an available position, with consideration given to candidates in the following order of priority: (1) present employees within the department, with preference to those within the immediate work group; (2) present employees within the Laboratory as a whole; and (3) outside applicants. In keeping with the Affirmative Action plan, selection decisions are made without regard to age, race, color, religion, national origin, sex, handicap or veteran status.

Each week, the Personnel Office lists new personnel placement requisitions. The purpose of these listings is, first, to provide open placement information on all non-scientific staff positions; second, to give employees an opportunity to request consideration for themselves through Personnel; and, finally, for general recruiting purposes. Because of the priority preference policy stated above, each listing does not necessarily represent an opportunity for all candidates. As a guide to readers, the listings are grouped according to the anticipated area of recruitment.

Except when operational needs require otherwise, positions will remain open for one week following publication date.

For further information regarding a placement listing, contact the Personnel Placement Supervisor, Ext. 2882.

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

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

1825. PROJECT ENGINEER - Requires BS in an engineering discipline. Should have reactor operating experience or experience in the design, modification and installation of nuclear systems plus experience in the application of nuclear standards and codes (ANS, ASME, ANSI, IEEE, ROT) regulatory guides and regulations. Requires excellent technical writing skills. Reactor Division.

1826. PLUMBER A - (Two temporary positions, one permanent position) - Requires successful completion of a four year apprenticeship program and/or substantial experience in the commercial/industrial sector as a plumber. Will be responsible for the layout, construction, installation, repair and maintenance of water, sewage and gas systems, related facilities and auxiliary equipment. Plant Engineering Division.

1827. PROJECT ENGINEER - (Two positions) -Requires BS in an engineering discipline and a minimum of 2-3 years' engineering experience. High mechanical aptitude and previous reactor operations, design or maintenance experience desired. Naval reactor experience preferred. Ability to obtain "Q" clearance essential. Individual will join HFBR Operations Group. Reactor Division.

1828. NUCLEAR REACTOR OPERATOR TRAINEE - Requires AAS in a technical field or equivalent experience. Prior reactor background and experience in maintaining and operating electrical and mechanical equipment very desirable. Must be able to work rotating shifts, obtain "Q" clearance and maintain reactor qualifications. Will operate and maintain HFBR and auxiliary equipment. Reactor Division.

1829. DESIGN ENGINEER - Requires substantial experience in design engineering fundamentals. Will be responsible for establishing and upgrading HFBR design documentation, which includes: system layout, component upgrading and future plant modifications. Knowledge of mechanical and process systems at HFBR desirable. Ability to obtain security clearance necessary. Reactor Division.

1830. TECHNICAL POSITION - Requires AAS in nuclear science/technical field or equivalent and experience in the fabrication, calibration and maintenance of control and process instrumentation. Previous reactor experience desirable. Ability to obtain "Q" clearance required. Reactor Division.

1831. SCIENTIFIC ASSOCIATE - Requires BS/MS in nuclear engineering or health physics and at least two years' experience in nuclear power plant operations. Will have responsibilities for studies in costs and effectiveness of dose radiation techniques in light water nuclear power plants. Safety and Environmental Protection Division.

Autos & Auto Supplies

VW PARTS - Bug muffler, compl., $28; Rabbit muffler, $36; VW tow bar, $37.50; Bug bumpers, $27;Bosch plugs, $.95/ea.; 044 points for most Bugs, $1.50; all parts are brand new. Augie, Ext. 2419 or 325-0594 eves.

82 FORD FUTURA - low mileage, 4 door, p/s, 4 cyl., p/b, a/c, 4 spd., asking $6,650. 281-8274.

80 HONDA HAWK MOTORCYCLE - sport model CB400T, excel. cond., low mileage, extras, $995. 286-8814 after 5:30 p.m.

80 SUZUKI - GS1000L, lugg. rack, c/c, custom seat, many extras, mint, must sell, $2,500. Ext. 7187 or 981-9474.

74 CUTLASS SUPREME - orig. owner, p/s, p/b, a/c, fm/8-track stereo, $900. 821-1558.

65 LE MANS - convertible, 326 eng., automatic, bucket seats, primed, ready for paint, excel. cond., $1,400. 588-7648.

70 PONTIAC FIREBIRD - black, 400, auto., am/fm cassette stereo, very good cond., $1,500. Roger, 286-1882.

79 HONDA MOTORCYCLE - CM400T, 2,000 mi., garaged, must sell, $1,000. Ext. 7125.

75 PLYMOUTH SCAMP - 2 dr., ht., 6 cyl., a/t, p/s, p/b, a/c, good cond., asking $1,600. 475-1469.

76 FIAT - 131S, 5 spd., 2 dr., a/c, 26 mpg, asking $1,400. Ext. 2521 or 928-8371.

76 VW RABBIT - very good cond., 4 spd., well maintained, 30+ mpg, worth a look, $1,850. Chip, Ext. 2256 or 928-5836.

81 MERCURY CAPRI - GS, black/red inter., 4 cyl., a/t, am/fm, 8 trk., radials, excel. mpg, 32,000 mi., $5,550 neg. Ken, Ext. 2350 or 732-7944.

76 CAMARO SPORT - black w/red inter., a/t, sport wheels, immaculate rally, $3,175. Ext. 3082/4613 or 821-9280.

72 FORD GRAND TORINO WAGON - 8 pass., a/t, p/s, p/b, high mi., $500. Ext. 5168 or 588-0677 eves.

79 PLYMOUTH HORIZON - a/t, low mi., excel. cond., must sell. 924-7723 eves.

79 OLDS CUTLASS SUPREME BROUGHAM - loaded, black Landau top, mint, diesel, low miles, $4,450. Ext. 4613 or 821-9280.

79 CHEVY MALIBU WAGON - a/c, low miles, blue, excel. cond., p/s, p/b, $3,275. Ext. 4613 or 821-9280.

79 OLDS CUSTOM CRUISER WAGON - diesel, all options, $5,000. 878-2892.

TIRES - (2) 6.50-15, Goodyear Suburbanities snow, $25/pr. Ext. 4581.

72 CAPRI PARTS - 2 drs. & trunk, $35. Tim, Ext. 3496 after 5 p.m. or 281-7873.

78 CAMARO LT - 305, 4 spd., jet black, red inter., p/s, p/b, a/c, am/fm cassette w/equalizer, rear spoiler, mint cond. in & out, must see, $4,900. 981-5993.

74 PINTO RUNABOUT - 4 spd., a/c, excel. cond., price neg. Ext. 5329 or 878-2215 after 6 p.m.

63 VW - runs well, $475. 744-6668.

SLOTTED CHROME RIMS -(2) Plymouth, 14" & hubs; (1) F70-14 white lettered mounted tire, $25. 744-3141.

76 OLDS CUTLASS SUPREME - 2 dr., a/t, p/s, p/b, a/c, radio, 63,000 mi., $2,395. 363-2468.

TIRES - (3) steel-belted, 78x15, passing cond., 3 for $25 or $10 ea. 399-0537 after 4 p.m.

80 PHOENIX - 2 dr., 4 spd., red, low miles, excel. cond., am/fm, $4,000. Ext. 3833 or 587-8408.

YAMAHA MOTORCYCLE - 175, off-road use only, good cond., $150. Mike, Ext. 3050 or 369-1062 after 6 p.m.

77 CHEVETTE - very good cond., rebuilt motor, clutch, brakes, new inter., $2,000. 288-5699.

73 DODGE MAXI-VAN - good cond., high mileage, $1,200. 928-9568.

73 AUDI FOX - 4 dr., 4 spd. stand., mech. & rubber good, 26 mpg, $800 neg. Henry, Ext. 3050 or 588-3999.

77 TOYOTA SR-5 PICKUP - 4 wd., 22 mpg, extras, $3,900. 929-3393 after 5 p.m.

75 TRIUMPH - TR6, good cond., $2,700. Ext. 5053 or 472-1735 after 6 p.m.

Boats & Marine Supplies

17' THUNDERBIRD - cathedral hull, 90 HP Mercury, Trailex aluminum trailer, asking $2,000. Borg, Ext. 3568 or 286-0428.

JOHNSON OUTBOARD - 9.9 HP, like new. Ext. 3354.

CRUISING SLOOP - small, available for time sharing, based in Bellport. 286-0497 eves.

LIFE RAFT - USCG 2-man, $125; ship-to-shore radio, $100. Ext. 3433 or 331-3959.

18' BOAT - Johnson 50 HP motor & trailer, asking $975 or best offer. 399-2149.

Miscellaneous

TV - Sony Trinitron, 15", 1-1/2 yrs. old, $250; Panasonic stereo set, turntable, tuner, 8 track, Thruster speakers, $150. Ext. 3637/3079.

BLOCK CONVERTER - for cable TV, new, $25. Ext. 4575.

WOOD STOVE - Vermont Defiant, can produce 55,000 BTU's, heat up to 10,000 cu. ft., used one season, asking, $500. 929-6836.

WALL OVEN - Caloric Ultramatic (propane), w/infra-red broiler, stainless steel finish, very good cond., $75 or best offer. Ext. 2492.

ENGLISH BIKE - girl's, 3 spd., w/basket, excel. cond., hardly used, $50; ski rack, adjustable roof mount, very good cond., $25. Naomi, Ext. 3699 or 744-1081.

TICKETS - (2) Met opera, LaBoheme, Mar. 8, balcony, $19.25 ea. Betty, Ext. 7126 or Ext. 7120.

TV - Zenith 25" color console, maple finish, very good cond., $100. Ruth, 667-7314.

HOME COMPUTER - OSI, 8K RAM 8K ROM, RS232, much software, support, extras, sacrifice, $350. 363-2736.

ELECTRIC DRYER - Sears, 17 lb. capacity, excel. cond., $110. Rich, Ext. 4482 or 581-0932.

DINETTE - woodgrain formica top, green vinyl chairs, fine condition, make an offer. 698-3952 after 5 p.m.

SANDER - 3" Skil Blet, new, $55; Craftsman Sabre Saw w/tilting base, like new, $50; portable typewriter, $25. 878-6637.

SNOW BOOTS - boy's sz. 7. Ext. 2487 or 928-6930.

SURF SKI - for ocean waves, good cond., $225. Tim, Ext. 3496 after 5 p.m. or 281-7873.

RINGS - women's diamond set, large, $350; men's/woman's ring, $7; sterling silverware, $1,250. 475-0144.

ORGAN - electric ORCOA, 50 chord, 37 key, maple, $25; Class B trailer hitch for GM car with ball, $10; carburetor and fuel pump, Toyota 8RC engine, $25. 727-6481.

TWIN BED - mattress, box spring and rails. Walt, Ext. 7154.

PAGE ALERT - 4000, w/motion detector, new, $50; Delco am/fm car radio, like new, $15. Ext. 4613.

GOLF SHOES - Lady Mulligans, size 6-1/2, excel. cond., brown and white, $10. 265-1072.

SOFA - green/beige floral, 81", excel. cond., $85. 736-1705.

VIDEO GAME - Arcadia (like Atari), including 3 cartridges for $120. 744-1845.

COLOR TV - 19" G.E. w/remote control, 1 yr. old, asking $430; 13" Sanyo b/w TV, 9 mos. old, asking $50. Ext. 3827 or 981-9584 eves.

HEATER - Kerosun Radiant 10, practically new, $100. 589-3608.

RECORDS - $2/ea.; hairsetter; nail dazzler; skin machine; thermos; old medical books; 8-track player; electric razor. Ext. 3565.

COLOR TV - 19" RCA, $90 or best offer. Ext. 4581.

COMPUTER - Atari 400 w/basic module, $250. Ext. 3941 or 744-8632 after 6 p.m.

QUARRY TILES - new, brown, 6"x6"x1/2", 22 sq. ft., with mortar bag, perfect flooring for stove installation, $35. Tim, Ext. 4084 or 878-1060.

RECEIVER - Marantz #2220, $150; Sharp cassette deck, #RT-1165, $100; JVC turntable, $50; KLH #17 speakers, $100; full size bed, excel. cond., $100. Ext. 3433 or 331-3959.

CARPET - dark green sculpture, $14'2"x10$ & $14'2"x17'6"$ excellent, $100; drapes plus Cornise gold lined, 3 pr., 63", $35. 736-1705.

COMPUTER - Apple II, 48K, 2 disc drives, (1) Sanyo scope, line printer & programs, $3,500. 878-2892.

BABY ITEMS - Peterson stroller, $25; bassinet, $15; dresser, $5; 2 piece snow suit, sz. 3, $10. 924-7916.

TV - b/w; rug, 9'x12'; dining table & chairs; sofa; baby items; steel shelves; bed; lamps. 924-6139 after 5 p.m.

FIREWOOD - full cords, 4'x4'x8', $115 delivered. 467-8976.

COLOR TV - 24" Zenith in colonial maple floor console, excel. cond., $150. 921-0548 eves.

HAMS - Heath C.W. tranceiver HW16, with V.F.O., ant. tuner, SWR meter, coax. switch, complete $200. 589-2648.

COCKTAIL TABLE - large, square, parquet top, $200. Judy, 924-4000 before 5 p.m.

HEATER - Kerosun Radiant 36, plus 50 gal. drum, $100. 472-0339.

SKI PANTS - men's, 34R, dk. blue, wool & poly. stretch, never worn, $80. Ext. 4727.

STEREO - solid wood console, Garrard turntable, Electravoice speakers, must sell, best offer. 878-2233.

TABLE - sturdy, round, 4 chairs, very good cond., $100. Ext. 7582 or 744-2499.

DWARF RABBITS - 4 females, 3 males, (2) 8' hutches, $50. 475-5681 before 1 p.m. or after 6 p.m.

SYNTHESIZER - Multivox MX2000, excel. cond., $500. 363-2614 after 6 p.m.

RUG - dark green, excel. cond., ideal for small apt., about 8x10, $40. 286-1062.

OIL BURNER - 75,000 BTU, hot air, 275 gal. tank, good for garage or workshop, $250. Dick, Ext. 3499 or 589-9103.

DENIM JACKET - w/picture of Jim Morrison painted on back; electric guitar w/whamee bar, $20. Rose, 744-5069.

Free

COLOR TV - 25" Zenith console, needs some work. Ext. 4483.

TV - b/w, RCA console, plays but needs work. Augie, Ext. 2419 or 325-0594 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

E. PATCHOGUE - Cape Cod on 1/3 acre, 3 bdrm., full basement, attached garage, walk to bay & marina. 289-7858 after 6 p.m.

For Rent

MILLER PLACE - north of 25A, near beach, avail. Feb. 15-Aug. 15, unfurn. or partly furn., prefer couple or small family, no animals, $450/mo. Ext. 7532 or 282-3070.

PATCHOGUE - 4-1/2 rm., 1 bdrm. apt., includes heat, hot water, laundry, garbage pickup, cable TV, dock space avail., 1st floor, full end apt., $460/mo., avail. immediately. 286-8368.

N. SHIRLEY - mother/daughter house, 3 bdrm./2 bdrm., priv. entrances, garage, avail. March 1, 2 mo. security, reasonable rent. Bob, 281-5605, 6-8 p.m.

MASTIC BEACH - 3 bdrm. house, 1/2 mi. to water, encl. porch, large fenced property, 2 mo. security, $450/mo + util. Bob, 281-5605, 6-8 p.m.

MEDFORD - studio apt., large kitchen, private entrance, cable TV, $300/mo. incl. all util., security neg. Don, 475-7532.

WADING RIVER - lovely house on wooded acre, 3 bdrm., 2 baths, living rm., formal dining rm., eik, sundeck, finished bsmt., 2 car garage, energy efficient, 12 min. to Lab, nice neighborhood, SWR schools, avail. May 1. Ext. 3642/4391 or 751-8224 after 6:30 p.m.

SOUND BEACH - spacious 1 bdrm. apt., full bath, sun porch, yard, walk to beach, $430/mo. incl. util. Rose, Ext. 7908 or 744-3160 after 6:30 p.m.

Car Pools

BABYLON/WEST ISLIP - one or two drivers needed for 4-person on-time carpool. Ext. 2500.

UNIONDALE - have small car, join or form 3-man pool, 8:30-5. Vic, Ext. 2050.

Lost & Found

LOST - UPS package from Newman Computer Company inadvertently delivered to Bldg. 130. Phil Davis, Ext. 4311.

LOST - BNL property cards for #105672, #106212, #106308, #106312, #106393 or #106403, info appreciated. Phil Davis, Ext. 4311.

Wanted

4 CYL. MUSTANG - 1976 to 1978, clean, will accept if needs motor work. Charley, 878-2199.

FIBERGLASS BOAT - 16-18', motor 55-75 HP, preferably Bowrider. John, 281-8021.

HOME - for 8 mo. kitten, playful, trained, gray-/white, ambitious. 751-2655.

HOUSEMATE - share 4 bdrm., 3 bath house, 20 min. to Lab, washer/dryer, dishwasher, sundeck, $164/mo. + 1/3 util. Ext. 2521 or 928-8379.

CHEVY NOVA - 4 dr., 6 cyl., 1976 or newer. 751-1562.

WOODEN SECRETARY - and/or china closet, reasonable, Ext. 3565 or 878-2233 after 6 p.m.

MATURE PERSON - for childcare and housekeeping in our home, 20 hrs./wk., E. Patchogue. 286-2155.

DRUM SET - used, in good cond. for a 7 yr. old. Bob, 732-9517.

TIRE(S) - E-78x14, regular, (need 1 or 2). Morris, Ext. 4192.

CONVERTOR - for student going to France, reasonable. 289-0687.

HOUSE TO RENT - for small family from April or May 1 to August. Ext. 4389 or 399-3098.

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

EXPERIENCED BABYSITTER - for very young infant, on site or own transportation to my house on north shore. 928-1831.

Services

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

VW PARTS - full line of orig. equip. replacement parts & accessories at wholesale prices, complete machine shop service for VW. Augie, Ext. 2419 or 325-0594 eves.

CHILD CARE - fenced yard, lunches, snacks, playmates, continuous supervision and TLC, reasonable rates, refs. 399-5407.

PLUMBING AND HEATING - Lab discount. John, 654-8189.

HOUSE PAINTING - interiors, winter discount, professional, insured, many BNL references. Bob, 289-7657 after 6 p.m.

GENERAL CONTRACTOR - carpenter, extension dormers, garage conversions, basements, decks, kitchens, licensed. Jim, 698-2501.

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

ELECTROLYSIS - permanent removal of unwanted hair, physician trained, latest method, licensed, free consultation. 331-4768.

EXTERMINATING - free estimate. 399-2424.

EASTER BASKETS - colorful cloth stuffed w/polyfill, order now. Sharon, 878-4599 eves.

SEWING ALTERATIONS - reasonable rates. Sharon, 878-4599 eves.

PROFESSIONAL PAINTING - reasonable rates, asking for Tom or John. 878-4599 eves.

PAINTING - panelling, wallpaper, carpentry, free estimates, reasonable rates. John, 924-5012.

PRIVATE NURSING CARE - by certified nurses aide, part-time, references avail. 744-1845.

PROFESSION INCOME TAX SERVICE - by experienced preparer, IRS enrolled, by appt. Jack, Ext. 7942 or 864-2236.

CLUB PATCHES - embroidered type for all clubs, you design or we can. Ellen, 567-4402, 9-5.

TILE SETTERS - ceramic quarry tile, no job too small, free estimate. E. Harris, 475-6460.

TAXES - prepared by tax consultant, your home or mine, reasonable. John, 732-2472.

EXTERMINATING - licensed men, guaranteed in writing, over 15 yrs. experience, free estimates, Lab discount. 281-5445.

TRUCK FOR HIRE - no job too small, Lab discount. 281-5445.

Classified Ad Policy

Deadline is 4:30 p.m. Friday for publication Friday of the following week.

1. The Brookhaven Bulletin's classified section may be used only by active and retired Laboratory employees.
2. All items for sale or rent must be the advertiser's property.
3. Ads for material acquired for resale in association with a full or part-time business cannot be accepted.
4. Ads for the sale or trade of firearms will not be accepted.
5. Ads not carried because of space restrictions will be held for publication in the next issue.
6. Ads are run only once and must be resubmitted if they are to be repeated. One ad per person per week.
7. **Property for sale or rent cannot be accepted on this form. Special Real Estate Ad Forms are available at the office of the Brookhaven Bulletin, Building 134.**

☐ For Sale: Autos & Auto Supplies ☐ For Sale: Boats & Marine Supplies ☐ For Sale: Miscellaneous ☐ Car Pools ☐ Lost & Found ☐ Services ☐ Wanted ☐ Free

Please print your ad below in 15 words or less using one word per block. Include name and phone number to call.

Note: The following must be completed for your ad to appear.

NAME (Please Print) .....

Employee's Signature ..... Life No. ..... Ext. .....

Send to: Brookhaven Bulletin, Building 134 (Ext. 2345).

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