BROOKHAVEN BULLETIN
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BROOKHAVEN NATIONAL LABORATORY

BNL Lecture

Metal Hydrides — Safe and Compact

When petroleum is no longer an economic fuel, what will power the motor vehicles of the world? Hydrogen is high on the list of candidates.

In the past, however, the main problem with using hydrogen to fuel motor vehicles has been that of safe and compact storage. Now a solution to that problem is at hand in the form of metal hydrides, says James Reilly, who will be giving the next BNL Lecture on Wednesday, April 29, at 8 p.m. in Berkner Hall. His talk is entitled, "Metal Hydrides and Hydrogen Storage."

Storing hydrogen for use as a fuel in the form of a metal hydride was first suggested in the early 60's by Warren Winsche, Deputy Director, who was then Chairman of the Department of Applied Science. At that time, the known hydrides were either too stable or too expensive for practical storage applications. In 1965, Winsche talked about the problem to Reilly and Richard Wiswall, now retired, who began an experimental investigation into the reaction of hydrogen with intermetallic compounds. Their objective was to find a material which would have improved hydrogen storage properties.

Doug Humphrey

James Reilly

A metal hydride is formed by forcing hydrogen gas into the gaps among the atoms of a particular metal. At some critical concentration and pressure, the metal becomes saturated with hydrogen and goes into the metal-hydride phase.

Some metals, however, make better hydrides than others. Reilly says hydrides that do not decompose and evolve hydrogen at fairly low temperatures (below 300°C.) can be eliminated from consideration. On the other hand, the hydride must not be too unstable in the sense that an impractically high hydrogen pressure is needed to form it. Another important criterion is that the metal should be abundant and inexpensive. It should also hold up under many cycles of charging and discharging. Finally, the material in both the hydrided and dehydrided state should be at least as safe in ordinary service as conventional volatile fuels such as gasoline.

Perhaps the most promising hydride-forming alloy found by Reilly and Wiswall is the intermetallic compound iron-titanium (FeTi). It probably best meets all the listed requirements. Titanium is the ninth most common element on earth, and iron is the fourth. Reilly also says hydrogen gas has been stored and released from the same iron-titanium alloy 20,000 times without detectable deterioration in storage capacity.

The main problem with the iron-titanium hydride is its weight. According to Reilly, lighter hydrides are available, but this advantage is outweighed by the fact that they are too stable and expensive. While Reilly is currently interested in researching the fundamental behavior of intermetallic hydrogen systems, he is still on the lookout for metal hydrides that would be light, cheap, and absorb and desorb hydrogen at room temperature.

Presently, one of the most attractive applications of hydrides is in the automotive area, particularly in heavy vehicles and fleet vehicles. A fleet of 20 vehicles, serviced by a central garage, is being planned in West Germany as a demonstration project.

Other possible applications include heat pump cycles, process storage and recovery of hydrogen in chemical processing plants, and fusion reactor blankets. Many laboratories currently use iron-titanium hydride as a convenient and relatively cheap source of high purity hydrogen.

Says Reilly, in only a few years these novel metal hydrides have advanced from a laboratory curiosity to their use in engineering scale demonstration projects. The spectrum of possible applications is limited only by the imagination of the inventor.

Reilly, who received his B.S. at Fordham University in 1952, was employed for several years as an industrial chemist before joining the BNL staff in 1956. He is a Chemist, Group Leader of the Metal Hydrides Group, in the Basic Energy Sciences Division of DEE.

A buffet supper is served at 6:30 p.m. at the Brookhaven Center before the lecture. Many find it convenient and it is a pleasant way to meet members of other departments. Reservations for the buffet should be made in advance by calling Ext. 3541 before 5 p.m. on the day of the lecture.

Doug Humphrey

Suited up for the weather, John McNeil takes a rain sample on site as part of a large-scale experiment to study acid rain. The binoculars are used to check sample levels from indoors so that researchers don't have to wait in the rain to collect a specified amount.

April Showers Bring Forth?

The old saying about April showers is verified by climatological records, says Gil Raynor, Meteorologist with the Atmospheric Sciences Division of DEE. That's why this month, Raynor is coordinating a large-scale rain sampling experiment that spreads across 16 states and involves close to a hundred people. So far, April is holding true to form.

The experiment is part of OSCAR, one of the most comprehensive studies to date of acid rain. Short for Oxidation and Scavenging Characteristics of April Rain, OSCAR comes under the EPA-sponsored Multi-state Atmospheric Power Production Pollution Study (MAP3S), which has been going on since 1977. Also part of OSCAR is an intensive sampling program localized around Ft. Wayne, Indiana, and coordinated by Battelle Pacific Northwest Laboratory. A BNL van equipped with instruments for sampling atmospheric chemistry has been sent there, and a BNL aircraft equipped with meteorological and chemical instruments is used part-time in support of the Ft. Wayne experiment and part-time for the BNL experiment.

Brookhaven's main effort is aimed at sampling over a much bigger area. Raynor is directing sampling at 37 sites that range from BNL in the east, to Argonne, Illinois in the west, north to Canada, and south to Cape Hatteras, North Carolina. Some are at previously established MAP3S stations, others are satellite stations operated under the direction of the MAP3S stations, and still others are operated by cooperating agencies whenever precipitation is expected.

Raynor says he's not interested in scattered showers. Instead, the experiment needs major storms that will provide steady rain over the whole network. Weather generally moves from west to east, with slight diagonal variations. Pollutants from industrial and other sources are incorporated into rain and brought to earth, and most pollutants enter a rain system continuously as a storm moves across the country. It is hoped that pollutants measured in the rain at various stations can be identified with particular source regions.

A forecast center in the Atmospheric Sciences building at the Lab keeps a weather watch. When a rain storm is expected, the center notifies personnel at all sites to set up their sampling gear. Everyone is using BNL equipment designed by Raynor, which consists of a simple funnel and collecting bottle apparatus. Sampling is done sequentially, from the first to the last raindrops, and the bottles have to be changed manually each time they collect 100 milliliters (.024 inches) of rain. Over three thousand sample bottles were initially distributed, and Raynor is prepared to send out more if needed.

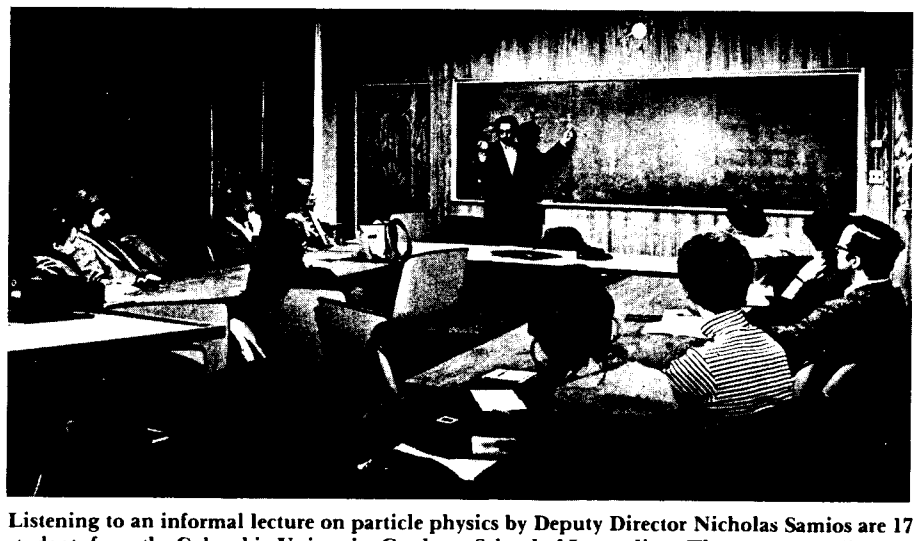
Chemical analyses will be done by Battelle. Notes Raynor, "We are most concerned about sulfates and nitrates, because they are associated with acidity. But other chemicals enter the picture, so a total of ten or twelve will be measured." Data analyses may take a year or two, mostly because of the large number of samples that will be collected by the Battelle and BNL networks.

Each of the 37 sampling sites will be operated by at least two persons, so they can work in shifts around the clock. Out of the 37, BNL is staffing a base site at the Lab and three satellite sites: Port Jervis, New York; Hightstown, New Jersey; and Granby, Connecticut.

BNL personnel doing the sampling are: Rickey Petty, Aristides Patrinos, Robert Wilson, Robert Doering, Cleveland Dodge, Joseph Forrest,

(Continued on page 2)

Columbia Science Writers Gather Material


Mort Rosen

Listening to an informal lecture on particle physics by Deputy Director Nicholas Samios are 17 students from the Columbia University Graduate School of Journalism. They were attending the Health/Science/Environment Seminar, an annual event hosted by BNL for the past 15 years. On Monday, science writers also heard lectures by Jag Dalal on Computers; by Richard Setlow on The Effects of Ultraviolet Radiation on the Amazon Molly; and by Robert Bari on Nuclear Power Reactor Safety. Tuesday morning, the students interviewed BNL scientists in various fields. On their return, some will write articles on fusion, others on neutron activation, boron epithermal neutron therapy, oceanography, or the Medical Dept.'s Pett III.

Open Meeting On Day-Care Center

Operators of the Kids-R-Us day-care center for children of Lab employees will be at an open meeting of the Women in Science executive board on Tuesday, April 21, at noon in Berkner Hall, Room A. Steve Held and John Campbell will report on the progress of their program and discuss future plans and direction for the center.

In particular, they will describe their plans for the summer, which will include a craft and hobby day camp for children through the sixth grade.

All interested employees are encouraged to attend.

April Showers (Cont'd)

William Bornstein, Lawrence Kleinman, John McNeil and Carmen Benkovitz. Maintaining the forecast center are Raynor, S. Sethuraman, Ansel Tuthill, and Walter Jahnig. Janet Hayes and Martin Leach are obtaining weather information from the National Weather Serivice by a link between the BNL and NWS computers. Robert M. Brown, Cy Fink, Dan Leahy and Peter Daum make up the aircraft crew. When at the Lab's secondary base at Evansville, Illinois, they may also take rain samples. The BNL van is operated by Roger Tanner, Paul Klotz, Thomas Kelly and Mary Phillips.

"It's been a massive effort organizing such a large field experiment," says Raynor. "A lot of people have set aside the entire month so they can be on call 24 hours a day."

So far, two events have been sampled. Two more will be done if the weather continues to cooperate.

In Memoriam

Emil A. Bernatzky, a Technical Associate in the Accelerator Department, died on April 13th after a long illness. He was 59 years old. Bernatzky had been employed at BNL since July 18, 1949. He resided in St. James and is survived by his wife, Nora, and four sons, Thomas, Richard, Conrad and James.

Selected Reading

New Yorker 42 (7) April 1981
A reporter at large (Three Mile Island - part 1). Daniel Ford. 49-120.

Long Island Forum 44 (4) April 1981
The enigma of John Jermain. George A. Finckenor Sr., & Madeline C. Winslow. 77-8.

National Review April 3, 1981
Siberian seven - Waiting for Mr. Reagan. Kevin Lynch. 362-363.

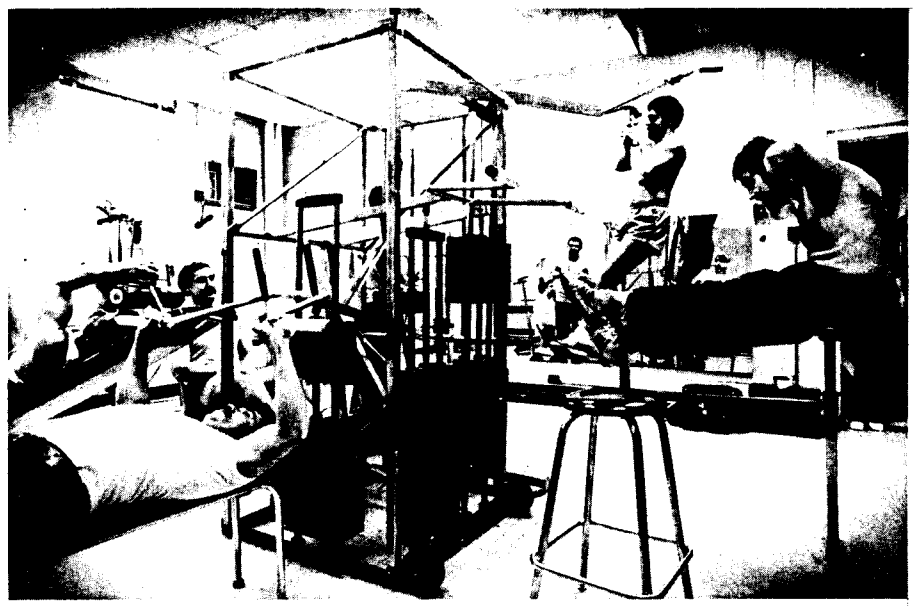
Science News 119 (13) March 8, 1981
The curly cooker. Janet Raloff. 203.

Musical Comedy

BNL employees and their spouses are very much involved in the presentation of "Hello, Dolly!" by the Playcrafters Theater Group scheduled for April 24 & 25 and May 1 & 2 at 8:30 p.m. at the Bellport H.S., Beaver Dam Road, Brookhaven.

Bill Love and Jane Love have been assigned the roles of Horace Vandegelder and Ernestina Money, respectively. Dick Rothe and Linda Asselta are in the chorus, Joe Skelly is assisting with the lighting, and Bob Kinsey is working on set design.

Tickets can be purchased in advance for $4.50 by calling 286-0157. If purchased at the door or for reserved seats, tickets cost $5.50. Group rates are also available.



Doug Humphrey

Six of the fourteen exercise stations of the Universal Gym were occupied by these regular visitors to the exercise room during a recent lunch time workout.

What Are You "Weighting" For?

The reasons why people work out on the Universal Gym are probably as many and as varied as the positions on that singular piece of equipment itself.

With fourteen positions — all of which can be utilized at one time — the Universal Gym forms the center of an exercise program for many Lab employees. One of these is Emil "Whitey" Caiazza, who has been involved in exercise programs here since the Exercise Club was formed about 17 years ago. As the chairman of the Club, Caiazza worked with BERA to secure this apparatus in 1975.

The Universal Gym is used to exercise all the muscles in the body to achieve the shape *you* want to have. For such familiar exercises as chinning and sit ups, the machine simply provides a place to perform the movements. For most other exercises, such as shoulder presses and toe raises, the unit provides a weight lifting capability that is adjustable to suit anyone's level of activity. For example, the weights on one of the leg presses can be set from 10 pounds for beginners to 750 pounds for the truly physically fit.

Safety was the primary reason for obtaining the Universal Gym, Caiazza said. "When you're lifting weights, there's so much exertion involved that the chances of blacking out can be pretty high. Using barbells, you need a spotter to avoid being hurt if you faint and drop the weights. If this happens when you're working out on the machine, the weights will fall harmlessly, so there's no need for a spotter."

What are people's reasons for exercising? As Caiazza said, "Everybody has something he or she has to do to get in shape." Besides toning the body," he said, "lifting weights helps you get rid of tensions and gives you vitality." John Nicoletti, who has been coming to the gym for 15 years, said, "at first you won't see the results — you'll feel the results. It may take three or four months to see the changes."

One misconception Caiazza is eager to put to rest is that weight lifting is a men only activity. "Women have the same muscles as men," he said, "with slight changes in structure." Because they may want to achieve different results with their exercises, women might exercise differently than men. For example, a woman who wants a slim, firm body and small muscles would use light weights and many repetitions of exercises. On the other hand, a man who wishes to increase his muscle size would achieve this with heavy weights, combined with few repetitions.

Before plunging into exercise, Caiazza suggests you visit him at the exercise rooms at lunch time. If your health permits, he will help you work out a routine. Typically, this would begin with calisthenics in the mat room to avoid cramps caused by working muscles too quickly. This would be followed by a simple routine of one set of all exercises on the Universal Gym. "Remember," Caiazza said, "most people haven't been doing anything for years, so we usually start small and gradually work up to four sets of ten repetitions of each exercise. Then you begin to work some areas more, some less, to achieve the results that are right for you. In the end, the type of exercise you do is not as important as the fact that you can follow a routine unassisted and work all parts of the body."

As your routine gets more sophisticated, you may occasionally wish to use the dumbbells or some of the other apparatus with which you can attack problem areas even more specifically than on the Universal Gym.

During all your exercising, you'll be able to observe yourself in full-length mirrors that line one wall in each of the three exercise rooms. "These help provide concentration," Caiazza said, "and add to your movements by showing you whether you're doing an exercise correctly."

Perhaps when you look in the mirror you will also see those years rolling back. As Caiazza explained, "when you get older, fewer of your body cells are replaced as they die off, so you age. But by lifting weights, you induce new growth all the time. It's like the Fountain of Youth!"

Employees can stop at the gym for a workout any weekday during lunch time. However, Caiazza warns, "Monday is our busiest day. Everybody indulges over the weekend, then they're down here trying to rectify the situation." — Anita Cohen

Arrivals & Departures

Arrivals

None

Departures

Christine Hudak ..... Accelerator
James M.B. Keyser ..... Energy & Env.
Nihal K. Notani ..... Biology
John R. Martorella ..... Energy & Env.
Charles R. Quick, Jr. ..... Chemistry
Donald W. Swinford ..... Nuclear Energy

Product Display

Tektronix will have a test and measurements products display cruiser outside the cafeteria, on April 24, from 12:30 - 2:30 p.m.

Phone Facts

Today marks two full weeks of operation for the new telephone system and most people are transferring, parking and camping-on calls as if they've been doing it for years.

According to Bill Webster, Manager of Staff Services, most of the system's initial problems have been resolved. However, there are a few areas about which people do have questions.

One such area is calling for Bell system **information**. On page VI of the recently distributed revised yellow pages to the BNL Directory, the instructions for calling for Bell system information are the same for Treatments II through V. This is slightly misleading since it implies that any of these treatments can call for information for any area. In fact, calls for information can only be placed for the areas accessed by each phone's treatment.

If your treatment does permit access to Bell system **information**, you should also be aware that you cannot dial 411 for Suffolk County information. For all information for area code 516 — Suffolk County and Nassau County — dial 9-555-1212.

Paging is another area requiring clarification. On page X of the revised yellow pages, you are told that you will obtain a second dial tone after dialing access code 3456. Change that to read "...dial 3456, obtain **burst of** dial tone..."

Data secure lines have also raised some questions. These are lines which cannot be interrupted by such things as camp-on signals. All computer lines are data line secure, and whenever a telephone is connected to a computer, that telephone also becomes data line secure. Therefore, there is no need to program this feature into most individual phones.

Some complaints have been made about **distortion** during conversations. Should this occur to either you or the party to whom you are speaking, notify the GTE trouble hotline, Ext. 4031. Tell them the extension number from which the call was placed, the extension to which it was placed, and which party or parties heard the distortion. If everyone does this, Webster said the problem will be cleared up shortly.

While Webster encourages everyone to call Ext. 4031 with any problems, he did say that some people have called several times about the same problem without indicating that they have called before. Consequently, the problem may be fixed, but personnel may be sent to repair it again because it looks like a new trouble report. If you must call back on a problem, Webster urges that you identify yourself as a repeat caller.

Plot A Garden!

What could be more delicious than fresh vegetables in season?

On-site residents are invited to satisfy their individual tastes in fresh crops by cultivating their own gardens. A ten-foot square plot from the garden area in front of the Laundry is available to any on-site resident upon request - while they last! Gardening equipment is also available.

To request a garden plot, call Yoshie Yonekura, Ext. 3175, Apt. 5A. Dalia Ovadyahu, a former BNL gardener, invites you to call her at 924-4991 if you have any questions about what to plant or how to plant it.

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HAIL COLUMBIA!

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CARL R. THIEN, Public Relations Officer

I.B.E.W.

Local 2230, I.B.E.W. will hold its regular monthly meeting on April 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 Time.**

Motorcycle Club

Ride into spring weather with a tuned-up bike! The club will have a tune-up session tomorrow, April 18, beginning at 10 a.m. in the cafeteria parking lot. Skilled motorcycle mechanics will be on hand to give out free advice. And since all work is not good for the spirit, we're going to have an Easter egg hunt by motorcycle. How? Come and find out. If it rains, come on April 25 instead.

Degree Days

April

6	7	8	9	10	11	12
23.5	18.7	14.7	11.2	11.0	10.0	16.0

Camera Club

The Camera Club is sponsoring a series of classes covering some of the basics of photography. Classes in Processing Black & White Film and Beginning Black & White Printing will lead off the program on Thursday, April 23 at 6 p.m. in the Recreation Building. Club members will provide instruction.

The classes are open to all Camera Club members. Members must pay a dues of $10 per year which entitles them to the classes and permits them unlimited access to the Club's darkrooms and other facilities.

Further classes are scheduled for May and June and will be publicized in the *Bulletin*. For more information, call Lew Jacobson, Ext. 5193, or Ripp Bowman, Ext. 4672.

Bicycling Events

The first of the season is the annual 32 mile 5-Boro Bike Tour on Sunday, May 3, starting at Battery Park at 7:30 a.m. This event has increased from 200 riders in 1977 to 11,000 last year, and is the only time you can ride through all 5 boroughs of New York City free of motor vehicle traffic. This year there will be no bunching (other than the start) or rerouting of stragglers, and twice the ferry capacity will be available. To register in advance, send $2 to American Youth Hostels, 132 Spring St, Room 5, N.Y., N.Y. 10012.

The annual two-day TOES (Tour of Eastern Suffolk) sponsored by the affiliated Paumonok cycling clubs will be on May 16, 17. This year it will revert to a one-night stopover at the Chequit Inn on Shelter Island. The start will be in Yaphank. Call Gerry, Ext. 4841, for additional information.

The Ninth Annual BNL Spring Race will be on Sunday, May 31 at 9 a.m. It will be open to outside clubs and will have a 32-mile bunch start and 16 mile time trials.

Pilot Safety

The BNL Aviation Club and Mid-Island Air Service will co-sponsor an FAA Pilot Safety Meeting on Wednesday, April 22 from 7:00 to 10:30 p.m. in Berkner Hall. The evening's events will include talks, a movie and a vertigo demonstration. Everyone is welcome to attend.

Missing Volume

The following volume is missing from the Research Library: U.S. Geological Survey. The National Atlas of the United States of America. Washington, 1970. Your assistance in locating and returning this volume will be very much appreciated.

Bowling

Green League

The Light Source won 4-7 over the 76'ers with K. Batchelor rolling a 223. The Old Timers II battled the Freon Loaders 8-3 with B. Galen rolling 203. The Sparks downed the Sandbaggers for 11. The Pinball Wizards won 7-4 over Isa Team with M. Iarocci bowling a 627 scratch series for the losers. The Trouble Shooters took 7 from the Blue Jays and the Phoubars were beaten by the Designers 8-3.

Purple & White League

The Gropers moved into first by winning all 7 and broke the tie for first place. Ed Meier's 212 was high for the night. Other good games were bowled by Ken Riker 205, James Petro 204, Joe Mayeski 200, Mickey Haller 189, Gail Schuman 188, Kathy Griffin 183.

Red League

The 76'ers won 7-4 over the Light Source. R. Larsen (208-202) grossed 622, T. Holmquist 608, M. McKenna 605. This Isa Team took 4 against the Pinball Wizards. M. Iarocci (223-203-201) had a 627-675 series. The Freon Loaders managed 3 against the Old Timers II. The Old Timers took 8 from the Strangers with J. Fontana grossing 622, W. Vanzwienen 600. The Designers took the Phoubars 8-3. A. Pinelli and J. Ferrante grossed 601. The Sandbaggers were shut out 0-11 by the Sparks. R. Jones (220) grossed 629 and C. Bohnenblusch 621.

Pink League

Deb Johnson had high series with a 481. Good games were bowled by Mary-Grace Meier 183, Marie Grahn 176, Renie Rosati 168, Karen Alberico 166, Ellie Kristiansen 164, Audrey Blake 161, Marge Stoeckel 159, Ellie Adams 157, Maryann Larsen 154. The Lickety Splits are in first by 1 point.

In the L.I. Industrial Tournament, BNL women are in 8th place overall and 10th place in incentive after the first week of bowling, thanks largely to Sharon Smith, who bowled 100 pins over average.

Photography Show

The BNL Camera Club will sponsor an employees' Photography Exhibit at Berkner Hall, June 1-5. All employees are invited to submit photos to be considered for inclusion in the exhibit. While photographs may be in either black and white or color, they must be framed and be at least 8"x10". Photos must be sumitted by May 21 to either Lew Jacobson, Bldg. 134C, Ext. 5193; Said Mughabghab, Bldg. 197D, Ext. 2902; or Ripp Bowman, Bldg. 911B, Ext. 4672.

Mountain Club

At a meeting on April 7, the Mountain Club established a calendar of events for the next few months.

A white water canoeing trip is scheduled for this weekend, April 18 and 19, on the Farmington River in Connecticut. A second trip is tentatively planned for May 9 and 10. If interested in either trip, call Harold Udseth, Ext. 4324.

A combination day hike/rock climbing trip to the Gunks is planned for May 16 and 17. If interested, contact Don David, Ext. 4821 or 3942.

An overnight hike to Slide Mountain in the Catskills is scheduled for May 23 and 24. Interested persons should contact David Crowther, Ext. 3403.

The annual canoe trip on the Delaware River is tentatively planned for June 6 and 7, but no trip leader has been assigned.

The next meeting of the Mountain Club will be on Tuesday, May 12 at 7:30 p.m. in the north room of the Brookhaven Center. All interested parties are invited to attend.

Cooking Exchange

Break bread with the Cooking Exchange at its next meeting to be held on Wednesday, April 22, at 12:30 p.m. in the Recreation Building. Recipes for soups, salads and breads will be demonstrated and sampled.

Meetings are open to BERA members and their immediate families. Admission is $1, and babysitting is provided at 50¢ per child.

Call Robin Metz, 821-1039, or Ruth Fernow, 928-8465, for more information.

Diners Note

The Center Club will be closed Sunday, April 19, reopening for normal service on Monday, April 20, at 5:00 p.m.

The Cafeteria will be open from 9:00 a.m. until 2:00 p.m.

The Vended Food Service in Building 912 will be in operation continuously.

Volleyball

4th Quarter Final Standings

A Division	
No Names	14-1
High Society	10-5
Las Bolas	9-6
Mixed Ups	8-7
Nuts & Bolts	4-11
Kings Court	0-15
B Division	
TNT	12-3
Leftovers	8-7
Lemufs	8-7
Oh No's	7-8
Puff & Stuff	5-10
Semi Tough	5-10

The No Names edged the Mixed Ups, 15-5, 6-15, and 15-10. High Society upset Las Bolas, 15-12, 15-12, 10-15. Nuts & Bolts swept up Kings Court, 16-14, 15-7, 15-10.

TNT over Oh No's, 15-7, 15-12, 15-4. Lemufs had a surprising upset over Leftovers, 15-10, 15-8, and 15-13. Semi Tough edged Puff & Stuff, 15-12, 15-12, 11-15. The playoffs will be on April 20 at 5:30 p.m. For the A Division, High Society & No Names will play for winner of the first half, and for the B Division, Puff & Stuff vs. Leftovers will play for winner of the third quarter; winner of third quarter plays TNT for winner of second half.

Open League

An interdivisional tournament was held on April 8 to determine respective divisional champions. There were no surprises in the A Division. The Moles & Spikers were tied after the Round Robin with the Moles winning the tie breaker and the title. Congratulations to the following Moles - Bob Quick, Doug Hof, Steve Howe, Jackie Howe, Steve Munson, John Nagy, Om Singh, and Chuck Calef.

In the B Division, the Monday Night Terrors gave the Raiders a run for it but fell short. Congratulations to the following Raiders - Don Mullaly, Frank Haibon, Ray Tice, Tom Vogt, Walt Annand, Dick Lingg, Bob MIlls, and Ed Meier, Jr.

Piano Duo To Present Concert

Long Island pianists Doris Anne McMullen and Dwana Holroyd will present a recital of piano duets on Monday, April 27, at 8:30 p.m. in Berkner Hall. The concert is sponsored by BERA.

McMullen and Holroyd will present a program of music conceived and written for piano duet, a special form of chamber music which flourished from the end of the 18th to the beginning of the 20th century.

The program will include Brahms' Waltzes, Op. 39; Schubert's Rondo, Op. 107; Mendelssohn's Allegro Brilliante, Op. 92; Bizet's Jeux d'Enfants, Op. 22; and Brahms' Hungarian Dances, Book I (1869).

Since their debut as duo pianists, in 1979 at Carnegie Hall, McMullen and Holroyd have earned a reputation for excellence both in this country and abroad. They recently completed their second tour of England, where an enthusiastic press praised their "magnificent rapport," "formidable attack," "general sensitivity," and "unpretentious virtuosity."

Tickets are $5 general admission, $4 for students and senior citizens, and $3 for those under 18. No reservations are necessary and tickets will be available at the door.

Dwana Holroyd (left) and Doris Anne McMullen

Cafeteria Menu

Week Ending April 24, 1981

Monday, April 20

Cream of tomato soup	(cup)	.55
	(bowl)	65
Salisbury steak & 1 veg.		1.60
Cheese omelette & hash browns		1.45
Hot Deli — Roasted turkey breast	(on bread)	1.65
	(on roll)	1.75

Tuesday, April 21

Philadelphia pepper pot soup	(cup)	.55
	(bowl)	.65
Stuffed cabbage (Holishkes) & 1 veg.		1.60
Baked fillet of fish & 1 veg.		1.55
Hot Deli — Roast beef	(on bread)	1.65
	(on roll)	1.75

Wednesday, April 22

Chicken soup with matzo balls	(cup)	.55
	(bowl)	.65
Irish stew with noodles		1.60
Broiled chicken livers & 1 veg.		1.60
Hot Deli — Grilled Reuben		1.60

Thursday, April 23

Pork & cabbage soup	(cup)	.55
	(bowl)	.65
Gan Eden chicken & 1 veg.		1.55
Blueberry blintzes & 1 veg.		1.50
Hot Deli — Italian meatball hero		1.70

Friday, April 24

Manhattan clam chowder	(bowl)	.70
Potato & pork chop bake		1.65
Shells w/red clam sauce		1.50
Hot Deli — Fried fillet hero		1.65

Classified Advertisements

Autos & Auto Supplies

77 FORD - LTD II wgn, V8, a/t, p/s, a/c, 28,000 mi, good cond. $3,000 Ext. 4045 or 289-5770 after 6 p.m.

TIRE - (1) BR-78 Armstrong radial, fair cond. $8. Bob, Ext. 4551.

AUTO A/C - add-on, fits GM small V8, other cars need mounting kit. $150. Bob Tallon, Ext. 4547 or 473-3987.

73 SUPER BEETLE - red, good cond inside and out, runs well. Asking $1,100. Charlie, Ext. 4351 or 221-6636.

TRUCK TIRES - G78-15, 6 ply, mounted on Dodge 5 bolt rims, only 500 mi on set. Gerry, Ext. 4597.

TIRE - GR70-15, raised white letters; '66 Olds hubcaps; am radio. Ron, 281-3149.

73 PLYMOUTH FURY - 360, 4 dr, p/s, p/b, a/c, good cond. $700. Paul, 273-6796 day or eves.

71 VW SUPER BEETLE - am/fm radio, excel in/out, good mpg. $1,400. Ext. 2514.

78 ASPEN - a/t, p/s, a/c, 2 dr slant 6, low mi, good cond. 732-8241 after 5 p.m.

73 PLYMOUTH SATELLITE — needs some body work, good running cond. $800. Bob, 744-5936 or Barbara, 473-8060 after 6 p.m.

MOTORCYCLE TRAVEL TRUNKS - 1 small ABS plastic w/keys and hardware, $20; one soft vinyl w/hardware. $10. R. Hildenbrand, Ext. 3273.

73 HONDA - CB350 w/luggage rack. $600. John, Ext. 3651.

72 CORVETTE - 4 spd, T-Top, new radials, mint cond, reasonable, serious only. 289-7813 after 5:30 p.m.

73 CHEVY MALIBU - 4 dr, a/t, p/s, p/b, am/fm, low mi, snows incl, excel running cond. $995. Ext. 5091.

70 VOLVO - 144S, 4 cycle, 4 spd, 96,000 mi, am/fm, mech/body good cond. 363-7067.

79 SUZUKI GS 850 - custom seat, luggage rack, many extras, mint cond. $2,500. Danny, 981-9474.

71 COUGAR XR7- 351, 8 cyl, good cond, runs excel. $1,600. Ext. 2907 or 475-5524.

77 CHEVY NOVA - 4 dr, sedan, V6, a/t, p/s, p/b, 66,000 mi, $2,200; snow tires (2) Goodyear E78-14, used 2,500 mi. $35. Ext. 7664.

79 FORD TRUCK - F150, black, lift kit, 36" tires, white rims and roll bar, many extras. Must be seen, 744-0742.

66 BUICK SKYLARK - conv, 1970 Caddy sedan DeVille. 924-3522 after 6 p.m.

280Z WHEELS - (4) and hubcaps. Best offer. 924-8225.

TIRES - (2) for Chevy pickup w/rims, 875x16, 8 holes. $60. 585-8395.

66 BRONCO - Drivetrain ONLY w/transfer case, Vette rims (6) w/4 TA's. $200. 744-3968, 473-2318 after 6 p.m.

ENGINE - 1966 Ford 200 c.i., 6 cyl, runs good. $75. John Ext. 4976 or 744-4386.

MINI BIKE - new 3.5 hp engine, new clutch, excel cond. $150. Vince, Ext. 4660.

72 NOVA FRONT LEFT DOOR - and fender, hood and (2) Chevy 14" rims, like new. Jack, 924-6809.

75 CHEVY IMPALA - a/c, p/s, p/b, p/w, am/fm, very good cond, 74,000 mi. Asking $2,350. 758-9693.

73 OLDS - a/c, p/s, p/b, am/fm, good cond. $800. 281-6130.

SIDE MIRRORS - for van or truck, good cond. $15 for the pair. 399-4213.

70 OPEL GT - 4 cyl, good cond, 32 mpg, new brakes, clutch, exhaust system. Neil, 281-1795.

79 MGB - yellow, low mi, mint cond. Asking $5,500. Cheryll, Ext. 7716 or Debbie, 289-1585 eves.

75 VW BUG CUSTOM - am/fm radio, new upholstery, 55,000 mi, good cond, good gas mi; also '75 Ford F-250 Camper Special Pick-up truck w/10½' Hornet Camper slide-on, self contained, many extras. Will sell camper separately. 929-4840.

77 YAMAHA - 360cc elec start, luggage rack, blue, 7,500 mi, like new. $995. John, Ext. 4185 or 929-8204.

71 MERCURY - Marquis Brougham, excel cond. $850. 581-7656.

80 SUNBIRD - 4 cyl, a/t, am/fm radio, vinyl top, rust proofing. $4,300. Lou Licalzi, Ext. 3354 or 473-3328.

73 CHRYSLER - LeBaron, 4 dr, 74,000 mi, new tires, very good cond. 653-5350.

NEW TIRE - Michelin w/w on GM wheel, balanced, 225x15 (JR78-15) orig $95. Now $70. or best offer. Alyce, Ext. 5203.

79 CHEVETTE - 4 dr, stick shift, 2 new snows. $3,750. Ext. 4275 or 654-0812 after 5 p.m.

76 GRAND PRIX - sun roof, a/c, full power, radials, am/fm, very good cond. Asking $3300. 727-3167 after 5 p.m.

Boats & Marine Supplies

16' RUNABOUT - fiberglass, good cond w/heavy duty tilt-bed trailer. $450. Jim, Ext. 4502.

1976 20' BAYLINER - 4 cyl IO cabin w/accessories, trailer w/braking system. $7,000. John, Ext. 3397.

KAYAK - singlemold fiberglass Riverrunner, floatation, skirt, paddle, excel cond. $300. Ext. 4905.

TRU-TRIM POWER STEERING UNIT - for Mercury outboard, new July 1980, half price. Ext. 4121.

OMC PROPELLER - like new, for Johnson Evinrude, $40; tire & rim, never used, size 4.80x12 for boat trailer. $40. John, Ext. 4312.

19' INVADER - inboard/outboard 165 HP, 34 hrs. Cox trailer, electric winch 1977. 722-3263.

MOORING ANCHOR - 100 lbs. Mushroom. $60. 585-8395.

12' ALUMINUM BOAT - w/7½ HP motor, boat has floatation, both for $400. 363-2522 or Ext. 4543.

1966 16½' SILVERLINE - fiberglass "V" hull, reclining bucket seats, high freeboard, good cond. Asking $550. 331-1389.

14' FIBERGLASS BOAT - 35 HP Merc., controls & trailer, $550. 929-4064 after 6 p.m.

AMF ALCORT - Puffer sailboat, used one season, main jib 12½', extras. $1,300. Ext. 4908 or 744-4724 eves.

1978 MERCURY OUTBOARD - long shaft, manual stainless steel prop, $950. 286-3335 after 6 p.m.

Yard Sale

YARD SALE — April 25 & 26, 9 a.m. to 5 p.m., 183 Hampton Ave., Mastic. Ext. 3469 or 281-4371.

Miscellaneous

SOLID WOOD - wall unit, stereo cabinet w/TV stand, mint cond, $400; pure wool rug, yellow, 4'x6', $35. 265-5361.

SWIMMING POOL - motor/pump & filter, new $130; child float, $5; adult float, $20. Steve, Ext. 4615.

TICKETS - (2) Aeolian Chamber Players, Sayville Jr. H.S., 8 p.m., April 25. Front row center. Beethoven, Barlok, Brahms. $5. ea. Ext. 2934 or 286-3742 eves/wkends.

COLONIAL SOFA - and chair, rust/beige plaid, good cond. $50; GE gas oven, works fine. $25. Bette, 589-8331.

KNOTTY PINE HUTCH — $250; cast iron stove, new $225; pine cobbler bench, $75. 744-6063.

BEE HIVES - (2) lively occupants & handling equipment. $175. delivered. Ext. 3400.

BABY CRIB - w/mattress, good cond. $50; twin mattress & boxspring, $25. Ext. 3469 or 281-4371.

TV - Zenith B&W 19", channel 4 needs adjustment; camera 126X, best offer. Ronald, 281-3149, Ext. 4987.

ZODIAC BOOTS - size 7m, never worn, 3" heel, russet. $5. Ext. 3482.

DINING ROOM SET - 6 chairs, leaf, china closet, reasonable, excel. Dom, Ext. 4851 or 732-6995.

TYPEWRITER - antique, Remington Model 10, manual, 1940's era, excel cond, works; French books & texts, 13 different. Dennis, Ext. 4259 or 736-2534 eves.

WOOD STOVE - 24" deep box stove, flue pipe & 5' chimney kit, all brand new. $225. Dave, Ext. 7517 or 288-3011.

SEWING MACHINE - portable w/case, attachments, $50; mixmaster w/bowl, $15. 929-4326.

BABY FORMULA - meat base formula for allergic infants, 2 cases, $7. ea. Ext. 4386 or 924-5495 after 6 p.m.

ADOPTION - 7 yr. old mixed Samoyed, loving, trained, loves to run. Nora, Ext. 5230.

ELECTRIC ORGAN - Baldwin Orgasonic, 2 keyboards, 20 yrs. old, good cond. $600. Usher, 289-7658.

8 TRACK DECK - push button am/fm, new, $75. 928-0281 after 6 p.m.

EVERGREEN - Fir and Spruce trees, U-dig, 20" to 40", 2 for $7; Organ, good cond. $20. 31½ wide x 32 high. 727-1617.

GOLDEN RETRIEVERS - AKC Ped. pups, M/F - Champion lines, reasonable. 399-4792.

QUEEN SIZE BED - almost new, boxspring mattress & stand, Chiropractor. $200. Ext. 3835 or 878-1135.

SPAULDING EXECUTIVE IRONS - complete set, like new. Ext. 3335.

EASTERN AIRLINES - half-fare coupons, valid several airlines, N.Y. — LAX or SFO. Best offer over $40. Andy, Ext. 4210.

PIANO - Antique Mahogany upright, excel. reconditioned inside and out. Very reasonable. Ext. 7667 or 751-4985.

POOL TABLE - 7' good cond, $125. Ralph, Ext. 2050 or 744-8921 eves.

SNOW BLOWER - Ariens 8 HP elect. start, excel. $275. Replacement cost, $1,100; Admiral 10 cu. ft. Freezer, 3 yr. old. $125. 924-6354.

TURNTABLE - Dual Model #1019 w/new Shure cartridge. As is $50. Alyce, Ext. 5203.

TODDLER'S CARRIER SEAT - for bicycle, $10; training wheels for child's bike, $3; Big wheel, like new, $15; (2) 15" rims, $25. Bill, 929-6442 after 6 p.m. or Ext. 3369.

DOG GROOMING - supplies & poodle grooming service; safety bed bars. Ext. 2050.

TAPE DECK - AKAI, reel/reel, 24 tapes, headphones demagnetizer, $200. Pete, Ext. 4678 or 289-7218.

DIAMOND RING - May be worn as insert or diamond band (14K-six diamonds) Orig. cost $350. asking $250. or best offer. Ext. 7187.

SOFA - excel cond, 96" brown velvet, $195. Flex. Suzanne, 878-4850.

CHARCOAL BARBEQUE GRILL - kettle type, 22", hardly used, $40. Nancy, Ext. 2497 or 281-2767 eves.

INFANT SEAT - for baby less than 20 lbs., GM, like new, $15; vacuum cleaner, used 4 months. $20; Baby stroller, orig. cost $45. used 6 months, $20. Ext. 7664.

EASTERN AIRLINES - half/fare coupon, N.Y. to L.A./S.F., best offer above $40; 8'x12' rug, off white, best offer above $50. Anand, Ext. 2117 or 928-5529 eves.

8" TABLE SAW - w/extra blades, $30; 6" Planer joiner, heavy duty, $50; B&S snow blower 4 HP, 2 yrs. old $50. Ext. 4306 or 924-5203 after 5 p.m.

CAMP TRAILER - hardtop 11½' long, only 2 MPG less when towing. $600. P. Fallon, Ext. 3043 or 878-2266.

REFRIG - GE 19 cu. ft. side by side, Avocado, perfect cond, 4 yrs. old, best offer. Ann, Ext. 4959.

POWER LAWN MOWER - Toro, needs self propel unit, $50. Brian, 289-4708 after 6:30 p.m.

FREE - Easter bunnies, 5 wks. old, B/W or all white, perfect for Easter giving. Debbie, 924-0156 or Ext. 3293.

PANTS - made in France, sz. 8/10, 100% never worn. Chris, Ext. 2907.

GARDEN AERATOR - $20; garden roller, $20. 744-5867 after 6 p.m.

ELECTRIC DRYER - Sears Kenmore, 1 yr. old, perfect cond. Was $325 new. Asking $175. Pete, Ext. 3516.

CONN THEATER ORGAN - excel, must see. Cost $2,200. Sell for $1,200. 588-6215.

MATTRESS - and box spring, full size, good to excel cond. $25. 475-6938.

BATHROOM SINK - good cond, $5. Walter, Ext. 3397 or 567-9025.

TV - Zenith 23" w/cart, color gun "soft". $75. or best offer; suitable TV games. Alyce, Ext. 5203.

EARLY AMERICAN REPRODUCTION - butter churn & table, good cond, pine wood, $40; custom woven wood window treatment, never used, 30" white w/touch of apricot, half price. $130. 265-5361.

UTILITY TRAILER - 4'x4'x8', $225. Tom, Ext. 2011 or 325-1033.

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

PT. JEFFERSON STATION - split level house w/garage, 8½% assumable mortg. $31,500. 928-7926 after 12 noon.

MEDFORD - 1/3 acre Cape, 4-5 bdrms, 2 bath, den w/fp, l/r, with coal stove, lg. eik, formal d/r, 18x36 in ground pool, assumable mortg. $43,900. Jack, Ext. 4254 or 289-6708.

BLUE POINT - 5 bdrms, 2 baths, handyman special, must sell to settle Bumstead estate. $35,000, Firm. Ext. 3482.

WESTHAMPTON AREA - mobile home 12'x60', 2 bdrms, eik, stove, refrig, washer/dryer, laundry rm, 2 tool sheds, porch, patio, wooded landscaped plot. $10,500. 698-2501 after 5 p.m.

For Rent

POCONO'S - Chalet in Priv. community. Swim, tennis, etc. By week in summer. 289-2159 after 6 p.m.

SAYVILLE - studio garden apt. suitable one, full kit, bath. $225/mo. incl. util. 585-4741.

E. MORICHES - nonsmoker to share spacious house near beach. $235/mo. + ½ util. Ext. 3449.

MIDDLE ISLAND - furnished room(s). 12 min. from Lab. A block from Spring Lake Golf Course, priv. entr. Includes: util, refrig, washer/dryer, cooking facilities can be arranged. 924-7972.

CORAM - sublet 1 bdrm apt. $315/mo. available May 1st. 698-2894 after 5 p.m.

BELLPORT VILLAGE - large furnished room in quiet neighborhood, some privileges, 15 min. from Lab. 286-8356.

BELLPORT VILLAGE - 4 bdrm, 1½ bath, l/r, f/r, eik, deck, single attached garage, hi-ranch. Walk to Kreamer St. Schools. $400/mo. (option to buy) Ext. 3502 or 286-8166 after 4 p.m.

BERKSHIRES CHALET - 3 hrs. from NYC; 3 bdrms, 2 baths, fully equipped kit, elect. heat, w/spectacular deck view, near lake, hiking trails, near ski areas, cross-country skiing on property, ½ hr. from Tanglewood Theater. 929-6946 after 6 p.m.

Wanted

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

SMALL BOAT TRAILER - need for parts and to repair mine. Bill S., Ext. 3848 or 698-3145.

HOME - for 2 yr old, b/w male cat, beautiful, friendly. Sue, Ext. 2050 or 475-5834.

BASEBALL MITT - must be slightly used, men's size only. Ext. 2514.

LUGGAGE CARRIER - moulded plastic for auto roof. Reasonable. Dennis, Ext. 4259 or 736-2534 eves.

OLD PANTY HOSE - for church bazaar. Ext. 3327.

TIRES - GE78-14, regular tires. Lee, Ext. 7629 or 929-3023.

PORT-A-CRIB - Jim, Ext. 2957 or 286-0796.

DRAFTING BOARD - w/stand. Walt, Ext. 7154.

TRAINS - Lionel American Flyer, any cond. Will pay good price. Carole, Ext. 3362 or 924-4097 eves.

UTILITY TRAILER - reasonably priced. 281-8274.

TWELVE STRING GUITAR - Alice, Ext. 2003.

HOUSE - 3 or 4 bdrm to rent, 1 yr beginning Sept. Visiting Scientist and family. Ext. 3786.

DRYCLEANING - need to have draperies drycleaned. Seeking inexpensive, but professional services. Tony, Ext. 3293, noons or after 5 p.m.

SAILING DINGHY - under 100 lbs. Pete, Ext. 4678 or 289-7218.

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

MC DONALD COUPONS - numbers 500, 514, 536. Negotiable on winnings. Jim, Ext. 3436.

FORD MUSTANG - 1971-73 front end nose body parts needed. Fred Kuehl, 282-4823, 588-2268.

SPANISH LANGUAGE BOOKS - any kind, for Peace Corps couple establishing library, rural Chile. J. Wall, Ext. 3372.

CAMPING EQUIPMENT - tent, sleeping bags, air mattresses, etc. Ext. 3106.

BOAT - aluminum 14-16 ft, wide beam, motor, galvanized trailer. Reasonable. Art, Ext. 4921 or 929-6177.

BUSINESS ASSOCIATES - excel income potential, no investment required, part time. Call for appt. 698-5861 after 7:30.

SIMPLE CASSETTE RECORDER - broken, or repairable. Reasonable, please. Bill S., Ext. 3848 or 698-3145.

Car Pools

CORAM - Brookwood Village, wish to be paying rider. Bill Frank, Ext. 4428 or 732-8216.

MASSAPEQUA/FARMINGDALE - or Points West, to leave from vicinity Exit 32 Southern State Pkwy. Plotkin, Ext. 4717.

RONKONKOMA - 1 driver to join existing car pool, near LIE exits Nos. 59, 60 and 61. Victor, Ext. 7154.

PATCHOGUE - on time, via So. Country Rd. Opening for paying rider. Alyce, Ext. 5203.

BELLPORT - to start or join car pool. Preferred hrs 8:45 to about 5:30 p.m. Ext. 2934 or 286-3742 eves/wkends.

Lost & Found

LOST - set of keys outside Bldg. 130. Chris, Ext. 3919.

Services

FIRESIDE CHIMNEY SWEEPS - fireplaces and stove chimneys. Protect against chimney fires. Insured. Lab discount. Bill, 584-6425.

TIRES - repairs, service. Lunchtime only. Fred Usack, Ext. 4798.

WELDING PORTABLE ARC - and gas trailer hitch and trailer repair specialist. Bob Geib, 878-4556.

LIMO SERVICE - for proms and weddings, luxury chauffeur driven. Ext. 4664 or 744-8779.

ROTOTILLING - $15/hr. Free pH test, garden planning and planting tips. Bob, 878-4556.

ROTOTILLING - new or existing gardens, lawns, $15/hr. Dave, Ext. 7517, 288-3011 eves.

CYLINDER HEAD - seats and valve grinding, Heli arc welding, plus much more. Pete, Ext. 3273.

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

PROFESSIONAL TYPING - 727-5475.

HOUSE SITTING - free any period May 20 to Sept 15. Enjoy vacation, peace of mind. Jack, Ext. 2412.

BABYSITTING - will babysit at my home wkdays, Shirley area. 281-9188.

WEDDING PHOTOGRAPHER - experienced. Reasonable. Rick, Ext. 2012 or 467-1090.

SAND BLASTING - trailer chassis any kind equipment w/wo primer coat. Reasonable rates. 744-3968 after 4 p.m.

HOUSE PAINTING interior/exterior, professional, quality materials, insured. Bob, 289-7657 after 6 p.m.

ROTOTILLING - garden, flower beds, new lawns, up to 1,000 sq ft. Only $23.50. Tom, Ext. 2011 or 325-1033.

ASPHALT PAVING - and sealing. Bob, 475-4382.

HAND CANE - fiber rush. Reasonable rates. Jim, Ext. 3307 or 821-1704 eves.

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