

CBA Gearing Up For Magnet Production

The first production CBA magnet will be ready for testing by October 1, three months after production begins. Though the process will speed up as the factory achieves its peak production rate, each magnet that goes through the CBA factory will duplicate the route and procedures shown here.

Bldg. 926 — CBA Warehouse

Bldg. 926 is dedicated to storage of thousands of parts machined by vendors, until they are needed in the production process.



Bldg. 935 — Trim Coil Assembly

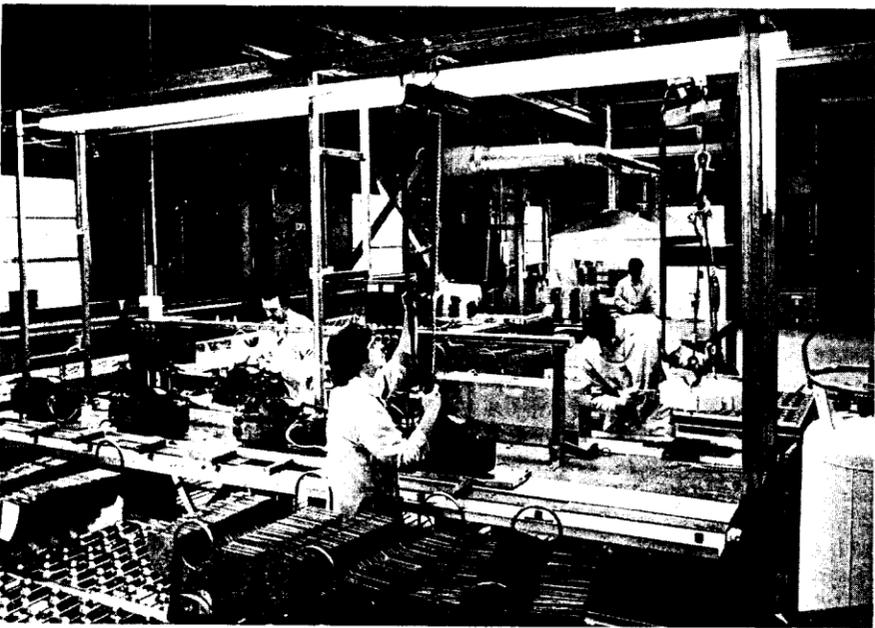
Trim coils are used to adjust the magnetic characteristics of each main coil and for fine tuning the accelerator. Presently housed in Bldg. 924, trim coil manufacture will move into Bldg. 935 later this year. There, trim coils will be wound, wrapped, cured and ground before shipment to 902/905, about 1-1/2 miles away.

Bldg. 924 — Main Coil Assembly

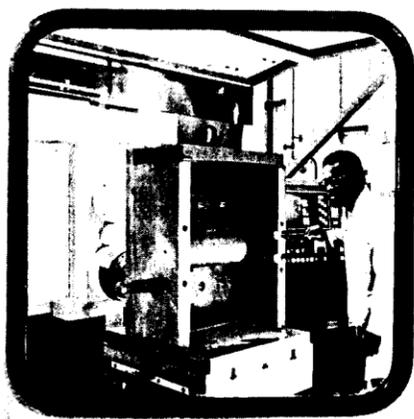
The main coils are wound from cable consisting of 23 strands of a superconducting material, niobium titanium embedded in copper. When very cold, this cable allows current to flow through the coil unimpeded. During operation, coils are energized to maintain a powerful magnetic field around the coursing protons. Two coils fit snugly around each 15-foot dipole magnet, while four coils surround the shorter quadrupoles. (Dipoles guide the protons around their 2.4 mile long circular orbit; quadrupoles keep them well-focused within the vacuum chamber.) Main coil assemblies for all magnets are made in this 15,000 square foot, recently-extended plant. Two manufacturing areas, one for dipoles and one for quadrupole coils, are separated by a central service area. The photo above shows CBA technicians winding a dipole coil. In other operations, coils are cured, sized and partially assembled, then stored in airlocks at either end of 924 for transport to 902/905.

Bldg. 902/905 — Magnet Assembly & Testing

This part of the CBA magnet factory was formed by joining two separate buildings, 902 and 905. Enclosing the area between the structures gave that much more room for magnet assembly and eased the transfer of assembled magnets to the testing area. Bldg. 902/905 has a total of 47,000 square feet, with six cranes to move the magnets from one area to another.



Main coils and trim coils are incorporated into the magnet assembly in the 905 part of the building, which also includes areas for yoke tube (cryostat) assembly, welding and production of module blocks. In the photo above, CBA technicians work with laminations in various stages of module block production, a highly automated process. After the module blocks are assembled and cured, they will be transported by conveyor to CBA's new numerically-controlled drilling machine (right), for the final manufacturing operation.



In 902, the CBA magnets first undergo electrical assembly and testing. Then they are leak checked and thermally insulated. Next, the cryostat assemblies are inserted in their vacuum vessels, final assembly steps are completed, and the magnets are delivered to the Magcool facility for final tests.

To CBA Tunnel

—photos by Rosen

Since July 1981, 36 superconducting magnets have been built for the Colliding Beam Accelerator (CBA) Project. In this sequence, ten magnets — the so-called field quality series — were made in an identical manner. A critical milestone required that eight out of these ten magnets pass all field quality requirements. This was achieved at the end of February, as reported in the Bulletin of March 4. That issue also reported that these latest prototypes passed a second crucial milestone, when a full cell of eight magnets was brought to full field at full ramp rate in the CBA tunnel.

It is now clear that the first phase of CBA magnet development is drawing to a close. The "CBA 1-in-1" cable magnets are ready to move from the prototype stage to initiation of production.

That's much easier to write than to do. The CBA Project calls for 1080 magnets for both of the intersecting storage rings, to guide and focus the protons within those rings so that they intersect at six points, in order to accomplish a wide range of exciting high energy physics experiments. Producing magnets at a rate sufficient to assure that all 1080 of them will be in place by the accelerator's expected start-up date of August 1988 requires foresight, planning, quality control and enormous effort.

Personnel in the CBA's Magnet Division have already begun to meet this challenge by building, in about a year and a half, a factory to rival the best in private industry. "What we have done is impressive," said Gene

Kelly, who is responsible for overseeing magnet production.

At peak production, eight magnets (six dipoles, two quadrupoles) will be manufactured each week in the 70,000 square feet designated for magnet production. The CBA's magnet factory takes in several buildings. Bldg. 935, where magnet trim coils will be made, and 924, where main coils will be assembled, are situated about 1-1/2 miles from 902/905, where magnets will be put together and tested.

All of these buildings have been redesigned and renovated to suit production needs. "We have successfully completed the prototype phase now, and we're directing our attention to finishing up the various areas, equipping them with machinery, tools, benches, cabinets and utilities so we can go into serious production on the final design by October 1 of this year," said Bill McGahern, who is coordinating these efforts.

Much of the machinery being installed is computerized and highly automated. Automation will minimize the requirements for additional personnel when the factory is fully operational. It will also help achieve the consistency and speed necessary to build eight magnets a week. The present plan, said Kelly, is to start production in July and build up to the peak rate by July 1985, producing 80 magnets through FY'84.

By demonstrating that this could be done, the CBA Project fulfilled the last of three major requirements established by the DOE for comple-

(Continued on page 2)

Berg To Give AUI Lecture

Nobel laureate Paul Berg will speak at Brookhaven on Thursday, April 28, at 8:30 p.m. in Berkner Hall. Berg was awarded the 1980 Nobel Prize for Chemistry for his work in constructing the first recombinant-DNA molecule and applying the technique to the study of a viral chromosome. His pioneering work has resulted in the development of a new technology, often called genetic engineering.

In the 26th AUI Distinguished Lecture, Berg will speak on "The Expression of Transduced Genes in Mammalian Cells."

About ten years ago, working at Stanford University, Berg and his colleagues began applying what is known about gene expression in bacteria to the study of gene expression in higher organisms. Berg had the idea of using SV40, an animal tumor virus, to introduce genes into mammalian cells. In 1971, he, David Jackson and Robert Symons opened the SV40 DNA molecule with a restriction enzyme. Then they spliced the SV40 DNA to the DNA of bacterial virus λ . This was the first time that DNAs from two different species were joined.

Most recently, Berg and others have engaged in the construction of new vectors for mammalian cells and used these vectors to study the structure and organization of SV40 genes.

Paul Berg is professor of biochemistry at the Stanford University School of Medicine, where he has been since 1959. He was chairman of the Department of Biochemistry from 1969-74, and in 1970, he was named Sam, Lulu and Jack Willson Professor of Biochemistry. Since 1973, he has been a Non-Resident Fellow of the Salk Institute in San Diego.



Paul Berg

During his distinguished career as a molecular biologist, the Nobel laureate has garnered numerous awards, including the V.D. Mattia Prize of the Roche Institute for Molecular Biology, 1972; Honorary D.Sc. from both Yale University and the University of Rochester, 1978; the Albert Lasker Medical Research Award, 1981; and the American Association for the Advancement of Science Scientific Freedom and Responsibility Award, 1982. Berg has been on advisory boards to the National Institutes of Health, the American Cancer Society and the National Science Foundation. He has lectured extensively.

The AUI Distinguished Lecture Series brings to the BNL community internationally known individuals speaking on a variety of subjects. All of the AUI Lectures are free, and are open to the public as well as to BNL employees.



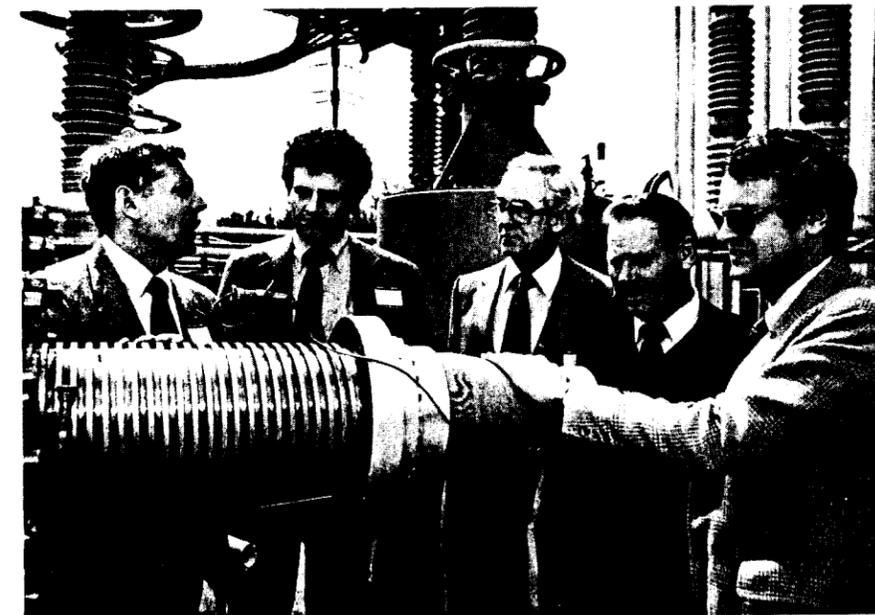
Alex Reben

To honor the memory of their colleague, Morris L. Perlman, the Chemistry Department staff hosted an all-day symposium on Friday, April 8 in Berkner Hall. Perlman was a member of the Chemistry Department from 1949 until his death last June. During his career, he made important contributions to the fields of nuclear chemistry and photoelectron spectroscopy, and was instrumental in the planning and design of the National Synchrotron Light Source. Speakers at the Perlman Symposium, who discussed the several areas of research in which Perlman was involved, included (from left) Guy Emery, Indiana University; Gerhart Friedlander, BNL; Richard Watson, BNL; Samuel Weissman, Washington University; Kai Siegbahn, University of Uppsala; and Lee Grodzins, MIT. Martin Blume, BNL, and Peter Eisenberger, Exxon Research and Engineering Company, also addressed the symposium.



Peter Horton

John McTague (right), chairman of the National Synchrotron Light Source, talks with Aaron D. Edmondson (left), Staff Assistant to the House Appropriations Committee, and to J. Ronald Young, Director of Management, Office of Energy Research, DOE. The visitors were accompanied on their day-long tour of the Lab's principal facilities last week by Associate Director Vincent O'Leary (second from right).



Mort Rosen

Representatives from electric utilities, cable manufacturing companies and research laboratories were at Brookhaven April 5-8 for a workshop on advanced underground power delivery. From left, BNL's Eric Forsyth describes the Lab's power transmission project to Dan Allen, Con Edison; James Nicol, A.D. Little, Inc.; Steve Kosak, Electric Power Research Institute; and Russell Eaton, Division of Electrical Energy Systems, DOE.

Equipment Demo

A representative from IBM will be at the Lab on Wednesday, April 20 to demonstrate the new IBM Electronic 85 typewriter. This typewriter has a 15,500 character storage capacity and an electronic document revision capability. The demonstration will be held in Room D, Berkner Hall, from 9 a.m. until 3 p.m.

MICOM Meeting

The next meeting of the MICOM Users' Group will be on Wednesday, April 20 at 3 p.m. in Conference Room 2-160, Bldg. 510A (Physics). Eileen Riehl, MICOM representative, will explain the Sort program (locate, glossary) and mode locate, define and replace. For details, call Ellen Citrolo, Ext. 4486, or Nancy White, Ext. 3793.

A Clinical Look At Computers

Many employees have received computer-generated memoranda from the Clinic, and others who have visited the Clinic recently have noticed the office personnel and nurses using computers for some of their work. At the Clinic, computers can solve many administrative problems, for example:

- replacing the outdated index card system used to administer the various employee health screenings
- facilitating the implementation of complex regulations.
- enabling a general surveillance of the work force for more rapid recognition of trends in accidents, disease and disability.
- scheduling visits and notifying employees.

Commercially available data base systems that can do these things are expensive and often require extensive modification. So about two years ago, Art Harris, Carole Saurino and Elizabeth Symonds of Applied Math began translating the Clinic's needs into a flexible system, which they developed from scratch. Medical's Dave McChesney, Howard Pate and Claudia Diere were in charge of the actual implementation.

Implementing the system will take some time. "Many employees who have had work-related health screening in the past have asked if it was discontinued," said Laura Sbarra, head of Occupational Medicine. "These programs are continuing, but have taken time to computerize. In other

cases, employees have been called several times for different tests, rather than once for a single visit. These problems are being corrected.

"Interactive systems such as this often go through a painful implementation period and ours has been no exception," Sbarra continued. "When fully implemented, however, the system will have surpassed in value anything we could ever have purchased, since it is tailored to meet the specific needs of the Laboratory employee health program."

For now, the only contact most employees have with the computer is the notice of their physical examination. But in the future, employees will sit down at the Clinic's terminals to record their health histories. A similar method has been standard operating procedure at Los Alamos National Laboratory for several years.

"Extensive consideration was given to the confidentiality of the employee medical records," said Sbarra. "Actually little of the record is in the computer and access to the data base is strictly limited. Visits are logged for recording purposes and accident statistics, and major medical diagnoses will be recorded to monitor general trends. The medical file, however, is still our primary source of information, and nothing has changed in the way of securing this record."

For more information about computerization of the employee health system, call Dr. Sbarra, Ext. 3665.

Patents Awarded

Matesh N. Varma and John W. Baum, Safety and Environmental Protection Division, were recently awarded U.S. Patent #4,357,536 for inventing a new and improved apparatus and method for precisely monitoring the intensities of a wide range of charged particle beams — including ions, electrons, protons and alpha particles — over a wide range of beam energies. The invention can be used in a variety of experimental applications, including electron microscopy, x-ray technology, Auger electron spectroscopy, electron spectroscopy as used for chemical analyses, charged particle beam sputtering, secondary ion mass spectroscopy, ion scattering spectroscopy and radiation therapy.

U.S. Patent #4,361,670 was issued to Toshifumi Sugama and Lawrence E. Kukacka, DEE, and to William H. Horn, a former BNL employee, for inventing quick setting polymer concrete compositions which can be used to runways, bridges and highways. The concretes have compressive strength in excess of 2,000 psi within one hour after mixing furfuryl alcohol monomer, about 1-10% trichlorotoluene initiator and about 20-80% zinc chloride promoter by weight of the monomer with wet or frozen aggregate containing 0-8% water. Furfuryl alcohol monomer is produced commercially by the catalytic hydrogenation of furfural, which is produced from agricultural wastes such as corn cobs, oat hull, etc.

Philip D. Metz, DEE, was awarded U.S. Patent #4,361,135 for inventing an improved means for ground storage of collected solar heat energy in spaced storage areas. A temperature high heat energy transfer means which may also function as a low temperature heat sink. Metz's invention takes advantage of the fact that when heated energy is stored in the ground at relatively high temperatures, such energy gradually radiates outward and is stored at predictable temperature gradients in the ground surrounding the central heat sink.

During the summer and fall, when solar energy is at its maximum, collected heat energy may be stored, for example, in the central storage area or high temperature heat sink.

CBA Magnets

(Cont'd)

tion by the annual review, held earlier this week.

To get to this point required "phenomenal dedication," said Kelly, who credited personnel in Central Shops, Physics and DEE staff shops, Plant Engineering and the Accelerator Department for "accomplishing an impressive amount of work in such a short time. It could not have been done without the cooperation we've received from all over the Lab. We're now using about 50% of Central Shops' manpower. In order for us to get that kind of time, a lot of other departments had to give up some of theirs, but they're sacrificing to help us along."

At the center of it all, of course, are the approximately 100 people in the Magnet Division. "Without their willingness to work hard and to pitch in wherever needed, we couldn't have done it," Kelly said.

"This spirit has characterized the style of the Magnet Division, headed by Bob Palmer, Ralph Shutt, Carl Goodzeit and Bill Walker, and backed up by Art Greene, Eric Willen, Peter Wanderer and many others," said Paul Reardon, Associate Director for High Energy Facilities. "Their work and that of all the CBA personnel have significantly strengthened the CBA case presented this week to the DOE review team."

Lecture Reminder

Ralph Fairchild, Medical Department, will discuss "Cancer Radiotherapy: In Pursuit of a Magic Bullet" in the 199th Brookhaven Lecture. He will speak at 4:30 p.m. on Wednesday, April 20 in Berkner Hall.

BROOKHAVEN BULLETIN

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Loan Rates Down

Effective April 12, interest on new car loans has been reduced at the Upton Branch of Barclays Bank. Borrowers will now pay interest of 10.9% on new car loans which can be paid back in from 12 to 60 months. These rates will remain in effect until further notice.

Only customers of Barclays Upton Branch are eligible to apply for the loans. Employees who do not have accounts may become eligible by opening a savings or checking account, and depositing \$100 which will remain in the account for the life of the loan.

Camera Club

The BNL Camera Club has established the fourth Thursday of each month as its regular meeting night. Meetings will start at 5:30 p.m. in the Recreation Building. On April 28, Ray Abbott will demonstrate the developing of color negatives. All meetings are also open to non-members.

Quilting Club

The BERA Quilting Club will hold an evening workshop on Tuesday, April 19 at 7 p.m. in the lounge of the Recreation Building. Participants will learn how to strip-cut and machine-piece the traditional "log cabin" quilt blocks. Bring your sewing supplies and small amounts (1/4 yard or less) of any woven fabric to make practice squares. If you own a portable sewing machine, please bring it with you. For more information, call Bernie Benz, 928-1068.

Adult Swim Lessons

A course of swimming lessons, open to all employees (and other on-site workers) and their adult dependents, will be given at the pool starting Wednesday, April 27 at 5:15 p.m. The course will consist of one lesson each week on eight consecutive Wednesdays.

Registrations are being accepted at the pool during open hours through Wednesday, April 20. A fee of \$15 (checks payable to BERA) will be due at the time of registration.

Bowling

White League

High games were bowled by J. Roesler 224, K. Asselta 213/212, T. Natoli 208, G. Fales 207, J. Petro 206, J. Ferrante 199, P. Stone 191, K. Conkling 180, E. Liguori 178, K. Griffin 177, S. Long 176. The Old Timers are still in first by one point, followed by Clearwater.

Red/Green League

R. Wiseman had games of 213/210/246 for a 669 scratch series, J. Petro 222/203/607 scratch, K. Asselta 237, E. Sperry 226, K. Riker 221, D. Jesaitis 218, J. Medaris 208, E. Meier, R. Larsen, J. Morris, J. Connelly all 203, W. Kristiansen 202, R. Jones 201.

Pink League

High games were bowled by M-G Meier 195/171, R. Rosati 186, D. Johnson 174, J. Thiede 169, S. Moore 163, H. Keeley 162.

Garden Plots

Spring has arrived and it's time to begin gardening! Ten-foot square plots have been set aside for on-site residents who wish to grow their own flowers and vegetables. Gardening equipment is also available. To secure a plot, contact Helene Moudden, Ext. 3104, Apt. 8C.

BNL Singles Club

A wine and cheese "get acquainted" party will be held on Friday, April 22 at 5:30 p.m. in the Recreation Building. BYOW and cheese. If you haven't joined us yet, come taste the wine and say cheese. For further information, call Chuck Watson, Ext. 5317.

Arrivals & Departures

Arrivals

None

Departures

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

Albert H. Beaufriere Energy & Env.
Shu F. Chan Nuclear Energy
Bernadette Christian Nuclear Energy
Craig J. Erick Accelerator
George M. Gammel Accelerator
Homayoun T. Ghaffari Energy & Env.
William L. Graves Energy & Env.
Robert J. Hoppe Energy & Env.
Dorothy Meehan Tech. Info.
Christine M. Moore Nuclear Energy

Cafeteria Menu

Week Ending April 22, 1983

Monday, April 18

Cream of chicken soup (cup) .65
(bowl) .75
Turkey chow mein on white rice 1.85

Beef livers w/onions & bacon w/1 veg. 1.80
Hot Deli - Veal pattie & pepper hero 1.95

Tuesday, April 19

Pork and cabbage soup (cup) .65
(bowl) .75
Spaghetti and meatballs 1.95
Beef burgundy on white rice 1.95
Hot Deli - Pastrami Reuben 1.90

Wednesday, April 20

Turkey rice soup (cup) .65
(bowl) .75
Meatcakes & onions w/1 veg. 1.80
1/2 baked chicken w/1 veg. 2.75
or
1/4 baked chicken w/1 veg. 1.85
Hot Deli - BBQ fresh ham (bread) 1.85
(roll) 1.95

Thursday, April 21

Corn chowder (cup) .65
(bowl) .75
Roast turkey w/stuffing & giblet gravy 1.90
Macaroni & cheese & 1 veg. 1.85
Hot Deli - Smoked tongue (bread) 2.35
(roll) 2.45

Friday, April 22

Manhattan clam chowder (cup) .65
(bowl) .75
Ham & broccoli crepes & 1 veg. 1.85
Braised Swiss steak w/onions & mushrooms & 1 veg. 2.10
Hot Deli - Breaded fish fillet hero 1.95

Garden Sites

The success or failure of raising vegetables can depend on the location of the garden. To determine the best site, the Cooperative Extension Association of Suffolk County offers some suggestions.

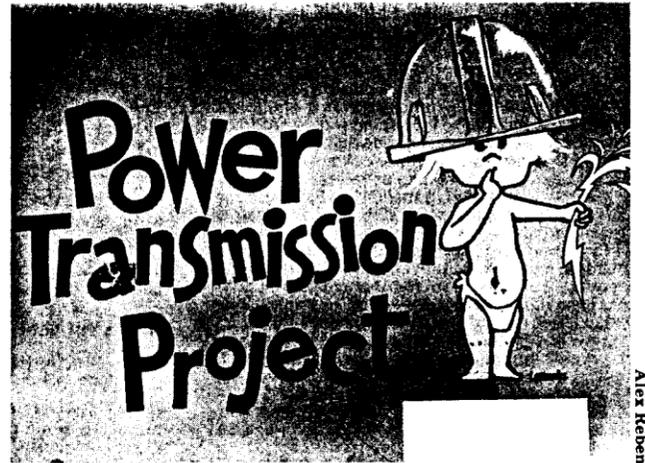
Position the garden away from buildings, hedges, trees and overhanging branches - anything that could keep the plants from getting sufficient sunlight. Vegetables bearing fruit need at least six hours of sun each day; leafy crops can get by with as little as four hours.

Locate the garden near the house where it will be convenient to water and check daily for insects, diseases and other problems. It will also be more accessible at harvest time.

On The Lighter Side



Roger Stoutenburgh



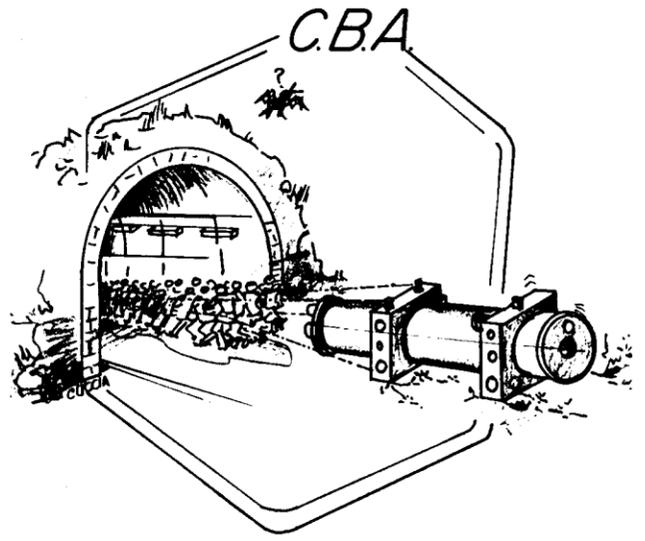
Alex Reben

Adam Leskowitz with the cart he decorated for the Power Transmission Project.

MAGNET INSTALLATION



Roger Stoutenburgh



Joe Cuccia and one of his CBA cartoons.

Joe Cuccia and Adam Leskowitz have a lot in common. Both men now work in the Accelerator Department but began their professional lives as Manhattan-based artists. In the course of his BNL employment, each man has called upon his artistic abilities to illustrate his area's projects. Cuccia's drawings of CBA magnets and Leskowitz's design for the Power Transmission Project are light-hearted representations of each project.

Cuccia is a design engineer for the CBA project. Following initial training and experience as an artist, Cuccia studied engineering, because, he said, "I realized I wanted to be in science." When he came to BNL 26 years ago, he was in the thick of it, helping to design the AGS.

Currently, Cuccia is involved in the design and assembly of CBA magnets. On occasion, however, he trades his designer hat for a cartoonist's cap to illustrate successes scored by those magnets. The example here was

sketched last October, when the first magnet was installed in the CBA tunnel, and shows how everyone pulled together to do it.

While Cuccia decided early on that the life of a New York artist was not for him, Leskowitz worked there as an art director for 11 years. But seven years ago, when the hours and the commute became too much, he stopped. "I wanted to be closer to home," he said. Ultimately Leskowitz came to BNL as a job shopper in the Power Transmission Project. While there he noticed the big, empty yellow area on the front of the electric golf cart used to scoot around the area. "I knew something had to go there to represent this 'infant' project." Leskowitz epitomized this brand-new concept in power transmission with the diapered baby, holding the lightning bolt, pictured here. Since then, Leskowitz has become a permanent Lab employee, sharing his services as a senior mechanical technician with CBA and AGS.

Volleyball

Results as of 4/11/83
Mixed League

A Division

Congratulations to Dinkers Don and Sandi Litcher, Dennis Weygand, Jeanne Danko, Adrienne and John Usher, Bert and Annette Meier, as winners of the first half after taking two games in a row from the Teddybears with scores of 15-4, 15-11.

The Dinkers and the Mixed Ups will play off for winner of the second half on 4/18 at 5:30 p.m.

B Division

TNT will play the Phoubars on 4/18 at 5:30 to decide the winners of the first half.

Open League

Congratulations to Phoenix team members Sandra and Don Litcher, Bob Milner, Bob Casey, Dennis Weygand, John Usher, Jim Rowehl, Randy Johnson, Mile Losquadro for their overall win in the Open League this season.

Special NYC Trip

In addition to the regular Wednesday LIRR trips to New York City, the Hospitality Committee will sponsor a group trip to the city on Saturday, April 30. Departure will be at 8:31 a.m. from the Patchogue LIRR station. Round-trip fare for adults is \$3.50, children under five years ride free.

Reserve a ticket by sending your fare through the U.S. mail to BNL Hospitality Committee, P.O. Box 322, Upton, New York 11973. Please do not send cash. Checks or money orders, payable to BNL, must be received no later than Monday, April 25. Put the date of the trip, your telephone number, and your BNL life number on the check. Reservations will be accepted on a first-come, first-served basis. Your tickets will be given to you on the train.

Classified Advertisements

Placement Notices

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

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

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

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

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

LABORATORY RECRUITMENT: Opportunity for present Laboratory employees.

1849. SECRETARIAL/ADMINISTRATIVE POSITION - Requires extensive knowledge of Laboratory procedures and the ability to perform diverse administrative and technical secretarial duties, including maintaining records for all high energy physics experiments utilizing a computer for distribution of information; assisting in the production and editing of high energy physics newsletters, and handling distribution of same. Will coordinate conferences, make domestic and foreign travel arrangements, and handle consultant appointments. The ability to function independently and direct the work of others is required. Director's Office.

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

1850. PATENT ATTORNEY - Requires undergraduate degree in a technical field, preferably electrical or nuclear engineering and a minimum of two years' experience in patent prosecution. Activities will include review of technical publications for patent potential, preparation of patent disclosures, preparation and prosecution of patent applications, and participation in the Laboratory's technology transfer program. Director's Office.

Autos & Auto Supplies

VW PARTS - muffler assemblies, \$28; bumpers, \$27; repair manuals, \$16; 009 distributor, \$36; all brand new. Augie, Ext. 2419 or 289-4211 eves.

72 HONDA MOTORCYCLE FRAME -750cc, custom rigid frame w/fender and seats, oil tank, many extra parts. 654-2076 eves.

80 HONDA HAWK - CB400T, excel. cond., low mi., extras, \$995. 286-8814 after 5:30 p.m.

81 PONTIAC T-1000 - white w/blue pinstripe, a/c, 4 spd., 4 cyl., w/w rad., 15,000 mi., still under warranty, tinted windows, asking \$4,500 negotiable. Ext. 2964 or 588-1464.

78 BUICK CENTURY - unique 2-tone, 4 dr., 6 cyl., new tires & brakes, low mi., stereo/CB, p/b, p/s, pinstripes, showroom cond., \$4,600 negotiable. 751-6418.

80 KAWASAKI - 650, LTD, red, crash bars, helmet, excel., \$1,850. Bob Johnson, Ext. 3354.

79 DATSUN - 280ZX, 5 spd., a/c, p/b, p/w, cruise control, sunroof, mags, blue and silver, \$8,000. Fred, Ext. 3354 or 744-2655.

76 FIAT - 131S, 2 dr., a/c, 5 spd., 26 mpg, am/fm, asking \$1,300. Ext. 2521 or 928-8379 eves.

79 HONDA HAWK MOTORCYCLE - almost new, asking, \$650. 588-0805, eves. or weekends.

73 DUSTER - 6 cyl., a/c, p/s, very reliable, some rust, high mileage, \$750. Ext. 4948 or 924-6104.

RIMS - 1 pr., 15" Volvo, \$30. Bill, 929-6442.

78 MERCURY BOBCAT - (like Pinto), must sell, best offer. Lavina, Ext. 2905, Mon.-Wed. or 435-8650.

66 EL CAMINO - 283-2 BBL, 4 spd., original, needs shifter, body and interior fair, \$450. Bill, Ext. 4434 or 399-6168.

RIMS - (4) white spoke, 8x15, 6 lug, chrome center ext., \$100. Lou, Ext. 4540 or 732-6634.

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

76 BLAZER - V8, auto., Cheyenne, p/s, p/b, am/fm, 63K mi., clean, very good, \$4,800. Ext. 2177 or 298-4985.

75 TOYOTA COROLLA - new paint & radials, am/fm, auto. 878-2233 after 6 p.m.

80 MAZDA RX7 - charcoal grey, tape deck, alum. wheels, excel. cond., must sell. Ken, Ext. 2008 or 928-5875 eves.

72 PONTIAC GRANDVILLE - convertible, rebuilt transmission, all power, clean, 60,000 mi., needs engine, best offer. 399-2802.

77 BMW - 530i, 55,000 mi., air, sunroof, stereo, bronze w/tan leather, 6 cyl., OHC., excel. cond. Peter, Ext. 3867.

72 DODGE POLARA - excel. in/out, well maintained, \$700. 924-3281.

TIRES - snow, H-78-15, new, never used, 2 for \$70. Tom, Ext. 3703.

67 COUGAR - 289 cu. in., a/t, a/c, p/s, p/b, clean in & out, \$1,000. Al, Ext. 5128.

73 CHEVY VEGA - runs well, good tires, \$750. Ext. 3596 or 821-1039.

75 TOYOTA CORONA - engine & interior good, new muffler, needs front pipe, \$1,000. Pat, Ext. 4602.

77 HONDA MOTORCYCLE - 550K, 4 cyl., plexi-fairing, cruise control, sissy bar & luggage rack, must see, \$1,000. Ken, Ext. 5042.

78 HONDA TWINSTAR - 185cc, windshield, cruise control, sissy bar & luggage rack, only 7,400 mi., mint cond., \$700. Ken, Ext. 5042.

73 TOYOTA - a/t, new brakes, valve job, good tires, new paint, rebuilt carb., \$1,200. 744-4386.

73 CADILLAC - Sedan deVille, 65,000 orig. miles, excel. cond., \$2,300. R. Lane, Ext. 2575 or 653-5555.

72 VW BUG - rebuilt engine, new brakes, new battery, good body, yellow, asking \$1,500. Harriet, Ext. 4853 or 473-4948.

PICK-UP CAMPER - 11-1/2 ft., heater, refrig., hot water, shower, sleeps 4-6. Ext. 3278 or 281-6365 after 6 p.m.

72 PINTO - a/t, new carb., decent tires & brakes, am/fm, high miles, dependable, driver's door damaged, extra trans., radiator & windshield, \$250. Ext. 4456 or 281-0360.

73 OLDS DELTA 88 - a/t, p/b, p/s, am/fm stereo, good tech. cond., \$600. Wolfgang, Ext. 3798.

70 PLYMOUTH SATELLITE - 2 dr., hard top, runs but needs work, good for parts, \$125. June, Ext. 7631 or 878-2040 after 6 p.m.

75 CHEVY CAMARO - 6 cyl., am/fm Pioneer stereo, blue & silver, cragars, good cond., needs right fender, \$1,500. Ext. 2907.

79 GRAND PRIX - 43,000 mi., V8, sunroof, black w/beige int., all power, must sell. Sheree, Ext. 2907 or 727-3167 after 5:30 p.m.

RIMS - (2), Ford, 15 in., 5 hole, \$ ea. Ext. 2952.

Boats & Marine Supplies

17' CARAVELLE - 55 HP, new navy top, trailer good cond., \$2,100. Barry, 399-0126, after 6 p.m.

BOAT TRAILER - 19'-21' Shoreline, galvanized E-Z Roller, 2,300 lbs. capacity, needs minor work, \$550. Lou, Ext. 4540 or 732-6634.

14' BLUEJAY SAILBOAT - fiberglass over wood, old, asking \$500, make offer. Ken, Ext. 7959 or 581-1169 eves.

17' COBIA - 85 HP, Johnson, trailer, life jackets, anchors, navy top, gas tanks, like new, \$3,000. Jim, Ext. 7772.

20' OWENS WOOD BOAT - w/cabin, 1959; 1973 Chrysler, 105 HP, new power pack, tune-up, winterized, runs perfect, \$950 for both. Linda, Ext. 2733.

Yard Sale

BELLPORT - April 16-17, 9:00 a.m.-4 p.m., Fuoco St., contents of older home. 286-3446.

MOVING SALE - everything must go, furniture, appliances, kerosene heater, stereos, books, household items and much more, many items free. No reasonable offer refused. 928-3650.

WADING RIVER - April 16, 9-4, wood toys and much more. High View Dr. 929-4603.

LAWN SALE - antiques, etc., April 16-17, 23-24, 9-5 p.m., 116 South St., Port Jeff. Village.

Miscellaneous

CANOPY FRAME - white, good cond., \$50. Ext. 2964.

MOUTON LAMB JACKET - brown, good cond., fits sz. 14-16. 475-0144 after 6 p.m.

MULTIVOX - MX2000 synthesizer, excel. cond., \$400. 363-2614 after 6 p.m.

MAPLE HUTCH - 4 drawers, 2 doors, 48"W x 66"H, \$150, negotiable. 473-4043 after 4:00 p.m.

ELECTRIC OVEN - Farberware Turbo oven, counter top, like new, \$40. 733-2059.

TYPEWRITERS - IBM elec., \$105; Royal Office Standard, \$35; bowling ball, \$9. 363-7032.

BAMBOO STAKES - cut 'em yourself, reasonable; hot air space heater, \$20. Ext. 3688 or 363-7032.

TAPES - BASF Pro II blank cassettes, CrO₂, C-90, \$2.75 ea. Ext. 2521.

TANDEM BICYCLE - for two, Columbia, red/white, good cond., fully equipped with lights, horn, baskets. Ext. 2459.

TYPEWRITER - Sears portable, \$20; guitar, brand new, \$50; Magnavox color TV, needs tube, \$100; girl's ice skates and roller skates. Ext. 7009.

DARKROOM - B/W complete; pool table; electric fireplace; tent; sectional sofa; foam sailboat. 581-9326.

COLOR TV - Curtis Mathes 25" console, needs picture tube, asking \$25. 281-0360 after 6 p.m.

RIDE ON LAWNMOWER - 5 HP, 5 spd., Snapper w/back bagger, electric start, excel. cond. Joann, Ext. 4120.

METOPERA - 1983-84, balcony, \$20 ea., Boheme, Jan. 6, M. Lescaut, Mar. 23., plus advance ordering for fall. Dave, Ext. 2694.

COLOR TV - 14" RCA, works well, \$75; 2M FM xcur. Gladding 25, w/preamp, PL, XTALS for 6 chan. Alan, Ext. 2928 or 821-1389.

DENIM JACKET - w/picture of Jim Morrison painted on back. Rose, 744-5069.

KITCHEN SET - white wrought iron, 48" table w/4 chairs, good cond. Witkover, Ext. 4607 or 368-0452.

SCOTT SPREADER - good cond., \$20. 472-1397.

R/C KRAFT SPORTSERIES - 4 servos, charger, 3 planes, motor, extras, \$325. Ext. 7187 or 981-9474.

SECTIONAL SOFA - 3 pc., green brocade, good cond., \$150 neg. 588-6333.

MET TICKETS - (2), April 15, Il Travatore, orchestra, \$32.50 ea. 924-0423 after 6 p.m.

ORGAN - Thomas, 2 keyboard, Californian Model #263, rhythm section, excel. cond., \$1,500. 472-1394 after 6 p.m.

CHINA CLOSET - walnut, 40 yrs. old, good, sturdy, 36"W x 65"H, \$65; fir and spruce trees, you dig, 2 for \$7. 878-6637.

FISH TANK - 55 gal., includes stand, hood, pump, filter, gravel, \$95. Ext. 7187 or 981-9474.

VEGETABLE PLANTS - 6/pack flowers; 4/pack plants, delivery around May 1. 727-6818.

VACUUM CLEANER - Hoover Convertible, 1 yr. old, \$45; steam & dry iron, \$5; ladies bike, \$130 or best offer. 924-4250.

LIQUIDATION - of TV business, tubes, tools, & many parts, all below wholesale. 732-6647.

ORGAN - Wurlitzer, double keyboard, Bell & Howell solid state recorder, built in. 821-0080 after 5 p.m.

DRUM SET - Gretsch, complete with Zildjian cymbals, stool, etc., excel. cond. Tom, Ext. 3703.

COFFEE TABLE - 60" oval dinette; Stratford queen sofa bed; 14 vol. medical encyclopedia; stereo light box. Ext. 3565 or 929-6964.

SWEET POTATO PLANTS - (yams) \$ per 100, no orders after May 1. Ext. 3679 or 727-3869 after 6 p.m.

GRAY FOX - mounted in natural pose on log, \$125 firm. Bob, Ext. 3354.

DEHUMIDIFIER - Sears, 1 yr. old, new \$230, asking \$160. Ext. 4551 or 281-3093.

GUITAR - 6 steel string, excel. cond., \$65. Nick, Ext. 4701 or 567-5174.

CAR STEREO AMPLIFIER - Concord HPA-40, 18 watts/channel, 0.3% THD, 4 ohms., \$50. Jay, Ext. 4994.

DRESS FORM - adj., excel., \$25; Clairol Kindness compact elec. hairsetter w/20 rollers, excel., \$15; Rotary meat slicer, \$15. Tom, Ext. 4084 or 878-1060.

FENCE - 4' x 150', plus metal poles, 1 yr. old, \$75; b/w TV, \$15. Ursula, Ext. 4389 or 331-4596.

POOL TABLE - AMF Grand Prix, slate top, excel. cond., all accessories, \$1,200; Admiral upright freezer, 10 cu. ft., excel. cond., \$140; men's bowling ball, 15 or 16 lbs., \$15. Linda, Ext. 2733.

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

RIDGE - (3) one acre wooded building plots, ea. 100' x 400', quiet residential area, \$13,900 ea. 924-3236.

SHOREHAM - north 25A, 4 b/r, colonial, full wall brick fireplace, 2-1/2 baths, carpeting, appliances, 2 car garage, 3/4 acre. 821-0080 after 5 p.m.

BLUE POINT - 1 acre, cul-de-sac, \$15,000. Ext. 3688 or 363-7032.

MIDDLE ISLAND - 3 bdrm. Townhouse, 1 bath, 5 min. to Lab, central a/c, 5 appliances, new w/w carpet, woodstove, loft den, skylights, cathedral ceiling, prime location, wonderful for family w/children, \$47,900. Ext. 5284 or 924 4237.

BLUE POINT - older house in quiet neighborhood, 3 bdrms., d/r, 1 car garage & attic, \$56,000. 363-2049 after 6 p.m.

EAST MORICHES - Newport Beach, 3 bdrms., 2-1/2 baths, 2-car garage, fireplace, fenced backyard, 2-zone heating, 1/2 acre, private beach rights, docking space & launching ramp avail., \$70,000. Ext. 2733 or 878-8491.

SHIRLEY - mother/daughter house, upstairs - 6 rms. & lrg. bathroom, fireplace, downstairs - 3-1/2 rms. including full kitchen, garage, 1/4 acre, fenced all around, income potential, \$50,000. 281-2257 anytime.

MASTIC - 3 bdrms., 1-1/2 garage, eik, d/r, full basement, 1/4 acre, oil hot water, low 40's. 281-1250.

For Rent

STONY BROOK - 2-3 bdrms., l/r, d/r, eik, full basement, f/p, walk to Stony Brook, asking \$700. 751-2835 after 6 p.m.

SHAWNEE VILLA - vacation resort in the Pocomo's, full accommodations for 6-8 people, week starting 6/4-6/11, \$500. Charlotte, 348-2856 or 732-5539 after 5 p.m.

N. SHIRLEY - 1 bdrm., large kitchen, l/r, private entrance, modern/carpeted, excel. location, avail. May 1, references, 2 mos. sec., unfurnished, 375, furnished, \$415 plus util. Kathy, 281-5605 6-8 p.m.

PORT JEFF. - 1 bdrm. apt., partly furnished, quiet residential area, near village, \$475/mo. includes all util. 473-8470 or 928-3421.

EAST MORICHES - share 3 bdrm. house, female, no children, no pets, use of washer/dryer, all util. included except telephone, rent until sold (approx. 6-8 mo.), \$75 per week. Linda, Ext. 2733.

VERMONT CHALET - new, beautiful, stone fireplace, on large pond, trails, swimming, nearby lake, fish, canoe, antiquing, theatre, music festivals, tennis, golfing, horseback riding, rent weekly. 757-5599 after 4 p.m.

BERKSHIRES CHALET - 3 hrs. from NYC, 3 bdrms., 2 baths, fully equipped kitchen, electric heat, deck w/spectacular view, near lake, hiking trails, avail. weekends or weekly. 929-6946 after 6 p.m.

MASTIC - furnished rooms for single man, 10min. to Lab. 281-6099.

Car Pools

COMMACK - driver to join 3-person carpool. Don, Ext. 2043.

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

BRETTONWOODS, CORAM - occasional exchange of rides or regular 2-person carpool. Peter, Ext. 3535.

Lost & Found

FOUND - ladies gloves at service station on site last month. Ext. 4034.

Wanted

HOUSE TO RENT - Bayport/Blue Point area only, 2-3 bdrms. Carol, Ext. 3341 or 567-6433 after 6 p.m.

FLOOR WAXER MACHINE - scrubber with 2 sets of brushes, reasonable cost. 924-5192 eves.

HOUSEMATE - single working female to share house in South Bayport, \$275/mo. pays all. 289-7228 after 5 p.m.

GOOD HOMES - for adorable kittens, some with long hair. Ext. 7009.

CAT CARRIER - w/handle, sturdy construction. 924-5192, eves.

MATTRESS AND BOX SPRING - for full size bed. Joanne, 281-8306.

OLD JEWELRY - clocks, & men's pocket watches, may be req. repairs. Al, Ext. 2047.

APARTMENT - 2 b/r, all util. incl., May 1 occupancy, Shirley, Mastic, Mastic Beach area, no brokers. Joanne, 281-8306 or Tina, 281-6397.

LAWN MOWER - push reel type. Alice, Ext. 2387.

CARTRIDGES - Atari 2600; any hockey goaley equip.; catcher shin guards and chest protector, 289-8212.

64/65 PLYMOUTH VALIANT - for body parts, any model, reasonable. Ext. 2765 or JU1-1509.

BOY SCOUT UNIFORMS - camping equip. for North Bellport troop, donation or re-sale. 289-5235 or 286-9090.

WASHER - for 2 bdrm. apt., wheels needed, cheap, working, good cond. Ext. 3364.

VIOLIN TEACHER - classical for 2 self-starting & experienced children. Ext. 3436 or 727-7741.

IBM SELECTRIC TYPEWRITER - with self-correction feature, dual pitch. Ken, Ext. 4421 or 744-0722.

FILE CABINET - 4 drawer, good cond., reasonable. Joan, Ext. 2549.

AUTO TRAILER - open or enclosed. Fred, Ext. 4988.

BICYCLE - for 8 yr. old boy, prefer hand brakes & 3-speed. 924-3281.

CAMPING & FISHING EQUIPMENT - used. 924-3281.

SALES REPRESENTATIVE - part-time, for employee-owned business. 732-6647 for interview appt.

CELLO - 3/4 size for 10 yr. old. Pat, Ext. 2531 or 727-0547 after 6:30 p.m.

CHINA CLOSET - hutch, secretary - needed for storage. Ext. 3565 or 878-2233 after 6 p.m.

SMALL HOUSE - 2 bdrm., small lot, repairs O.K., principals only. Bill Sanchez, Ext. 3848 or 698-8649.

WATCHES - any condition but reasonably priced, beginning watchmaker, no Timex or quartz. Al, Ext. 2047.

Services

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

HOMEMADE BAKED GOODS - to your order, fresh carrot cakes, banana nut cakes or brownies, free samples. Carol, 289-3917 after 6 p.m.

VW PARTS - full line of orig. equip. replacement parts & accessories at wholesale prices, complete machine shop service for VW. Augie, Ext. 2419 or 289-4211 eves.

POTTERY CLASSES - learn the technique of the potter's wheel, day & evening classes, individual or group lessons, Lab discount. Chris, 744-7585 days or 821-1962 eves.

CREATIVE NAIL DESIGN - by Solar, appointments Mon.-Thur., 10 a.m.-4 p.m. 399-3899.

LIMO SERVICE - chauffeured, luxury Caddy for proms, weddings, airport, night out. Roy, Ext. 4664 or 744-8779.

PAINTING - interior/exterior, wallpaper, paneling, carpentry, free estimates, BNL refs. John, 924-5012.

DOG OBEDIENCE CLASSES - for beginners, Bellport area, start 4/7, 9 wks., \$35. 878-9115 eves.

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

LANDSCAPING - tree cutting, raking, mowing, done at reasonable rates. Raiph, 286-3984 after 5 p