HOTLINE

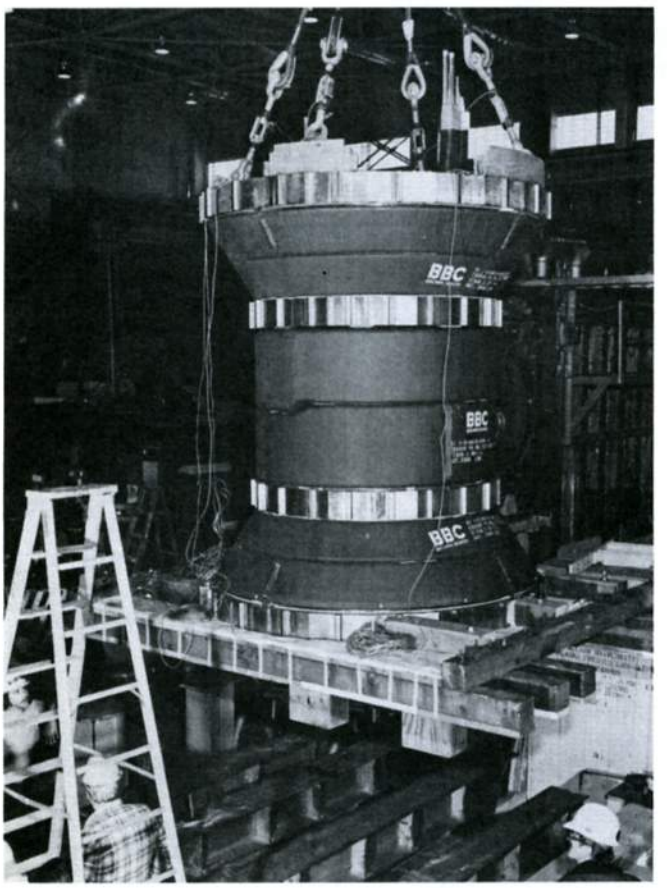
PRINCETON PLASMA PHYSICS LABORATORY

Vol. 3 No. 7 February 22, 1982

ISS/PF Subassembly Readied for Move

Electrical testing of the inner support structure/ poloidal field coil subassembly is underway in the 1-H Building on A-Site. The unit, which will form the "hole" in TFTR's tokamak "doughnut", is expected to be moved to the C-Site test cell by the end of February.

The ISS/PF coil subassembly was delivered to PPL January 27 from the Brown Boveri Corporation's North Brunswick facility, where it underwent final assembly and preliminary testing. The 56,000 pound unit is comprised of the inner support structure, two pairs of ohmic heating coils, and a pair of equilibrium field coils. The ISS was fabricated by Rockwell International's North American Aircraft Operations; the coils were manufactured by Brown Boveri in Zurich, Switzerland.



The overhead crane was used to unload the ISS/PF coil subassembly at the 1-H Building, where the unit is undergoing electrical testing.

The ISS resembles a spool with its cylindrical section bisected by two rings. It consists of four subassemblies, separated by dielectric to reduce eddy currents. It is designed to resist the magnetic centering and overturning forces the poloidal field coils will exert while TFTR operates.

Three pairs of coils were installed around the ISS central column at Brown Boveri. Coils are separated from the ISS by rubber cushions covered with stainless steel. Pillow shims are inserted between each coil, then inflated with epoxy to provide a snug fit for all components and prevent movement during tokamak operation. Studs running from top to bottom of the assembly have been hydraulically tensioned to prevent separation of the horizontal joints during operation.

Strain gauges, which will monitor the behavior of the ISS while TFTR is operating, have been installed by Graham Brown's Material Testing Lab staff. Conditioned signals from the gauges will be transmitted to the control room by CICADA. It is expected that these signals will be used in the determination of test parameters.

Later this month, the ISS will be moved from the 1-H Building to the test cell. The unit will be placed on a latticed framework, allowing workmen access to the bottom of the assembly. It will remain on the framework while lower lead stems are being spliced onto it.

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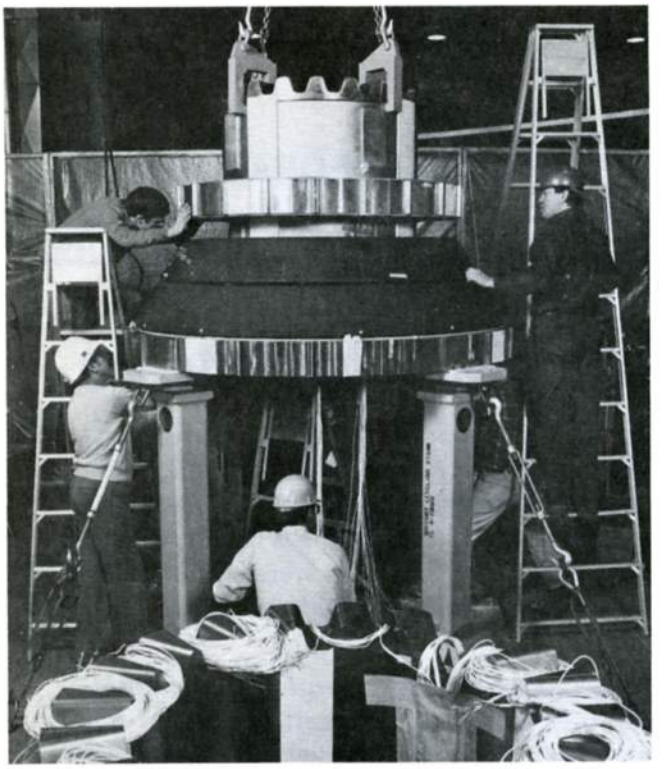
The unit is expected to be installed at the center of the TFTR baseplate in April.



Workmen install the lower inner ring of the ISS/PF coil subassembly onto the lower outer ring of the unit. Stack two coils (already in place) can be seen in the background, and the coiled leads from numerous strain gauges are visible in the foreground.

New "Fellow"

Dr. Mary Shoaf, assistant director of PPL, was elected a Fellow of the American Association for the Advancement of Science (AAAS) during the group's annual meeting in Washington January 7.

A Fellow of the AAAS is described as "a member whose efforts on behalf of the advancement of science or its applications are scientifically or socially distinguished."

Dr. Shoaf said she'd received "thumping satisfaction" from her new fellowship status, adding that "It's gratifying to get the recognition of the scientific community for the work you've done."

Fellowship status is an honor conferred by the AAAS on selected members. Individuals are nominated by committees of the Association's disciplinary sections, the executive officer, or by three other Fellows of the Association. The nominations are then presented to the Council of the AAAS for election.

Dr. Shoaf is a long-standing member of the AAAS. She received her Ph. D. from Purdue University in 1960, and joined the laboratory staff three years ago.

Dr. Mary Shoaf

Cafeteria Changeover

If first week figures are any indication, lunchers at C-Site have given a rousing welcome to Interstate United, the new cafeteria services vendor.

Cafeteria manager Buddy Macrie characterized his first week at PPL as having gone "extremely well". We really have had a great turnout, and a nice response. Our first week was our busiest, and our daily deli special has been doing excellently. People are becoming more conscientious about what they spend their money on, and we're trying to provide something for everyone's pocketbook."

The firm began their operations at C-Site January 25, introducing a daily deli sandwich special served with potato chips, a pickle, and potato salad. The deli special will be continued, as will the home-made soups, the daily choice from two hot entrees, and the grill specials. The salad-bar-by-the-ounce has also worked out well, according to Buddy, who added that the 12 items on the bar will be varied daily.

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Cafeteria

Buddy Macrie

In the future, PPL personnel will be treated to various ethnic lunches (such as Italian Day, Mexican Day, Hungarian Day and so on). "Buddyburgers", the equivalent of a Big Mac, may also be making an appearance on the menu.

An impromptu "picnic" has already been planned for the summer months, complete with a hotdog wagon and a popcorn machine. Buddy's band, the Separations, will play in the cafeteria courtyard throughout the lunch hour. Additional events will be scheduled throughout the year.

Earlybirds visiting the cafeteria for breakfast will also find changes. A daily breakfast special, featuring a variety of breakfast treats throughout the month, are available.

Buddy recommended that anyone who has a favorite food they'd like to see on the cafeteria menu call or write the cafeteria with the suggestion.

Jean Cawley, district manager for Interstate United pointed out that the firm replaced all the china and silverware in the cafeteria when they took over. "Loss has been a very big problem here in the past," she said, "and we'd like to keep spending our money on food, not on replacing utensils."

Jean asked that cafeteria users who take food back to their offices request special takeout platters. The styrofoam trays feature a lid that encloses the entire plate, keeping food warm in transit. Pies are also available in plastic containers for take-out.

The cafeteria has the capability to cater meetings, dinners or Christmas trays. Those interested in these services should contact Buddy for more information.

Interstate United has also installed a bank of new vending machines at C-Site. A sandwich machine and a condiment stand complete the area.

One of the changes in the vending machines is the soda machine, which now dispenses soft drinks by the cup rather than by the can. Jean explained that using cup soda has reduced the price from 35 cents per can to 25 cents per cup, while maintaining the same amount of soda. Non-spill lids for soda and coffee cups are located in a rack attached to the soda machine.

Buddy and Jean both expressed their thanks to the cafeteria workers, Maintenance and Security for helping smooth the transition between vendors. They also praised their clientele, characterizing them as "helpful and very friendly. People have called up up and told us what a good job we're doing, and we appreciate that. It helps us keep our morale up!"

Plot Program

Plowing of PPL's garden plots in preparation for another season of growing is scheduled for the near future. Before plowing can be done, however, past gardeners must clean out their plots.

Employees who used a garden plot last year are asked to remove all stakes, sticks, screening or fencing from their plots as soon as possible. Details on this year's garden plot program will be published in upcoming editions of the HOTLINE.

A workman welds support blocks onto the lifting frame holding coil stack number nine. The blocks allow the frame to be tilted while holding the coil securely in place, preventing damage.

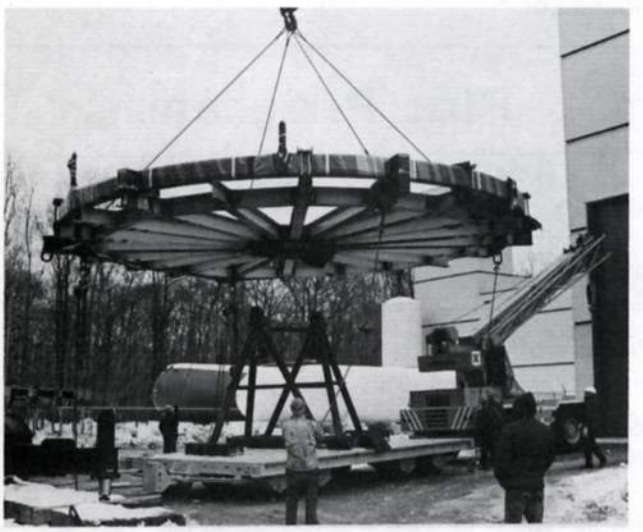
Coil Montage

Coil stack number nine, the most massive coil assembly ever produced by the PPL Coil Shop, made its journey from the 1-K Coil Shop to the TFTR test cell January 25. There it joined two other lower poloidal coil system stacks, manufactured at PPL and already delivered.

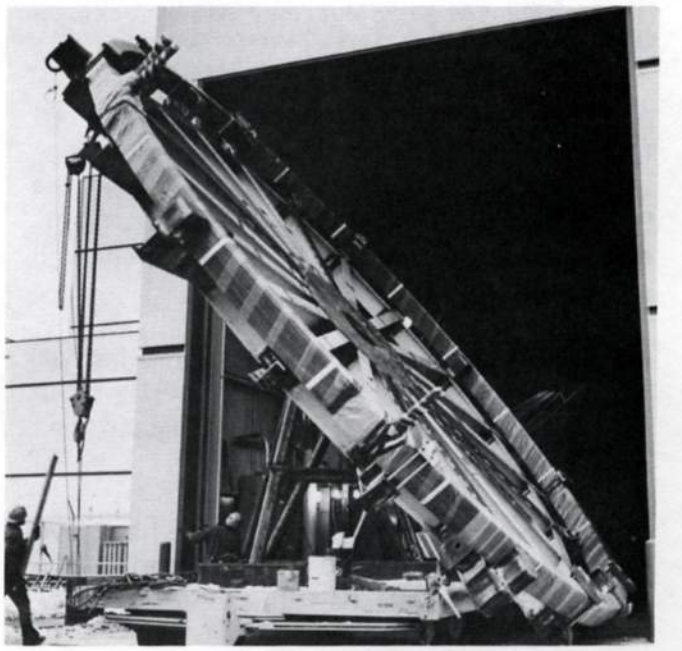
The stack, which contains equilibrium, ohmic heating and variable correction coils, was mated to a transport fixture prior to its trip across campus. It had to be turned upside down upon arrival at the test cell, so that coil leads would extend into the basement of the building. There, ten foot long conductors will be brazed onto the coil leads and connected to basement buswork.

Although our photo montage documents the move of stack nine, the procedure used for all lower coils is similar.

The coil stack on the frame, ready to be lifted.

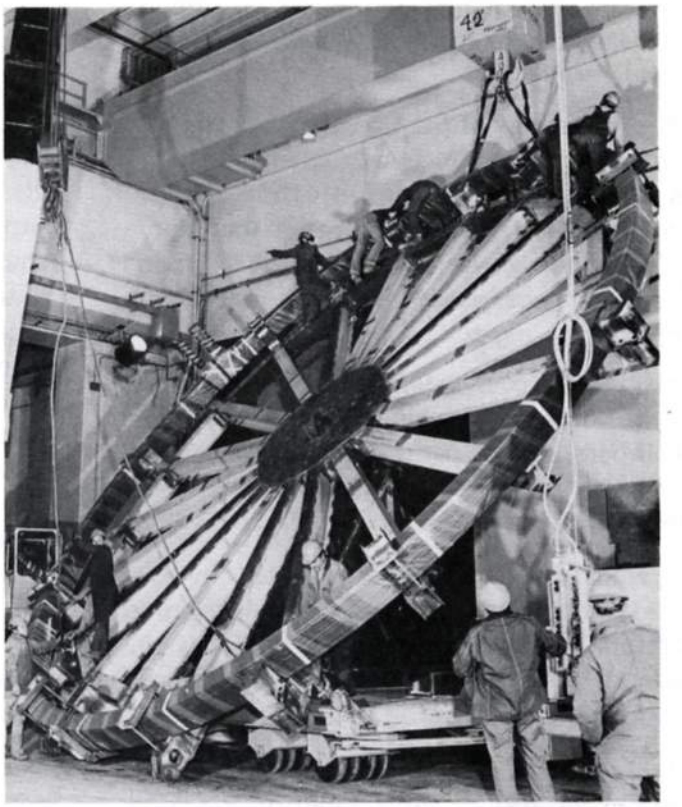


The coil and frame assembly are placed onto a pivoting fixture, mounted on a flatbed truck, to be taken into the TFTR test cell. The total weight involved in this lift is approximately 61,000 pounds.

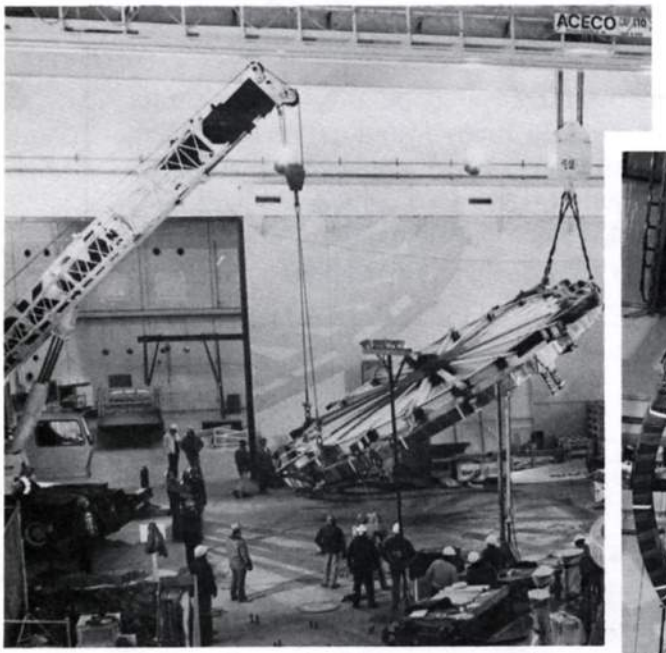


The coil stack, which weighs approximately 12 tons and has a 33 foot outer diameter, had to be tilted on its side in order to pass through the outer door of the TFTR Mockup Building.

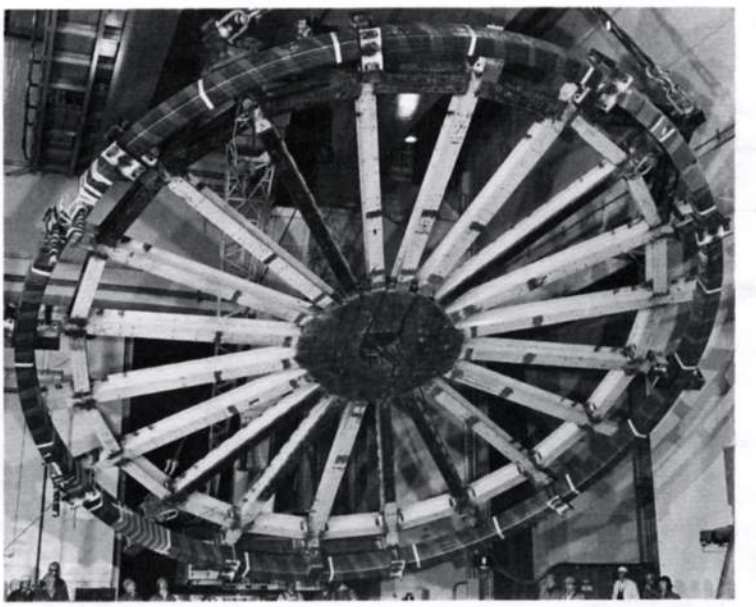
Despite the rather tight fit, the coil was safely moved through a second doorway connecting the mockup area with the test cell.



Workmen scaled the lifting frame in order to attach the coil to the test cell's 110-ton capacity overhead crane.



Once attached to the overhead crane, a second crane was needed to help flip the massive coil stack over.



The upside-down coil dwarfs the workers it is suspended over. It was eventually placed on a storage frame to await installation on the TFTR baseplate.

Recycling Begins

February 22 marks George Washington's birthday and the beginning of PPL's new waste paper recycling program.

PPL is the first sector of the University to begin such a recycling program. Recyclable paper constitutes approximately 43 percent of PPL office waste material. It has been estimated that the laboratory could recover approximately $70 per ton of recycled paper, which would be returned to PPL's operating budget.

In addition to the cost benefit, recycling paper uses 60 percent less energy, saving approximately two and a half barrels of oil per ton of paper produced. Recycling also helps conserve space for other waste materials in landfills.

Folders, which should be kept on the desk for saving white office waste paper, have been distributed to laboratory employees. Used white paper, which includes letterhead, copier paper, notepad paper, and so on, is stored flat in the folder.

When full, employees will empty their folders into bins located throughout the laboratory. Bins will be emptied periodically by the building maintenance staff, who will pack the paper into bundles for transportation to the recycling center.

Recycled paper must be stored flat, not crumpled, for ease of handling. The present program includes only white office paper, not newspapers or magazines.

Any questions concerning the program should be directed to your supervisor or to Maintenance, ext. 3595.

Travel Tips

A Princeton University ID card can do more than most travelers might think. That little card can be a ticket to reduced hotel rates when traveling on laboratory business.

Travel Services has corporate rate and guaranteed rate agreements with a number of hotels. Corporate rate covers a special room rate, not available to the general public. A guaranteed rate means the quoted room rate is the maximum that will be charged, even if accommodations are usually sold at a higher rate.

Corporate rate agreements currently exist between Travel Services and the Holiday Inn, Quality Inn, and Howard Johnson hotel chains. Corporate rate discounts are available from the Travelodge chain, and the Sheraton, Marriott, Hyatt and Hilton hotel chains provide government or faculty rates. Smaller hotels nationwide that are not members of a hotel chain often will provide government discounts for laboratory travelers.

In cases where two discount room rates are available, Travel Services will request the lower rate. Travelers should verify the specified rate at the time of checkin, and they may be asked to show their University ID or a special hotel ID card.

For further information on discount accomodations when traveling, contact Travel Services, ext. 2657.

Cafeteria Note

Due to the increased popularity of the C-Site cafeteria, crowded conditions often exist on the cafeteria line at noon. Employees are asked to stagger their lunch hours between 11:30 a.m. (when the cafeteria opens) and 1:30 p.m. (when it closes) to help alleviate the problem.

Training Program

For eight hours every week, ten members of the PPL Plant Engineering section learn new skills or sharpen old ones by attending an in-house educational program developed by TPC Training Systems of Barrington, Illinois. Classes meet Monday through Thursday from 8 to 10 a.m.

The training program has been in operation for several years, and is open to any laboratory

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employee. Students in the program, which is fully paid for by PPL, receive permission to spend four hours per week of laboratory time in class. It is required that an additional two hours per week be spent in home study.

The courses currently being offered include Maintenance Fundamentals, Mechanical Maintenance, Electrical Maintenance, and Maintenance Shop Practices. Future courses will include Air Conditioning, Maintenance Welding, Boiler Operation and Refrigeration Maintenance.

Each course consists of 10 distinct units. Since lessons are self-taught under supervision, each student can work at his or her own pace. Students test themselves before beginning each course, and are also tested after each course unit. Completion certificates are awarded at the end of each course, which takes an average of 33 weeks to finish.

Students enrolled in the current training program include Michael Suydam, John Kish, Jack Thompson, Michael Burgess, Larry Berry, Steve Wilson, Kirk Garvin, Richard McDonough, Jules Nemeth and John Sadovy.

Jules Nemeth (right) takes a chapter test while Rich McDonough (left) continues his reading during an in-house training program class. Students work at their own pace in the courses, which offer individualized instruction in a number of fields.

According to Tom Hurley, training instructor for the program, "response has been very good. This session has been running since September, and the first group of participants is now about halfway through their courses. Inquiries have been coming in from many other shop employees who would like to be enrolled in future classes. We want people to know the courses are available, and that the training will benefit the individual as well as the laboratory."

Anyone interested in more information on the training program should contact Tom at ext. 3107. Supervisor approval is required prior to enrolling in the program.

Committee Elected

Don Hay was named chairman of the Advisory Committee for the Princeton University Plasma Physics Laboratory Engineering and Scientific Staff during elections held January 14. Dan Huttar, Larry Michaels, Charlie Staloff, Marilee Thompson and Phil Thompson were all chosen for one-year terms on the committee.

The major functions of the Advisory Committee include:

Communications with Staff members, as well as between the Staff and other components of the laboratory and the University at large, particularly regarding policies concerning all aspects of the Staff's conditions of employment.

Communications with the laboratory Director and Laboratory Council about issues of concern to the Staff as deemed appropriate.

Supervision of the election of Staff representatives to laboratory and University groups and committees which do not have established election procedures.

Members of the Engineering and Scientific Staff are encouraged to bring matters which affect this group to the attention of any member of the advisory committee. The committee will assess the significance and nature of the concern. Those items found to be worthy and of interest to the staff in general will be brought to the attention of the appropriate management element. The committee also reviews proposed policy and helps management obtain a preview of employee reaction to proposed policy changes.

The PPL Hotline is issued by the Princeton University Plasma Physics Laboratory, a research facility supported by the U. S. Department of Energy. Correspondence should be directed to PPL Information Services, Module 2, C-Site, James Forrestal Campus, ext. 2754.

Award Winner

Ellie Weed

PPL Sub-Contractor Administrator Mrs. Eleanore Weed was one of 18 businesswomen honored by the Raritan Valley Chambers of Commerce during their annual awards dinner for "Women in Business and Industry."

Mrs. Weed, who has been with the University since 1964, received an appreciation award from the group. The award cites her "significant contributions to the Raritan Valley business community." She said the award "came as a suprise, and a delightful one."

Ellie has been associated with the Princeton Education Center at Blairstown for seven years, serving as fundraiser for the organization. She has been ticket co-chairman for the Blairstown Potpourri since 1975, and has also been active in fundraising efforts for St. Augustine's Church and the Consolata Fathers mission.

A member of the National Contract Management Association, Ellie operated her own real estate office from 1954 through 1957. She was the first woman to become an associate member of the Society of Residential Appraisers of New York, Chapter 3.

She received a citation from President Harry Truman for her volunteer work with veterans at Valley Forge General Hospital during World War II. She also served as vice chairperson of blood donors for the Paoli Branch, Southeastern Chapter of the American Red Cross during the war years.

Safety Stickers

In order to comply with laboratory safety requirements, every telephone should have an emergency sticker on it. To obtain a sticker, call Marjorie Barnett at ext. 2694.

Bicycling Survey

Attention all bicyclists! Do you ride on West Windsor roads to get to PPL? If you do, the West Windsor Pedestrian and Bicycle Access Committee wants to hear from you.

Where do you start from, and what West Windsor roads do you use? Why have you chosen your particular route? Are there any dangers on the roads you ride? Are there roads you'd like to ride but don't because you feel they are unsafe?

Please send the answers to these question, along with any other comments or suggestions regarding bicycling on West Windsor roadways, to Carol Silvester, PDX.

Health Insurance Review

If you or your spouse will soon celebrate a 65th birthday, the time has come to review your health insurance coverage.

As most of you are aware, at age 65 Medicare becomes your primary funding source for medical expenses. As a Medicare recipient you are no longer eligible to receive benefits from Blue Cross/Blue Shield. However, New Jersey Blue Cross/Blue Shield does offer supplemental coverage at substantially reduced rates. This coverage is termed "Medicare Carve-Out".

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To enroll for "Carve-Out", you will receive notification from the Personnel Office, Benefits Section approximately three months prior to your 65th birthday. Anyone who is eligible and has not been notified, please call Eleanor Schmitt on ext. 2046.

Test Probe Shock Hazard

Users of portable electrical instruments, such as Simpson and Triplett multimeters, are advised to inspect the test probes supplied with such instruments to insure that they are safe to use with hazardous voltages. A defect and possible shock hazard has been found in probes of inferior design, which have been furnished with recently purchased instruments. The hazard arises because plastic insulation over the probe conductor tends to split, exposing the conductor in the probe.

Users of the Simpson Model 260 multimeter and similar instruments should refer to their manuals for safe operating instructions.

Safety  Glasses

A revised schedule for laboratory visits from the Fend-All Company optician, as part of the laboratory's safety glasses program, has been issued. The representative will be at PPL on February 9, March 9, April 6, May 4, June 1, July 13, August 10, September 7, October 5, November 2 and December 14.

Anyone interested in further information on the safety glasses program should contact Dick Carlese at Health and Safety, ext. 2533.

Retirement Benefits

Although you've retired from the University, your University medical benefits will keep working for you.

If you have worked for the University for at least 10 years and are at least age 55, you may retire from the University. If you retire at age 62 or later, the medical coverage you have at the time of retirement will continue free of charge for the rest of your life. For example, if you have Blue Cross/Blue Shield on yourself and your spouse (regardless of whether you had paid all or part of the coverage), at age 62 the Blue Cross/Blue Shield and Major Medical will continue free of charge for both of you for the rest of your lives.

If you retire before age 62, you may continue your Blue Cross/Blue Shield coverage by paying for it until age 62—at which time the University will pay for the coverage. Even if you retire before age 62, Major Medical will continue to be free of charge for you and your eligible dependents throughout your retirement years.

Life insurance coverage ceases 31 days after retirement. If you wish, you may convert the value of your group life insurance policy to an individual policy when you retire by contacting a local Prudential Insurance Company office.

Requests for continued use of University identification cards and the benefits associated with the cards should be directed to Rebecca Goodman, Administrative Services, in New South Building on main campus.

For further information on retirement benefits, contact Len Thomas in Personnel, Sayre Hall, ext. 2052.

Sewing Group

Those interested in sewing, or in learning new sewing techniques, now have the opportunity to do so via the Princeton University League's new sewing group.

The group meets each Wednesday from noon to 2 p.m. in the Dorothy Brown Room of the league office, 171 Broadmead. It is open to people of all sewing abilities, and will frequently feature guest experts giving demonstrations of specific sewing skills.

This is just one of the many league-sponsored daytime and evening interest groups, which include groups for bridge, gardening and piano. For more information about the groups, call the league office at 452-3650.

LLN Superconducting Magnet Sucessfully Tested

The first of two sets of superconducting "Yin-Yang" magnets for the Mirror Fusion Test Facility (MFTF-B) passed initial operational tests at Lawrence Livermore National Laboratory on February 4. The magnet met its full design operating current of 5,777 amperes. The maximum magnetic fields produced were as predicted: 77,000 gauss at the conductor, over 40,000 gauss at the edge of the magnetic mirror, and 20,000 gauss at its center.

The two C-shaped interlocked coils contain over 31 miles of windings. The coils are immersed in liquid helium at a temperature of 4.5^{o} Kelvin (about 452^{o} below zero Farenheit) to all but eliminate conductor electrical resistance. The magnet system consumes only 1,300 watts of electrical energy during operation; 100 watts are used by the magnet itself, and 1,200 watts are required by the electrical leads.

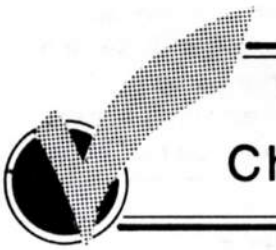
The stresses and strains on the magnet structure were also as predicted—up to 80,000 pounds per square inch—and well within the limits of the materials holding the magnets in place.

The Yin-Yang magnet with its support rods weighs 789,000 pounds, stands 25 feet high, and hangs inside the 36-foot diameter, 60-foot long MFTF vacuum vessel. Each coil is encased in 304 LN stainless steel up to 5 inches thick to withstand the exceptionally high magnetic forces. Fabrication of the superconductor using niobium-titanium filaments in a copper matrix is the result of several years of development at LLNL.

MFTF-B is expected to begin operating in late 1985.

ArtExhibit

An exhibit of artworks by Catherine Louis will be on display in the Dorothy Brown Room of the Princeton University League from February 21 through March 19. The league offices are located at 171 Broadmead, and are open from 9 a.m. to 1 p.m. Monday through Friday.



Security Checkpoints

(This is the second of three installments, outlining security tips for PPL employees) While at home:

- Safeguard your personal property (TV, stereo, typewriter) by engraving your driver's license on it.
- If an intruder gains entry to your home, *Don't Confront Him*—call the police.
- Have a peep hole installed in solid doors, and check all visitors before opening the door.
- Inventory your home with photographs.
- Consider installing a security alarm system if you live in a secluded area, or have an unusual amount of valuable property.
- If you get an unusual number of suspicious wrong number calls or "empty line" calls, notify the police.
- Locks are no good unless you use them. While in the backyard or at a neighbor's, a burglar could enter your home; it only takes a minute!
- Watch while having extra keys made, and wait for the keys.
- Be alert in protecting your neighbor's homes as well as your own.
- If you see or hear a prowler, *Call The Police.*
- Don't tell a stranger that a neighbor is away.
- Women living alone should list only their last name and initials on mailboxes and in telephone directories.
- Write down license plate numbers of suspicious vehicles.
- In the event of a death in the family, do not leave your home unattended.
- If a thief has to make noise to enter your home, he won't take the risk. Make it difficult for him!